Microbac

Laboratory Report Number: L17081305

Shane Lowe
CH2MHILL, Inc
CH2MHILL
Richmond Heights, MO 63117

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Michelle Taylor – Client Services Specialist
(740) 373-4071
Michelle.Taylor@microbac.com

I certify that all test results meet all of the requirements of the accrediting authority listed below. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

This report was certified on September 11 2017

Leslie Bucina – Managing Director

State of Origin: NY
Accrediting Authority: Department of Health ID:10861
QAPP: WATERLOO

Microbac

Lab Report #: L17081305
Lab Project #: 2736.061
Project Name: DOW WATERLOO GW
Lab Contact: Michelle Taylor

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

The following discrepancies were noted:

Discrepancy	Resolution
The sample(s) were out of the acceptable pH range. CLS MW31-082317 : the pH is out on this sample ID due to the matrix of the sample. We will let the lab know that they are to attempt to adjust the samples. CLS	Please have the lab attempt to adjust and proceed. MRT

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00114647	I	4.0		1001891773460004575000770011905000	X
00113573	I	5.0		1001891773460004575000770012081985	X
00113540	I	3.0		1001891773460004575000770012050688	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	No
12	Were VOA samples free of headspace (less than 6mm)?	Yes

Microbac

Lab Report #: L17081305
Lab Project #: 2736.061
Project Name: DOW WATERLOO GW
Lab Contact: Michelle Taylor

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
PZ06-082317	L17081305-01	08/23/2017 09:42	08/24/2017 11:16
PZ06-082317	L17081305-02	08/23/2017 09:42	08/24/2017 11:16
PZ04-082317	L17081305-03	08/23/2017 10:58	08/24/2017 11:16
PZ04-082317	L17081305-04	08/23/2017 10:58	08/24/2017 11:16
DUP-GW-082317-1	L17081305-05	08/23/2017 09:00	08/24/2017 11:16
DUP-GW-082317-1	L17081305-06	08/23/2017 09:00	08/24/2017 11:16
TB-082317	L17081305-07	08/23/2017 08:00	08/24/2017 11:16
MW31-082317	L17081305-08	08/23/2017 10:35	08/24/2017 11:16
MW31-082317	L17081305-09	08/23/2017 10:35	08/24/2017 11:16
MW30-082317	L17081305-10	08/23/2017 12:40	08/24/2017 11:16
MW30-082317	L17081305-11	08/23/2017 12:40	08/24/2017 11:16
MW11S-082317	L17081305-12	08/23/2017 13:55	08/24/2017 11:16
MW11S-082317	L17081305-13	08/23/2017 13:55	08/24/2017 11:16
MW09R-082317	L17081305-14	08/23/2017 14:40	08/24/2017 11:16
MW09R-082317	L17081305-15	08/23/2017 14:40	08/24/2017 11:16
DUP-GW-082317-2	L17081305-16	08/23/2017 09:30	08/24/2017 11:16
DUP-GW-082317-2	L17081305-17	08/23/2017 09:30	08/24/2017 11:16
FB-082317	L17081305-18	08/23/2017 15:00	08/24/2017 11:16
MW19-082317	L17081305-19	08/23/2017 15:35	08/24/2017 11:16
MW19-082317	L17081305-20	08/23/2017 15:35	08/24/2017 11:16

Microbac REPORT L17081305
PREPARED FOR CH2MHILL, Inc
WORK ID:

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1.0 Summary Data

1.1 Narratives

Login Number: L17081305
Department: Semivolatiles
Analyst: Sarah Bogolin

METHOD

Preparation 3510C

Analysis SW-846 8270C

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: The percent difference was out of range for the following analytes: Benzoic Acid. Please see the applicable QC report for a detailed presentation of the failures.

Continuing Calibration and Tune: Recoveries out of range were observed for the following analyte: Benzoic Acid. Please see the applicable QC report for a detailed presentation of the failure.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: Recoveries out of range were observed for the following analytes: 1,4-Dioxane failed low in the LCS/LCSD, 2,4-Dinitrophenol and Benzoic Acid exceeded % RPD criteria only, Dimethylphthalate and Isophorone failed high in the LCSD but were acceptable in the LCS and non-detect in the associated samples. Please see the applicable QC report for a detailed presentation of the failures.

Sample #	Analyte	Date	Result	Lower	Upper	Type

WG627291-02	1,4-Dioxane	2017-08-29 11:25:00	43.0	50	150	Recovery
WG627291-03	1,4-Dioxane	2017-08-29 11:57:00	47.0	50	150	Recovery
WG627291-03	2,4-Dinitrophenol	2017-08-29 11:57:00	52.3		30	RPD
WG627291-03	Benzoic Acid	2017-08-29 11:57:00	49.8		30	RPD
WG627291-03	Dimethylphthalate	2017-08-29 11:57:00	114	25	112	Recovery
WG627291-03	Isophorone	2017-08-29 11:57:00	116	30	110	Recovery

Matrix Spikes: There were no MS/MSD results associated with this sample delivery group, due to insufficient volume of sample. The laboratory included an LCS and LCS duplicate in the preparation batch in lieu of the NELAC prescribed MS/MSD. Microbac recommends site specific MS/MSD samples to avoid possible data qualification.

SAMPLES

Samples: All acceptance criteria were met. The extracts were library searched using the NIST library and the top twenty TICs found were reported. Requested acid compounds listed as TICs in the Waterloo QAPP may not have been detected due to unknown extraction efficiency and chromatographic performance.

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data

contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128920
Approved By: Mary Schilling

Login Number: L17081305
Department: Semivolatiles
Analyst: Lacey Hendershot

METHOD

Preparation 3510C

Analysis SW-846 8270 SIM

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

SAMPLES

Samples: All acceptance criteria were met.

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

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Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

Narrative ID: 128800
Approved By: Mary Schilling

Login Number: L17081305
Department: Metals
Analyst: Kerri Buck

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6010

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG627458 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: WG627458 - Client samples 03, 05, 08, 10, 12, 14, and 16 required dilution analysis in order to obtain a result for sodium within the linear range.

Narrative ID: 128772
Approved By: Kim Rhodes

Login Number: L17081305
Department: Metals
Analyst: Ji Hu

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6020

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

Low Level Check: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG627431 - All acceptance criteria were met.

WG627433 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: WG627433 - Client samples 12 and 13 required dilution analyses in order to obtain results for arsenic within the linear range. Due to the dark color of the digestate and high levels of nontarget analytes which can contribute to undercorrected interferences and instrument malfunctions, client samples 08 and 09 were analyzed at dilutions for all analytes.

Narrative ID: 128821
Approved By: Kerri Buck

Login Number: L17081305
Department: General Chromatography
Analyst: Craig Smith

METHOD

Analysis EPA300.0/SW846 9056

HOLDING TIMES

Sample Analysis: Hold times for NO2 and NO3 are 48 hours and the hold times for F, Cl, Br, and SO4 are 28 days. The hold time forms calculate the hold time based on 48 hours. All samples were analyzed in hold.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The client did not specify an MS/MSD for this sample delivery group. The laboratory selected sample 03 for MS/MSD analysis and recoveries out of range were observed for chloride and sulfate. Please see the applicable QC report for a detailed presentation of the failures.

Sample 03 initially contained amounts of chloride and sulfate greater than that of the MS/MSD spiking solution.

SAMPLES

Samples: Samples 01, 03, 08, 10, and 12 were analyzed at dilutions only due to their pre-run screen results for CL which were greater than 200 ppm. Any sample that has a single anion load greater than 200 ppm will be diluted in order to prevent damage to the ion chromatograph, which is caused by repeated overloading of the analytical column and oversaturation of the conductivity suppressor and/or detector.

MANUAL INTEGRATION: Sample 03 (Dup, MS, MSD) were manually integrated. Reason #4: System Establishes Incorrect Baseline- The system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Sample 08 was manually integrated. Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.

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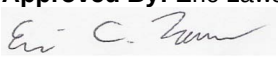
Narrative ID: 128746
Approved By: Eric Lawson



Login Number: L17081305
Department: Conventionals
Analyst: Todd Boyle

METHOD

Analysis EPA 310.2 (Alkalinity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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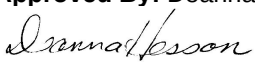
Narrative ID: 128891
Approved By: Deanna Hesson



Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 350.1/SM4500-NH3 B(NH3)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 128892
Approved By: Deanna Hesson

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: The instrument used for the analysis of nitrate only analyzes for nitrate-nitrite (NO3NO2) which is the amount of total nitrate (NO3) and nitrite (NO2) combined. The NO3 concentration is determined by analyzing for NO3NO2 and NO2 and calculating NO3 by the difference. An unpreserved bottle only has a 48 hour hold time for NO3 and NO2 separately. However if the bottle is preserved with sulfuric acid, the hold time for NO3NO2 is 28 days. The NO2 was analyzed within 48 hours. The NO3NO2 was analyzed from a preserved container within 28 days..

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: The samples were diluted to reduce matrix interference. The reporting limits are elevated accordingly.

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Narrative ID: 128819
Approved By: Deanna Hesson

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 365.4 (Phosphorus)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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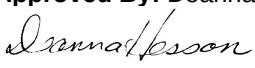
Narrative ID: 128893
Approved By: Deanna Hesson



Login Number: L17081305
Department: Conventionals
Analyst: April Greene

METHOD

Analysis EPA 365.2/SM4500-P E (Orthophosphate)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: The samples were diluted to reduce matrix interference. The reporting limits are elevated accordingly.

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Narrative ID: 128872
Approved By: Deanna Hesson

Login Number: L17081305
Department: Conventionals
Analyst: Todd Boyle

METHOD

Analysis SW-846 9030/EPA 376.1/SM4500-S(-2) F (Sulfide)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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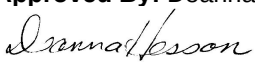
Narrative ID: 128896
Approved By: Deanna Hesson



Login Number: L17081305
Department: Conventionals
Analyst: April Greene

METHOD

Analysis EPA 160.1/SM2540 C(Total Dissolved Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 128897
Approved By: Deanna Hesson

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 351.2(TKN)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

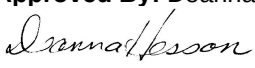
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128894
Approved By: Deanna Hesson



Login Number: L17081305
Department: Conventionals
Analyst: April Greene

METHOD

Analysis Water: EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)
Soil: Lloyd-Khan Methodology

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128895
Approved By: Deanna Hesson

1.2 Certificate of Analysis

Certificate of Analysis

Sample #:	L17081305-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	PZ06-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 20:45
Collect Date:	08/23/2017 09:42	**Dilution:**	1	**File ID:**	9M982227
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
Sulfur dioxide		57.9		0.000	0.000

Sample #:	L17081305-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	PZ06-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 20:45
Collect Date:	08/23/2017 09:42	**Dilution:**	1	**File ID:**	9M982227
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	14.1		10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3	0.613	J	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	103	80	120	
Dibromofluoromethane	101	86	118	
p-Bromofluorobenzene	108	86	115	
Toluene-d8	103	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 16:47
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** T4.082817.164702
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5	1.89		0.200	0.100
Calcium, Total	7440-70-2	35.6		0.500	0.250
Iron, Total	7439-89-6	2.21		0.100	0.0500
Magnesium, Total	7439-95-4	6.71		0.500	0.250
Manganese, Total	7439-96-5	0.0811		0.0100	0.00500
Potassium, Total	7440-09-7	4.82		1.00	0.500
Silica, Calculated as SiO2		18.2		2.14	1.07
Silicon, Total	7440-21-3	8.48		1.00	0.500
Sodium, Total	7440-23-5	172		0.500	0.250

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 15:56
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** NI.082917.155648
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00820		0.00100	0.000500
Chromium, Total	7440-47-3	0.00486		0.00200	0.00100

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: PZ06-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/25/2017 22:34
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** I3_082517-17
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	77.7	E	0.200	0.100
Sulfate	14808-79-8	65.9		1.00	0.500

E	Semiquantitative result (out of calibration range)

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: PZ06-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/25/2017 22:55
Collect Date: 08/23/2017 09:42 **Dilution:** 10 **File ID:** I3_082517-18
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	91.9		2.00	1.00
Sulfate	14808-79-8	65.7		10.0	5.00

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:30
Collect Date: 08/23/2017 09:42 **Dilution:** 2 **File ID:** S2170828002.018
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	362		40.0	20.0

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 10:52
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:12
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** S2170830002.025
Sample Tag: 02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	0.978		0.100	0.0500

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 09:42 **Dilution:** 5 **File ID:** S217082916555701
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8	0.270		0.250	0.125

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 09:42 **Dilution:** 5 **File ID:** S217082916560401
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)		0.300		0.250	0.125

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ06-082317 **Prep Method:** 365.4 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 365.4 **Cal Date:** 08/29/2017 13:50
Workgroup #: WG627646 **Analyst:** TMM **Run Date:** 08/29/2017 13:57
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** SC170829002.017
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	0.195	J	0.200	0.100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** UV-2600
Client ID: PZ06-082317 **Prep Method:** SM4500-P-E-1999 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-P-E-1999 **Cal Date:** 06/07/2017 15:40
Workgroup #: WG627241 **Analyst:** ADG **Run Date:** 08/24/2017 15:30
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** 00.1708241530-06
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	0.0439	J	0.0500	0.0250

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** BURET
Client ID: PZ06-082317 **Prep Method:** SM4500-S-(-2)-F-2000 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-S-(-2)-F-2000 **Cal Date:**
Workgroup #: WG627453 **Analyst:** TB **Run Date:** 08/28/2017 14:00
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** ET.1708281400-04
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	7.43		1.40	0.700

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** OVEN
Client ID: PZ06-082317 **Prep Method:** 160.1/SM2540C **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM2540-C-1997 **Cal Date:**
Workgroup #: WG627272 **Analyst:** AWE **Run Date:** 08/25/2017 12:36
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** EN.1708251236-12
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		792		20.0	10.0

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ06-082317 **Prep Method:** 351.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 351.2 **Cal Date:** 08/29/2017 10:28
Workgroup #: WG627533 **Analyst:** TMM **Run Date:** 08/29/2017 10:42
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** SC170829001.023
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9	0.390		0.200	0.100

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** TOC-VWP
Client ID: PZ06-082317 **Prep Method:** SM5310-C-2011 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM5310-C-2011 **Cal Date:** 02/10/2017 10:25
Workgroup #: WG627555 **Analyst:** ADG **Run Date:** 08/29/2017 11:24
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** TC08292017.008
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	8.52		1.00	0.500

Sample #: L17081305-02 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 16:50
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** T4.082817.165042
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Manganese, Dissolved	7439-96-5	0.0205		0.0100	0.00500
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-02 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 15:59
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** NI.082917.155953
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00387		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00114	J	0.00200	0.00100
J	The analyte was positively identified, but the quantitation was below the RL.				

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** HPMS9
Client ID: PZ04-082317 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627475 **Analyst:** JDS **Run Date:** 08/28/2017 21:16
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** 9M982228
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfur dioxide		37.4		0.000	0.000
unknown		26.4		0.000	0.000
unknown		20.8		0.000	0.000
unknown		11.0		0.000	0.000
unknown		6.33		0.000	0.000
unknown		7.02		0.000	0.000

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** HPMS9
Client ID: PZ04-082317 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260C **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627475 **Analyst:** JDS **Run Date:** 08/28/2017 21:16
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** 9M982228
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.73	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0	7.07		1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3	1.16		1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1	0.965	J	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	103	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	108	86	115	
Toluene-d8	100	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-03
Client ID: PZ04-082317
Matrix: Water
Workgroup #: WG627458
Collect Date: 08/23/2017 10:58
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3015A
Analytical Method: 6010C
Analyst: KKB
Dilution: 1
Units: mg/L

Instrument: ICP-THERMO4
Prep Date: 08/28/2017 07:16
Cal Date: 08/28/2017 11:39
Run Date: 08/28/2017 16:54
File ID: T4.082817.165423

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5	0.120	J	0.200	0.100
Calcium, Total	7440-70-2	73.8		0.500	0.250
Iron, Total	7439-89-6	0.0929	J	0.100	0.0500
Magnesium, Total	7439-95-4	14.8		0.500	0.250
Manganese, Total	7439-96-5	0.0160		0.0100	0.00500
Potassium, Total	7440-09-7	15.1		1.00	0.500
Silica, Calculated as SiO2		69.2		2.14	1.07
Silicon, Total	7440-21-3	32.3		1.00	0.500

J	The analyte was positively identified, but the quantitation was below the RL.

Certificate of Analysis

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:18
Collect Date: 08/23/2017 10:58 **Dilution:** 5 **File ID:** T4.082917.151827
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	1110		2.50	1.25

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:02
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** NI.082917.160259
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00102		0.00100	0.000500
Chromium, Total	7440-47-3	0.00794		0.00200	0.00100

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: PZ04-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/25/2017 23:15
Collect Date: 08/23/2017 10:58 **Dilution:** 20 **File ID:** I3_082517-19
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	364		4.00	2.00
Sulfate	14808-79-8	983		20.0	10.0

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ04-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:30
Collect Date: 08/23/2017 10:58 **Dilution:** 10 **File ID:** S2170828002.019
Sample Tag: DL01 **Units:** mg/L

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	1270		200	100

Sample #:	L17081305-03	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	PZ04-082317	**Prep Method:**	350.1	**Prep Date:**	08/29/2017 11:27
Matrix:	Water	**Analytical Method:**	350.1	**Cal Date:**	08/30/2017 09:56
Workgroup #:	WG627554	**Analyst:**	TMM	**Run Date:**	08/30/2017 10:14
Collect Date:	08/23/2017 10:58	**Dilution:**	2	**File ID:**	S2170830002.026
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	5.87		0.200	0.100

Sample #:	L17081305-03	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	PZ04-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 10:58	**Dilution:**	25	**File ID:**	S217082916561301
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	1.25	0.625

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-03	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	PZ04-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 10:58	**Dilution:**	25	**File ID:**	S217082916560801
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	1.25	0.625

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ04-082317 **Prep Method:** 365.4 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 365.4 **Cal Date:** 08/29/2017 13:50
Workgroup #: WG627646 **Analyst:** TMM **Run Date:** 08/29/2017 13:57
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** SC170829002.018
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	0.296		0.200	0.100

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** UV-2600
Client ID: PZ04-082317 **Prep Method:** SM4500-P-E-1999 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-P-E-1999 **Cal Date:** 06/07/2017 15:40
Workgroup #: WG627241 **Analyst:** ADG **Run Date:** 08/24/2017 15:30
Collect Date: 08/23/2017 10:58 **Dilution:** 50 **File ID:** 00.1708241530-08
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2		U	2.50	1.25
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** BURET
Client ID: PZ04-082317 **Prep Method:** SM4500-S-(-2)-F-2000 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-S-(-2)-F-2000 **Cal Date:**
Workgroup #: WG627453 **Analyst:** TB **Run Date:** 08/28/2017 14:00
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** ET.1708281400-05
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	169		1.00	0.500

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** OVEN
Client ID: PZ04-082317 **Prep Method:** 160.1/SM2540C **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM2540-C-1997 **Cal Date:**
Workgroup #: WG627272 **Analyst:** AWE **Run Date:** 08/25/2017 12:36
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** EN.1708251236-13
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		3400		20.0	10.0

Certificate of Analysis

Sample #:	L17081305-03	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	PZ04-082317	**Prep Method:**	351.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	351.2	**Cal Date:**	08/29/2017 10:28
Workgroup #:	WG627533	**Analyst:**	TMM	**Run Date:**	08/29/2017 10:43
Collect Date:	08/23/2017 10:58	**Dilution:**	1	**File ID:**	SC170829001.024
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9	2.85		0.200	0.100

Sample #:	L17081305-03	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	PZ04-082317	**Prep Method:**	SM5310-C-2011	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM5310-C-2011	**Cal Date:**	02/10/2017 10:25
Workgroup #:	WG627555	**Analyst:**	ADG	**Run Date:**	08/29/2017 11:46
Collect Date:	08/23/2017 10:58	**Dilution:**	3	**File ID:**	TC08292017.009
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	22.9		3.00	1.50

Sample #:	L17081305-04	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	PZ04-082317	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:16
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	08/28/2017 11:39
Workgroup #:	WG627458	**Analyst:**	KKB	**Run Date:**	08/28/2017 16:58
Collect Date:	08/23/2017 10:58	**Dilution:**	1	**File ID:**	T4.082817.165810
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.00886	J	0.0100	0.00500

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-04	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	PZ04-082317	**Prep Method:**	3015A	**Prep Date:**	08/25/2017 08:49
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	08/29/2017 14:30
Workgroup #:	WG627431	**Analyst:**	JYH	**Run Date:**	08/29/2017 16:06
Collect Date:	08/23/2017 10:58	**Dilution:**	1	**File ID:**	NI.082917.160605
Sample Tag:	01	**Units:**	mg/L		

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.000718	J	0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00668		0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** HPMS9
Client ID: DUP-GW-082317-1 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627829 **Analyst:** JDS **Run Date:** 08/30/2017 18:22
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** 9M982279
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfur dioxide		57.8		0.000	0.000
unknown		26.2		0.000	0.000
unknown		20.8		0.000	0.000
unknown		10.7		0.000	0.000
unknown		6.05		0.000	0.000
unknown		6.69		0.000	0.000

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** HPMS9
Client ID: DUP-GW-082317-1 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260C **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627829 **Analyst:** JDS **Run Date:** 08/30/2017 18:22
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** 9M982279
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	3.72	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0	14.3		1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3	1.31		1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4	1.03		1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1	0.869	J	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Certificate of Analysis

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	106	80	120	
Dibromofluoromethane	104	86	118	
p-Bromofluorobenzene	110	86	115	
Toluene-d8	103	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:01
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** T4.082817.170159
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	68.7		0.500	0.250
Iron, Total	7439-89-6	0.0713	J	0.100	0.0500
Magnesium, Total	7439-95-4	14.7		0.500	0.250
Manganese, Total	7439-96-5	0.0102		0.0100	0.00500
Potassium, Total	7440-09-7	15.7		1.00	0.500

E	Semiquantitative result (out of calibration range)
J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:22
Collect Date: 08/23/2017 09:00 **Dilution:** 5 **File ID:** T4.082917.152212
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	1130		2.50	1.25

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:09
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** NI.082917.160910
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.000972	J	0.00100	0.000500
Chromium, Total	7440-47-3	0.00872		0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-06 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:05
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** T4.082817.170548
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.00915	J	0.0100	0.00500

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-06 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:12
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** NI.082917.161215
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.000730	J	0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00649		0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Certificate of Analysis

Sample #:	L17081305-07	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	TB-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 18:15
Collect Date:	08/23/2017 08:00	**Dilution:**	1	**File ID:**	9M982222
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	3.65	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	104	80	120	
Dibromofluoromethane	99.7	86	118	
p-Bromofluorobenzene	115	86	115	
Toluene-d8	104	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-08
Client ID: MW31-082317
Matrix: Water
Workgroup #: WG627458
Collect Date: 08/23/2017 10:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3015A
Analytical Method: 6010C
Analyst: KKB
Dilution: 1
Units: mg/L

Instrument: ICP-THERMO4
Prep Date: 08/28/2017 07:16
Cal Date: 08/28/2017 11:39
Run Date: 08/28/2017 17:24
File ID: T4.082817.172404

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5	0.854		0.400	0.200
Calcium, Total	7440-70-2	3.63		1.00	0.500
Iron, Total	7439-89-6	1.34		0.200	0.100
Magnesium, Total	7439-95-4	4.34		1.00	0.500
Manganese, Total	7439-96-5	0.0148	J	0.0200	0.0100

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Potassium, Total	7440-09-7	11.7		2.00	1.00
Silica, Calculated as SiO2		20.1		4.28	2.14
Silicon, Total	7440-21-3	9.40		2.00	1.00

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:25
Collect Date: 08/23/2017 10:35 **Dilution:** 5 **File ID:** T4.082917.152555
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	2260		5.00	2.50

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 17:51
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** NI.082917.175125
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.0212		0.0200	0.0100

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW31-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 00:37
Collect Date: 08/23/2017 10:35 **Dilution:** 5 **File ID:** I3_082517-23
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	489	E	1.00	0.500
Sulfate	14808-79-8	362		5.00	2.50

E	Semiquantitative result (out of calibration range)

Certificate of Analysis

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW31-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 00:57
Collect Date: 08/23/2017 10:35 **Dilution:** 50 **File ID:** I3_082517-24
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	780		10.0	5.00
Sulfate	14808-79-8	404		50.0	25.0

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW31-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:31
Collect Date: 08/23/2017 10:35 **Dilution:** 50 **File ID:** S2170828002.020
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	4630		1000	500

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW31-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 11:01
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:14
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** S2170830002.027
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	7.45		1.00	0.500

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW31-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 10:35 **Dilution:** 100 **File ID:** S217082916562201
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW31-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 10:35	**Dilution:**	100	**File ID:**	S217082916561801
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW31-082317	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	08/29/2017 13:50
Workgroup #:	WG627646	**Analyst:**	TMM	**Run Date:**	08/29/2017 13:59
Collect Date:	08/23/2017 10:35	**Dilution:**	10	**File ID:**	SC170829002.021
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	6.78		2.00	1.00

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	MW31-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 10:35	**Dilution:**	50	**File ID:**	00.1708241530-07
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	6.84		2.50	1.25

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	MW31-082317	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG627453	**Analyst:**	TB	**Run Date:**	08/28/2017 14:00
Collect Date:	08/23/2017 10:35	**Dilution:**	1	**File ID:**	ET.1708281400-06
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	14.6		1.00	0.500

Certificate of Analysis

Sample #: L17081305-08 | **PrePrep Method:** N/A | **Instrument:** OVEN
Client ID: MW31-082317 | **Prep Method:** 160.1/SM2540C | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** SM2540-C-1997 | **Cal Date:**
Workgroup #: WG627483 | **Analyst:** ADG | **Run Date:** 08/28/2017 14:05
Collect Date: 08/23/2017 10:35 | **Dilution:** 1 | **File ID:** EN.1708281405-05
Sample Tag: 1 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		6300		50.0	25.0

Sample #: L17081305-08 | **PrePrep Method:** N/A | **Instrument:** SMARTCHEM
Client ID: MW31-082317 | **Prep Method:** 351.2 | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 351.2 | **Cal Date:** 08/29/2017 10:28
Workgroup #: WG627533 | **Analyst:** TMM | **Run Date:** 08/29/2017 10:44
Collect Date: 08/23/2017 10:35 | **Dilution:** 10 | **File ID:** SC170829001.025
Sample Tag: DL01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9	11.7		2.00	1.00

Sample #: L17081305-08 | **PrePrep Method:** N/A | **Instrument:** TOC-VWP
Client ID: MW31-082317 | **Prep Method:** SM5310-C-2011 | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** SM5310-C-2011 | **Cal Date:** 02/10/2017 10:25
Workgroup #: WG627555 | **Analyst:** ADG | **Run Date:** 08/29/2017 12:09
Collect Date: 08/23/2017 10:35 | **Dilution:** 25 | **File ID:** TC08292017.010
Sample Tag: DL01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	277		25.0	12.5

Sample #: L17081305-09 | **PrePrep Method:** N/A | **Instrument:** ICP-THERMO4
Client ID: MW31-082317 | **Prep Method:** 3015A | **Prep Date:** 08/28/2017 07:16
Matrix: Water | **Analytical Method:** 6010C | **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 | **Analyst:** KKB | **Run Date:** 08/28/2017 17:27
Collect Date: 08/23/2017 10:35 | **Dilution:** 1 | **File ID:** T4.082817.172751
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5	0.845		0.400	0.200
Iron, Dissolved	7439-89-6	1.27		0.200	0.100

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Manganese, Dissolved	7439-96-5		U	0.0200	0.0100
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-09 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 17:54
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** NI.082917.175431
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.0244		0.0200	0.0100

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:31
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** T4.082817.173138
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	72.9		0.500	0.250
Iron, Total	7439-89-6	0.581		0.100	0.0500
Magnesium, Total	7439-95-4	16.1		0.500	0.250
Manganese, Total	7439-96-5	0.0585		0.0100	0.00500
Potassium, Total	7440-09-7	10.5		1.00	0.500
Silica, Calculated as SiO2		20.5		2.14	1.07
Silicon, Total	7440-21-3	9.60		1.00	0.500
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:29
Collect Date: 08/23/2017 12:40 **Dilution:** 2 **File ID:** T4.082917.152940
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	495		1.00	0.500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:15
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** NI.082917.161520
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00296		0.00100	0.000500

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW30-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 02:18
Collect Date: 08/23/2017 12:40 **Dilution:** 5 **File ID:** I3_082517-28
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	305	E	1.00	0.500
Sulfate	14808-79-8	340		5.00	2.50

E	Semiquantitative result (out of calibration range)

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW30-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 02:39
Collect Date: 08/23/2017 12:40 **Dilution:** 50 **File ID:** I3_082517-29
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	343		10.0	5.00
Sulfate	14808-79-8	343		50.0	25.0

Certificate of Analysis

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW30-082317	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	08/28/2017 12:24
Workgroup #:	WG627619	**Analyst:**	TB	**Run Date:**	08/28/2017 12:33
Collect Date:	08/23/2017 12:40	**Dilution:**	5	**File ID:**	S2170828002.023
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	617		100	50.0

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW30-082317	**Prep Method:**	350.1	**Prep Date:**	08/29/2017 10:54
Matrix:	Water	**Analytical Method:**	350.1	**Cal Date:**	08/30/2017 09:56
Workgroup #:	WG627554	**Analyst:**	TMM	**Run Date:**	08/30/2017 10:16
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	S2170830002.028
Sample Tag:	02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	0.797		0.100	0.0500

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW30-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 12:40	**Dilution:**	100	**File ID:**	S217082916563001
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW30-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 12:40	**Dilution:**	100	**File ID:**	S217082916562701
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW30-082317	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	08/29/2017 13:50
Workgroup #:	WG627646	**Analyst:**	TMM	**Run Date:**	08/29/2017 14:00
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	SC170829002.022
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	0.139	J	0.200	0.100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	MW30-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	00.1708241530-09
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	0.185		0.0500	0.0250

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	MW30-082317	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG627453	**Analyst:**	TB	**Run Date:**	08/28/2017 14:00
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	ET.1708281400-07
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	1.55		1.00	0.500

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	OVEN
Client ID:	MW30-082317	**Prep Method:**	160.1/SM2540C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM2540-C-1997	**Cal Date:**	
Workgroup #:	WG627272	**Analyst:**	AWE	**Run Date:**	08/25/2017 12:36
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	EN.1708251236-15
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		1650		20.0	10.0

Certificate of Analysis

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW30-082317	**Prep Method:**	351.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	351.2	**Cal Date:**	08/29/2017 10:28
Workgroup #:	WG627533	**Analyst:**	TMM	**Run Date:**	08/29/2017 10:45
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	SC170829001.026
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	MW30-082317	**Prep Method:**	SM5310-C-2011	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM5310-C-2011	**Cal Date:**	02/10/2017 10:25
Workgroup #:	WG627555	**Analyst:**	ADG	**Run Date:**	08/29/2017 12:32
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	TC08292017.011
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	7.51		1.00	0.500

Sample #:	L17081305-11	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	MW30-082317	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:16
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	08/28/2017 11:39
Workgroup #:	WG627458	**Analyst:**	KKB	**Run Date:**	08/28/2017 17:35
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	T4.082817.173527
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	0.484		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.0605		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-11 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 17:57
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** NI.082917.175736
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00203		0.00100	0.000500

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:39
Collect Date: 08/23/2017 13:55 **Dilution:** 1 **File ID:** T4.082817.173916
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	6.35		0.500	0.250
Iron, Total	7439-89-6	0.115		0.100	0.0500
Magnesium, Total	7439-95-4	9.21		0.500	0.250
Manganese, Total	7439-96-5	0.0210		0.0100	0.00500
Potassium, Total	7440-09-7	2.64		1.00	0.500
Silica, Calculated as SiO2		12.8		2.14	1.07
Silicon, Total	7440-21-3	5.99		1.00	0.500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:33
Collect Date: 08/23/2017 13:55 **Dilution:** 5 **File ID:** T4.082917.153324
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	675		2.50	1.25

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/30/2017 12:39
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/30/2017 13:41
Collect Date: 08/23/2017 13:55 **Dilution:** 50 **File ID:** NI.083017.134117
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.974		0.0500	0.0250

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW11S-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 02:59
Collect Date: 08/23/2017 13:55 **Dilution:** 5 **File ID:** I3_082517-30
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	558	E	1.00	0.500
Sulfate	14808-79-8	201		5.00	2.50

E	Semiquantitative result (out of calibration range)

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW11S-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 03:20
Collect Date: 08/23/2017 13:55 **Dilution:** 50 **File ID:** I3_082517-31
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	724		10.0	5.00
Sulfate	14808-79-8	204		50.0	25.0

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW11S-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:34
Collect Date: 08/23/2017 13:55 **Dilution:** 2 **File ID:** S2170828002.024
Sample Tag: DL01 **Units:** mg/L

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	367		40.0	20.0

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW11S-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 10:55
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:16
Collect Date: 08/23/2017 13:55 **Dilution:** 1 **File ID:** S2170830002.029
Sample Tag: 02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	0.478		0.100	0.0500

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW11S-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 13:55 **Dilution:** 4 **File ID:** S217082916563801
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW11S-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 13:55 **Dilution:** 4 **File ID:** S217082916564301
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW11S-082317	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	08/29/2017 13:50
Workgroup #:	WG627646	**Analyst:**	TMM	**Run Date:**	08/29/2017 14:00
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	SC170829002.023
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	MW11S-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	00.1708241530-10
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	0.249		0.0500	0.0250

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	MW11S-082317	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG627453	**Analyst:**	TB	**Run Date:**	08/28/2017 14:00
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	ET.1708281400-08
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	0.755	J	1.00	0.500

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	OVEN
Client ID:	MW11S-082317	**Prep Method:**	160.1/SM2540C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM2540-C-1997	**Cal Date:**	
Workgroup #:	WG627272	**Analyst:**	AWE	**Run Date:**	08/25/2017 12:36
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	EN.1708251236-16
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		1780		20.0	10.0

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW11S-082317	**Prep Method:**	351.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	351.2	**Cal Date:**	08/29/2017 10:28
Workgroup #:	WG627533	**Analyst:**	TMM	**Run Date:**	08/29/2017 10:46
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	SC170829001.027
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	MW11S-082317	**Prep Method:**	SM5310-C-2011	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM5310-C-2011	**Cal Date:**	02/10/2017 10:25
Workgroup #:	WG627555	**Analyst:**	ADG	**Run Date:**	08/29/2017 12:58
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	TC08292017.012
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	3.03		1.00	0.500

Sample #:	L17081305-13	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	MW11S-082317	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:16
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	08/28/2017 11:39
Workgroup #:	WG627458	**Analyst:**	KKB	**Run Date:**	08/28/2017 17:43
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	T4.082817.174306
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.0199		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-13 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: MW11S-082317 | **Prep Method:** 3015A | **Prep Date:** 08/28/2017 07:51
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 08/30/2017 12:39
Workgroup #: WG627433 | **Analyst:** JYH | **Run Date:** 08/30/2017 13:44
Collect Date: 08/23/2017 13:55 | **Dilution:** 50 | **File ID:** NI.083017.134422
Sample Tag: DL01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.935		0.0500	0.0250

Sample #: L17081305-14 | **PrePrep Method:** N/A | **Instrument:** HPMS9
Client ID: MW09R-082317 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260B | **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627475 | **Analyst:** JDS | **Run Date:** 08/28/2017 21:46
Collect Date: 08/23/2017 14:40 | **Dilution:** 1 | **File ID:** 9M982229
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfur dioxide		41.3		0.000	0.000
unknown		26.7		0.000	0.000
1,4-Oxathiane		5.64		0.000	0.000
[1,4,5]Oxadithiepane		20.3		0.000	0.000

Sample #: L17081305-14 | **PrePrep Method:** N/A | **Instrument:** HPMS9
Client ID: MW09R-082317 | **Prep Method:** 5030B/5030C/5035A | **Prep Date:** N/A
Matrix: Water | **Analytical Method:** 8260C | **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627475 | **Analyst:** JDS | **Run Date:** 08/28/2017 21:46
Collect Date: 08/23/2017 14:40 | **Dilution:** 1 | **File ID:** 9M982229
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.58	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	109	86	115	
Toluene-d8	102	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-14
Client ID: MW09R-082317
Matrix: Water
Workgroup #: WG627524
Collect Date: 08/23/2017 14:40
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 8270D
Analyst: SCB
Dilution: 1
Units: ug/L

Instrument: HPMS12
Prep Date: 08/28/2017 11:00
Cal Date: 08/03/2017 13:41
Run Date: 08/29/2017 14:08
File ID: 12M64129

Analyte	CAS #	Result	Qual	RL	MDL
1,1'-Biphenyl	92-52-4		U	22.0	2.75
1,3,5-Trinitrobenzene	99-35-4		U	5.49	2.75
1,3-Dinitrobenzene	99-65-0		U	5.49	2.75
1,4-Dioxane	123-91-1		U	11.0	5.49
2,4,5-Trichlorophenol	95-95-4		U	5.49	2.75
2,4,6-Trichlorophenol	88-06-2		U	5.49	2.75
2,4-Dichlorophenol	120-83-2		U	5.49	2.75
2,4-Dimethylphenol	105-67-9		U	5.49	2.75
2,4-Dinitrophenol	51-28-5		U	27.5	13.7
2,4-Dinitrotoluene	121-14-2		U	5.49	2.75
2,6-Dinitrotoluene	606-20-2		U	5.49	2.75
2-Chloronaphthalene	91-58-7		U	5.49	2.75
2-Chlorophenol	95-57-8		U	5.49	2.75
2-Methylnaphthalene	91-57-6		U	5.49	2.75
2-Methylphenol	95-48-7		U	5.49	2.75
2-Nitroaniline	88-74-4		U	27.5	13.7
2-Nitrophenol	88-75-5		U	5.49	2.75
3-Nitroaniline	99-09-2		U	27.5	13.7
3,3'-Dichlorobenzidine	91-94-1		U	5.49	2.75
3-,4-Methylphenol	65794-96-9		U	5.49	2.75
4-Bromophenyl-phenylether	101-55-3		U	5.49	2.75

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
4-Chloroaniline	106-47-8		U	5.49	2.75
4-Nitrophenol	100-02-7		U	27.5	13.7
Acenaphthene	83-32-9		U	5.49	2.75
Acenaphthylene	208-96-8		U	5.49	2.75
Anthracene	120-12-7		U	5.49	2.75
Benzo(a)anthracene	56-55-3		U	5.49	2.75
Benzo(a)pyrene	50-32-8		U	5.49	2.75
Benzo(b)fluoranthene	205-99-2		U	5.49	2.75
Benzo(g,h,i)Perylene	191-24-2		U	5.49	2.75
Benzo(k)fluoranthene	207-08-9		U	5.49	2.75
Benzoic acid	65-85-0		U	22.0	11.0
Benzyl alcohol	100-51-6		U	5.49	2.75
Bis(2-Chloroethyl)ether	111-44-4		U	5.49	2.75
Bis(2-Chloroethoxy)Methane	111-91-1		U	5.49	2.75
bis(2-Ethylhexyl)phthalate	117-81-7		U	5.49	2.75
Butylbenzylphthalate	85-68-7		U	5.49	2.75
Carbazole	86-74-8		U	22.0	2.75
Chrysene	218-01-9		U	5.49	2.75
Di-N-Butylphthalate	84-74-2		U	5.49	2.75
Di-n-octylphthalate	117-84-0		U	5.49	2.75
Dibenzo(a,h)Anthracene	53-70-3		U	5.49	2.75
Dibenzofuran	132-64-9		U	5.49	2.75
Diethylphthalate	84-66-2		U	5.49	2.75
Dimethylphthalate	131-11-3		U	5.49	2.75
Fluoranthene	206-44-0		U	5.49	2.75
Fluorene	86-73-7		U	5.49	2.75
Hexachlorobenzene	118-74-1		U	5.49	2.75
Hexachlorobutadiene	87-68-3		U	5.49	2.75
Hexachlorocyclopentadiene	77-47-4		U	5.49	2.75
Hexachloroethane	67-72-1		U	5.49	2.75
Indeno(1,2,3-cd)pyrene	193-39-5		U	5.49	2.75
Isophorone	78-59-1		U	5.49	2.75
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	5.49	2.75
Naphthalene	91-20-3		U	5.49	2.75
Nitrobenzene	98-95-3		U	5.49	2.75
Pentachlorophenol	87-86-5		U	27.5	13.7
Phenanthrene	85-01-8		U	5.49	2.75
Phenol	108-95-2		U	5.49	2.75
Pyrene	129-00-0		U	5.49	2.75

Certificate of Analysis

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	113	10	123	
2-Fluorobiphenyl	91.7	43	116	
2-Fluorophenol	49.0	21	100	
Nitrobenzene-d5	85.9	35	114	
p-Terphenyl-d14	96.7	33	141	
Phenol-d5	36.7	10	94	

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** HPMS12
Client ID: MW09R-082317 **Prep Method:** 3510C **Prep Date:** 08/28/2017 11:00
Matrix: Water **Analytical Method:** 8270D **Cal Date:** 08/03/2017 13:41
Workgroup #: WG627524 **Analyst:** SCB **Run Date:** 08/29/2017 14:08
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** 12M64129
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
UNKNOWN		9.45		0.000	0.000
1,4-Oxathiane		46.0		0.000	0.000
[1,4,5]Oxadithiepane		619		0.000	0.000
UNKNOWN2		24.0		0.000	0.000
UNKNOWN3		18.1		0.000	0.000
n-Hexadecanoic acid		6.22		0.000	0.000
Eicosane		6.07		0.000	0.000
Eicosane		10.9		0.000	0.000
Triacontane		15.9		0.000	0.000
Eicosane		16.9		0.000	0.000
Eicosane		13.0		0.000	0.000
Eicosane		6.86		0.000	0.000

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** HPMS7
Client ID: MW09R-082317 **Prep Method:** 3510C **Prep Date:** 08/25/2017 15:02
Matrix: Water **Analytical Method:** 8270D_SIM **Cal Date:** 08/23/2017 18:40
Workgroup #: WG627420 **Analyst:** LJH **Run Date:** 08/28/2017 14:49
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** 7M70192
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
2-Methylnaphthalene	91-57-6		U	0.0575	0.0287
Acenaphthene	83-32-9		U	0.0575	0.0287
Acenaphthylene	208-96-8		U	0.0575	0.0287

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Anthracene	120-12-7		U	0.0575	0.0287
Benzo(a)anthracene	56-55-3		U	0.0575	0.0287
Benzo(a)pyrene	50-32-8		U	0.0575	0.0287
Benzo(b)fluoranthene	205-99-2		U	0.0575	0.0287
Benzo(g,h,i)perylene	191-24-2		U	0.0575	0.0287
Benzo(k)fluoranthene	207-08-9		U	0.0575	0.0287
Chrysene	218-01-9		U	0.0575	0.0287
Dibenzo(a,h)anthracene	53-70-3		U	0.0575	0.0287
Fluoranthene	206-44-0		U	0.0575	0.0287
Fluorene	86-73-7		U	0.0575	0.0287
Indeno(1,2,3-cd)pyrene	193-39-5		U	0.0575	0.0287
Naphthalene	91-20-3	0.0406	J	0.0575	0.0287
Phenanthrene	85-01-8		U	0.0575	0.0287
Pyrene	129-00-0		U	0.0575	0.0287

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2-Fluorobiphenyl	61.4	43	116	
Nitrobenzene-d5	81.4	35	114	
p-Terphenyl-d14	87.6	33	141	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-14
Client ID: MW09R-082317
Matrix: Water
Workgroup #: WG627458
Collect Date: 08/23/2017 14:40
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3015A
Analytical Method: 6010C
Analyst: KKB
Dilution: 1
Units: mg/L

Instrument: ICP-THERMO4
Prep Date: 08/28/2017 07:16
Cal Date: 08/28/2017 11:39
Run Date: 08/28/2017 17:46
File ID: T4.082817.174654

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	270		0.500	0.250
Iron, Total	7439-89-6	4.10		0.100	0.0500
Magnesium, Total	7439-95-4	94.2		0.500	0.250
Manganese, Total	7439-96-5	0.577		0.0100	0.00500
Potassium, Total	7440-09-7	9.22		1.00	0.500

E	Semiquantitative result (out of calibration range)
U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:37
Collect Date: 08/23/2017 14:40 **Dilution:** 5 **File ID:** T4.082917.153709
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	624		2.50	1.25
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 18:06
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** NI.082917.180653
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00689		0.00100	0.000500

Sample #: L17081305-15 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:50
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** T4.082817.175042
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	3.41		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.489		0.0100	0.00500
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-15 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 18:09
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** NI.082917.180959
Sample Tag: 01 **Units:** mg/L

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00365		0.00100	0.000500

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** HPMS9
Client ID: DUP-GW-082317-2 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260B **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627475 **Analyst:** JDS **Run Date:** 08/28/2017 22:16
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** 9M982230
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfur dioxide		44.4		0.000	0.000
unknown		26.7		0.000	0.000
1,4-Oxathiane		5.58		0.000	0.000
[1,4,5]Oxadithiepane		22.8		0.000	0.000

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** HPMS9
Client ID: DUP-GW-082317-2 **Prep Method:** 5030B/5030C/5035A **Prep Date:** N/A
Matrix: Water **Analytical Method:** 8260C **Cal Date:** 08/14/2017 14:15
Workgroup #: WG627475 **Analyst:** JDS **Run Date:** 08/28/2017 22:16
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** 9M982230
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	103	86	118	
p-Bromofluorobenzene	113	86	115	

Toluene-d8	103	88	110	

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** HPMS12
Client ID: DUP-GW-082317-2 **Prep Method:** 3510C **Prep Date:** 08/28/2017 11:00
Matrix: Water **Analytical Method:** 8270D **Cal Date:** 08/03/2017 13:41
Workgroup #: WG627524 **Analyst:** SCB **Run Date:** 08/29/2017 14:40
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** 12M64130
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,4-Oxathiane		54.3		0.000	0.000
[1,4,5]Oxadithiepane		755		0.000	0.000
UNKNOWN		31.0		0.000	0.000
UNKNOWN2		22.0		0.000	0.000
n-Hexadecanoic acid		13.4		0.000	0.000
Octadecanoic acid		6.19		0.000	0.000
Triacontane		8.65		0.000	0.000
Eicosane		15.6		0.000	0.000
Eicosane		23.3		0.000	0.000
Hexadecane, 2,6,10,14-tetramethyl-		24.7		0.000	0.000
Triacontane		19.1		0.000	0.000
Tetratriacontane		9.86		0.000	0.000

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** HPMS12
Client ID: DUP-GW-082317-2 **Prep Method:** 3510C **Prep Date:** 08/28/2017 11:00
Matrix: Water **Analytical Method:** 8270D **Cal Date:** 08/03/2017 13:41
Workgroup #: WG627524 **Analyst:** SCB **Run Date:** 08/29/2017 14:40
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** 12M64130
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,1'-Biphenyl	92-52-4		U	22.2	2.78
1,3,5-Trinitrobenzene	99-35-4		U	5.56	2.78
1,3-Dinitrobenzene	99-65-0		U	5.56	2.78
1,4-Dioxane	123-91-1		U	11.1	5.56
2,4,5-Trichlorophenol	95-95-4		U	5.56	2.78
2,4,6-Trichlorophenol	88-06-2		U	5.56	2.78
2,4-Dichlorophenol	120-83-2		U	5.56	2.78
2,4-Dimethylphenol	105-67-9		U	5.56	2.78
2,4-Dinitrophenol	51-28-5		U	27.8	13.9

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
2,4-Dinitrotoluene	121-14-2		U	5.56	2.78
2,6-Dinitrotoluene	606-20-2		U	5.56	2.78
2-Chloronaphthalene	91-58-7		U	5.56	2.78
2-Chlorophenol	95-57-8		U	5.56	2.78
2-Methylnaphthalene	91-57-6		U	5.56	2.78
2-Methylphenol	95-48-7		U	5.56	2.78
2-Nitroaniline	88-74-4		U	27.8	13.9
2-Nitrophenol	88-75-5		U	5.56	2.78
3-Nitroaniline	99-09-2		U	27.8	13.9
3,3'-Dichlorobenzidine	91-94-1		U	5.56	2.78
3-,4-Methylphenol	65794-96-9		U	5.56	2.78
4-Bromophenyl-phenylether	101-55-3		U	5.56	2.78
4-Chloroaniline	106-47-8		U	5.56	2.78
4-Nitrophenol	100-02-7		U	27.8	13.9
Acenaphthene	83-32-9		U	5.56	2.78
Acenaphthylene	208-96-8		U	5.56	2.78
Anthracene	120-12-7		U	5.56	2.78
Benzo(a)anthracene	56-55-3		U	5.56	2.78
Benzo(a)pyrene	50-32-8		U	5.56	2.78
Benzo(b)fluoranthene	205-99-2		U	5.56	2.78
Benzo(g,h,i)Perylene	191-24-2		U	5.56	2.78
Benzo(k)fluoranthene	207-08-9		U	5.56	2.78
Benzoic acid	65-85-0		U	22.2	11.1
Benzyl alcohol	100-51-6		U	5.56	2.78
Bis(2-Chloroethyl)ether	111-44-4		U	5.56	2.78
Bis(2-Chloroethoxy)Methane	111-91-1		U	5.56	2.78
bis(2-Ethylhexyl)phthalate	117-81-7		U	5.56	2.78
Butylbenzylphthalate	85-68-7		U	5.56	2.78
Carbazole	86-74-8		U	22.2	2.78
Chrysene	218-01-9		U	5.56	2.78
Di-N-Butylphthalate	84-74-2		U	5.56	2.78
Di-n-octylphthalate	117-84-0		U	5.56	2.78
Dibenzo(a,h)Anthracene	53-70-3		U	5.56	2.78
Dibenzofuran	132-64-9		U	5.56	2.78
Diethylphthalate	84-66-2		U	5.56	2.78
Dimethylphthalate	131-11-3		U	5.56	2.78
Fluoranthene	206-44-0		U	5.56	2.78
Fluorene	86-73-7		U	5.56	2.78
Hexachlorobenzene	118-74-1		U	5.56	2.78

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Hexachlorobutadiene	87-68-3		U	5.56	2.78
Hexachlorocyclopentadiene	77-47-4		U	5.56	2.78
Hexachloroethane	67-72-1		U	5.56	2.78
Indeno(1,2,3-cd)pyrene	193-39-5		U	5.56	2.78
Isophorone	78-59-1		U	5.56	2.78
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	5.56	2.78
Naphthalene	91-20-3		U	5.56	2.78
Nitrobenzene	98-95-3		U	5.56	2.78
Pentachlorophenol	87-86-5		U	27.8	13.9
Phenanthrene	85-01-8		U	5.56	2.78
Phenol	108-95-2		U	5.56	2.78
Pyrene	129-00-0		U	5.56	2.78

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	122	10	123	
2-Fluorobiphenyl	101	43	116	
2-Fluorophenol	51.4	21	100	
Nitrobenzene-d5	95.5	35	114	
p-Terphenyl-d14	93.9	33	141	
Phenol-d5	39.5	10	94	

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16
Client ID: DUP-GW-082317-2
Matrix: Water
Workgroup #: WG627420
Collect Date: 08/23/2017 09:30
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 8270D_SIM
Analyst: LJH
Dilution: 1
Units: ug/L

Instrument: HPMS7
Prep Date: 08/25/2017 15:02
Cal Date: 08/23/2017 18:40
Run Date: 08/28/2017 15:16
File ID: 7M70193

Analyte	CAS #	Result	Qual	RL	MDL
2-Methylnaphthalene	91-57-6		U	0.0526	0.0263
Acenaphthene	83-32-9		U	0.0526	0.0263
Acenaphthylene	208-96-8		U	0.0526	0.0263
Anthracene	120-12-7		U	0.0526	0.0263
Benzo(a)anthracene	56-55-3		U	0.0526	0.0263
Benzo(a)pyrene	50-32-8		U	0.0526	0.0263
Benzo(b)fluoranthene	205-99-2		U	0.0526	0.0263
Benzo(g,h,i)perylene	191-24-2		U	0.0526	0.0263
Benzo(k)fluoranthene	207-08-9		U	0.0526	0.0263
Chrysene	218-01-9		U	0.0526	0.0263
Dibenzo(a,h)anthracene	53-70-3		U	0.0526	0.0263

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Fluoranthene	206-44-0		U	0.0526	0.0263
Fluorene	86-73-7		U	0.0526	0.0263
Indeno(1,2,3-cd)pyrene	193-39-5		U	0.0526	0.0263
Naphthalene	91-20-3	0.0317	J	0.0526	0.0263
Phenanthrene	85-01-8		U	0.0526	0.0263
Pyrene	129-00-0		U	0.0526	0.0263

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2-Fluorobiphenyl	53.5	43	116	
Nitrobenzene-d5	66.6	35	114	
p-Terphenyl-d14	88.8	33	141	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-2 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:54
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** T4.082817.175429
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	280		0.500	0.250
Iron, Total	7439-89-6	4.32		0.100	0.0500
Magnesium, Total	7439-95-4	97.3		0.500	0.250
Manganese, Total	7439-96-5	0.598		0.0100	0.00500
Potassium, Total	7440-09-7	9.55		1.00	0.500

E	Semiquantitative result (out of calibration range)
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-2 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:40
Collect Date: 08/23/2017 09:30 **Dilution:** 5 **File ID:** T4.082917.154053
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	647		2.50	1.25

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-16	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	DUP-GW-082317-2	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:51
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	08/29/2017 14:30
Workgroup #:	WG627433	**Analyst:**	JYH	**Run Date:**	08/29/2017 18:13
Collect Date:	08/23/2017 09:30	**Dilution:**	1	**File ID:**	NI.082917.181304
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00670		0.00100	0.000500

Sample #:	L17081305-17	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	DUP-GW-082317-2	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:16
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	08/28/2017 11:39
Workgroup #:	WG627458	**Analyst:**	KKB	**Run Date:**	08/28/2017 17:58
Collect Date:	08/23/2017 09:30	**Dilution:**	1	**File ID:**	T4.082817.175818
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	3.59		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.502		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-17	**PrePrep Method:**	N/A	**Instrument:**	ICP-MS2
Client ID:	DUP-GW-082317-2	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:51
Matrix:	Water	**Analytical Method:**	6020A	**Cal Date:**	08/29/2017 14:30
Workgroup #:	WG627433	**Analyst:**	JYH	**Run Date:**	08/29/2017 18:22
Collect Date:	08/23/2017 09:30	**Dilution:**	1	**File ID:**	NI.082917.182224
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00395		0.00100	0.000500

Sample #:	L17081305-18	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	FB-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260B	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 18:45
Collect Date:	08/23/2017 15:00	**Dilution:**	1	**File ID:**	9M982223
Sample Tag:	01	**Units:**	ug/L		

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
No Searchable Peaks				0.000	0.000

Sample #:	L17081305-18	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	FB-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 18:45
Collect Date:	08/23/2017 15:00	**Dilution:**	1	**File ID:**	9M982223
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.87	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Chloroform	67-66-3	4.39		1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	104	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	114	86	115	
Toluene-d8	104	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-19
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627475
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 8260B
Analyst: JDS
Dilution: 1
Units: ug/L

Instrument: HPMS9
Prep Date: N/A
Cal Date: 08/14/2017 14:15
Run Date: 08/29/2017 01:16
File ID: 9M982236

Analyte	CAS #	Result	Qual	RL	MDL
No Searchable Peaks				0.000	0.000

Certificate of Analysis

Sample #:	L17081305-19	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	MW19-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/29/2017 01:16
Collect Date:	08/23/2017 15:35	**Dilution:**	1	**File ID:**	9M982236
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	5.94		1.00	0.500
trans-1,2-Dichloroethene	156-60-5	7.70		1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.80	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8	21.4		2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	101	86	118	
p-Bromofluorobenzene	111	86	115	
Toluene-d8	105	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-19
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627524
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 8270D
Analyst: SCB
Dilution: 1
Units: ug/L

Instrument: HPMS12
Prep Date: 08/28/2017 11:00
Cal Date: 08/03/2017 13:41
Run Date: 08/29/2017 15:12
File ID: 12M64131

Analyte	CAS #	Result	Qual	RL	MDL
1,1'-Biphenyl	92-52-4		U	20.0	2.50
1,3,5-Trinitrobenzene	99-35-4		U	5.00	2.50
1,3-Dinitrobenzene	99-65-0		U	5.00	2.50
1,4-Dioxane	123-91-1		U	10.0	5.00
2,4,5-Trichlorophenol	95-95-4		U	5.00	2.50

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
2,4,6-Trichlorophenol	88-06-2		U	5.00	2.50
2,4-Dichlorophenol	120-83-2		U	5.00	2.50
2,4-Dimethylphenol	105-67-9		U	5.00	2.50
2,4-Dinitrophenol	51-28-5		U	25.0	12.5
2,4-Dinitrotoluene	121-14-2		U	5.00	2.50
2,6-Dinitrotoluene	606-20-2		U	5.00	2.50
2-Chloronaphthalene	91-58-7		U	5.00	2.50
2-Chlorophenol	95-57-8		U	5.00	2.50
2-Methylnaphthalene	91-57-6		U	5.00	2.50
2-Methylphenol	95-48-7		U	5.00	2.50
2-Nitroaniline	88-74-4		U	25.0	12.5
2-Nitrophenol	88-75-5		U	5.00	2.50
3-Nitroaniline	99-09-2		U	25.0	12.5
3,3'-Dichlorobenzidine	91-94-1		U	5.00	2.50
3-,4-Methylphenol	65794-96-9		U	5.00	2.50
4-Bromophenyl-phenylether	101-55-3		U	5.00	2.50
4-Chloroaniline	106-47-8		U	5.00	2.50
4-Nitrophenol	100-02-7		U	25.0	12.5
Acenaphthene	83-32-9		U	5.00	2.50
Acenaphthylene	208-96-8		U	5.00	2.50
Anthracene	120-12-7		U	5.00	2.50
Benzo(a)anthracene	56-55-3		U	5.00	2.50
Benzo(a)pyrene	50-32-8		U	5.00	2.50
Benzo(b)fluoranthene	205-99-2		U	5.00	2.50
Benzo(g,h,i)Perylene	191-24-2		U	5.00	2.50
Benzo(k)fluoranthene	207-08-9		U	5.00	2.50
Benzoic acid	65-85-0		U	20.0	10.0
Benzyl alcohol	100-51-6		U	5.00	2.50
Bis(2-Chloroethyl)ether	111-44-4		U	5.00	2.50
Bis(2-Chloroethoxy)Methane	111-91-1		U	5.00	2.50
bis(2-Ethylhexyl)phthalate	117-81-7		U	5.00	2.50
Butylbenzylphthalate	85-68-7		U	5.00	2.50
Carbazole	86-74-8		U	20.0	2.50
Chrysene	218-01-9		U	5.00	2.50
Di-N-Butylphthalate	84-74-2		U	5.00	2.50
Di-n-octylphthalate	117-84-0		U	5.00	2.50
Dibenzo(a,h)Anthracene	53-70-3		U	5.00	2.50
Dibenzofuran	132-64-9		U	5.00	2.50
Diethylphthalate	84-66-2		U	5.00	2.50

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Dimethylphthalate	131-11-3		U	5.00	2.50
Fluoranthene	206-44-0		U	5.00	2.50
Fluorene	86-73-7		U	5.00	2.50
Hexachlorobenzene	118-74-1		U	5.00	2.50
Hexachlorobutadiene	87-68-3		U	5.00	2.50
Hexachlorocyclopentadiene	77-47-4		U	5.00	2.50
Hexachloroethane	67-72-1		U	5.00	2.50
Indeno(1,2,3-cd)pyrene	193-39-5		U	5.00	2.50
Isophorone	78-59-1		U	5.00	2.50
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	5.00	2.50
Naphthalene	91-20-3		U	5.00	2.50
Nitrobenzene	98-95-3		U	5.00	2.50
Pentachlorophenol	87-86-5		U	25.0	12.5
Phenanthrene	85-01-8		U	5.00	2.50
Phenol	108-95-2		U	5.00	2.50
Pyrene	129-00-0		U	5.00	2.50

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	102	10	123	
2-Fluorobiphenyl	75.7	43	116	
2-Fluorophenol	42.4	21	100	
Nitrobenzene-d5	75.6	35	114	
p-Terphenyl-d14	86.8	33	141	
Phenol-d5	29.9	10	94	

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-19
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627524
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 8270D
Analyst: SCB
Dilution: 1
Units: ug/L

Instrument: HPMS12
Prep Date: 08/28/2017 11:00
Cal Date: 08/03/2017 13:41
Run Date: 08/29/2017 15:12
File ID: 12M64131

Analyte	CAS #	Result	Qual	RL	MDL
n-Hexadecanoic acid		5.90		0.000	0.000
Tetratriacontane		5.19		0.000	0.000
Eicosane		7.19		0.000	0.000
Eicosane		8.55		0.000	0.000
Eicosane		6.98		0.000	0.000
Tetratriacontane		4.35		0.000	0.000

Certificate of Analysis

Sample #:	L17081305-19	**PrePrep Method:**	N/A	**Instrument:**	HPMS7
Client ID:	MW19-082317	**Prep Method:**	3510C	**Prep Date:**	08/25/2017 15:02
Matrix:	Water	**Analytical Method:**	8270D_SIM	**Cal Date:**	08/23/2017 18:40
Workgroup #:	WG627420	**Analyst:**	LJH	**Run Date:**	08/28/2017 15:42
Collect Date:	08/23/2017 15:35	**Dilution:**	1	**File ID:**	7M70194
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
2-Methylnaphthalene	91-57-6		U	0.0500	0.0250
Acenaphthene	83-32-9		U	0.0500	0.0250
Acenaphthylene	208-96-8		U	0.0500	0.0250
Anthracene	120-12-7		U	0.0500	0.0250
Benzo(a)anthracene	56-55-3		U	0.0500	0.0250
Benzo(a)pyrene	50-32-8		U	0.0500	0.0250
Benzo(b)fluoranthene	205-99-2		U	0.0500	0.0250
Benzo(g,h,i)perylene	191-24-2		U	0.0500	0.0250
Benzo(k)fluoranthene	207-08-9		U	0.0500	0.0250
Chrysene	218-01-9		U	0.0500	0.0250
Dibenzo(a,h)anthracene	53-70-3		U	0.0500	0.0250
Fluoranthene	206-44-0	0.118		0.0500	0.0250
Fluorene	86-73-7		U	0.0500	0.0250
Indeno(1,2,3-cd)pyrene	193-39-5		U	0.0500	0.0250
Naphthalene	91-20-3	0.0381	J	0.0500	0.0250
Phenanthrene	85-01-8		U	0.0500	0.0250
Pyrene	129-00-0	0.0866		0.0500	0.0250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2-Fluorobiphenyl	47.9	43	116	
Nitrobenzene-d5	65.9	35	114	
p-Terphenyl-d14	81.7	33	141	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-19	**PrePrep Method:**	N/A	**Instrument:**	ICP-THERMO4
Client ID:	MW19-082317	**Prep Method:**	3015A	**Prep Date:**	08/28/2017 07:16
Matrix:	Water	**Analytical Method:**	6010C	**Cal Date:**	08/28/2017 11:39
Workgroup #:	WG627458	**Analyst:**	KKB	**Run Date:**	08/28/2017 18:09
Collect Date:	08/23/2017 15:35	**Dilution:**	1	**File ID:**	T4.082817.180914
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Calcium, Total	7440-70-2	128		0.500	0.250
Iron, Total	7439-89-6	2.40		0.100	0.0500
Magnesium, Total	7439-95-4	42.1		0.500	0.250
Manganese, Total	7439-96-5	0.631		0.0100	0.00500
Potassium, Total	7440-09-7	1.48		1.00	0.500
Sodium, Total	7440-23-5	102		0.500	0.250

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-19
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627433
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3015A
Analytical Method: 6020A
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ICP-MS2
Prep Date: 08/28/2017 07:51
Cal Date: 08/29/2017 14:30
Run Date: 08/29/2017 18:25
File ID: NI.082917.182529

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00445		0.00100	0.000500

Sample #: L17081305-20
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627458
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3015A
Analytical Method: 6010C
Analyst: KKB
Dilution: 1
Units: mg/L

Instrument: ICP-THERMO4
Prep Date: 08/28/2017 07:16
Cal Date: 08/28/2017 11:39
Run Date: 08/28/2017 18:12
File ID: T4.082817.181256

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	0.696		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.433		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-20
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627433
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3015A
Analytical Method: 6020A
Analyst: JYH
Dilution: 1
Units: mg/L

Instrument: ICP-MS2
Prep Date: 08/28/2017 07:51
Cal Date: 08/29/2017 14:30
Run Date: 08/29/2017 18:28
File ID: NI.082917.182835

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.0110		0.00100	0.000500

Certificate of Analysis

2.0 Full Sample Data Package

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

Login Number: L17081305
Department: Volatiles
Analyst: Jared Smith

METHOD

Preparation SW-846 5030C/5035A

Analysis SW-846 8260C

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: Recoveries marginally out of range were observed for the following analytes: 1,2-Dibromo-3-Chloropropane, 2-Hexanone, Bromoform, Bromomethane. Please see the applicable QC report for a detailed presentation of the failures.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: Recoveries marginally below the LCL were observed for the following analytes in the LCS WG627829-02 analyzed on HPMS9 on 08/30/17: 1,1-Dichloroethene. Please see the applicable QC report for a detailed presentation of the failures.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG627829-02	1,1-Dichloroethene	2017-08-30 14:51:00	74.0	80	132	Recovery

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group (SDG), due to insufficient volume of sample. The laboratory included an LCS and LCS duplicate in the preparation batch in lieu of the NELAC prescribed MS/MSD. Microbac Laboratories recommends site specific MS/MSD samples to avoid possible data qualifications.

SAMPLES

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Other: None.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak. In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak. This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline. There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous. Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 129220
Approved By: Anthony Canter

Certificate of Analysis

Sample #:	L17081305-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	PZ06-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 20:45
Collect Date:	08/23/2017 09:42	**Dilution:**	1	**File ID:**	9M982227
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	14.1		10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3	0.613	J	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	103	80	120	
Dibromofluoromethane	101	86	118	
p-Bromofluorobenzene	108	86	115	
Toluene-d8	103	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-03
Client ID: PZ04-082317
Matrix: Water
Workgroup #: WG627475
Collect Date: 08/23/2017 10:58
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 8260C
Analyst: JDS
Dilution: 1
Units: ug/L

Instrument: HPMS9
Prep Date: N/A
Cal Date: 08/14/2017 14:15
Run Date: 08/28/2017 21:16
File ID: 9M982228

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.73	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0	7.07		1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3	1.16		1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1	0.965	J	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	103	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	108	86	115	
Toluene-d8	100	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-05
Client ID: DUP-GW-082317-1
Matrix: Water
Workgroup #: WG627829
Collect Date: 08/23/2017 09:00
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 8260C
Analyst: JDS
Dilution: 1
Units: ug/L

Instrument: HPMS9
Prep Date: N/A
Cal Date: 08/14/2017 14:15
Run Date: 08/30/2017 18:22
File ID: 9M982279

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	3.72	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0	14.3		1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3	1.31		1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4	1.03		1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1	0.869	J	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	106	80	120	
Dibromofluoromethane	104	86	118	

Certificate of Analysis

p-Bromofluorobenzene	110	86	115	
Toluene-d8	103	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-07
Client ID: TB-082317
Matrix: Water
Workgroup #: WG627475
Collect Date: 08/23/2017 08:00
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 8260C
Analyst: JDS
Dilution: 1
Units: ug/L

Instrument: HPMS9
Prep Date: N/A
Cal Date: 08/14/2017 14:15
Run Date: 08/28/2017 18:15
File ID: 9M982222

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	3.65	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	104	80	120	
Dibromofluoromethane	99.7	86	118	
p-Bromofluorobenzene	115	86	115	
Toluene-d8	104	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-14	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	MW09R-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/28/2017 21:46
Collect Date:	08/23/2017 14:40	**Dilution:**	1	**File ID:**	9M982229
Sample Tag:	01	**Units:**	ug/L		

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.58	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	109	86	115	
Toluene-d8	102	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16
Client ID: DUP-GW-082317-2
Matrix: Water
Workgroup #: WG627475
Collect Date: 08/23/2017 09:30
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 8260C
Analyst: JDS
Dilution: 1
Units: ug/L

Instrument: HPMS9
Prep Date: N/A
Cal Date: 08/14/2017 14:15
Run Date: 08/28/2017 22:16
File ID: 9M982230

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1		U	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	103	86	118	
p-Bromofluorobenzene	113	86	115	
Toluene-d8	103	88	110	

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-18
Client ID: FB-082317
Matrix: Water
Workgroup #: WG627475
Collect Date: 08/23/2017 15:00
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 8260C
Analyst: JDS
Dilution: 1
Units: ug/L

Instrument: HPMS9
Prep Date: N/A
Cal Date: 08/14/2017 14:15
Run Date: 08/28/2017 18:45
File ID: 9M982223

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.500
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.87	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3	4.39		1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8		U	2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	104	80	120	
Dibromofluoromethane	102	86	118	
p-Bromofluorobenzene	114	86	115	
Toluene-d8	104	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-19	**PrePrep Method:**	N/A	**Instrument:**	HPMS9
Client ID:	MW19-082317	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	8260C	**Cal Date:**	08/14/2017 14:15
Workgroup #:	WG627475	**Analyst:**	JDS	**Run Date:**	08/29/2017 01:16
Collect Date:	08/23/2017 15:35	**Dilution:**	1	**File ID:**	9M982236
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	1.00	0.500
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.500
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1		U	5.00	2.00
1,1,2-Trichloroethane	79-00-5		U	1.00	0.500
1,1-Dichloroethane	75-34-3		U	1.00	0.500
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichlorobenzene	87-61-6		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.500
1,2-Dibromo-3-chloropropane	96-12-8		U	5.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.500
1,2-Dichlorobenzene	95-50-1		U	1.00	0.500
1,2-Dichloroethane	107-06-2		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2	5.94		1.00	0.500
trans-1,2-Dichloroethene	156-60-5	7.70		1.00	0.500
1,2-Dichloropropane	78-87-5		U	1.00	0.500
1,3-Dichlorobenzene	541-73-1		U	1.00	0.500
1,4-Dichlorobenzene	106-46-7		U	1.00	0.500
2-Butanone	78-93-3		U	10.0	2.50
2-Hexanone	591-78-6		U	10.0	2.50
4-Methyl-2-pentanone	108-10-1		U	10.0	2.50
Acetone	67-64-1	2.80	J	10.0	2.50
Benzene	71-43-2		U	1.00	0.500
Bromochloromethane	74-97-5		U	1.00	0.500
Bromodichloromethane	75-27-4		U	1.00	0.500
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.500
Chlorobenzene	108-90-7		U	1.00	0.500
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.500
Chloromethane	74-87-3		U	1.00	0.500
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Cyclohexane	110-82-7		U	5.00	1.00
Dibromochloromethane	124-48-1		U	1.00	0.500
Dichlorodifluoromethane	75-71-8	21.4		2.00	0.500
Ethyl benzene	100-41-4		U	1.00	0.500
Isopropylbenzene	98-82-8		U	1.00	0.500
Methyl acetate	79-20-9		U	5.00	1.00
Methyl tert-butyl ether	1634-04-4		U	1.00	0.500
Methylcyclohexane	108-87-2		U	5.00	1.00
Methylene chloride	75-09-2		U	5.00	0.500
m,p-Xylene	179601-23-1		U	1.00	0.500
o-Xylene	95-47-6		U	1.00	0.500
Styrene	100-42-5		U	1.00	0.500
Tetrachloroethene	127-18-4		U	1.00	0.500
Toluene	108-88-3		U	1.00	0.500
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.500
Trichlorofluoromethane	75-69-4		U	1.00	0.500
Vinyl chloride	75-01-4		U	1.00	0.500
Epichlorohydrin	106-89-8			0.000	0.000

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	105	80	120	
Dibromofluoromethane	101	86	118	
p-Bromofluorobenzene	111	86	115	
Toluene-d8	105	88	110	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

2.1.1.2 QC Summary Data

Example 8260 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]

where:	**Example**
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]

where:	**Example**
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**
Dry weight correction:	
Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9 Dataset: 081417
Analyst1: ADC Analyst2: NA
Method: 8260B/C SOP: MSV01(C), OVAP MSV01 Rev: 25,0
Method: 5035, 5030B/ 5030C SOP: PAT01, OVAP PAT01 Rev: 19,1

Maintenance Log ID:

Internal Standard: STD82922 Surrogate Standard: STD82921
CCV: STD83326 LCS: STD83237 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG625140 (ICAL), WG625726

Comments: Low first surrogates after L17080372.

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
9M981988	WG625140-01 50ng BFB 8260	NA	1	1	STD83010	08/14/17 08:49
9M981989	RINSE	NA	1	1		08/14/17 09:13
9M981990	WG625140-02 0.5ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 09:43
9M981991	WG625140-03 1ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 10:13
9M981992	WG625140-04 2ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 10:43
9M981993	WG625140-05 5ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 11:14
9M981994	WG625140-03 1ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 11:44
9M981995	WG625140-06 20ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 12:14
9M981996	WG625140-07 50ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 12:44
9M981997	WG625140-08 100ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 13:14
9M981998	WG625140-09 200ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 13:45
9M981999	WG625140-10 300ug/L ICAL 8260C	NA	1	1	STD83326	08/14/17 14:15
9M982000	RINSE	NA	1	1		08/14/17 14:46
9M982001	WG625140-11 50ug/L ICV 8260C	NA	1	1	STD83237	08/14/17 15:16
9M982002	RINSE	NA	1	1		08/14/17 15:46
9M982003	WG625726-01 BLANK 8260C	NA	1	1		08/14/17 16:16
9M982004	L17080372-01 B 10X 8260C	<2	1	10		08/14/17 16:47
9M982005	WG625726-02 20ug/L LCS	NA	1	1	STD83233	08/14/17 17:17
9M982006	WG625726-03 20ug/L LCSDUP	NA	1	1	STD83233	08/14/17 17:47
9M982007	RINSE	NA	1	1		08/14/17 18:18
9M982008	L17080491-01 B 8260C	<2	1	1		08/14/17 18:48
9M982009	L17080541-01 A 8260C	<2	1	1		08/14/17 19:18
9M982010	RINSE	NA	1	1		08/14/17 19:48
9M982011	RINSE	NA	1	1		08/14/17 20:18

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3				
File ID: 9M981991				
			WG625140-03 RR. No secondary in DCDF	
6				
File ID: 9M981994				
			WG625140-03 No secondary in DCDF. RL changed to 2.	

Approved: August 15, 2017

Tiffany Bailey

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9 Dataset: 082817
Analyst1: JDS Analyst2: NA
Method: 8260 SOP: MSV01, OVAP MSV01 Rev: 25,0
Method: 5035, 5030B, 5030C SOP: PAT01, OVAP PAT01 Rev: 19,1

Maintenance Log ID:

Internal Standard: STD83990 Surrogate Standard: STD83991
CCV: STD83378 LCS: STD83584 MS/MSD: STD83584

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG627475

Comments: %RPT limit failed in MS/MSD for bromomethane

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
9M982213	WG627474-01 50ng BFB 8260	NA	1	1	STD83478	08/28/17 13:44
9M982214	WG627474-02 50ug/L CCV	NA	1	1	STD83378	08/28/17 14:08
9M982215	WGXXXXXX-01 100ug/L A9FOO	NA	1	1	STDXXXXX	08/28/17 14:38
9M982216	WG627475-01 BLANK	NA	1	1		08/28/17 15:08
9M982217	WG627475-02 20ug/L LCS 8260	NA	1	1	STD83584	08/28/17 15:39
9M982218	L17081212-04 A MS 8260C	<2	1	1	STD83584	08/28/17 16:14
9M982219	L17081212-06 A MSD 8260C	<2	1	1	STD83584	08/28/17 16:44
9M982220	L17081212-10 A FB 8260C	<2	1	1		08/28/17 17:15
9M982221	L17081212-01 A TB 8260C	<2	1	1		08/28/17 17:45
9M982222	L17081305-07 A TB 8260C	<2	1	1		08/28/17 18:15
9M982223	L17081305-18 A FB 8260C	<2	1	1		08/28/17 18:45
9M982224	L17081366-16 A FB 8260C	<2	1	1		08/28/17 19:15
9M982225	L17081366-09 A TB 8260C	<2	1	1		08/28/17 19:45
9M982226	L17081212-02 A REF 8260C	<2	1	1		08/28/17 20:15
9M982227	L17081305-01 A 8260C	<2	1	1		08/28/17 20:45
9M982228	L17081305-03 A 8260C	<2	1	1		08/28/17 21:16
9M982229	L17081305-14 A 8260C	<2	1	1		08/28/17 21:46
9M982230	L17081305-16 A 8260C	<2	1	1		08/28/17 22:16
9M982231	L17081366-01 A 8260C	<2	1	1		08/28/17 22:46
9M982232	L17081366-03 A 8260C	<2	1	1		08/28/17 23:16
9M982233	L17081366-05 A 8260C	<2	1	1		08/28/17 23:46
9M982234	L17081366-07 A 8260C	<2	1	1		08/29/17 00:16
9M982235	L17081366-14 A 8260C	<2	1	1		08/29/17 00:47
9M982236	L17081305-19 A 8260C	<2	1	1		08/29/17 01:16
9M982237	L17081305-05 A 8260C	4	1	1		08/29/17 01:46
9M982238	CCV	NA	1	1		08/29/17 02:16
9M982239	RINSE	NA	1	1		08/29/17 02:46
9M982240	RINSE	NA	1	1		08/29/17 03:16
9M982241	SCREEN 100X 1367-01	NA	1	1		08/29/17 03:46
9M982242	SCREEN 100X 1367-02	NA	1	1		08/29/17 04:16
9M982243	SCREEN 100X 1367-03	NA	1	1		08/29/17 04:46
9M982244	SCREEN 100X 1367-04	NA	1	1		08/29/17 05:16
9M982245	SCREEN 100X 1367-05	NA	1	1		08/29/17 05:46
9M982246	SCREEN 100X 1367-06	NA	1	1		08/29/17 06:17

Approved: September 05, 2017

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9 Dataset: 082817
Analyst1: JDS Analyst2: NA
Method: 8260 SOP: MSV01, OVAP MSV01 Rev: 25,0
Method: 5035, 5030B, 5030C SOP: PAT01, OVAP PAT01 Rev: 19,1

Maintenance Log ID:

Internal Standard: STD83990 Surrogate Standard: STD83991
CCV: STD83378 LCS: STD83584 MS/MSD: STD83584

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG627475

Comments: %RPT limit failed in MS/MSD for bromomethane

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
9M982247	SCREEN 100X 1367-07	NA	1	1		08/29/17 06:47
9M982248	SCREEN 100X 1428-01	NA	1	1		08/29/17 07:17

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2			Check Standard Failure	
File ID: 9M982214				
WG627474-02 CCv failed low for 12D3CP				
25				
File ID: 9M982237				
L17081305-05 MT DNR.				

Approved: September 05, 2017

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9 Dataset: 083017
Analyst1: JDS Analyst2: NA
Method: 8260 SOP: MSV01, OVAP MSV01 Rev: 25,0
Method: 5035, 5030B, 5030C SOP: PAT01, OVAP PAT01 Rev: 19,1

Maintenance Log ID:

Internal Standard: STD83990 Surrogate Standard: STD83991
CCV: STD83378 LCS: STD83625 MS/MSD: STD83625

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG627829

Comments: L17081366s and 1498s RR for CCV and LCS failure.

File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
9M982268	WG627828-01 50ng BFB 8260C	NA	1	1	STD83478	08/30/17 12:56
9M982269	WG627828-02 50ug/L CCV 8260C	NA	1	1	STD83378	08/30/17 13:20
9M982270	WG000000-01 100ug/kG A9FOO	NA	1	1	STD00000	08/30/17 13:51
9M982271	WG627829-01 BLANK 8260C	NA	1	1		08/30/17 14:21
9M982272	WG627829-02 20ug/L LCS 8260C	NA	1	1	STD83625	08/30/17 14:51
9M982273	L17081366-12 A MS 8260C	<2	1	1	STD83625	08/30/17 15:21
9M982274	L17081366-13 A MSD 8260C	<2	1	1	STD83625	08/30/17 15:52
9M982275	RINSE	NA	1	1		08/30/17 16:22
9M982276	L17081498-11 A TB 8260C	<2	1	1		08/30/17 16:52
9M982277	L17081366-10 A REF 8260C	<2	1	1		08/30/17 17:22
9M982278	L17081498-12 A FB 8260C	<2	1	1		08/30/17 17:52
9M982279	L17081305-05 B A1 8260C	3	1	1		08/30/17 18:22
9M982280	L17081498-03 A 8260C	<2	1	1		08/30/17 18:52
9M982281	L17081498-01 A 8260C	<2	1	1		08/30/17 19:23
9M982282	L17081366-17 A 8260C	<2	1	1		08/30/17 19:53
9M982283	L17081498-07 A 8260C	<2	1	1		08/30/17 20:23
9M982284	L17081498-09 A 8260C	<2	1	1		08/30/17 20:53
9M982285	L17081487-01 A 8260C	<2	1	1		08/30/17 21:23
9M982286	L17081487-02 A 8260C	<2	1	1		08/30/17 21:53
9M982287	L17081487-03 A 8260C	<2	1	1		08/30/17 22:23
9M982288	L17081487-04 A 8260C	<2	1	1		08/30/17 22:53
9M982289	L17081488-01 A 8260C	<2	1	1		08/30/17 23:23
9M982290	CCV	NA	1	1		08/30/17 23:53
9M982291	RINSE	NA	1	1		08/31/17 00:23
9M982292	RINSE	NA	1	1		08/31/17 00:53

Comments

Seq.	Rerun	Dil.	Reason	Analytes
2			Check Standard Failure	
File ID: 9M982269				
WG627828-02 CCV failed low for b.form, 12D3CP, 2-hex, and BM.				
5			LCS failure	
File ID: 9M982272				

Approved: September 06, 2017

Page: 1

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9 Dataset: 083017
Analyst1: JDS Analyst2: NA
Method: 8260 SOP: MSV01, OVAP MSV01 Rev: 25,0
Method: 5035, 5030B, 5030C SOP: PAT01, OVAP PAT01 Rev: 19,1

Maintenance Log ID:

Internal Standard: STD83990 Surrogate Standard: STD83991
CCV: STD83378 LCS: STD83625 MS/MSD: STD83625

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG627829

Comments: L17081366s and 1498s RR for CCV and LCS failure.

Comments

Seq.	Rerun	Dil.	Reason	Analytes
			WG627829-02 LCS failed low for 11-dichloroethene	
19	X	25	Over Calibration Range	tce
File ID: 9M982286				
	L17081487-02			
20	X	1	Carry-over contamination	
File ID: 9M982287				
	L17081487-03			
21			Carry-over contamination	
File ID: 9M982288				
	L17081487-04 Has TCE C/O. insufficent volume for RR.			

Approved: September 06, 2017

Page: 2

Microbac Laboratories Inc.

Data Checklist

Date: 14-AUG-2017
Analyst: ADC
Analyst: NA
Method: 8260C
Instrument: HPMS9
Curve Workgroup: WG625140
Runlog ID: 83962
Analytical Workgroups: WG625726

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	ADC
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	ADC
Secondary Reviewer	TMB
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
15-AUG-2017

Secondary Reviewer:
15-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-15-2017 11:54:53

Microbac Laboratories Inc.

Data Checklist

Date: 28-AUG-2017
Analyst: JDS
Analyst: NA
Method: 8260
Instrument: HPMS9
Curve Workgroup: NA
Runlog ID: 84298
Analytical Workgroups: WG627475

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	JDS
Surrogates	X
Internal Standards Criteria	X
Library Searches	X
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	NA
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	ADC
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
30-AUG-2017

Secondary Reviewer:
05-SEP-2017

CHECKLIST1 - Modified 03/05/2008
Generated: SEP-05-2017 10:05:16

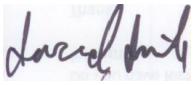
Microbac Laboratories Inc.

Data Checklist

Date: 30-AUG-2017
Analyst: JDS
Analyst: NA
Method: 8260
Instrument: HPMS9
Curve Workgroup: NA
Runlog ID: 84310
Analytical Workgroups: WG627829

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	X
Samples	X
TCL Hits	X
Spectra of TCL Hits	JDS
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	JDS
Secondary Reviewer	ADC
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
05-SEP-2017



Secondary Reviewer:
06-SEP-2017

CHECKLIST1 - Modified 03/05/2008
Generated: SEP-06-2017 10:46:25

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260C **AAB#:** WG627475

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/28/2017	5.5	14		08/28/17	5.5	14	
PZ04-082317	03	08/23/17					08/28/2017	5.4	14		08/28/17	5.4	14	
TB-082317	07	08/23/17					08/28/2017	5.4	14		08/28/17	5.4	14	
MW09R-082317	14	08/23/17					08/28/2017	5.3	14		08/28/17	5.3	14	
DUP-GW-082317-2	16	08/23/17					08/28/2017	5.5	14		08/28/17	5.5	14	
FB-082317	18	08/23/17					08/28/2017	5.2	14		08/28/17	5.2	14	
MW19-082317	19	08/23/17					08/29/2017	5.4	14		08/29/17	5.4	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5455968
Report generated 09/05/2017 11:23

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260C **AAB#:** WG627829

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
DUP-GW-082317-1	05	08/23/17					08/30/2017	7.4	14		08/30/17	7.4	14	

*** = SEE PROJECT QAPP REQUIREMENTS**

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5455968
Report generated 09/05/2017 11:23

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L17081305
Instrument Id: HPMS9
Workgroup (AAB#): WG627829

Method: 8260C
CAL ID: HPMS9-14-AUG-17
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L17081305-05	1.00	01	106	104	110	103
WG627829-01	1.00	01	104	98.5	111	104
WG627829-02	1.00	01	105	103	107	105

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	80	-	120
2 - Dibromofluoromethane	86	-	118
3 - p-Bromofluorobenzene	86	-	115
4 - Toluene-d8	88	-	110

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5455976
Report generated: 09/05/2017 11:24

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L17081305
Instrument Id: HPMS9
Workgroup (AAB#): WG627475
Method: 8260C
CAL ID: HPMS9-14-AUG-17
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4
L17081305-01	1.00	01	103	101	108	103
L17081305-03	1.00	01	103	102	108	100
L17081305-07	1.00	01	104	99.7	115	104
L17081305-14	1.00	01	105	102	109	102
L17081305-16	1.00	01	105	103	113	103
L17081305-18	1.00	01	104	102	114	104
L17081305-19	1.00	01	105	101	111	105
WG627475-01	1.00	01	104	101	113	106
WG627475-02	1.00	01	103	103	107	105

Surrogates	Surrogate Limits		
1 - 1,2-Dichloroethane-d4	80	-	120
2 - Dibromofluoromethane	86	-	118
3 - p-Bromofluorobenzene	86	-	115
4 - Toluene-d8	88	-	110

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5455976
Report generated: 09/05/2017 11:24

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627475
Blank File ID: 9M982216
Blank Sample ID: WG627475-01
Prep Date: 08/28/17 15:08
Instrument ID: HPMS9
Analyzed Date: 08/28/17 15:08
Method: 8260C
Analyst: JDS

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627475-02	9M982217	08/28/17 15:39	01
TB-082317	L17081305-07	9M982222	08/28/17 18:15	01
FB-082317	L17081305-18	9M982223	08/28/17 18:45	01
PZ06-082317	L17081305-01	9M982227	08/28/17 20:45	01
PZ04-082317	L17081305-03	9M982228	08/28/17 21:16	01
MW09R-082317	L17081305-14	9M982229	08/28/17 21:46	01
DUP-GW-082317-2	L17081305-16	9M982230	08/28/17 22:16	01
MW19-082317	L17081305-19	9M982236	08/29/17 01:16	01

Report Name: BLANK_SUMMARY
PDF File ID: 5455969
Report generated 09/05/2017 11:23

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number:	L17081305	Work Group:	WG627829
Blank File ID:	9M982271	Blank Sample ID:	WG627829-01
Prep Date:	08/30/17 14:21	Instrument ID:	HPMS9
Analyzed Date:	08/30/17 14:21	Method:	8260C
Analyst:	JDS		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627829-02	9M982272	08/30/17 14:51	01
DUP-GW-082317-1	L17081305-05	9M982279	08/30/17 18:22	01

Report Name: BLANK_SUMMARY
PDF File ID: 5455969
Report generated 09/05/2017 11:23

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L17081305 Prep Date:08/28/17 15:08 Sample ID:WG627475-01
Instrument ID:HPMS9 Run Date:08/28/17 15:08 Prep Method:5030B/5030C/503
File ID:9M982216 Analyst:JDS Method:8260C
Workgroup (AAB#):WG627475 Matrix:Water Units:ug/L
Contract #: Cal ID: HPMS9-14-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.500	1.00	0.500	1	U
1,1,2,2-Tetrachloroethane	0.500	1.00	0.500	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.00	5.00	2.00	1	U
1,1,2-Trichloroethane	0.500	1.00	0.500	1	U
1,1-Dichloroethane	0.500	1.00	0.500	1	U
1,1-Dichloroethene	0.500	1.00	0.500	1	U
1,2,3-Trichlorobenzene	0.500	1.00	0.500	1	U
1,2,4-Trichlorobenzene	0.500	1.00	0.500	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.500	1.00	0.500	1	U
1,2-Dichlorobenzene	0.500	1.00	0.500	1	U
1,2-Dichloroethane	0.500	1.00	0.500	1	U
cis-1,2-Dichloroethene	0.500	1.00	0.500	1	U
trans-1,2-Dichloroethene	0.500	1.00	0.500	1	U
1,2-Dichloropropane	0.500	1.00	0.500	1	U
1,3-Dichlorobenzene	0.500	1.00	0.500	1	U
1,4-Dichlorobenzene	0.500	1.00	0.500	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.500	1.00	0.500	1	U
Bromochloromethane	0.500	1.00	0.500	1	U
Bromodichloromethane	0.500	1.00	0.500	1	U
Bromoform	0.500	1.00	0.500	1	U
Bromomethane	0.500	1.00	0.500	1	U
Carbon disulfide	0.500	1.00	0.500	1	U
Carbon tetrachloride	0.500	1.00	0.500	1	U
Chlorobenzene	0.500	1.00	0.500	1	U
Chloroethane	0.500	1.00	0.500	1	U
Chloroform	0.500	1.00	0.500	1	U
Chloromethane	0.500	1.00	0.500	1	U
cis-1,3-Dichloropropene	0.500	1.00	0.500	1	U
Cyclohexane	1.00	5.00	1.00	1	U
Dibromochloromethane	0.500	1.00	0.500	1	U
Dichlorodifluoromethane	0.500	2.00	0.500	1	U
Ethyl benzene	0.500	1.00	0.500	1	U
Isopropylbenzene	0.500	1.00	0.500	1	U
Methyl acetate	1.00	5.00	1.00	1	U
Methyl tert-butyl ether	0.500	1.00	0.500	1	U
Methylcyclohexane	1.00	5.00	1.00	1	U
Methylene chloride	0.500	5.00	0.500	1	U

Report Name:BLANK
PDF ID: 5455970
05-SEP-2017 11:23

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/28/17 15:08 Sample ID: WG627475-01
Instrument ID: HPMS9 Run Date: 08/28/17 15:08 Prep Method: 5030B/5030C/503
File ID: 9M982216 Analyst: JDS Method: 8260C
Workgroup (AAB#): WG627475 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS9-14-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
m,p-Xylene	0.500	1.00	0.500	1	U
o-Xylene	0.500	1.00	0.500	1	U
Styrene	0.500	1.00	0.500	1	U
Tetrachloroethene	0.500	1.00	0.500	1	U
Toluene	0.500	1.00	0.500	1	U
trans-1,3-Dichloropropene	0.500	1.00	0.500	1	U
Trichloroethene	0.500	1.00	0.500	1	U
Trichlorofluoromethane	0.500	1.00	0.500	1	U
Vinyl chloride	0.500	1.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	104	80 - 120	PASS
Dibromofluoromethane	101	86 - 118	PASS
p-Bromofluorobenzene	113	86 - 115	PASS
Toluene-d8	106	88 - 110	PASS

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5455970
05-SEP-2017 11:23

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L17081305 Prep Date:08/30/17 14:21 Sample ID:WG627829-01
Instrument ID:HPMS9 Run Date:08/30/17 14:21 Prep Method:5030B/5030C/503
File ID:9M982271 Analyst:JDS Method:8260C
Workgroup (AAB#):WG627829 Matrix:Water Units:ug/L
Contract #: Cal ID: HPMS9-14-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
1,1,1-Trichloroethane	0.500	1.00	0.500	1	U
1,1,2,2-Tetrachloroethane	0.500	1.00	0.500	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.00	5.00	2.00	1	U
1,1,2-Trichloroethane	0.500	1.00	0.500	1	U
1,1-Dichloroethane	0.500	1.00	0.500	1	U
1,1-Dichloroethene	0.500	1.00	0.500	1	U
1,2,3-Trichlorobenzene	0.500	1.00	0.500	1	U
1,2,4-Trichlorobenzene	0.500	1.00	0.500	1	U
1,2-Dibromo-3-chloropropane	1.00	5.00	1.00	1	U
1,2-Dibromoethane	0.500	1.00	0.500	1	U
1,2-Dichlorobenzene	0.500	1.00	0.500	1	U
1,2-Dichloroethane	0.500	1.00	0.500	1	U
cis-1,2-Dichloroethene	0.500	1.00	0.500	1	U
trans-1,2-Dichloroethene	0.500	1.00	0.500	1	U
1,2-Dichloropropane	0.500	1.00	0.500	1	U
1,3-Dichlorobenzene	0.500	1.00	0.500	1	U
1,4-Dichlorobenzene	0.500	1.00	0.500	1	U
2-Butanone	2.50	10.0	2.50	1	U
2-Hexanone	2.50	10.0	2.50	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Acetone	2.50	10.0	2.50	1	U
Benzene	0.500	1.00	0.500	1	U
Bromochloromethane	0.500	1.00	0.500	1	U
Bromodichloromethane	0.500	1.00	0.500	1	U
Bromoform	0.500	1.00	0.500	1	U
Bromomethane	0.500	1.00	0.500	1	U
Carbon disulfide	0.500	1.00	0.500	1	U
Carbon tetrachloride	0.500	1.00	0.500	1	U
Chlorobenzene	0.500	1.00	0.500	1	U
Chloroethane	0.500	1.00	0.500	1	U
Chloroform	0.500	1.00	0.500	1	U
Chloromethane	0.500	1.00	0.500	1	U
cis-1,3-Dichloropropene	0.500	1.00	0.500	1	U
Cyclohexane	1.00	5.00	1.00	1	U
Dibromochloromethane	0.500	1.00	0.500	1	U
Dichlorodifluoromethane	0.500	2.00	0.500	1	U
Ethyl benzene	0.500	1.00	0.500	1	U
Isopropylbenzene	0.500	1.00	0.500	1	U
Methyl acetate	1.00	5.00	1.00	1	U
Methyl tert-butyl ether	0.500	1.00	0.500	1	U
Methylcyclohexane	1.00	5.00	1.00	1	U
Methylene chloride	0.500	5.00	0.500	1	U

Report Name:BLANK
PDF ID: 5455970
05-SEP-2017 11:23

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/30/17 14:21 Sample ID: WG627829-01
Instrument ID: HPMS9 Run Date: 08/30/17 14:21 Prep Method: 5030B/5030C/503
File ID: 9M982271 Analyst: JDS Method: 8260C
Workgroup (AAB#): WG627829 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS9-14-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
m,p-Xylene	0.500	1.00	0.500	1	U
o-Xylene	0.500	1.00	0.500	1	U
Styrene	0.500	1.00	0.500	1	U
Tetrachloroethene	0.500	1.00	0.500	1	U
Toluene	0.500	1.00	0.500	1	U
trans-1,3-Dichloropropene	0.500	1.00	0.500	1	U
Trichloroethene	0.500	1.00	0.500	1	U
Trichlorofluoromethane	0.500	1.00	0.500	1	U
Vinyl chloride	0.500	1.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits			Qualifier
1,2-Dichloroethane-d4	104	80	-	120	PASS
Dibromofluoromethane	98.5	86	-	118	PASS
p-Bromofluorobenzene	111	86	-	115	PASS
Toluene-d8	104	88	-	110	PASS

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5455970
05-SEP-2017 11:23

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627475-02
Instrument ID: HPMS9 Run Time: 15:39 Prep Method: 5030B/5030C/503
File ID: 9M982217 Analyst: JDS Method: 8260C
Workgroup (AAB#): WG627475 Matrix: Water Units: ug/L
QC Key: WATERLOO Lot#: STD83541 Cal ID: HPMS9-14-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,1,1-Trichloroethane	20.0	19.4	97.0	80 - 134	
1,1,2,2-Tetrachloroethane	20.0	19.7	98.6	79 - 125	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	21.2	106	80 - 130	
1,1,2-Trichloroethane	20.0	21.1	105	80 - 125	
1,1-Dichloroethane	20.0	18.8	93.8	80 - 125	
1,1-Dichloroethene	20.0	17.4	87.1	80 - 132	
1,2,3-Trichlorobenzene	20.0	22.9	114	55 - 140	
1,2,4-Trichlorobenzene	20.0	19.5	97.4	65 - 135	
1,2-Dibromo-3-chloropropane	20.0	19.0	95.1	50 - 130	
1,2-Dibromoethane	20.0	20.4	102	80 - 125	
1,2-Dichlorobenzene	20.0	22.3	112	80 - 125	
1,2-Dichloroethane	20.0	19.4	97.1	80 - 129	
cis-1,2-Dichloroethene	20.0	19.6	97.9	70 - 125	
trans-1,2-Dichloroethene	20.0	18.0	90.2	80 - 127	
1,2-Dichloropropane	20.0	19.9	99.5	80 - 120	
1,3-Dichlorobenzene	20.0	21.6	108	80 - 120	
1,4-Dichlorobenzene	20.0	21.8	109	80 - 120	
2-Butanone	20.0	18.7	93.3	30 - 150	
2-Hexanone	20.0	17.4	87.0	55 - 130	
4-Methyl-2-pentanone	20.0	18.0	90.1	64 - 140	
Acetone	20.0	19.9	99.4	40 - 142	
Benzene	20.0	18.8	94.2	80 - 121	
Bromochloromethane	20.0	19.2	96.0	65 - 130	
Bromodichloromethane	20.0	19.5	97.7	80 - 131	
Bromoform	20.0	16.5	82.7	70 - 130	
Bromomethane	20.0	17.7	88.5	30 - 145	
Carbon disulfide	20.0	17.2	85.9	58 - 138	
Carbon tetrachloride	20.0	19.5	97.4	65 - 140	
Chlorobenzene	20.0	21.2	106	80 - 120	
Chloroethane	20.0	21.2	106	60 - 135	
Chloroform	20.0	20.2	101	80 - 125	
Chloromethane	20.0	20.1	101	40 - 125	
cis-1,3-Dichloropropene	20.0	21.6	108	70 - 130	
Cyclohexane	20.0	18.5	92.4	80 - 130	
Dibromochloromethane	20.0	20.6	103	60 - 135	
Dichlorodifluoromethane	20.0	21.0	105	50 - 133	
Ethyl benzene	20.0	21.2	106	80 - 122	
Isopropylbenzene	20.0	21.0	105	80 - 122	
Methyl acetate	20.0	18.9	94.4	80 - 130	
Methyl tert-butyl ether	20.0	19.5	97.4	65 - 125	
Methylcyclohexane	20.0	18.8	94.2	80 - 130	

LCS - Modified 03/06/2008
PDF File ID: 5455971
Report generated: 09/05/2017 11:23

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627475-02
Instrument ID: HPMS9 Run Time: 15:39 Prep Method: 5030B/5030C/503
File ID: 9M982217 Analyst: JDS Method: 8260C
Workgroup (AAB#): WG627475 Matrix: Water Units: ug/L
QC Key: WATERLOO Lot#: STD83541 Cal ID: HPMS9-14-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Methylene chloride	20.0	18.9	94.4	80 - 123	
m,p-Xylene	40.0	44.2	110	80 - 122	
o-Xylene	20.0	21.8	109	80 - 122	
Styrene	20.0	19.1	95.3	80 - 123	
Tetrachloroethene	20.0	20.4	102	80 - 124	
Toluene	20.0	20.7	103	80 - 124	
trans-1,3-Dichloropropene	20.0	21.3	107	80 - 130	
Trichloroethene	20.0	21.2	106	80 - 122	
Trichlorofluoromethane	20.0	19.4	97.2	62 - 151	
Vinyl chloride	20.0	17.3	86.5	65 - 140	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	103	80 - 120	PASS
Dibromofluoromethane	103	86 - 118	PASS
p-Bromofluorobenzene	107	86 - 115	PASS
Toluene-d8	105	88 - 110	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 5455971
Report generated: 09/05/2017 11:23

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627829-02
Instrument ID: HPMS9 Run Time: 14:51 Prep Method: 5030B/5030C/503
File ID: 9M982272 Analyst: JDS Method: 8260C
Workgroup (AAB#): WG627829 Matrix: Water Units: ug/L
QC Key: WATERLOO Lot#: STD83625 Cal ID: HPMS9-14-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,1,1-Trichloroethane	20.0	18.5	92.5	80 - 134	
1,1,2,2-Tetrachloroethane	20.0	19.4	97.1	79 - 125	
1,1,2-Trichloro-1,2,2-Trifluoroethane	20.0	21.4	107	80 - 130	
1,1,2-Trichloroethane	20.0	21.4	107	80 - 125	
1,1-Dichloroethane	20.0	17.8	88.9	80 - 125	
1,1-Dichloroethene	20.0	14.8	74.1	80 - 132	*
1,2,3-Trichlorobenzene	20.0	23.2	116	55 - 140	
1,2,4-Trichlorobenzene	20.0	19.5	97.3	65 - 135	
1,2-Dibromo-3-chloropropane	20.0	19.6	98.1	50 - 130	
1,2-Dibromoethane	20.0	20.7	103	80 - 125	
1,2-Dichlorobenzene	20.0	22.5	113	80 - 125	
1,2-Dichloroethane	20.0	19.3	96.6	80 - 129	
cis-1,2-Dichloroethene	20.0	18.3	91.4	70 - 125	
trans-1,2-Dichloroethene	20.0	16.4	82.1	80 - 127	
1,2-Dichloropropane	20.0	20.0	100	80 - 120	
1,3-Dichlorobenzene	20.0	21.8	109	80 - 120	
1,4-Dichlorobenzene	20.0	22.3	111	80 - 120	
2-Butanone	20.0	20.5	102	30 - 150	
2-Hexanone	20.0	19.4	96.8	55 - 130	
4-Methyl-2-pentanone	20.0	19.0	95.1	64 - 140	
Acetone	20.0	20.8	104	40 - 142	
Benzene	20.0	17.8	88.9	80 - 121	
Bromochloromethane	20.0	18.5	92.7	65 - 130	
Bromodichloromethane	20.0	19.8	99.2	80 - 131	
Bromoform	20.0	17.0	84.9	70 - 130	
Bromomethane	20.0	13.2	66.0	30 - 145	
Carbon disulfide	20.0	15.7	78.5	58 - 138	
Carbon tetrachloride	20.0	18.1	90.4	65 - 140	
Chlorobenzene	20.0	21.3	107	80 - 120	
Chloroethane	20.0	19.5	97.7	60 - 135	
Chloroform	20.0	19.9	99.4	80 - 125	
Chloromethane	20.0	16.3	81.6	40 - 125	
cis-1,3-Dichloropropene	20.0	21.3	106	70 - 130	
Cyclohexane	20.0	17.9	89.6	80 - 130	
Dibromochloromethane	20.0	20.3	101	60 - 135	
Dichlorodifluoromethane	20.0	15.5	77.7	50 - 133	
Ethyl benzene	20.0	21.2	106	80 - 122	
Isopropylbenzene	20.0	20.8	104	80 - 122	
Methyl acetate	20.0	19.0	95.1	80 - 130	
Methyl tert-butyl ether	20.0	19.6	98.1	65 - 125	
Methylcyclohexane	20.0	18.4	91.8	80 - 130	

LCS - Modified 03/06/2008
PDF File ID: 5455971
Report generated: 09/05/2017 11:23

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627829-02
Instrument ID: HPMS9 Run Time: 14:51 Prep Method: 5030B/5030C/503
File ID: 9M982272 Analyst: JDS Method: 8260C
Workgroup (AAB#): WG627829 Matrix: Water Units: ug/L
QC Key: WATERLOO Lot#: STD83625 Cal ID: HPMS9-14-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Methylene chloride	20.0	16.9	84.4	80 - 123	
m,p-Xylene	40.0	43.7	109	80 - 122	
o-Xylene	20.0	21.6	108	80 - 122	
Styrene	20.0	18.9	94.6	80 - 123	
Tetrachloroethene	20.0	19.7	98.6	80 - 124	
Toluene	20.0	20.1	100	80 - 124	
trans-1,3-Dichloropropene	20.0	21.1	105	80 - 130	
Trichloroethene	20.0	21.1	106	80 - 122	
Trichlorofluoromethane	20.0	19.2	95.8	62 - 151	
Vinyl chloride	20.0	19.2	95.9	65 - 140	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dichloroethane-d4	105	80 - 120	PASS
Dibromofluoromethane	103	86 - 118	PASS
p-Bromofluorobenzene	107	86 - 115	PASS
Toluene-d8	105	88 - 110	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 5455971
Report generated: 09/05/2017 11:23

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L17081305
Instrument: HPMS9
Analyst: ADC
Workgroup: WG625140

Tune ID: WG625140-01
Run Date: 08/14/2017
Run Time: 08:49
File ID: 9M981988
Cal ID: HPMS9-14-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	22.1	5904	PASS
75.0	95.0	30.0	60.0	49.1	13134	PASS
95.0	95.0	100	100	100	26746	PASS
96.0	95.0	5.00	9.00	7.11	1901	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	83.3	22290	PASS
175	174	5.00	9.00	7.18	1601	PASS
176	174	95.0	101	96.5	21505	PASS
177	176	5.00	9.00	7.01	1507	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG625140-02	STD	01	08/14/2017 09:43	
WG625140-04	STD	01	08/14/2017 10:43	
WG625140-05	STD	01	08/14/2017 11:14	
WG625140-03	STD	01	08/14/2017 11:44	
WG625140-06	STD	01	08/14/2017 12:14	
WG625140-07	STD-CCV	01	08/14/2017 12:44	
WG625140-08	STD	01	08/14/2017 13:14	
WG625140-09	STD	01	08/14/2017 13:45	
WG625140-10	STD	01	08/14/2017 14:15	
WG625140-11	SSCV	01	08/14/2017 15:16	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5455973
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L17081305
Instrument: HPMS9
Analyst: JDS
Workgroup: WG627474

Tune ID: WG627474-01
Run Date: 08/28/2017
Run Time: 13:44
File ID: 9M982213
Cal ID: HPMS9-14-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	21.5	7933	PASS
75.0	95.0	30.0	60.0	47.6	17593	PASS
95.0	95.0	100	100	100	36952	PASS
96.0	95.0	5.00	9.00	6.67	2465	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	82.6	30517	PASS
175	174	5.00	9.00	7.08	2160	PASS
176	174	95.0	101	97.5	29765	PASS
177	176	5.00	9.00	6.81	2028	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG627474-02	CCV	01	08/28/2017 14:08	
WG627475-01	BLANK	01	08/28/2017 15:08	
WG627475-01	BLANK	01	08/28/2017 15:08	
WG627475-02	LCS	01	08/28/2017 15:39	
L17081305-07	TB-082317	01	08/28/2017 18:15	
L17081305-18	FB-082317	01	08/28/2017 18:45	
L17081305-01	PZ06-082317	01	08/28/2017 20:45	
L17081305-03	PZ04-082317	01	08/28/2017 21:16	
L17081305-14	MW09R-082317	01	08/28/2017 21:46	
L17081305-16	DUP-GW-082317-2	01	08/28/2017 22:16	
L17081305-19	MW19-082317	01	08/29/2017 01:16	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5455973
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L17081305
Instrument: HPMS9
Analyst: JDS
Workgroup: WG627828

Tune ID: WG627828-01
Run Date: 08/30/2017
Run Time: 12:56
File ID: 9M982268
Cal ID: HPMS9-14-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	22.7	8195	PASS
75.0	95.0	30.0	60.0	48.7	17620	PASS
95.0	95.0	100	100	100	36149	PASS
96.0	95.0	5.00	9.00	6.81	2463	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	85.5	30909	PASS
175	174	5.00	9.00	7.06	2183	PASS
176	174	95.0	101	96.3	29760	PASS
177	176	5.00	9.00	7.01	2086	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG627828-02	CCV	01	08/30/2017 13:20	
WG627829-01	BLANK	01	08/30/2017 14:21	
WG627829-01	BLANK	01	08/30/2017 14:21	
WG627829-02	LCS	01	08/30/2017 14:51	
L17081305-05	DUP-GW-082317-1	01	08/30/2017 18:22	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5455973
Report generated 09/05/2017 11:24

Calibration Table Report
Method: 8260C.M
Title: 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Calibration: Mon Aug 14 14:47:27 2017
Curve: WG625140
Calibration Files

Compound	0.5 9M981990.D	1 9M981994.D	2 9M981992.D	5 9M981993.D	20 9M981995.D	50 9M981996.D	100 9M981997.D	200 9M981998.D	300 9M981999.D	Avg	%RSD	R^2 Linear	 Quadratic
Fluorobenzene	ISTD												
Dichlorodifluoromethane			0.308	0.320	0.393	0.402	0.375	0.397		0.366	11.242		
Chloromethane		0.611	0.533	0.492	0.488	0.515	0.444	0.430		0.502	12.003		
Vinyl Chloride		0.322	0.379	0.335	0.383	0.393	0.341	0.344		0.357	7.794		
1,3-Butadiene		0.110	0.140	0.134	0.143	0.146	0.131	0.137	0.111	0.131	10.402		
Bromomethane		0.241	0.240	0.224	0.207	0.211	0.204	0.209		0.219	7.177		
Chloroethane		0.172	0.184	0.207	0.217	0.231	0.223	0.218		0.207	10.509		
Trichlorofluoromethane		0.392	0.449	0.452	0.469	0.490	0.472	0.493		0.460	7.411		
Diethyl ether		0.280	0.278	0.294	0.271	0.288	0.281		0.301	0.285	3.594		
Isoprene		0.306	0.307	0.357	0.381	0.411	0.399	0.421	0.414	0.374	12.473		
Acrolein			0.041	0.048	0.046	0.050	0.050		0.053	0.048	8.902		
1,1,2-Trichloro-1,2,2-Trifluoroet			0.209	0.229	0.247	0.256	0.247	0.259		0.241	7.956		
Acetone			0.155	0.148	0.156	0.152	0.145	0.160	0.148	0.152	3.567		
1,1-Dichloroethene		0.420	0.405	0.411	0.429	0.456	0.442	0.462		0.432	5.077		
Tert-Butyl Alcohol		0.043	0.049	0.052	0.047	0.052	0.054		0.070	0.052	16.455		
Dimethyl Sulfide		0.264	0.305	0.329	0.350	0.365	0.353	0.374	0.366	0.338	11.045		
Iodomethane				0.257	0.321	0.356	0.348	0.372		0.331	13.668		
Methyl acetate		0.375	0.370	0.383	0.392	0.402	0.391	0.408	0.402	0.390	3.492		
Methylene Chloride		0.258	0.263	0.286	0.288	0.295	0.290	0.300		0.283	5.644		
Carbon Disulfide		0.652	0.659	0.673	0.704	0.756	0.721	0.772		0.705	6.659		
Acrylonitrile		0.165	0.174	0.185	0.176	0.197	0.193		0.195	0.184	6.581		
Methyl Tert Butyl Ether		0.848	0.834	0.875	0.879	0.920	0.906	0.940		0.886	4.306		
trans-1,2-Dichloroethene		0.387	0.376	0.385	0.398	0.421	0.413	0.432		0.402	5.122		
n-Hexane				0.329	0.359	0.397	0.386	0.419	0.383	0.379	8.263		
Diisopropyl ether		1.024	1.068	1.141	1.062	1.118	1.080		1.116	1.087	3.700		
Vinyl Acetate				0.619	0.660	0.694	0.681	0.765	0.659	0.680	7.201		
1,1-Dichloroethane		0.468	0.494	0.527	0.545	0.573	0.552	0.575		0.533	7.506		
Ethyl-Tert-Butyl ether		0.915	0.979	1.039	0.960	1.021	0.995		1.044	0.993	4.645		
2-Butanone				0.190	0.229	0.229	0.225	0.242	0.243	0.226	8.429		
Propionitrile		0.039	0.066	0.069	0.068	0.074	0.075		0.085	0.068	20.740	0.994	
2,2-Dichloropropane		0.393	0.352	0.387	0.386	0.401	0.393	0.408		0.388	4.599		
cis-1,2-Dichloroethene		0.238	0.252	0.276	0.298	0.311	0.308	0.321		0.286	11.165		
Chloroform	0.400	0.441	0.441	0.489	0.499	0.516	0.502	0.522		0.476	9.160		
1-Bromopropane				0.037	0.054	0.058	0.056	0.060	0.059	0.054	15.789		
Bromochloromethane		0.165	0.190	0.207	0.208	0.220	0.218	0.228		0.205	10.522		
Tetrahydrofuran		0.126	0.137	0.144	0.136	0.146	0.146		0.152	0.141	6.199		
Dibromofluoromethane	0.271	0.272	0.275	0.277	0.284	0.285	0.281	0.291	0.286	0.280	2.430		
1,1,1-Trichloroethane		0.400	0.396	0.419	0.442	0.469	0.455	0.478		0.437	7.506		
Cyclohexane				0.507	0.541	0.569	0.544	0.579	0.551	0.549	4.568		
1,1-Dichloropropene		0.302	0.270	0.312	0.331	0.361	0.360	0.375		0.330	11.440		
Tert-Amyl-Methyl ether		0.736	0.801	0.864	0.801	0.849	0.836		0.882	0.824	5.986		
Carbon Tetrachloride		0.33761	0.34851	0.38431	0.4003	0.42763	0.42516	0.44222		0.39511	10.2295		
1,2-Dichloroethane-d4	0.32291	0.32907	0.32444	0.33099	0.32894	0.32662	0.3213	0.3307	0.32813	0.32701	1.05287		
Heptane										0	0		
1,2-Dichloroethane		0.42705	0.41484	0.47359	0.46673	0.47856	0.46972	0.48886		0.45991	6.03806		
Benzene		1.06454	1.06415	1.09109	1.10495	1.13533	1.10146	1.12952		1.09872	2.5627		
Trichloroethene		0.25766	0.26059	0.28251	0.29694	0.31524	0.30913	0.32107		0.29188	8.8006		
Methylcyclohexane				0.39421	0.42656	0.45093	0.433	0.46255	0.44097	0.4347	5.43098		
1,2-Dichloropropane		0.27173	0.265	0.29468	0.30947	0.32893	0.3213	0.33922		0.30433	9.3317		
1,4-Dioxane			0.00296	0.00478	0.00483	0.00527	0.00577		0.00668	0.00505	24.6457	0.993	
Bromodichloromethane		0.29497	0.32406	0.35527	0.36607	0.39761	0.39886	0.42325		0.36573	12.3674		
Dibromomethane		0.15809	0.16593	0.19368	0.20641	0.22027	0.22082	0.23591		0.20016	14.6101		
2-Chloroethyl Vinyl Ether				0.17562	0.23178	0.24578	0.24923	0.27256	0.2697	0.24078	14.7059		
4-Methyl-2-Pentanone				0.11975	0.17176	0.18485	0.18632	0.21227	0.21588	0.18181	19.1652		
cis-1,3-Dichloropropene		0.29924	0.32568	0.37734	0.42344	0.46312	0.4686	0.49803		0.40792	18.6161		
Dimethyl Disulfide				0.15901	0.20597	0.25525	0.26667	0.3041	0.29671	0.24795	22.5327	0.997	
Chlorobenzene-d5	ISTD												
Toluene-d8	1.22603	1.23433	1.22294	1.26156	1.25706	1.23697	1.19606	1.20531	1.23814	1.23093	1.74278		
Toluene		1.36674	1.32922	1.47151	1.48931	1.54244	1.47848	1.46224		1.44856	5.12122		
Ethyl Methacrylate			0.28255	0.40775	0.50145	0.5686	0.57308	0.6161	0.60964	0.50845	24.2	0.999	
trans-1,3-Dichloropropene		0.34549	0.38916	0.43933	0.50246	0.57695	0.56288	0.58497		0.48589	19.8027		
1,1,2-Trichloroethane		0.32099	0.30224	0.35984	0.36784	0.38116	0.37378	0.38428		0.35573	8.90357		
2-Hexanone				0.24677	0.37888	0.43358	0.44958	0.49314	0.51577	0.41962	23.1734	0.997	
1,3-Dichloropropane		0.52259	0.53311	0.57806	0.59603	0.6221	0.61135	0.6196		0.58327	7.00083		
Tetrachloroethene		0.28903	0.24472	0.30345	0.28798	0.31319	0.30429	0.31151		0.29345	8.06098		
Dibromochloromethane		0.32493	0.34704	0.38294	0.42283	0.46217	0.47266	0.49412		0.41524	15.7398		
1,2-Dibromoethane		0.28481	0.31736	0.36914	0.3893	0.42156	0.41938	0.43794		0.37707	15.2209		
1-Chlorohexane		0.30452	0.29036	0.3508	0.4031	0.45518	0.4429	0.47739	0.44863	0.39661	18.2606		
Chlorobenzene		0.96494	0.85828	0.97451	1.01905	1.07761	1.05436	1.08507		1.00483	7.95934		
1,1,1,2-Tetrachloroethane		0.34549	0.31891	0.38356	0.40035	0.42702	0.42148	0.44719		0.392	11.7772		
Ethylbenzene		0.44643	0.4355	0.5161	0.54304	0.57848	0.57532	0.61222		0.52959	12.7699		
m-,p-Xylene	0.4666	0.54702	0.54837	0.65143	0.67167	0.71082	0.70003	0.71558		0.62644	14.9145		
o-Xylene		0.53836	0.53691	0.63994	0.67301	0.70733	0.70446	0.73943		0.64849	12.6093		
Styrene		0.62931	0.71566	0.89457	1.06136	1.18019	1.18818	1.2598		0.98987	25.0122	0.998	
Bromoform			0.20696	0.2706	0.31545	0.35843	0.37704	0.42106		0.32492	23.8541	0.995	
Isopropylbenzene		1.3873	1.37184	1.60388	1.68831	1.79542	1.75966	1.78985		1.62804	11.1958		
1,4-Dichlorobenzene-d4	ISTD												
1,1,2,2-Tetrachloroethane		0.87465	0.87272	1.03791	1.07035	1.13204	1.0509	1.09467		1.01903	10.1943		
p-Bromofluorobenzene	0.90463	0.91396	0.89058	0.95089	0.9348	0.87976	0.81712	0.83822	0.84915	0.88657	5.06991		
1,2,3-Trichloropropane		0.23991	0.34832	0.35374	0.36184	0.38226	0.34984	0.35941		0.34219	13.5916		

trans-1,4-Dichloro-2-Butene			0.3209	0.37667	0.3952	0.37599	0.40844	0.38907	0.37771	8.03946	
n-Propylbenzene	3.03535	2.99421	3.52689	3.73324	3.89173	3.45372	3.32297		3.42259	9.77686	
Bromobenzene	0.79142	0.77525	0.9108	0.92161	0.93029	0.85346	0.87142		0.86489	7.19124	
1,3,5-Trimethylbenzene	2.43793	2.26808	2.68607	2.91025	2.95587	2.66641	2.63276		2.65105	9.16215	
2-Chlorotoluene	2.28954	2.27869	2.18882	2.34678	2.44985	2.12323	2.16323		2.26288	5.03455	
4-Chlorotoluene	1.58639	1.67466	1.8971	2.29573	2.33151	2.16186	2.1338		2.01158	14.7473	
a-Methylstyrene		0.91962	1.20508	1.44797	1.61913	1.51006	1.60159	1.53571	1.40559	18.1391	
tert-Butylbenzene	0.45998	0.52263	0.60263	0.6194	0.62492	0.57226	0.59203		0.57055	10.4567	
1,2,4-Trimethylbenzene	2.42342	2.37071	2.79005	3.02279	3.08775	2.78128	2.76524		2.74875	9.87201	
sec-Butylbenzene	2.76019	2.77242	3.22203	3.54512	3.70135	3.3203	3.26719		3.22694	11.0371	
p-Isopropyltoluene	2.06118	2.13167	2.70949	3.01673	3.14876	2.8766	2.88407		2.68979	15.8984	
1,3-Dichlorobenzene	1.28191	1.29743	1.495	1.61386	1.70928	1.62336	1.68262		1.52907	11.5777	
1,4-Dichlorobenzene	1.41193	1.42204	1.54522	1.63198	1.69729	1.65868	1.71778		1.58356	7.98574	
n-Butylbenzene	1.43148	1.61523	1.99998	2.34876	2.64134	2.50828	2.57445		2.15993	22.4716	0.999
1,2-Dichlorobenzene	1.45044	1.41924	1.6392	1.74601	1.82688	1.74475	1.75565		1.6546	9.67268	
1,2-Dibromo-3-Chloropropane		0.14363	0.21413	0.27859	0.32946	0.3086	0.31936		0.26563	27.4126	0.999
1,2,4-Trichlorobenzene	0.74729	0.72717	0.92655	1.11571	1.28664	1.21227	1.25193		1.03822	22.8457	0.999
Hexachlorobutadiene	0.27338	0.36381	0.44889	0.47704	0.56012	0.54453	0.55867		0.46092	23.6661	0.999
Naphthalene	2.60143	2.67067	3.48684	4.14419	4.57953	4.00693	3.65977		3.59277	20.6359	0.993
1,2,3-Trichlorobenzene	0.82933	0.86284	1.04721	1.2484	1.39547	1.27179	1.28414		1.13417	19.6122	

Mon Aug 14 15:51:36 2017

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/14/2017 Sample ID: WG625140-11
Instrument ID: HPMS9 Run Time: 15:16 Method: 8260C
File ID: 9M982001 Analyst: ADC QC Key: WATERLOO
ICal Workgroup: WG625140 Cal ID: HPMS9 - 14-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	47.3	ug/L	0.409	5.40	25	
1,2-Dichloropropane	CCC	50.0	51.6	ug/L	0.314	3.30	25	
Chloroform	CCC	50.0	51.9	ug/L	0.495	3.80	25	
Ethylbenzene	CCC	50.0	53.8	ug/L	0.570	7.60	25	
Toluene	CCC	50.0	50.1	ug/L	1.45	0.300	25	
Vinyl Chloride	CCC	50.0	45.2	ug/L	0.323	9.50	25	
1,1,2,2-Tetrachloroethane	SPCC	50.0	54.5	ug/L	1.11	9.00	25	
1,1-Dichloroethane	SPCC	50.0	49.5	ug/L	0.528	1.00	25	
Bromoform	SPCC	50.0	47.3	ug/L	0.368	5.40	25	
Chlorobenzene	SPCC	50.0	53.2	ug/L	1.07	6.40	25	
Chloromethane	SPCC	50.0	48.7	ug/L	0.489	2.60	25	
1,1,1-Trichloroethane		50.0	49.9	ug/L	0.436	0.200	25	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	55.3	ug/L	0.267	10.7	25	
1,1,2-Trichloroethane		50.0	52.3	ug/L	0.372	4.70	25	
1,2,3-Trichlorobenzene		50.0	56.9	ug/L	1.29	13.8	25	
1,2,4-Trichlorobenzene		50.0	49.8	ug/L	1.22	0.300	25	
1,2-Dibromo-3-Chloropropane		50.0	49.3	ug/L	0.307	1.30	25	
1,2-Dibromoethane		50.0	54.2	ug/L	0.409	8.30	25	
1,2-Dichlorobenzene		50.0	56.6	ug/L	1.87	13.1	25	
1,2-Dichloroethane		50.0	49.5	ug/L	0.456	0.900	25	
cis-1,2-Dichloroethene		50.0	51.2	ug/L	0.293	2.40	25	
trans-1,2-Dichloroethene		50.0	48.7	ug/L	0.392	2.50	25	
1,3-Dichlorobenzene		50.0	53.9	ug/L	1.65	7.80	25	
1,4-Dichlorobenzene		50.0	55.2	ug/L	1.75	10.4	25	
2-Butanone		50.0	52.0	ug/L	0.236	4.10	25	
2-Hexanone		50.0	54.3	ug/L	0.512	8.70	25	
4-Methyl-2-Pentanone		50.0	56.7	ug/L	0.206	13.5	25	
Acetone		50.0	51.0	ug/L	0.155	2.10	25	
Benzene		50.0	48.9	ug/L	1.08	2.10	25	
Bromochloromethane		50.0	50.0	ug/L	0.205	0.100	25	
Bromodichloromethane		50.0	50.9	ug/L	0.373	1.90	25	
Bromomethane		50.0	42.1	ug/L	0.185	15.7	25	
Carbon Disulfide		50.0	47.3	ug/L	0.667	5.40	25	
Carbon Tetrachloride		50.0	50.5	ug/L	0.399	1.00	25	
Chloroethane		50.0	55.0	ug/L	0.228	10.0	25	
cis-1,3-Dichloropropene		50.0	58.4	ug/L	0.477	16.8	25	
Cyclohexane		50.0	49.0	ug/L	0.538	2.00	25	
Dibromochloromethane		50.0	53.5	ug/L	0.445	7.10	25	
Dichlorodifluoromethane		50.0	54.7	ug/L	0.400	9.40	25	
Isopropylbenzene		50.0	53.0	ug/L	1.73	6.10	25	
Methyl acetate		50.0	48.6	ug/L	0.379	2.80	25	
Methyl Tert Butyl Ether		50.0	51.2	ug/L	0.907	2.30	25	

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455972
Report generated 09/05/2017 11:23

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/14/2017 Sample ID: WG625140-11
Instrument ID: HPMS9 Run Time: 15:16 Method: 8260C
File ID: 9M982001 Analyst: ADC QC Key: WATERLOO
ICal Workgroup: WG625140 Cal ID: HPMS9 - 14-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Methylcyclohexane		50.0	50.0	ug/L	0.435	0	25	
Methylene Chloride		50.0	49.3	ug/L	0.279	1.40	25	
m-,p-Xylene		100	111	ug/L	0.695	10.9	25	
o-Xylene		50.0	54.5	ug/L	0.707	9.00	25	
Styrene		50.0	49.8	ug/L	1.20	0.400	25	
Tetrachloroethene		50.0	50.1	ug/L	0.294	0.200	25	
trans-1,3-Dichloropropene		50.0	56.7	ug/L	0.551	13.4	25	
Trichloroethene		50.0	50.1	ug/L	0.293	0.200	25	
Trichlorofluoromethane		50.0	50.2	ug/L	0.462	0.500	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455972
Report generated 09/05/2017 11:23

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627474-02

Instrument ID: HPMS9 Run Time: 14:08 Method: 8260C

File ID: 9M982214 Analyst: JDS QC Key: WATERLOO

Workgroup (AAB#): WG627475 Cal ID: HPMS9 - 14-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	51.3	ug/L	0.443	2.51	20	
1,2-Dichloropropane	CCC	50.0	50.2	ug/L	0.306	0.432	20	
Chloroform	CCC	50.0	50.3	ug/L	0.479	0.533	20	
Ethylbenzene	CCC	50.0	53.2	ug/L	0.564	6.43	20	
Toluene	CCC	50.0	50.8	ug/L	1.47	1.53	20	
Vinyl Chloride	CCC	50.0	46.5	ug/L	0.332	7.09	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	42.9	ug/L	0.874	14.2	20	
1,1-Dichloroethane	SPCC	50.0	50.5	ug/L	0.539	1.01	20	
Bromoform	SPCC	50.0	41.7	ug/L	0.324	16.5	20	
Chlorobenzene	SPCC	50.0	51.3	ug/L	1.03	2.59	20	
Chloromethane	SPCC	50.0	47.1	ug/L	0.473	5.88	20	
Xylenes		150	161	ug/L	0.679	7.51	20	
1,1,1-Trichloroethane		50.0	50.0	ug/L	0.437	0.00380	20	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	54.6	ug/L	0.264	9.20	20	
1,1,2-Trichloroethane		50.0	49.3	ug/L	0.351	1.46	20	
1,2,3-Trichlorobenzene		50.0	55.0	ug/L	1.25	9.90	20	
1,2,4-Trichlorobenzene		50.0	49.9	ug/L	1.23	0.226	20	
1,2-Dibromo-3-Chloropropane		50.0	39.2	ug/L	0.243	21.5	20	*
1,2-Dibromoethane		50.0	50.4	ug/L	0.380	0.854	20	
1,2-Dichlorobenzene		50.0	50.2	ug/L	1.66	0.411	20	
1,2-Dichloroethane		50.0	48.5	ug/L	0.446	3.05	20	
cis-1,2-Dichloroethene		50.0	51.1	ug/L	0.292	2.13	20	
trans-1,2-Dichloroethene		50.0	49.9	ug/L	0.401	0.132	20	
1,3-Dichlorobenzene		50.0	53.0	ug/L	1.62	6.06	20	
1,4-Dichlorobenzene		50.0	51.8	ug/L	1.64	3.55	20	
2-Butanone		50.0	42.9	ug/L	0.194	14.1	20	
2-Hexanone		50.0	40.0	ug/L	0.368	20.0	20	
4-Methyl-2-Pentanone		50.0	43.4	ug/L	0.158	13.1	20	
Acetone		50.0	43.1	ug/L	0.131	13.7	20	
Benzene		50.0	48.1	ug/L	1.06	3.72	20	
Bromochloromethane		50.0	49.0	ug/L	0.201	2.01	20	
Bromodichloromethane		50.0	50.2	ug/L	0.368	0.472	20	
Bromomethane		50.0	42.2	ug/L	0.185	15.6	20	
Carbon Disulfide		50.0	50.2	ug/L	0.709	0.493	20	
Carbon Tetrachloride		50.0	51.8	ug/L	0.410	3.63	20	
Chloroethane		50.0	52.2	ug/L	0.216	4.33	20	
cis-1,3-Dichloropropene		50.0	53.9	ug/L	0.440	7.80	20	
Cyclohexane		50.0	49.8	ug/L	0.546	0.468	20	
Dibromochloromethane		50.0	52.5	ug/L	0.436	4.97	20	
Dichlorodifluoromethane		50.0	48.8	ug/L	0.357	2.44	20	
Isopropylbenzene		50.0	52.9	ug/L	1.72	5.81	20	
Methyl acetate		50.0	49.3	ug/L	0.385	1.32	20	

CCV - Modified 03/05/2008

PDF File ID: 5455974

Report generated 09/05/2017 11:24

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627474-02
Instrument ID: HPMS9 Run Time: 14:08 Method: 8260C
File ID: 9M982214 Analyst: JDS QC Key: WATERLOO
Workgroup (AAB#): WG627475 Cal ID: HPMS9 - 14-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Methyl Tert Butyl Ether		50.0	48.1	ug/L	0.853	3.76	20	
Methylcyclohexane		50.0	53.0	ug/L	0.461	6.10	20	
Methylene Chloride		50.0	48.6	ug/L	0.275	2.72	20	
m-,p-Xylene		100	109	ug/L	0.685	9.35	20	
o-Xylene		50.0	51.9	ug/L	0.673	3.85	20	
Styrene		50.0	46.8	ug/L	1.13	6.43	20	
Tetrachloroethene		50.0	53.2	ug/L	0.312	6.43	20	
trans-1,3-Dichloropropene		50.0	55.5	ug/L	0.539	11.0	20	
Trichloroethene		50.0	54.8	ug/L	0.320	9.65	20	
Trichlorofluoromethane		50.0	51.5	ug/L	0.474	3.09	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5455974
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627828-02

Instrument ID: HPMS9 Run Time: 13:20 Method: 8260C

File ID: 9M982269 Analyst: JDS QC Key: WATERLOO

Workgroup (AAB#): WG627829 Cal ID: HPMS9 - 14-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloroethene	CCC	50.0	49.4	ug/L	0.427	1.13	20	
1,2-Dichloropropane	CCC	50.0	48.9	ug/L	0.297	2.30	20	
Chloroform	CCC	50.0	49.2	ug/L	0.468	1.68	20	
Ethylbenzene	CCC	50.0	49.9	ug/L	0.528	0.215	20	
Toluene	CCC	50.0	48.9	ug/L	1.42	2.19	20	
Vinyl Chloride	CCC	50.0	49.1	ug/L	0.350	1.88	20	
1,1,2,2-Tetrachloroethane	SPCC	50.0	40.8	ug/L	0.832	18.3	20	
1,1-Dichloroethane	SPCC	50.0	49.7	ug/L	0.531	0.526	20	
Bromoform	SPCC	50.0	39.3	ug/L	0.304	21.4	20	*
Chlorobenzene	SPCC	50.0	49.8	ug/L	1.00	0.449	20	
Chloromethane	SPCC	50.0	48.4	ug/L	0.486	3.12	20	
Xylenes		150	155	ug/L	0.654	3.60	20	
1,1,1-Trichloroethane		50.0	46.9	ug/L	0.410	6.11	20	
1,1,2-Trichloro-1,2,2-Trifluoroethane		50.0	51.3	ug/L	0.248	2.63	20	
1,1,2-Trichloroethane		50.0	48.2	ug/L	0.343	3.58	20	
1,2,3-Trichlorobenzene		50.0	53.4	ug/L	1.21	6.87	20	
1,2,4-Trichlorobenzene		50.0	47.3	ug/L	1.16	5.49	20	
1,2-Dibromo-3-Chloropropane		50.0	36.6	ug/L	0.226	26.9	20	*
1,2-Dibromoethane		50.0	49.0	ug/L	0.370	1.94	20	
1,2-Dichlorobenzene		50.0	48.8	ug/L	1.62	2.34	20	
1,2-Dichloroethane		50.0	48.6	ug/L	0.447	2.76	20	
cis-1,2-Dichloroethene		50.0	49.5	ug/L	0.284	0.922	20	
trans-1,2-Dichloroethene		50.0	48.3	ug/L	0.388	3.44	20	
1,3-Dichlorobenzene		50.0	50.8	ug/L	1.55	1.59	20	
1,4-Dichlorobenzene		50.0	49.8	ug/L	1.58	0.404	20	
2-Butanone		50.0	42.7	ug/L	0.193	14.7	20	
2-Hexanone		50.0	39.6	ug/L	0.363	20.9	20	*
4-Methyl-2-Pentanone		50.0	42.9	ug/L	0.156	14.2	20	
Acetone		50.0	43.2	ug/L	0.131	13.6	20	
Benzene		50.0	46.3	ug/L	1.02	7.32	20	
Bromochloromethane		50.0	49.1	ug/L	0.201	1.88	20	
Bromodichloromethane		50.0	49.4	ug/L	0.361	1.23	20	
Bromomethane		50.0	36.3	ug/L	0.159	27.4	20	*
Carbon Disulfide		50.0	46.0	ug/L	0.649	7.93	20	
Carbon Tetrachloride		50.0	49.5	ug/L	0.391	0.934	20	
Chloroethane		50.0	50.3	ug/L	0.209	0.622	20	
cis-1,3-Dichloropropene		50.0	52.0	ug/L	0.424	3.94	20	
Cyclohexane		50.0	45.6	ug/L	0.500	8.87	20	
Dibromochloromethane		50.0	50.6	ug/L	0.421	1.26	20	
Dichlorodifluoromethane		50.0	56.3	ug/L	0.412	12.6	20	
Isopropylbenzene		50.0	50.3	ug/L	1.64	0.671	20	
Methyl acetate		50.0	42.4	ug/L	0.331	15.3	20	

CCV - Modified 03/05/2008

PDF File ID: 5455974

Report generated 09/05/2017 11:24

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627828-02
Instrument ID: HPMS9 Run Time: 13:20 Method: 8260C
File ID: 9M982269 Analyst: JDS QC Key: WATERLOO
Workgroup (AAB#): WG627829 Cal ID: HPMS9 - 14-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Methyl Tert Butyl Ether		50.0	46.7	ug/L	0.828	6.60	20	
Methylcyclohexane		50.0	47.1	ug/L	0.410	5.75	20	
Methylene Chloride		50.0	48.2	ug/L	0.273	3.57	20	
m-,p-Xylene		100	106	ug/L	0.661	5.55	20	
o-Xylene		50.0	49.8	ug/L	0.647	0.304	20	
Styrene		50.0	45.0	ug/L	1.09	10.1	20	
Tetrachloroethene		50.0	49.3	ug/L	0.289	1.45	20	
trans-1,3-Dichloropropene		50.0	54.1	ug/L	0.526	8.14	20	
Trichloroethene		50.0	54.4	ug/L	0.317	8.75	20	
Trichlorofluoromethane		50.0	50.8	ug/L	0.467	1.55	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5455974
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L17081305
Instrument ID: HPMS9
Workgroup (AAB#): WG627475

CCV Number: WG627474-02
CAL ID: HPMS9-14-AUG-17
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG627474-02	NA	NA	260486	487062	635075
Upper Limit	NA	NA	520972	974124	1270150
Lower Limit	NA	NA	130243	243531	317538
L17081305-01	1.00	01	178712	378174	504060
L17081305-03	1.00	01	195570	414752	538351
L17081305-07	1.00	01	186703	416276	552023
L17081305-14	1.00	01	191657	409502	534673
L17081305-16	1.00	01	180663	388283	511533
L17081305-18	1.00	01	178238	394290	525039
L17081305-19	1.00	01	172841	370660	493691
WG627475-01	1.00	01	193852	415459	555386
WG627475-02	1.00	01	215958	416822	550237

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD - Modified 03/06/2008
PDF File ID: 5455975
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L17081305
Instrument ID: HPMS9
Workgroup (AAB#): WG627829

CCV Number: WG627828-02
CAL ID: HPMS9-14-AUG-17
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG627828-02	NA	NA	239836	448351	583814
Upper Limit	NA	NA	479672	896702	1167628
Lower Limit	NA	NA	119918	224176	291907
L17081305-05	1.00	01	183071	384128	502705
WG627829-01	1.00	01	179771	389939	523922
WG627829-02	1.00	01	209727	404903	529316

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD - Modified 03/06/2008
PDF File ID: 5455975
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L17081305
Instrument ID: HPMS9
Workgroup (AAB#): WG627475

CCV Number: WG627474-02
CAL ID: HPMS9-14-AUG-17
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG627474-02	NA	NA	17.58	14.56	10.7
Upper Limit	NA	NA	18.08	15.06	11.2
Lower Limit	NA	NA	17.08	14.06	10.2
L17081305-01	1.00	01	17.58	14.56	10.7
L17081305-03	1.00	01	17.58	14.56	10.7
L17081305-07	1.00	01	17.58	14.56	10.7
L17081305-14	1.00	01	17.58	14.56	10.7
L17081305-16	1.00	01	17.58	14.56	10.7
L17081305-18	1.00	01	17.58	14.56	10.7
L17081305-19	1.00	01	17.58	14.56	10.7
WG627475-01	1.00	01	17.58	14.56	10.7
WG627475-02	1.00	01	17.58	14.56	10.7

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT - Modified 03/06/2008
PDF File ID: 5455977
Report generated 09/05/2017 11:24

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L17081305
Instrument ID: HPMS9
Workgroup (AAB#): WG627829

CCV Number: WG627828-02
CAL ID: HPMS9-14-AUG-17
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG627828-02	NA	NA	17.58	14.56	10.7
Upper Limit	NA	NA	18.08	15.06	11.2
Lower Limit	NA	NA	17.08	14.06	10.2
L17081305-05	1.00	01	17.58	14.56	10.7
WG627829-01	1.00	01	17.58	14.56	10.7
WG627829-02	1.00	01	17.58	14.56	10.7

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT - Modified 03/06/2008
PDF File ID: 5455977
Report generated 09/05/2017 11:24

2.1.1.3 Sample Data

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982227.D Vial: 14
Acq On : 28 Aug 2017 20:45 Operator: JDS
Sample : L17081305-01 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:45 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

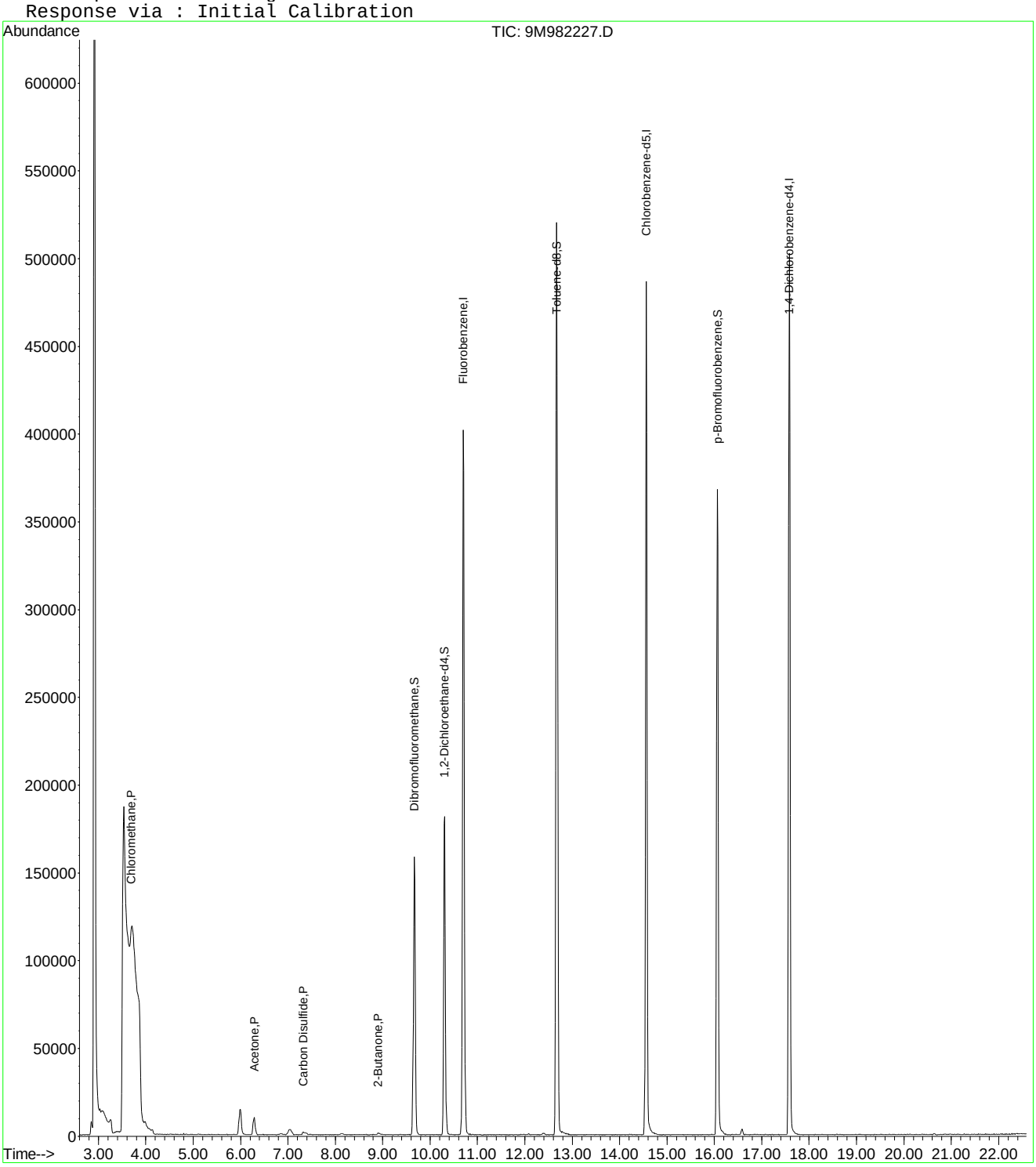
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	504060	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	378174	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	178712	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	142551	50.5085 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 101.02%		
43) 1,2-Dichloroethane-d4	10.30	65	169189	51.3215 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 102.64%		
58) Toluene-d8	12.67	98	479893	51.5452 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 103.10%		
79) p-Bromofluorobenzene	16.06	95	170368	53.7640 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 107.52%		
Target Compounds					Qvalue
3) Chloromethane	3.69	50	3100	0.6126 ug/L #	68
13) Acetone	6.29	43	21581	14.0893 ug/L	96
20) Carbon Disulfide	7.32	76	4297	0.6043 ug/L #	74
29) 2-Butanone	8.91	43	3272	1.4343 ug/L #	57

(#) = qualifier out of range (m) = manual integration
9M982227.D 8260C.M Tue Aug 29 09:33:45 2017 Page 1

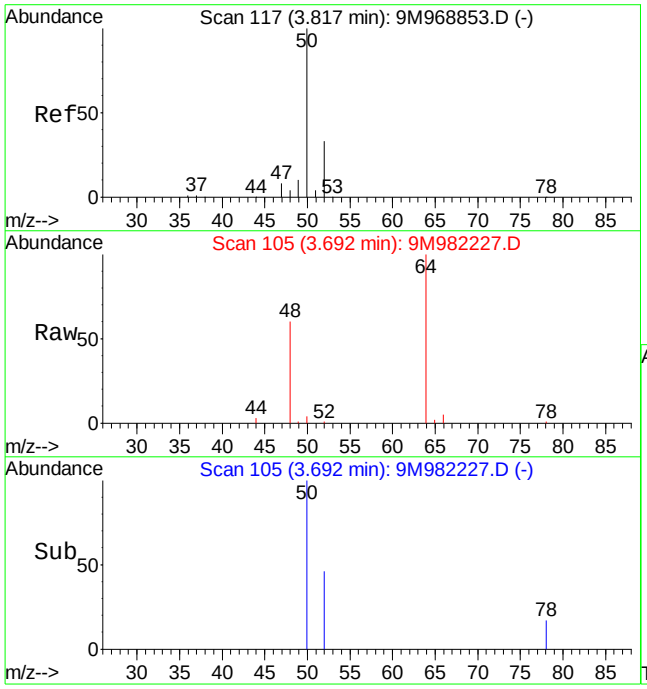
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982227.D Vial: 14
Acq On : 28 Aug 2017 20:45 Operator: JDS
Sample : L17081305-01 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



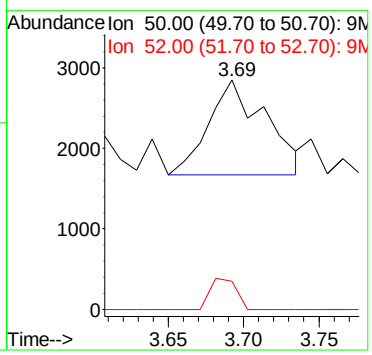
9M982227.D 8260C.M Tue Aug 29 09:33:45 2017 Page 2

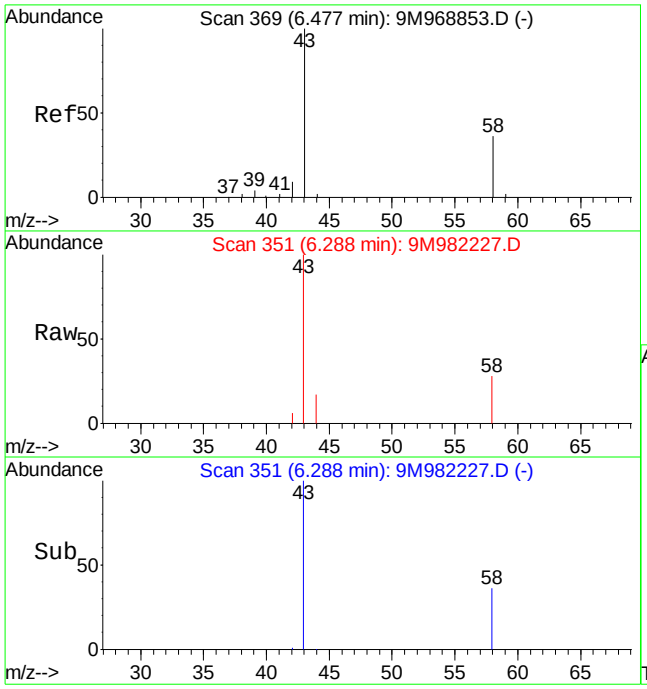


#3
Chloromethane
Concen: 0.61 ug/L
RT: 3.69 min Scan# 105
Delta R.T. 0.01 min
Lab File: 9M982227.D
Acq: 28 Aug 2017 20:45

Tgt Ion: 50 Resp: 3100

Ion	Ratio	Lower	Upper
50	100		
52	14.9	19.6	45.8#

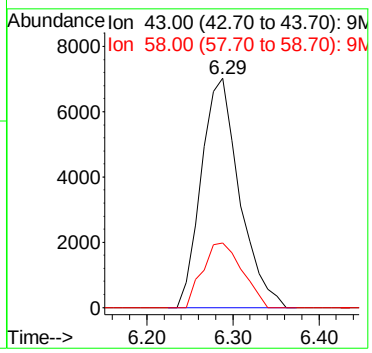


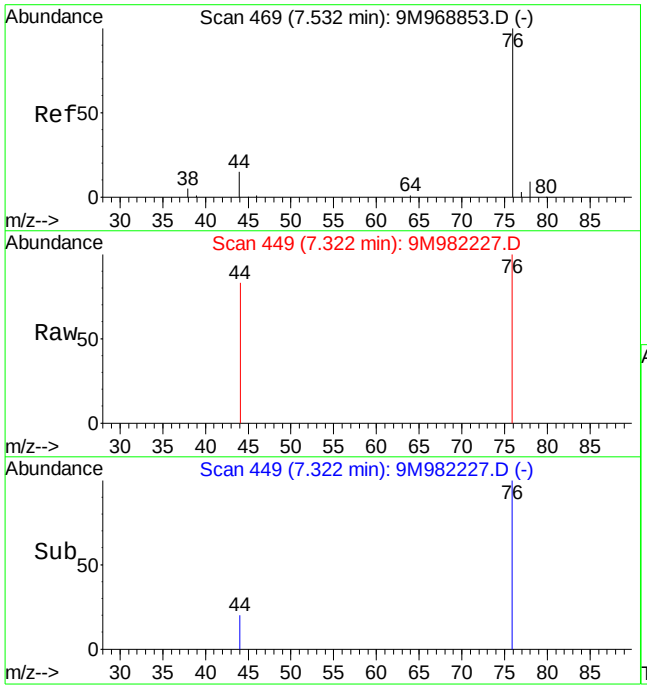


#13
Acetone
Concen: 14.09 ug/L
RT: 6.29 min Scan# 351
Delta R.T. 0.01 min
Lab File: 9M982227.D
Acq: 28 Aug 2017 20:45

Tgt Ion: 43 Resp: 21581

Ion	Ratio	Lower	Upper
43	100		
58	29.2	18.9	44.1

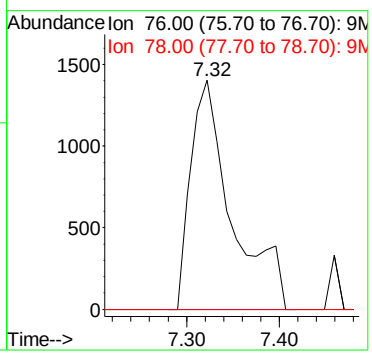


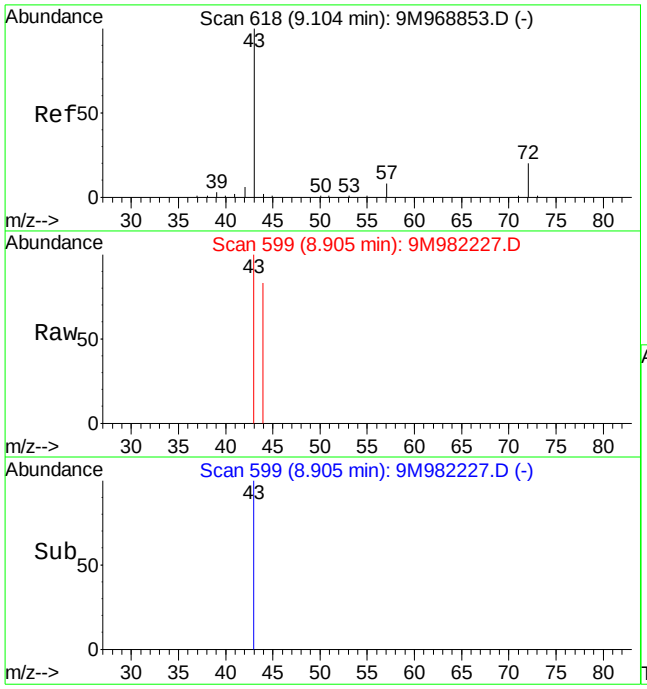


#20
Carbon Disulfide
Concen: 0.60 ug/L
RT: 7.32 min Scan# 449
Delta R.T. 0.01 min
Lab File: 9M982227.D
Acq: 28 Aug 2017 20:45

Tgt Ion: 76 Resp: 4297

Ion	Ratio	Lower	Upper
76	100		
78	0.0	5.6	13.2#

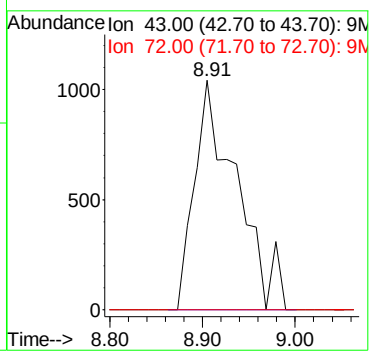




#29
2-Butanone
Concen: 1.43 ug/L
RT: 8.91 min Scan# 599
Delta R.T. 0.02 min
Lab File: 9M982227.D
Acq: 28 Aug 2017 20:45

Tgt Ion: 43 Resp: 3272

Ion	Ratio	Lower	Upper
43	100		
72	0.0	11.7	27.3#



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982227.D Vial: 14
Acq On : 28 Aug 2017 20:45 Operator: JDS
Sample : L17081305-01 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

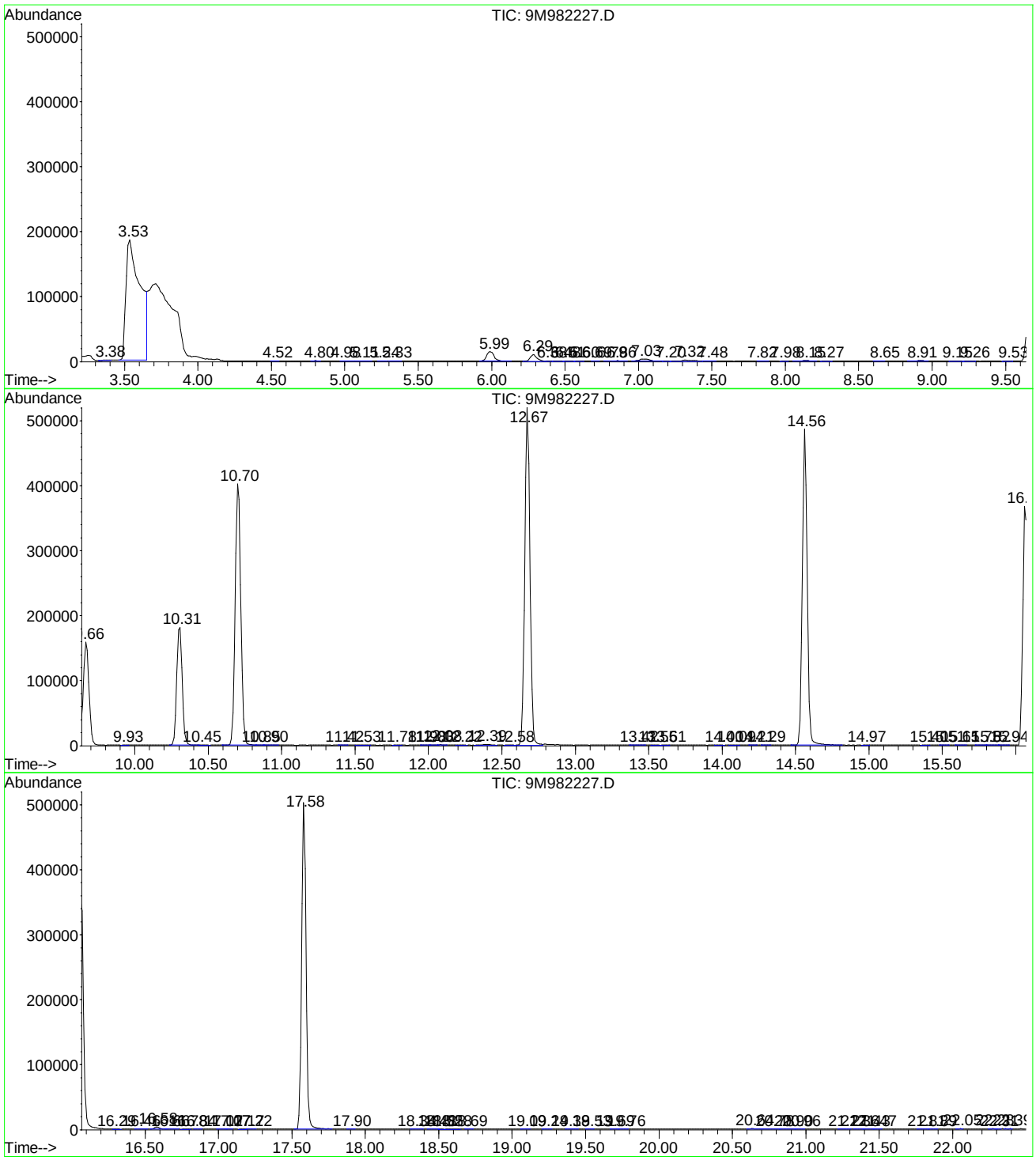
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.375	70	75	78	rBV2	861	2339	0.18%	0.030%
2	3.534	83	90	101	rBV	185279	1250554	97.98%	16.209%
3	4.515	181	183	186	rBV	299	513	0.04%	0.007%
4	4.800	207	210	213	rVV	890	708	0.06%	0.009%
5	4.979	226	227	235	rVB	236	565	0.04%	0.007%
6	5.106	235	239	246	rVV	437	1473	0.12%	0.019%
7	5.243	250	252	256	rVV	213	528	0.04%	0.007%
8	5.328	257	260	265	rVV	428	755	0.06%	0.010%
9	5.993	316	323	336	rBV	14550	51155	4.01%	0.663%
10	6.288	344	351	358	rVB	9948	31165	2.44%	0.404%
11	6.383	359	360	363	rVV	291	565	0.04%	0.007%
12	6.478	363	369	370	rVB	358	1190	0.09%	0.015%
13	6.510	370	372	377	rVB	290	871	0.07%	0.011%
14	6.605	377	381	383	rBV	318	955	0.07%	0.012%
15	6.689	388	389	393	rVV	291	514	0.04%	0.007%
16	6.795	396	399	400	rVV	316	651	0.05%	0.008%
17	6.858	401	405	411	rVV	693	2908	0.23%	0.038%
18	7.027	414	421	434	rBV3	3155	17547	1.37%	0.227%
19	7.196	434	437	439	rVB	315	514	0.04%	0.007%
20	7.322	439	449	460	rBV3	1861	9733	0.76%	0.126%
21	7.481	460	464	468	rVB	355	793	0.06%	0.010%
22	7.818	495	496	502	rVB	287	745	0.06%	0.010%
23	7.976	510	511	515	rBV	301	673	0.05%	0.009%
24	8.145	518	527	533	rBV2	809	3966	0.31%	0.051%
25	8.272	536	539	543	rVB	332	1107	0.09%	0.014%
26	8.652	570	575	577	rVB	264	589	0.05%	0.008%
27	8.905	592	599	605	rBV	1083	3616	0.28%	0.047%
28	9.148	619	622	628	rVB	316	1201	0.09%	0.016%
29	9.264	628	633	636	rBV	279	952	0.07%	0.012%
30	9.528	653	658	660	rBV	316	735	0.06%	0.010%
31	9.665	664	671	684	rVB	158524	435753	34.14%	5.648%
32	9.929	694	696	699	rBV	280	622	0.05%	0.008%
33	10.309	725	732	744	rBV	181436	467752	36.65%	6.063%
34	10.446	744	745	751	rVB	349	817	0.06%	0.011%
35	10.699	759	769	781	rVB	401817	1080416	84.65%	14.004%
36	10.847	781	783	786	rBV	594	981	0.08%	0.013%
37	10.900	786	788	795	rVB	432	576	0.05%	0.007%
38	11.417	834	837	840	rBV	182	527	0.04%	0.007%
39	11.533	845	848	855	rVV	286	983	0.08%	0.013%
40	11.775	869	871	875	rBV	354	652	0.05%	0.008%
41	11.976	887	890	893	rVB	361	496	0.04%	0.006%
42	12.029	893	895	898	rBV	255	518	0.04%	0.007%

43	12.082	898	900	904	rVB	795	1035	0.08%	0.013%
44	12.219	910	913	917	rVB	307	758	0.06%	0.010%
45	12.388	922	929	936	rBV2	1054	4742	0.37%	0.061%
46	12.578	941	947	948	rVB	321	950	0.07%	0.012%
47	12.672	948	956	966	rBV	520066	1276272	100.00%	16.543%
48	13.422	1022	1027	1032	rVB	300	1054	0.08%	0.014%
49	13.548	1036	1039	1042	rVB	309	718	0.06%	0.009%
50	13.612	1042	1045	1048	rBV	272	503	0.04%	0.007%
51	14.002	1077	1082	1083	rVB	317	701	0.05%	0.009%
52	14.087	1086	1090	1093	rVV	309	713	0.06%	0.009%
53	14.213	1099	1102	1104	rVV	375	690	0.05%	0.009%
54	14.287	1107	1109	1113	rBV	288	599	0.05%	0.008%
55	14.561	1126	1135	1159	rBV	486310	1124645	88.12%	14.577%
56	14.973	1172	1174	1177	rBV	278	555	0.04%	0.007%
57	15.395	1210	1214	1216	rBV	271	725	0.06%	0.009%
58	15.511	1222	1225	1228	rVB	244	629	0.05%	0.008%
59	15.606	1232	1234	1239	rBV	237	570	0.04%	0.007%
60	15.754	1245	1248	1252	rBV	209	562	0.04%	0.007%
61	15.817	1252	1254	1260	rVB	254	724	0.06%	0.009%
62	15.944	1260	1266	1267	rBV	333	791	0.06%	0.010%
63	16.060	1272	1277	1293	rVB	367854	825797	64.70%	10.704%
64	16.292	1298	1299	1303	rVB	329	669	0.05%	0.009%
65	16.461	1312	1315	1320	rVV	271	693	0.05%	0.009%
66	16.577	1322	1326	1332	rVB3	3366	8606	0.67%	0.112%
67	16.661	1332	1334	1340	rBV	279	870	0.07%	0.011%
68	16.778	1342	1345	1348	rBV	289	831	0.07%	0.011%
69	16.841	1350	1351	1355	rVV	260	513	0.04%	0.007%
70	17.020	1365	1368	1371	rVB	246	518	0.04%	0.007%
71	17.073	1371	1373	1375	rBV	425	734	0.06%	0.010%
72	17.168	1379	1382	1384	rBV	310	507	0.04%	0.007%
73	17.221	1384	1387	1390	rVB	384	747	0.06%	0.010%
74	17.580	1415	1421	1439	rBV	502392	1056460	82.78%	13.693%
75	17.896	1449	1451	1454	rBV	227	520	0.04%	0.007%
76	18.339	1490	1493	1498	rVB	274	796	0.06%	0.010%
77	18.477	1501	1506	1508	rVV	248	754	0.06%	0.010%
78	18.519	1508	1510	1512	rVB	296	502	0.04%	0.007%
79	18.582	1512	1516	1522	rBV	385	1528	0.12%	0.020%
80	18.688	1525	1526	1530	rVB	248	536	0.04%	0.007%
81	19.089	1561	1564	1567	rBV	266	649	0.05%	0.008%
82	19.236	1575	1578	1581	rBV	290	632	0.05%	0.008%
83	19.384	1590	1592	1598	rBV	312	881	0.07%	0.011%
84	19.532	1603	1606	1608	rVV	303	567	0.04%	0.007%
85	19.690	1619	1621	1624	rVB	347	534	0.04%	0.007%
86	19.764	1624	1628	1630	rBV	265	614	0.05%	0.008%
87	20.640	1707	1711	1716	rVB	764	1746	0.14%	0.023%
88	20.777	1717	1724	1728	rBV	381	1362	0.11%	0.018%
89	20.904	1728	1736	1738	rBV	256	912	0.07%	0.012%
90	20.956	1738	1741	1744	rBV	224	500	0.04%	0.006%
91	21.273	1766	1771	1774	rVV	468	710	0.06%	0.009%
92	21.357	1776	1779	1782	rVB	407	687	0.05%	0.009%
93	21.431	1782	1786	1789	rBV	253	709	0.06%	0.009%
94	21.474	1789	1790	1794	rBV	286	590	0.05%	0.008%
95	21.811	1817	1822	1824	rVB	330	528	0.04%	0.007%
96	21.885	1824	1829	1830	rVB	432	821	0.06%	0.011%
97	22.054	1842	1845	1846	rBV	500	577	0.05%	0.007%
98	22.276	1863	1866	1868	rBV	760	987	0.08%	0.013%
99	22.307	1868	1869	1871	rBV	452	692	0.05%	0.009%
100	22.392	1873	1877	1878	rBV2	604	1210	0.09%	0.016%

Sum of corrected areas: 7715098

File : C:\MSDCHEM\1\DATA\082817\9M982227.D
Operator : JDS
Acquired : 28 Aug 2017 20:45 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-01 A 8260C
Misc Info : 1,1
Vial Number: 14
Quant File :8260C.RES (RTE Integrator)



Data File : C:\MSDCHEM\1\DATA\082817\9M982227.D Vial: 14
Acq On : 28 Aug 2017 20:45 Operator: JDS
Sample : L17081305-01 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

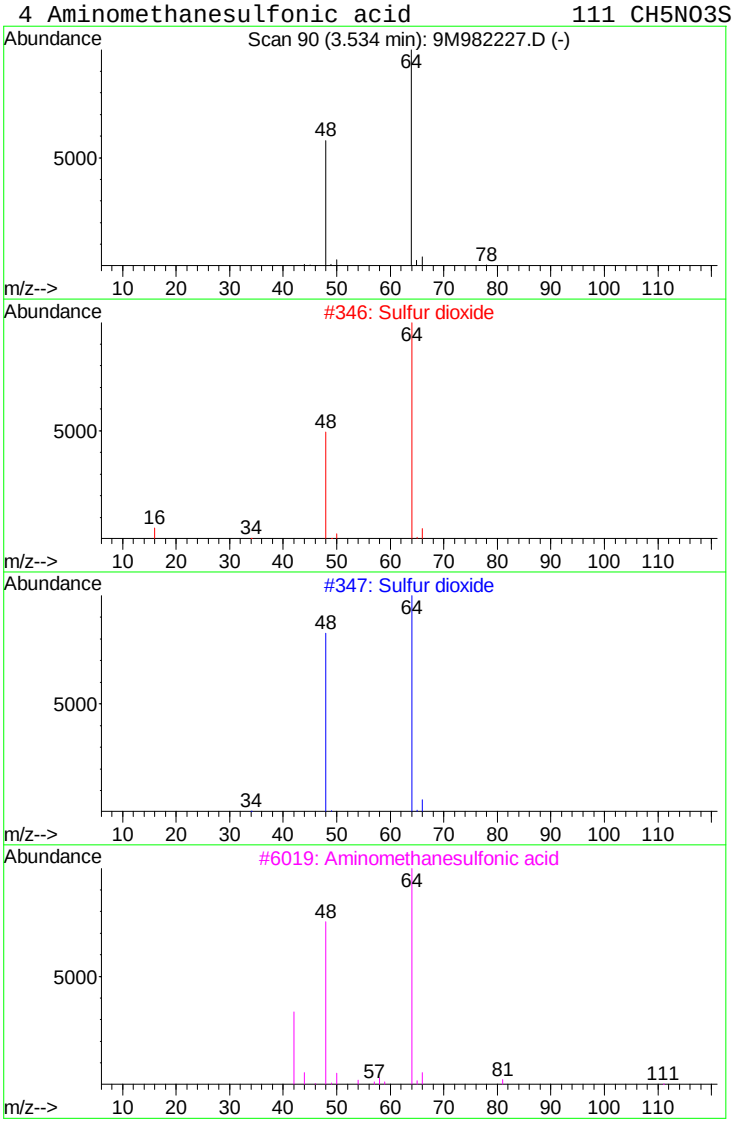
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

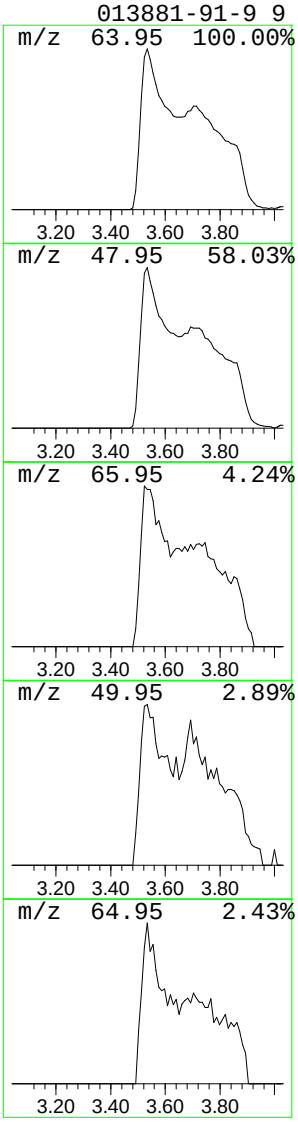
****

Peak Number 1 Sulfur dioxide Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.53	57.87 ug/L	1250550	Fluorobenzene	10.70

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	90
2	Sulfur dioxide	64	O2S	007446-09-5	83
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9
4	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9





Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 28 Aug 2017 20:45
Data File: C:\MSDCHEM\1\DATA\082817\9M982227.D
Name: L17081305-01 A 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
Sulfur dioxide	3.53	57.9	ug/L	1250550	1	10.70	1080420	50.0

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:46 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

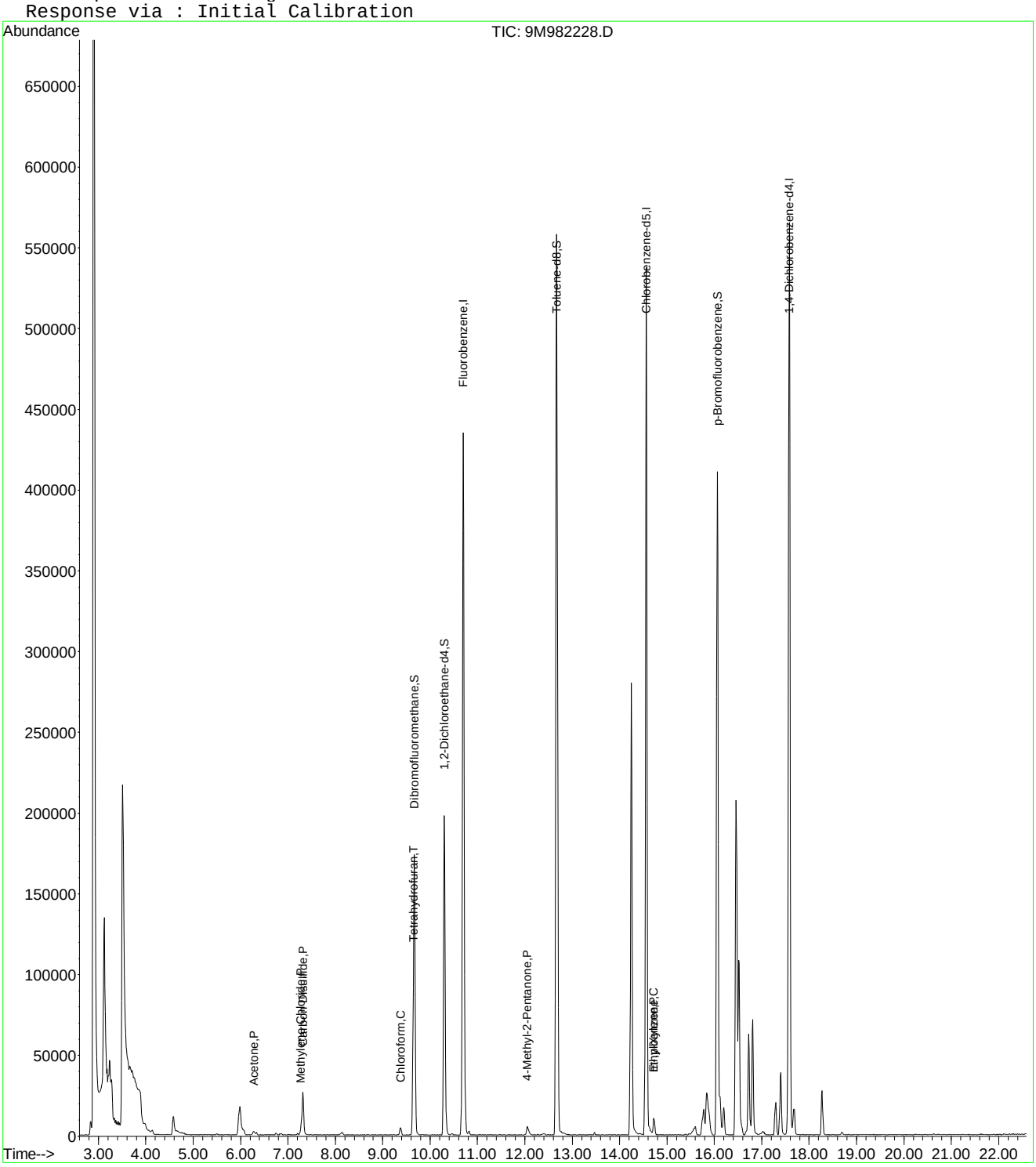
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	538351	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	414752	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	195570	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	154411	51.2259 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.46%		
43) 1,2-Dichloroethane-d4	10.30	65	180987	51.4033 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 102.80%		
58) Toluene-d8	12.67	98	512694	50.2117 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 100.42%		
79) p-Bromofluorobenzene	16.06	95	186992	53.9235 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 107.84%		
Target Compounds					Qvalue
13) Acetone	6.28	43	4472	2.7336 ug/L	84
19) Methylene Chloride	7.27	84	1475	0.4844 ug/L	97
20) Carbon Disulfide	7.31	76	53663	7.0664 ug/L	98
33) Chloroform	9.38	83	5942	1.1588 ug/L	99
36) Tetrahydrofuran	9.64	42	2232	1.4708 ug/L #	56
54) 4-Methyl-2-Pentanone	12.05	58	2851	1.4564 ug/L #	55
71) Ethylbenzene	14.72	106	5016	1.1418 ug/L #	34
72) m-,p-Xylene	14.72	106	5016	0.9653 ug/L	90

(#) = qualifier out of range (m) = manual integration
9M982228.D 8260C.M Tue Aug 29 09:33:46 2017 Page 1

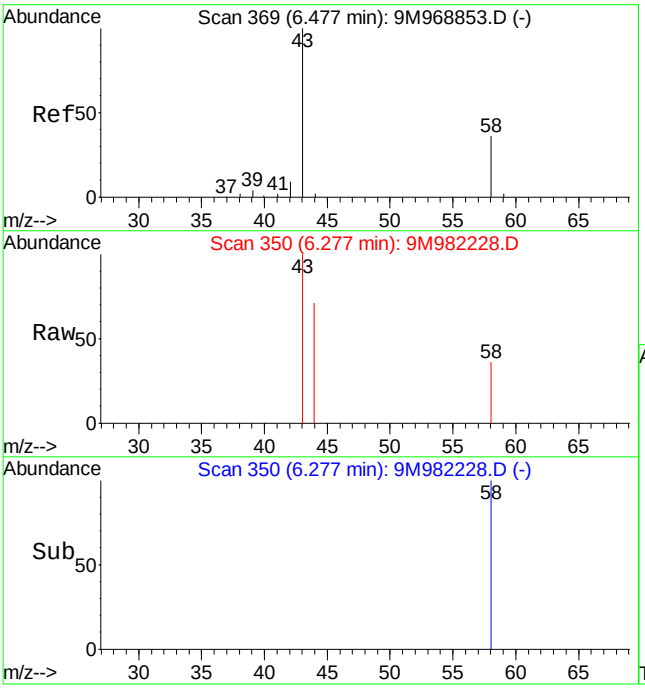
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



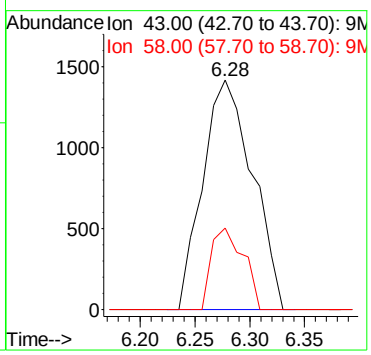
9M982228.D 8260C.M Tue Aug 29 09:33:46 2017 Page 2

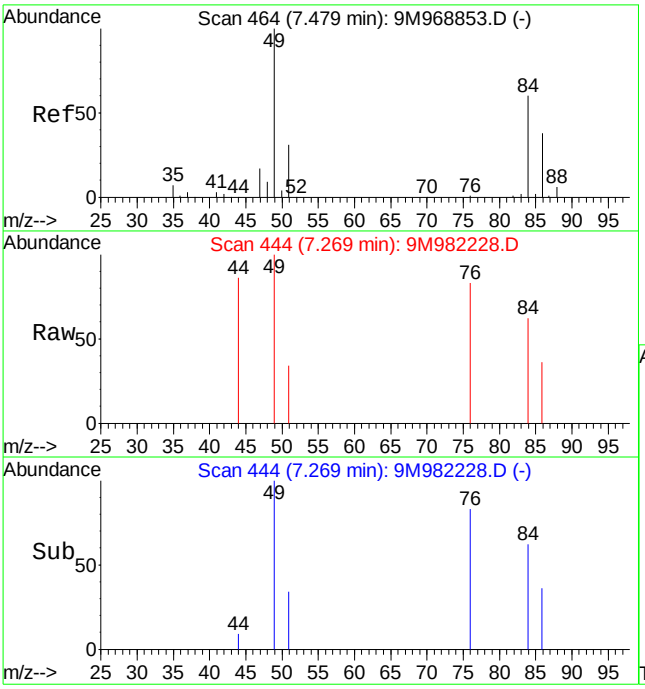


#13
Acetone
Concen: 2.73 ug/L
RT: 6.28 min Scan# 350
Delta R.T. 0.00 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion: 43 Resp: 4472

Ion	Ratio	Lower	Upper
43	100		
58	22.8	18.9	44.1

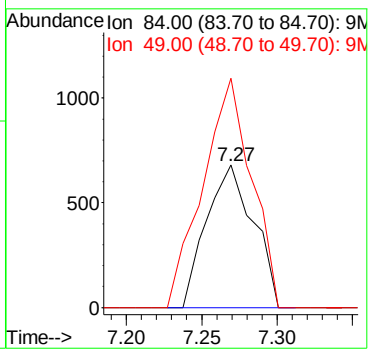


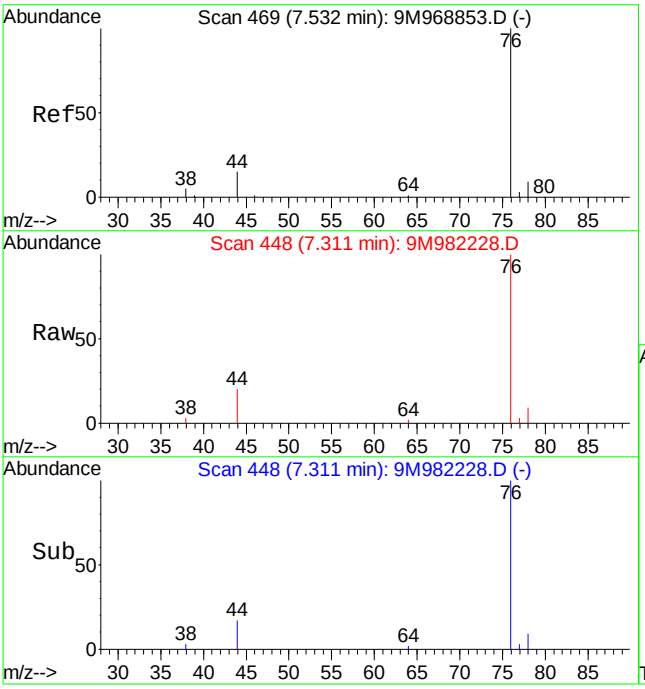


#19
Methylene Chloride
Concen: 0.48 ug/L
RT: 7.27 min Scan# 444
Delta R.T. 0.00 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion: 84 Resp: 1475

Ion	Ratio	Lower	Upper
84	100		
49	166.2	97.5	227.5

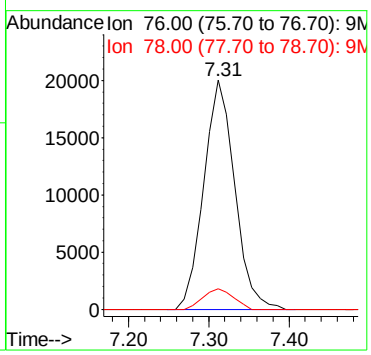


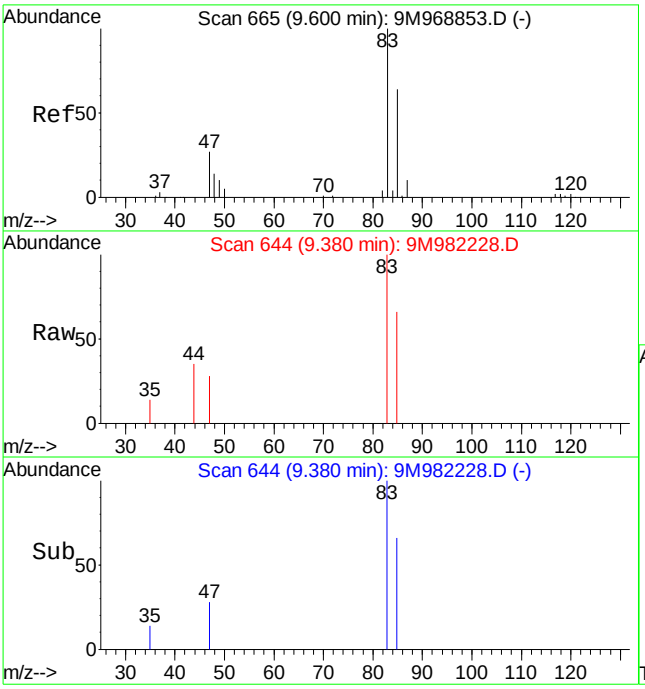


#20
Carbon Disulfide
Concen: 7.07 ug/L
RT: 7.31 min Scan# 448
Delta R.T. 0.00 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion: 76 Resp: 53663

Ion	Ratio	Lower	Upper
76	100		
78	8.7	5.6	13.2

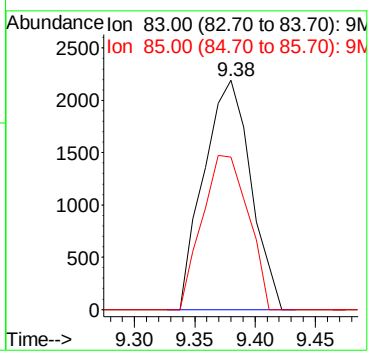


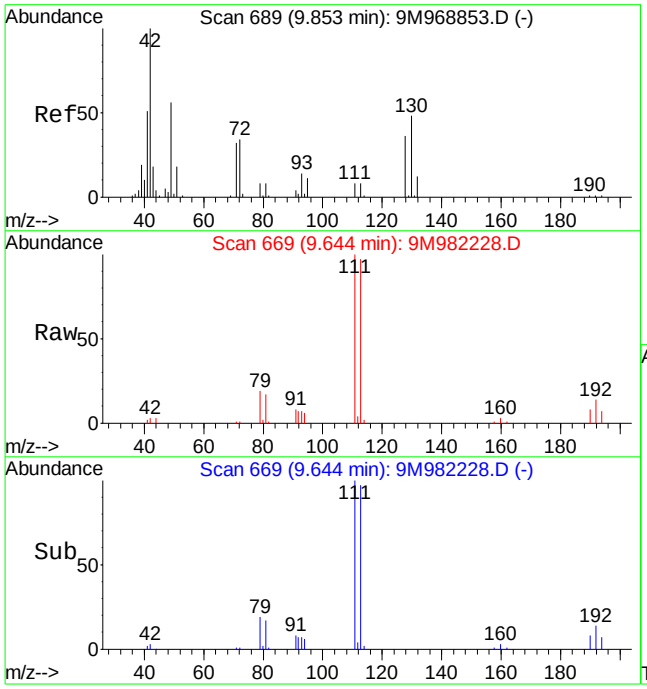


#33
Chloroform
Concen: 1.16 ug/L
RT: 9.38 min Scan# 644
Delta R.T. 0.00 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion: 83 Resp: 5942

Ion	Ratio	Lower	Upper
83	100		
85	65.8	39.1	91.1

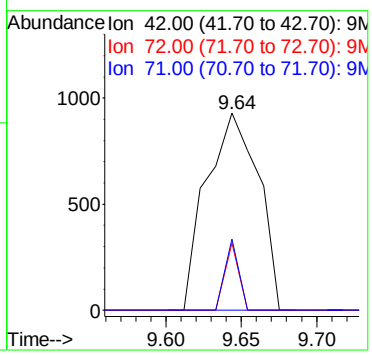


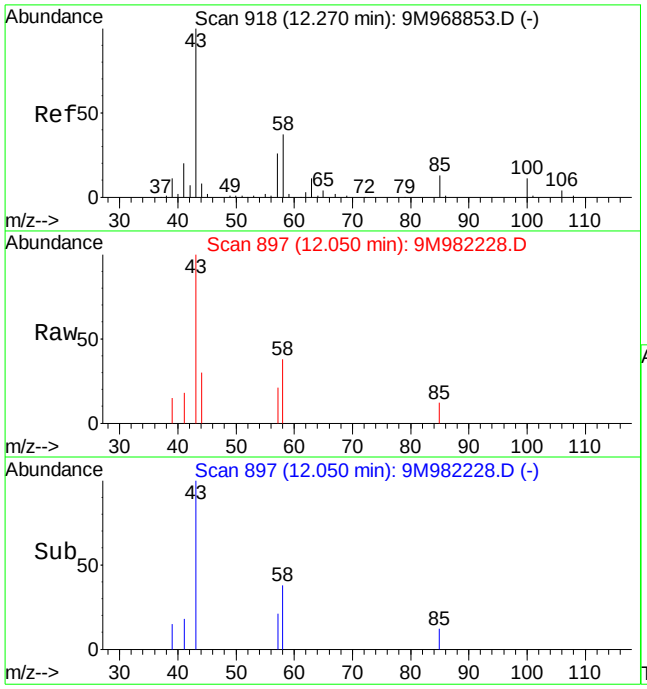


#36
Tetrahydrofuran
Concen: 1.47 ug/L
RT: 9.64 min Scan# 669
Delta R.T. 0.01 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion: 42 Resp: 2232

Ion	Ratio	Lower	Upper
42	100		
72	9.0	21.5	50.3#
71	9.5	20.2	47.0#

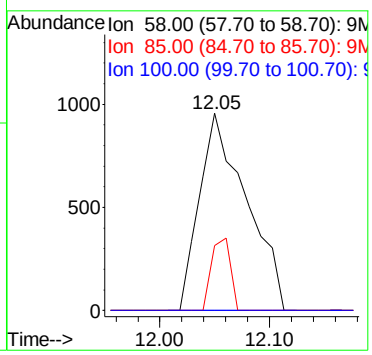


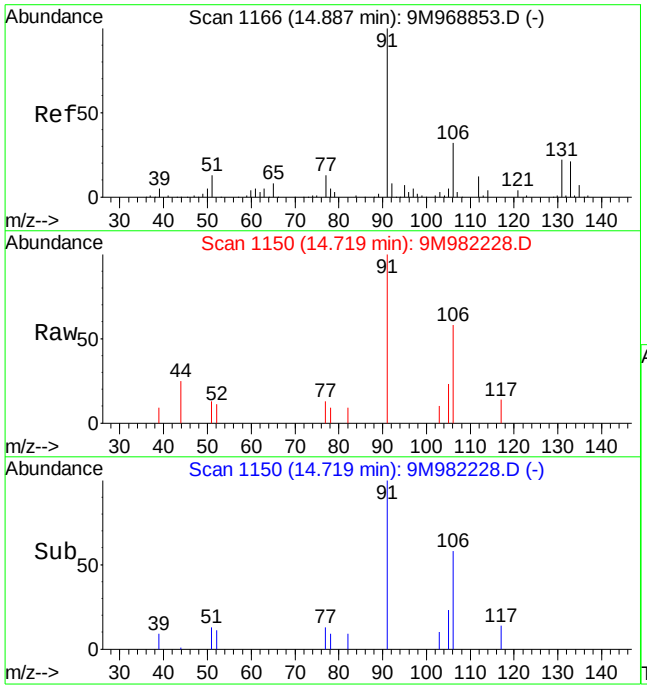


#54
4-Methyl-2-Pentanone
Concen: 1.46 ug/L
RT: 12.05 min Scan# 897
Delta R.T. 0.00 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion: 58 Resp: 2851

Ion	Ratio	Lower	Upper
58	100		
85	14.8	21.6	50.4#
100	0.0	18.4	43.0#

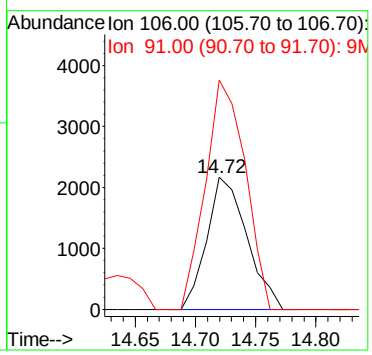


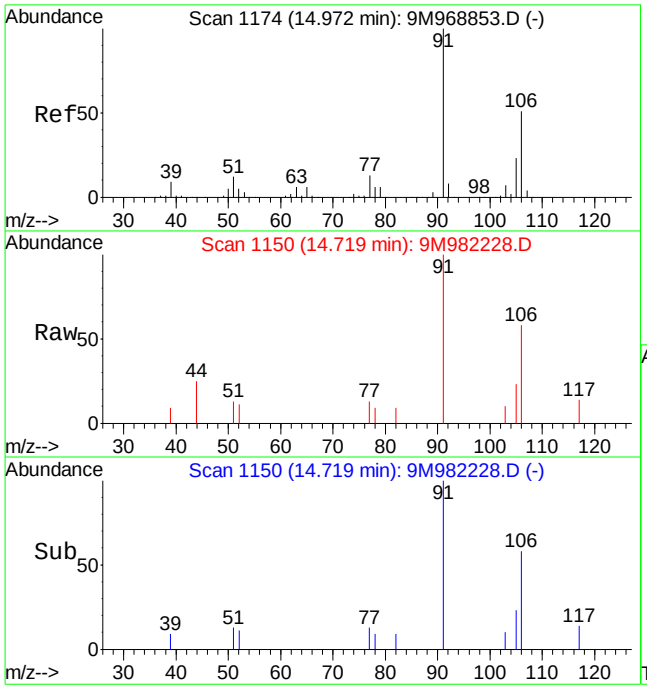


#71
Ethylbenzene
Concen: 1.14 ug/L
RT: 14.72 min Scan# 1150
Delta R.T. 0.09 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion:106 Resp: 5016

Ion	Ratio	Lower	Upper
106	100		
91	172.4	182.3	425.5#

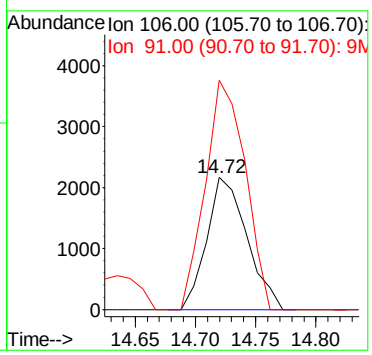




#72
m-,p-Xylene
Concen: 0.97 ug/L
RT: 14.72 min Scan# 1150
Delta R.T. -0.01 min
Lab File: 9M982228.D
Acq: 28 Aug 2017 21:16

Tgt Ion:106 Resp: 5016

Ion	Ratio	Lower	Upper
106	100		
91	172.4	112.2	261.8



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

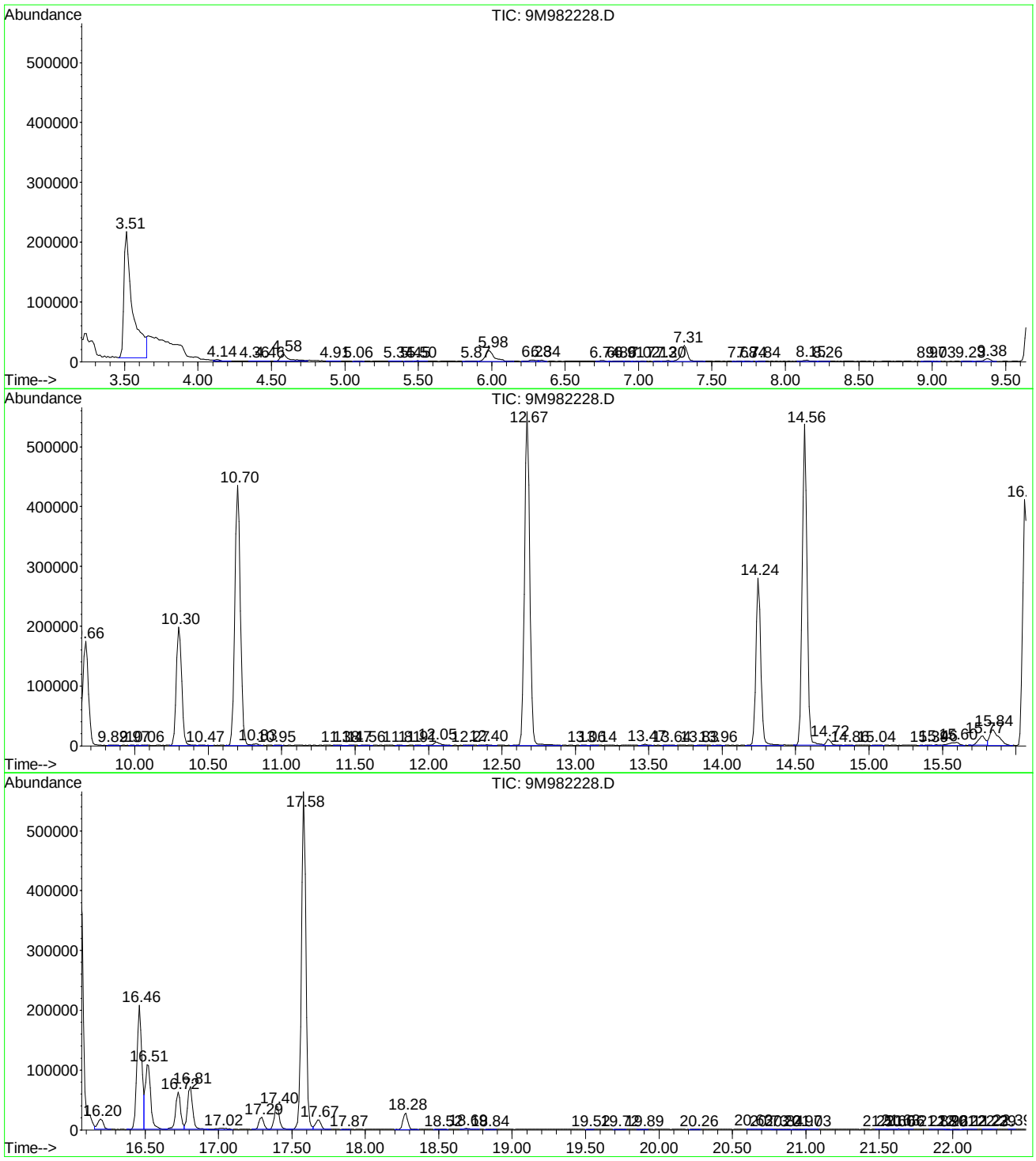
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.512	83	88	101	rBV	210818	861430	62.56%	8.351%
2	4.135	144	147	155	rVB2	2803	6904	0.50%	0.067%
3	4.357	167	168	173	rVB	267	584	0.04%	0.006%
4	4.462	173	178	180	rBV	308	722	0.05%	0.007%
5	4.578	183	189	205	rBV	11217	45015	3.27%	0.436%
6	4.905	217	220	226	rVB	227	716	0.05%	0.007%
7	5.064	234	235	241	rVB	299	650	0.05%	0.006%
8	5.338	257	261	265	rBV	298	787	0.06%	0.008%
9	5.454	267	272	273	rBV	376	788	0.06%	0.008%
10	5.496	273	276	282	rVB2	844	1722	0.13%	0.017%
11	5.866	305	311	315	rVV	295	891	0.06%	0.009%
12	5.982	315	322	338	rVV	17662	72113	5.24%	0.699%
13	6.277	343	350	354	rBV2	2144	6917	0.50%	0.067%
14	6.341	354	356	359	rVB	1566	2356	0.17%	0.023%
15	6.742	391	394	399	rVB2	1123	2964	0.22%	0.029%
16	6.858	399	405	409	rBV2	856	3145	0.23%	0.030%
17	6.910	409	410	414	rVB	231	521	0.04%	0.005%
18	7.016	414	420	423	rBV	630	1158	0.08%	0.011%
19	7.132	428	431	433	rVB	387	569	0.04%	0.006%
20	7.195	433	437	440	rBV2	1046	2129	0.15%	0.021%
21	7.311	440	448	461	rVV	26668	76470	5.55%	0.741%
22	7.681	479	483	486	rBV	223	569	0.04%	0.006%
23	7.744	486	489	492	rVB	244	568	0.04%	0.006%
24	7.839	494	498	500	rBV	469	894	0.06%	0.009%
25	8.145	521	527	534	rVB2	1602	5620	0.41%	0.054%
26	8.261	534	538	542	rBV	228	616	0.04%	0.006%
27	8.968	601	605	608	rBV	226	667	0.05%	0.006%
28	9.032	608	611	613	rVB	307	521	0.04%	0.005%
29	9.232	627	630	634	rVV	208	624	0.05%	0.006%
30	9.380	634	644	649	rVV	4607	12988	0.94%	0.126%
31	9.665	664	671	682	rVB	173778	474792	34.48%	4.603%
32	9.823	685	686	693	rBV	290	1105	0.08%	0.011%
33	9.971	699	700	706	rBV	183	591	0.04%	0.006%
34	10.055	706	708	711	rBV	228	528	0.04%	0.005%
35	10.298	725	731	743	rVV	197709	498989	36.24%	4.837%
36	10.467	743	747	753	rVB2	839	2550	0.19%	0.025%
37	10.699	761	769	778	rVV	434850	1152717	83.71%	11.175%
38	10.826	778	781	785	rVB2	2426	5933	0.43%	0.058%
39	10.952	792	793	798	rBV	218	673	0.05%	0.007%
40	11.385	831	834	839	rVB	216	745	0.05%	0.007%
41	11.469	839	842	844	rBV	314	659	0.05%	0.006%
42	11.564	847	851	856	rVB	273	719	0.05%	0.007%

43	11.807	871	874	877	rVV	231	517	0.04%	0.005%
44	11.912	883	884	888	rVB	301	553	0.04%	0.005%
45	12.050	888	897	907	rBV2	5307	17817	1.29%	0.173%
46	12.271	915	918	921	rVV	696	897	0.07%	0.009%
47	12.398	924	930	936	rVV2	824	3398	0.25%	0.033%
48	12.672	945	956	978	rBV	557753	1376954	100.00%	13.349%
49	13.063	990	993	996	rVB	390	836	0.06%	0.008%
50	13.137	996	1000	1002	rBV	332	929	0.07%	0.009%
51	13.474	1028	1032	1037	rBV	1711	3172	0.23%	0.031%
52	13.643	1043	1048	1052	rVB	303	837	0.06%	0.008%
53	13.833	1064	1066	1071	rBV	222	619	0.04%	0.006%
54	13.960	1075	1078	1083	rVB	422	749	0.05%	0.007%
55	14.245	1097	1105	1121	rBV	279852	646419	46.95%	6.267%
56	14.561	1128	1135	1147	rBV	536512	1223028	88.82%	11.856%
57	14.719	1147	1150	1160	rVB	10334	23716	1.72%	0.230%
58	14.857	1160	1163	1167	rBV	365	831	0.06%	0.008%
59	15.036	1178	1180	1186	rVB	291	547	0.04%	0.005%
60	15.395	1209	1214	1218	rVB	397	1017	0.07%	0.010%
61	15.458	1218	1220	1223	rBV	824	1877	0.14%	0.018%
62	15.595	1224	1233	1238	rVB4	5210	22552	1.64%	0.219%
63	15.775	1241	1250	1253	rVV2	15870	54037	3.92%	0.524%
64	15.838	1253	1256	1269	rVB2	26060	109538	7.96%	1.062%
65	16.060	1269	1277	1286	rBV	410708	956858	69.49%	9.276%
66	16.197	1286	1290	1296	rVB	17006	45225	3.28%	0.438%
67	16.461	1307	1315	1318	rBV	207238	500706	36.36%	4.854%
68	16.513	1318	1320	1332	rVV	108231	265464	19.28%	2.574%
69	16.725	1332	1340	1344	rVV	62368	152558	11.08%	1.479%
70	16.809	1344	1348	1359	rVV	71336	169031	12.28%	1.639%
71	17.020	1359	1368	1375	rVB4	2080	9811	0.71%	0.095%
72	17.294	1388	1394	1399	rVB	20182	47686	3.46%	0.462%
73	17.400	1399	1404	1412	rBV	38493	93940	6.82%	0.911%
74	17.579	1412	1421	1427	rVV	564952	1204749	87.49%	11.679%
75	17.674	1427	1430	1438	rVB	15974	40814	2.96%	0.396%
76	17.875	1445	1449	1451	rBV	552	847	0.06%	0.008%
77	18.276	1480	1487	1495	rBV2	27479	61133	4.44%	0.593%
78	18.519	1505	1510	1514	rBV	294	1164	0.08%	0.011%
79	18.687	1522	1526	1534	rVV2	1614	3502	0.25%	0.034%
80	18.835	1538	1540	1545	rBV	398	926	0.07%	0.009%
81	19.521	1603	1605	1608	rBV	369	707	0.05%	0.007%
82	19.721	1621	1624	1629	rBV	307	671	0.05%	0.007%
83	19.890	1636	1640	1643	rVV	307	809	0.06%	0.008%
84	20.260	1670	1675	1677	rBV	391	1054	0.08%	0.010%
85	20.629	1707	1710	1716	rVB	672	995	0.07%	0.010%
86	20.735	1716	1720	1723	rBV	320	618	0.04%	0.006%
87	20.840	1723	1730	1736	rVB	328	1649	0.12%	0.016%
88	20.967	1736	1742	1745	rBV	549	1080	0.08%	0.010%
89	21.030	1745	1748	1753	rBV	270	753	0.05%	0.007%
90	21.505	1790	1793	1797	rVB	285	741	0.05%	0.007%
91	21.600	1797	1802	1804	rBV	386	843	0.06%	0.008%
92	21.632	1804	1805	1807	rVV	741	692	0.05%	0.007%
93	21.663	1807	1808	1814	rVB	416	846	0.06%	0.008%
94	21.885	1825	1829	1835	rVB	477	1183	0.09%	0.011%
95	21.959	1835	1836	1839	rVB	599	785	0.06%	0.008%
96	22.011	1839	1841	1846	rBV	636	1387	0.10%	0.013%
97	22.106	1846	1850	1855	rBV2	523	1174	0.09%	0.011%
98	22.233	1859	1862	1864	rBV	480	815	0.06%	0.008%
99	22.286	1864	1867	1868	rVB	475	759	0.06%	0.007%
100	22.391	1876	1877	1880	rBV2	558	846	0.06%	0.008%

Sum of corrected areas: 10315280

File : C:\MSDCHEM\1\DATA\082817\9M982228.D
Operator : JDS
Acquired : 28 Aug 2017 21:16 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-03 A 8260C
Misc Info : 1,1
Vial Number: 15
Quant File :8260C.RES (RTE Integrator)



Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

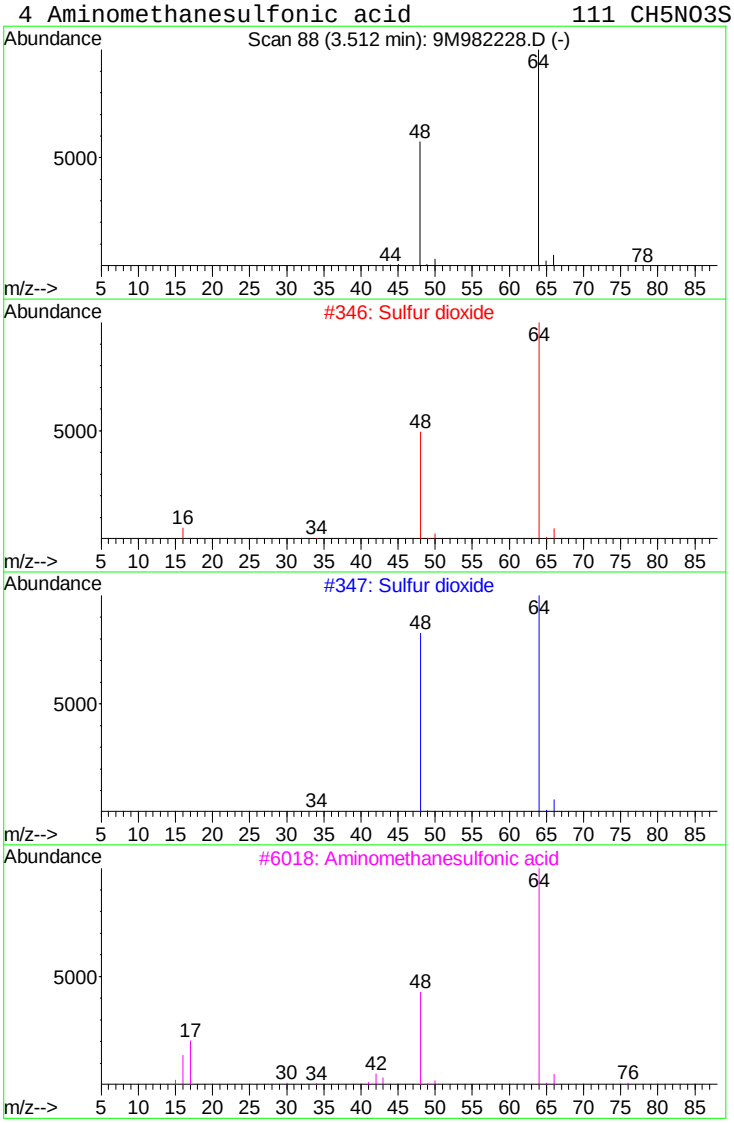
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

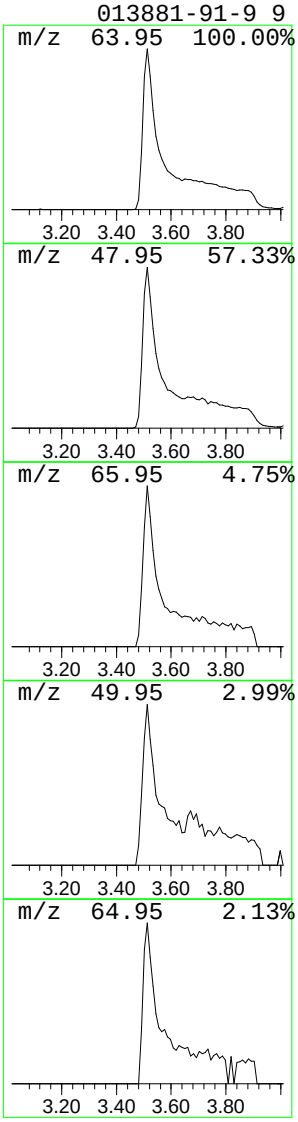
****

Peak Number 1 Sulfur dioxide Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.51	37.37 ug/L	861430	Fluorobenzene	10.70

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	90
2	Sulfur dioxide	64	O2S	007446-09-5	83
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64
4	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9





Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

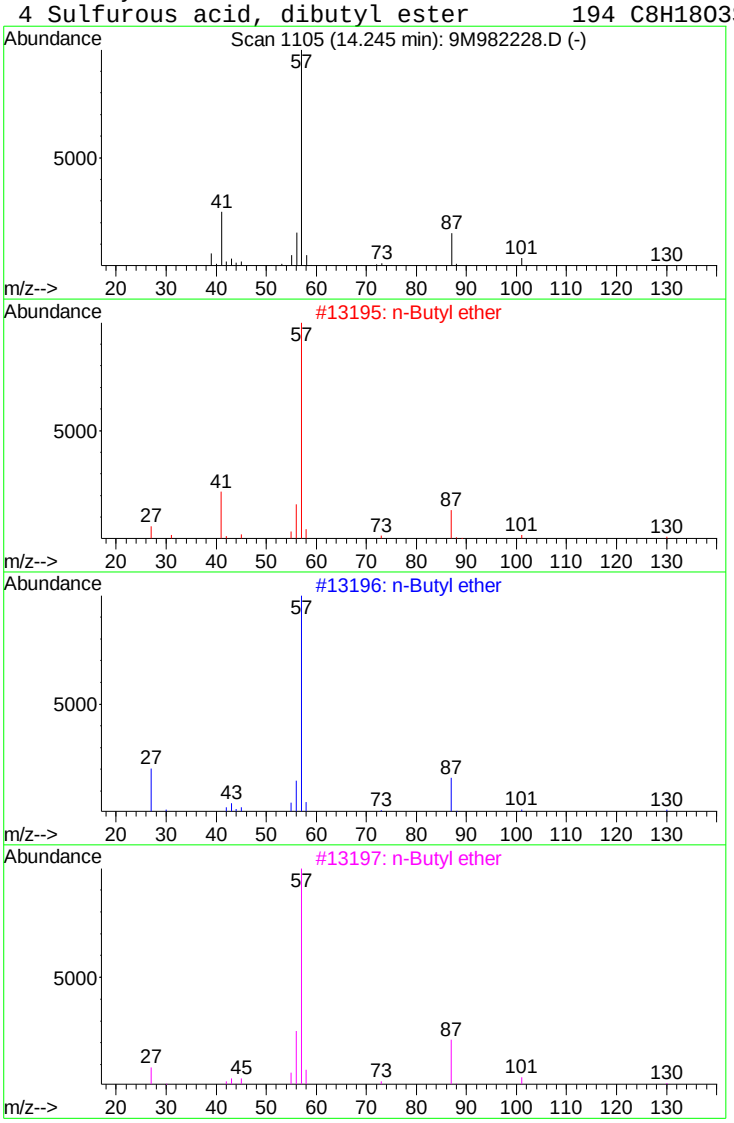
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

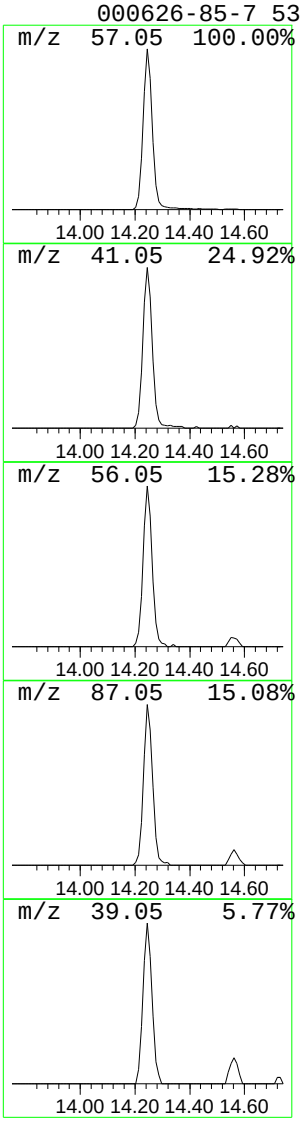
****

Peak Number 2 n-Butyl ether Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
14.24	26.43 ug/L	646419	Chlorobenzene-d5	14.56

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Butyl ether	130	C8H18O	000142-96-1	78
2	n-Butyl ether	130	C8H18O	000142-96-1	72
3	n-Butyl ether	130	C8H18O	000142-96-1	59
4	Sulfurous acid, dibutyl ester	194	C8H18O3S	000626-85-7	53





Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

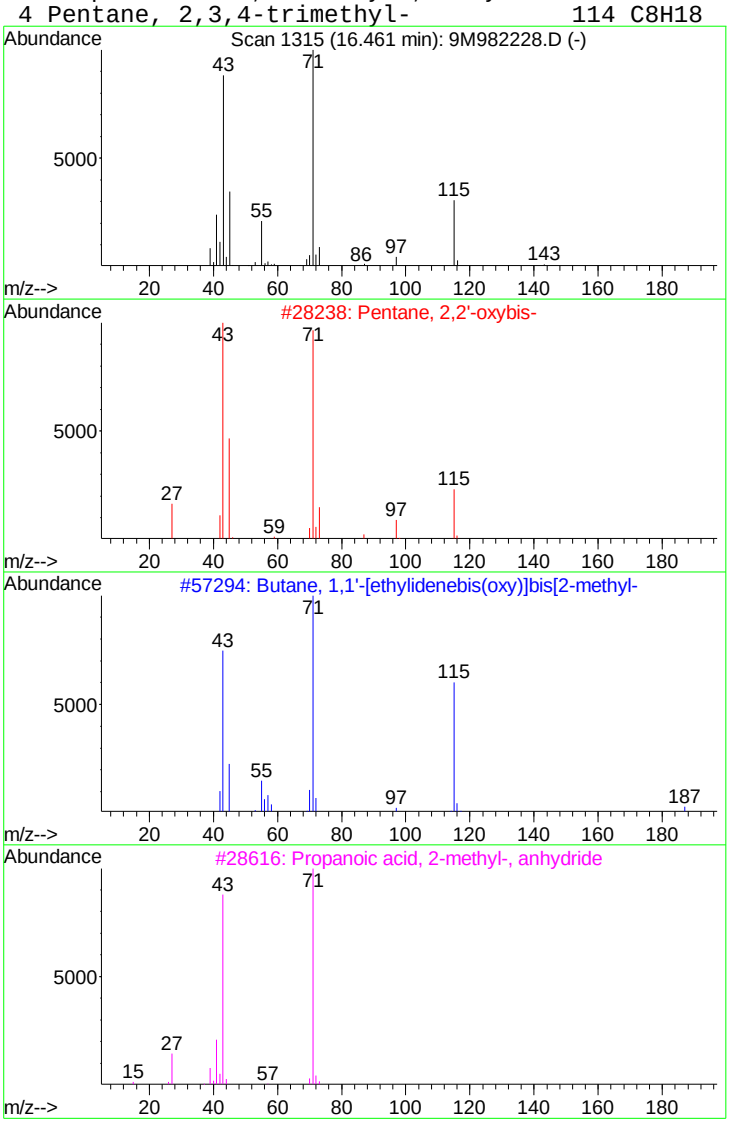
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

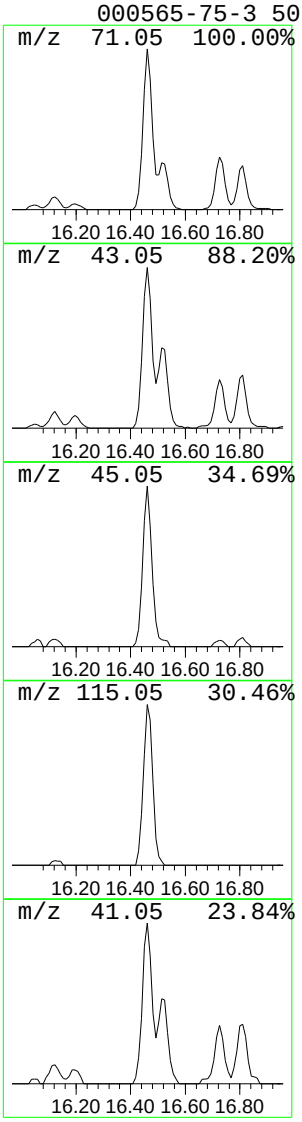
****

Peak Number 3 Pentane, 2,2'-oxybis- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.46	20.78 ug/L	500706	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 2,2'-oxybis-	158	C10H22O	056762-00-6	78
2	Butane, 1,1'-[ethylidenebis(oxy)...	202	C12H26O2	013535-43-8	74
3	Propanoic acid, 2-methyl-, anhyd...	158	C8H14O3	000097-72-3	50
4	Pentane, 2,3,4-trimethyl-	114	C8H18	000565-75-3	50





Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

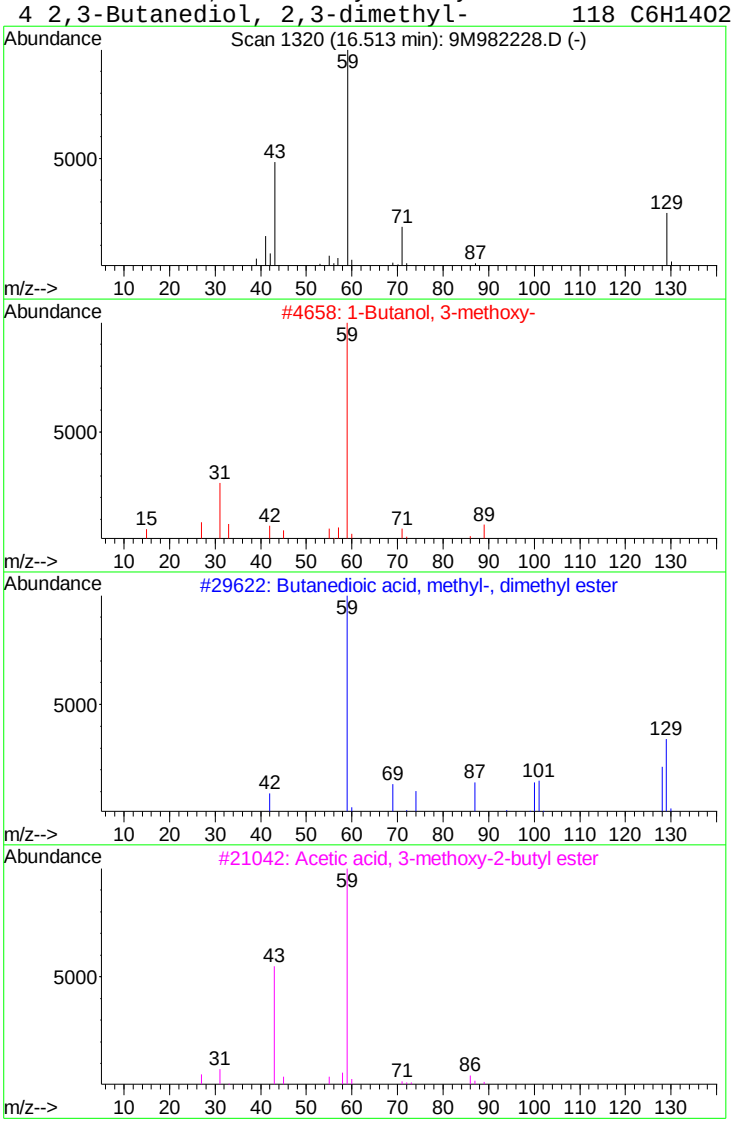
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

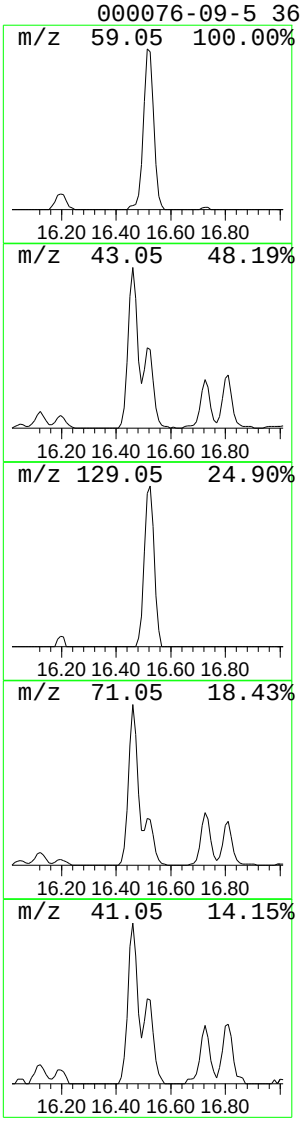
****

Peak Number 4 1-Butanol, 3-methoxy- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.51	11.02 ug/L	265464	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Butanol, 3-methoxy-	104	C5H12O2	002517-43-3	42
2	Butanedioic acid, methyl-, dimet...	160	C7H12O4	001604-11-1	38
3	Acetic acid, 3-methoxy-2-butyl e...	146	C7H14O3	1000151-29-7	38
4	2,3-Butanediol, 2,3-dimethyl-	118	C6H14O2	000076-09-5	36





Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

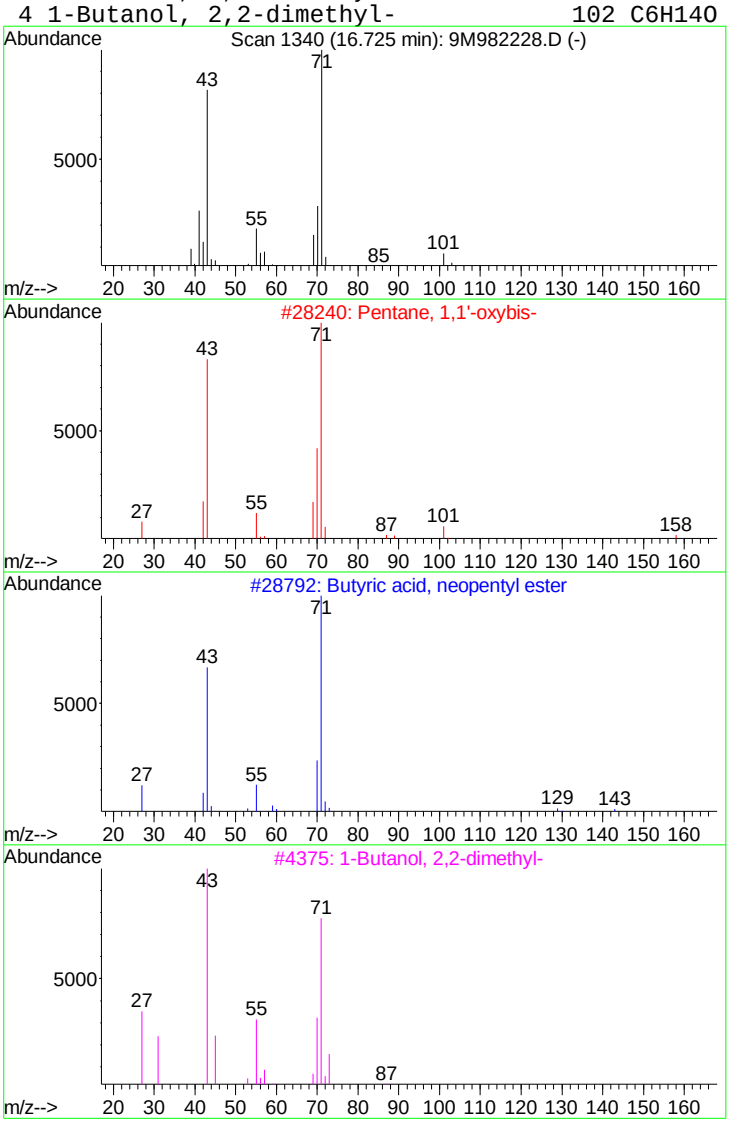
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

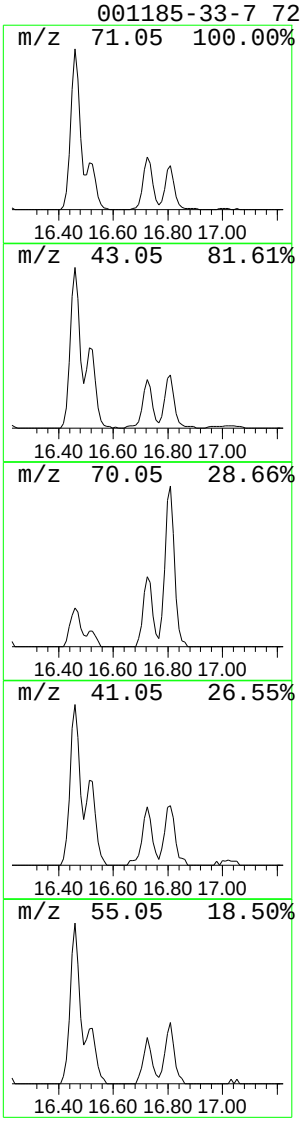
****

Peak Number 5 Pentane, 1,1'-oxybis- Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.72	6.33 ug/L	152558	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 1,1'-oxybis-	158	C10H22O	000693-65-2	78
2	Butyric acid, neopentyl ester	158	C9H18O2	002050-00-2	72
3	1-Butanol, 2,2-dimethyl-	102	C6H14O	001185-33-7	72
4	1-Butanol, 2,2-dimethyl-	102	C6H14O	001185-33-7	72





Data File : C:\MSDCHEM\1\DATA\082817\9M982228.D Vial: 15
Acq On : 28 Aug 2017 21:16 Operator: JDS
Sample : L17081305-03 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

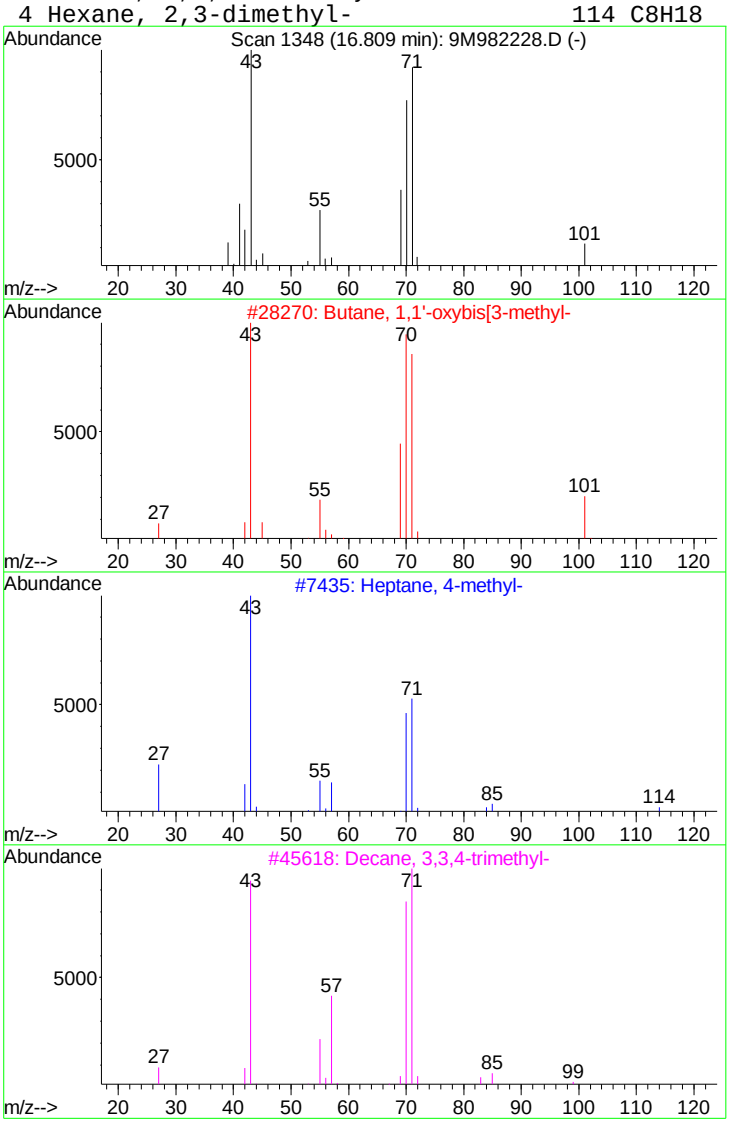
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

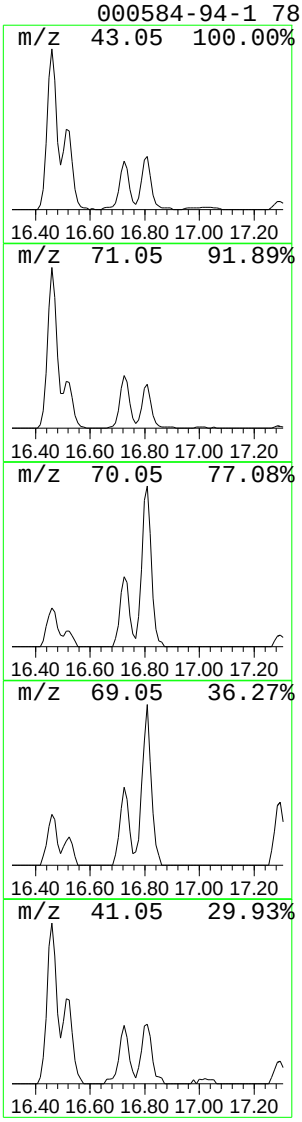
****

Peak Number 6 Butane, 1,1'-oxybis[3-methyl- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.81	7.02 ug/L	169031	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Butane, 1,1'-oxybis[3-methyl-	158	C10H22O	000544-01-4	83
2	Heptane, 4-methyl-	114	C8H18	000589-53-7	78
3	Decane, 3,3,4-trimethyl-	184	C13H28	049622-18-6	78
4	Hexane, 2,3-dimethyl-	114	C8H18	000584-94-1	78





Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 28 Aug 2017 21:16
Data File: C:\MSDCHEM\1\DATA\082817\9M982228.D
Name: L17081305-03 A 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
Sulfur dioxide	3.51	37.4	ug/L	861430	1	10.70	1152720	50.0
n-Butyl ether	14.24	26.4	ug/L	646419	2	14.56	1223030	50.0
Pentane, 2,2'-oxy...	16.46	20.8	ug/L	500706	3	17.58	1204750	50.0
1-Butanol, 3-meth...	16.51	11.0	ug/L	265464	3	17.58	1204750	50.0
Pentane, 1,1'-oxy...	16.72	6.3	ug/L	152558	3	17.58	1204750	50.0
Butane, 1,1'-oxyb...	16.81	7.0	ug/L	169031	3	17.58	1204750	50.0

Quantitation Report (QT/LSC Reviewed)

Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 31 09:00:22 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

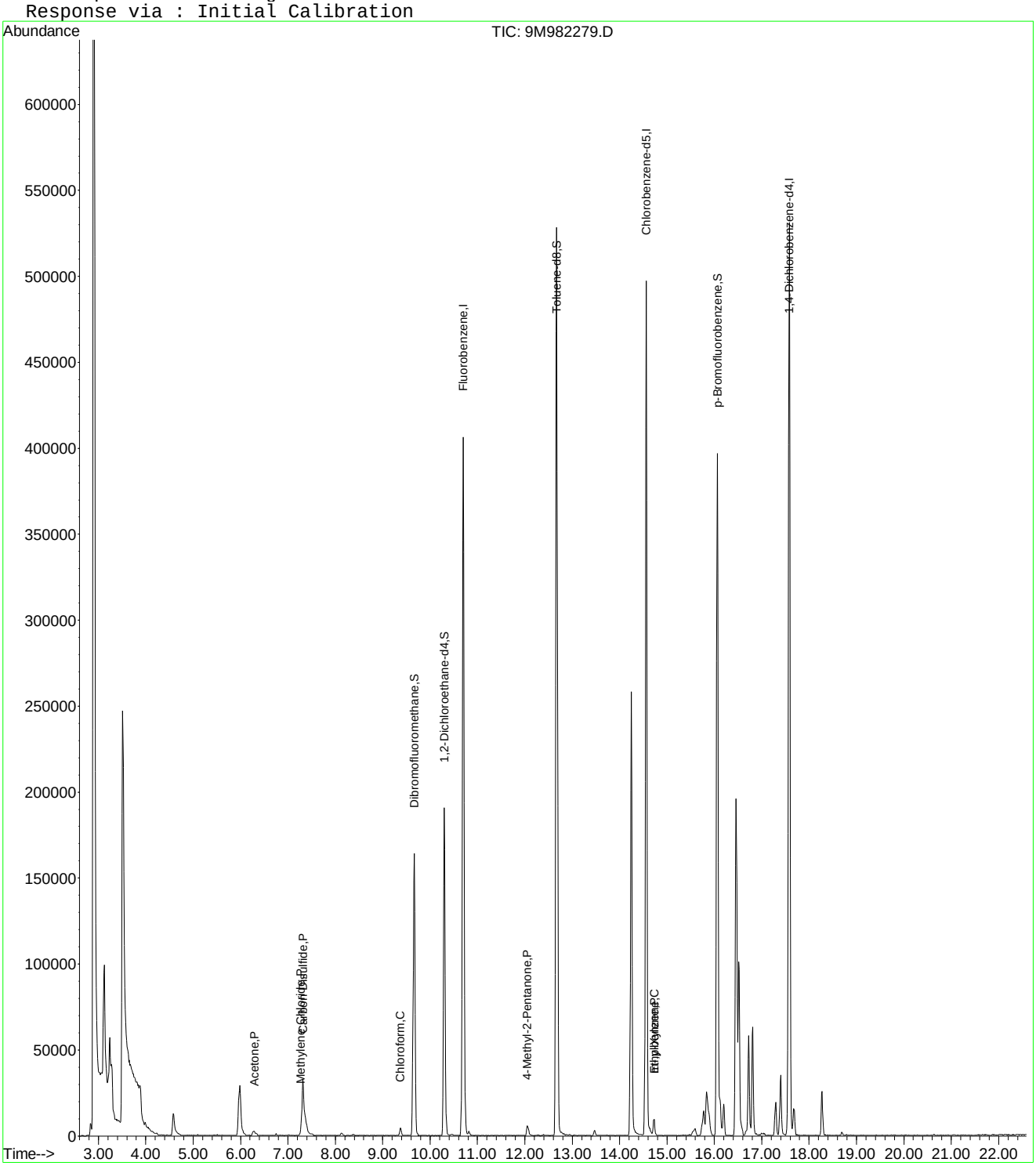
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	502705	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	384128	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	183071	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.67	111	146190	51.9375	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 103.88%			
43) 1,2-Dichloroethane-d4	10.30	65	174006	52.9250	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 105.84%			
58) Toluene-d8	12.67	98	484780	51.2630	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 102.52%			
79) p-Bromofluorobenzene	16.06	95	178203	54.8976	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 109.80%			
Target Compounds						Qvalue
13) Acetone	6.29	43	5677	3.7163	ug/L	86
19) Methylene Chloride	7.27	84	1243	0.4372	ug/L	85
20) Carbon Disulfide	7.31	76	101658	14.3357	ug/L	98
33) Chloroform	9.37	83	6279	1.3114	ug/L	89
54) 4-Methyl-2-Pentanone	12.05	58	2741	1.4995	ug/L #	58
71) Ethylbenzene	14.73	106	4182	1.0279	ug/L	46
72) m-,p-Xylene	14.73	106	4182	0.8690	ug/L	93

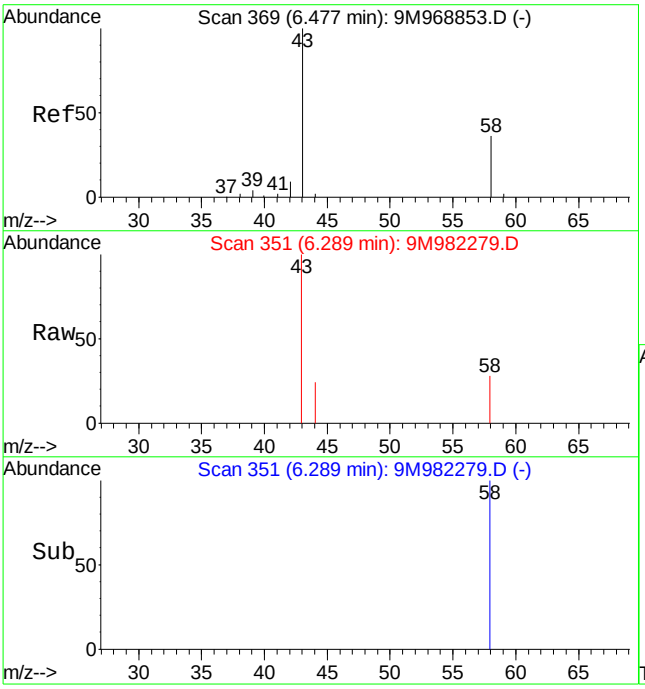
(#) = qualifier out of range (m) = manual integration
9M982279.D 8260C.M Tue Sep 05 11:10:00 2017 Page 1

Quantitation Report (QT/LSC Reviewed)

Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 5 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration

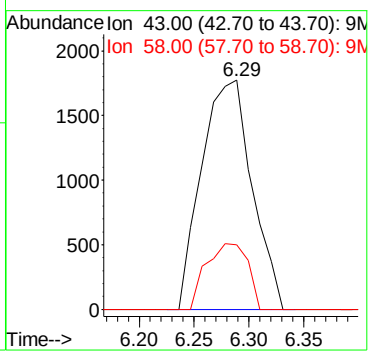


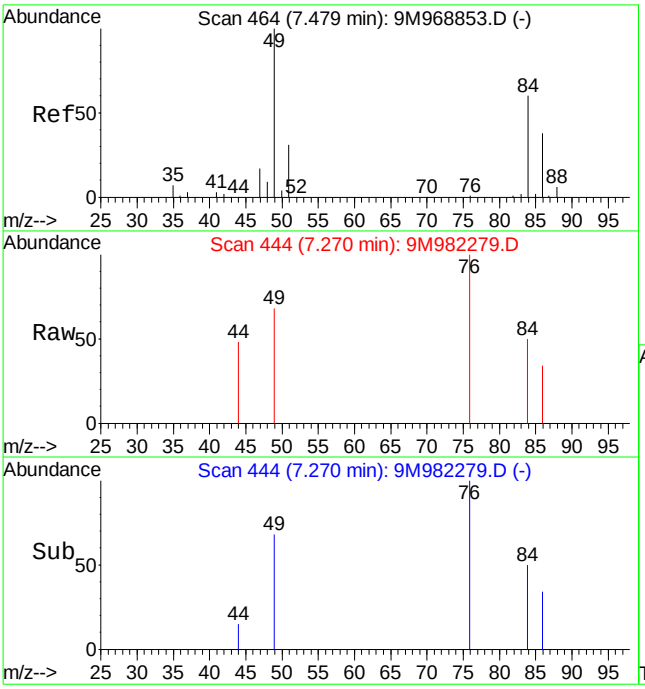


#13
Acetone
Concen: 3.72 ug/L
RT: 6.29 min Scan# 351
Delta R.T. 0.01 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion: 43 Resp: 5677

Ion	Ratio	Lower	Upper
43	100		
58	23.6	18.9	44.1

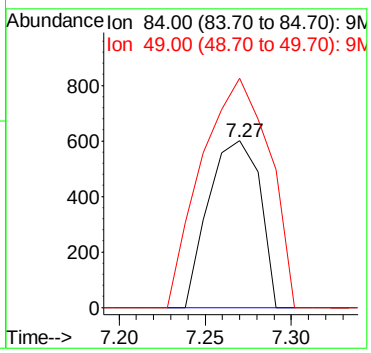


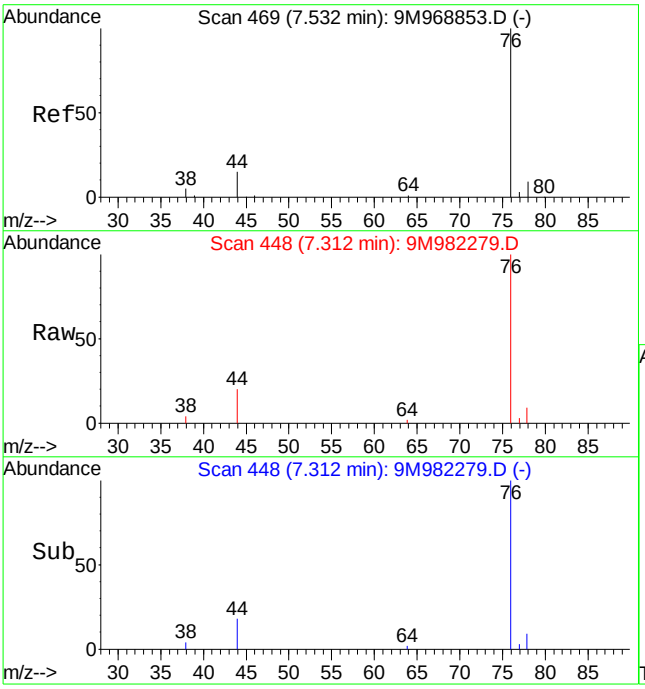


#19
Methylene Chloride
Concen: 0.44 ug/L
RT: 7.27 min Scan# 444
Delta R.T. 0.00 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion: 84 Resp: 1243

Ion	Ratio	Lower	Upper
84	100		
49	182.4	97.5	227.5

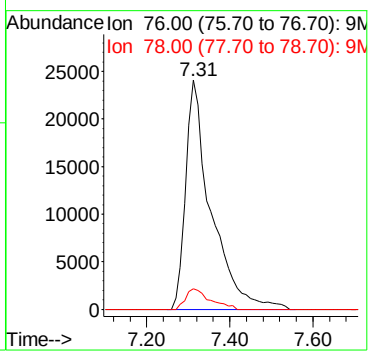


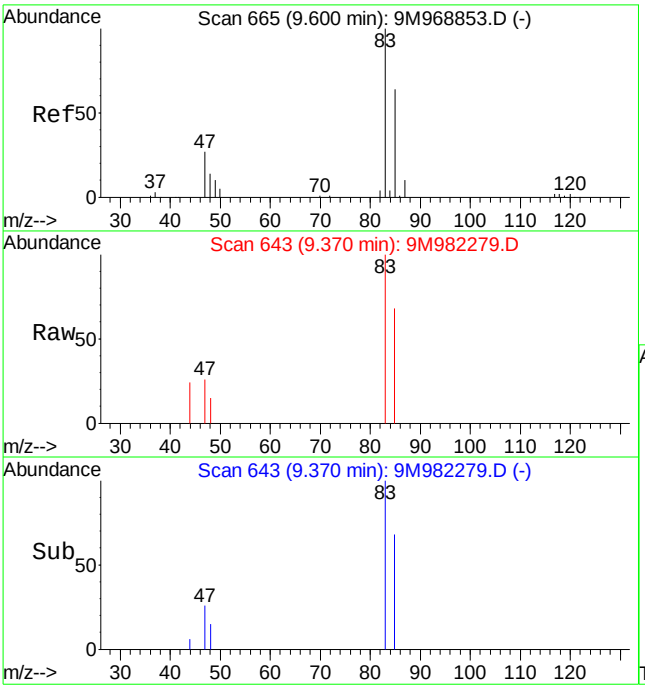


#20
Carbon Disulfide
Concen: 14.34 ug/L
RT: 7.31 min Scan# 448
Delta R.T. 0.00 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion: 76 Resp: 101658

Ion	Ratio	Lower	Upper
76	100		
78	8.6	5.6	13.2

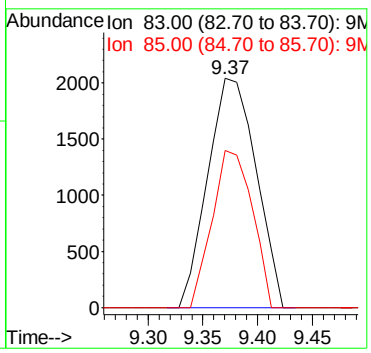


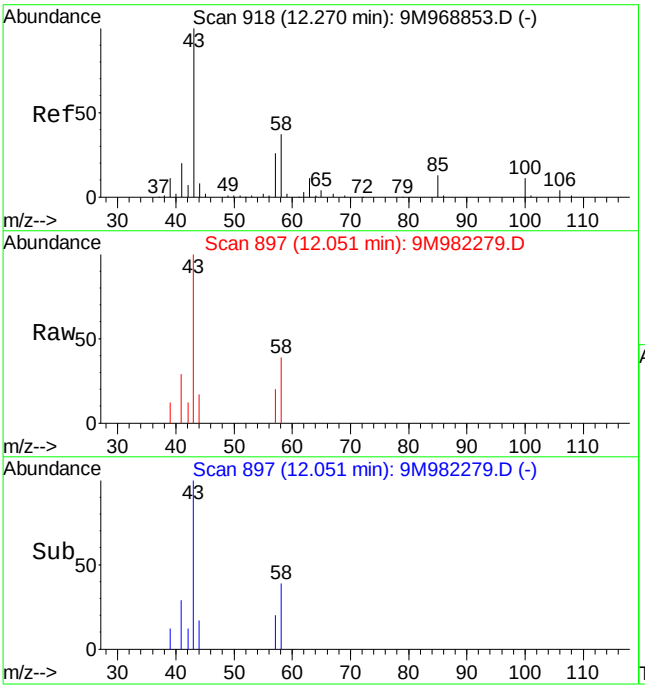


#33
Chloroform
Concen: 1.31 ug/L
RT: 9.37 min Scan# 643
Delta R.T. -0.01 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion: 83 Resp: 6279

Ion	Ratio	Lower	Upper
83	100		
85	56.6	39.1	91.1

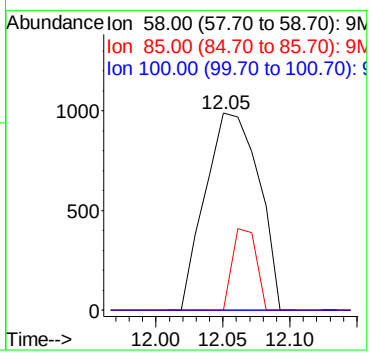


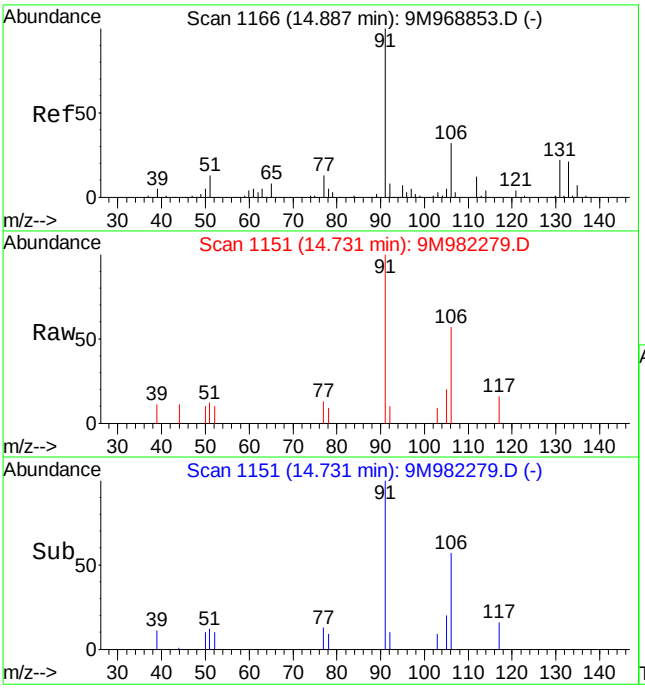


#54
4-Methyl-2-Pentanone
Concen: 1.50 ug/L
RT: 12.05 min Scan# 897
Delta R.T. 0.00 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion: 58 Resp: 2741

Ion	Ratio	Lower	Upper
58	100		
85	18.4	21.6	50.4#
100	0.0	18.4	43.0#

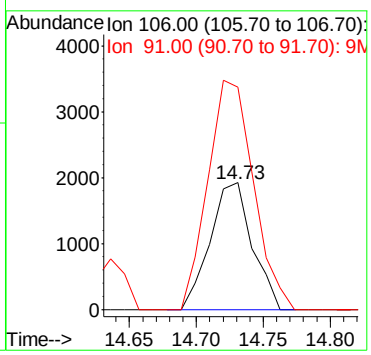


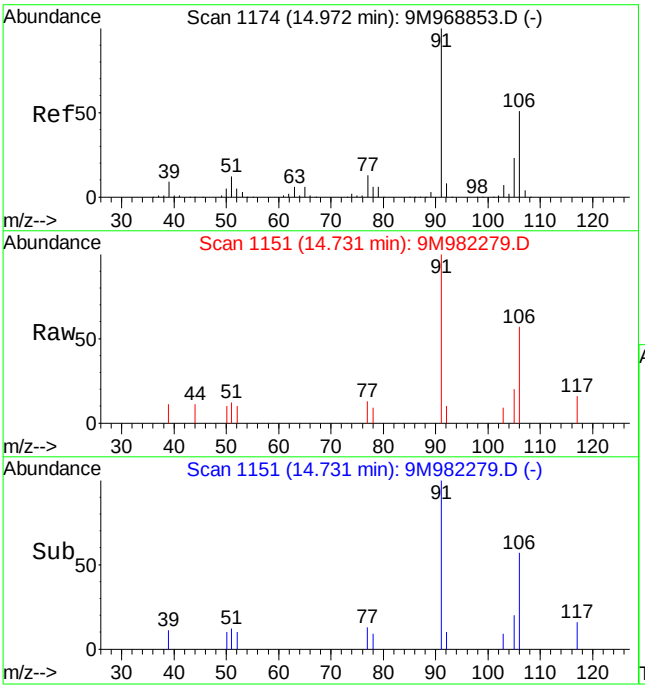


#71
Ethylbenzene
Concen: 1.03 ug/L
RT: 14.73 min Scan# 1151
Delta R.T. 0.10 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion:106 Resp: 4182

Ion	Ratio	Lower	Upper
106	100		
91	196.5	182.3	425.5

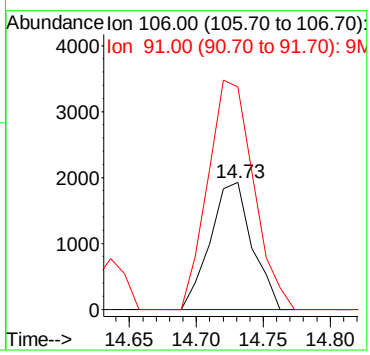




#72
m-,p-Xylene
Concen: 0.87 ug/L
RT: 14.73 min Scan# 1151
Delta R.T. 0.00 min
Lab File: 9M982279.D
Acq: 30 Aug 2017 18:22

Tgt Ion:106 Resp: 4182

Ion	Ratio	Lower	Upper
106	100		
91	196.5	112.2	261.8



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

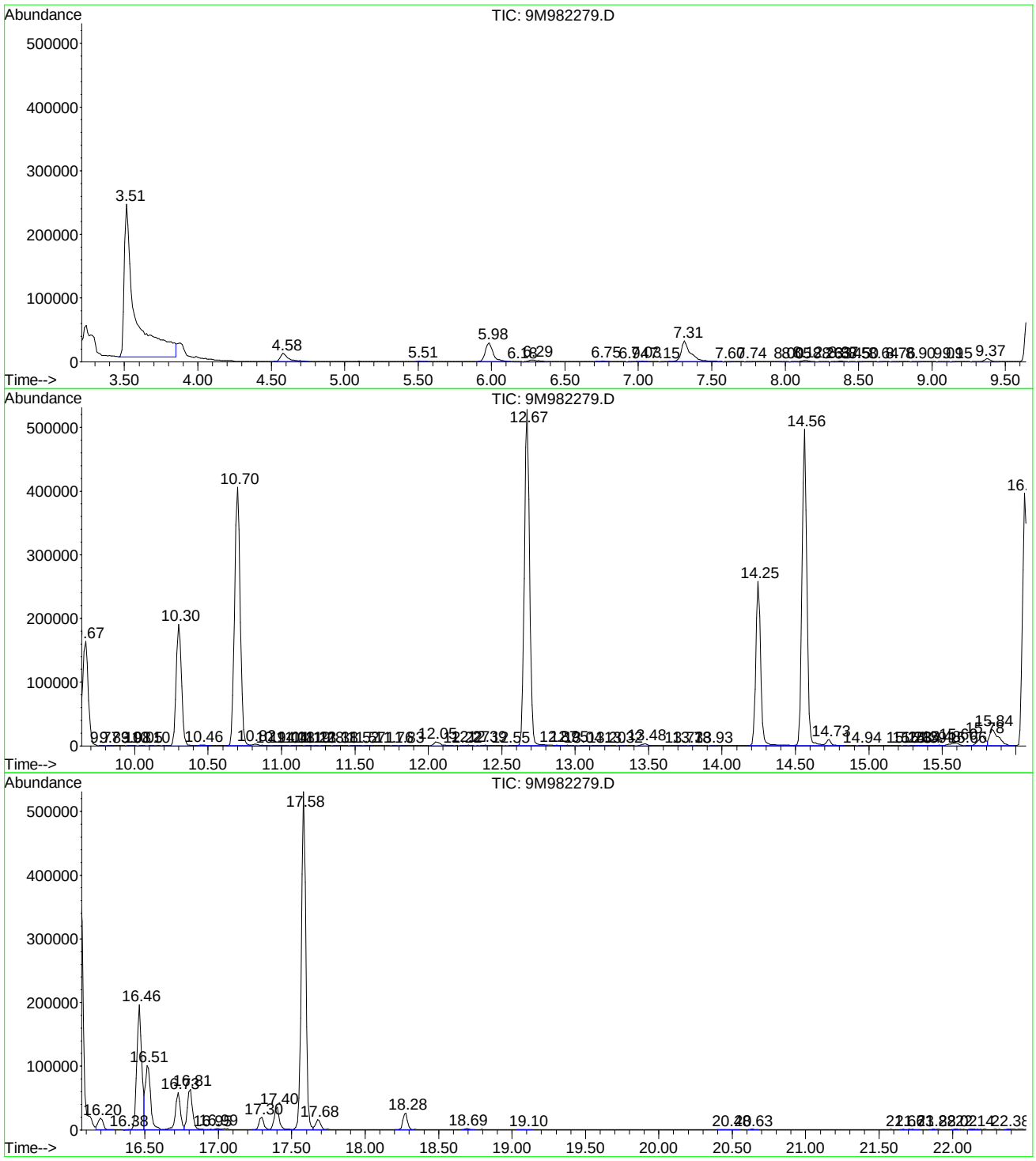
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.513	83	88	120	rBV	239646	1246929	95.66%	12.146%
2	4.579	183	189	205	rVV	12599	47104	3.61%	0.459%
3	5.508	275	277	282	rBV	507	660	0.05%	0.006%
4	5.983	315	322	335	rVV	29126	104639	8.03%	1.019%
5	6.183	338	341	344	rVB	551	1544	0.12%	0.015%
6	6.289	344	351	360	rBV4	2705	13824	1.06%	0.135%
7	6.753	391	395	399	rVB	1015	1238	0.09%	0.012%
8	6.943	411	413	414	rBV	426	733	0.06%	0.007%
9	7.027	417	421	424	rVB2	444	1017	0.08%	0.010%
10	7.154	432	433	435	rBV2	473	772	0.06%	0.008%
11	7.312	438	448	472	rVV	32825	141166	10.83%	1.375%
12	7.597	473	475	478	rBV	525	1246	0.10%	0.012%
13	7.745	487	489	492	rBV	398	1138	0.09%	0.011%
14	7.998	510	513	516	rVB	506	1337	0.10%	0.013%
15	8.051	516	518	519	rBV	464	791	0.06%	0.008%
16	8.125	520	525	533	rVB3	1625	6763	0.52%	0.066%
17	8.262	534	538	542	rBB	495	1671	0.13%	0.016%
18	8.325	542	544	545	rBV	486	764	0.06%	0.007%
19	8.368	545	548	554	rVB2	845	2974	0.23%	0.029%
20	8.452	554	556	559	rBB	390	916	0.07%	0.009%
21	8.505	559	561	563	rBV	418	909	0.07%	0.009%
22	8.642	573	574	576	rBV	393	680	0.05%	0.007%
23	8.758	581	585	587	rBV	471	1423	0.11%	0.014%
24	8.895	594	598	601	rBV	460	1700	0.13%	0.017%
25	9.085	611	616	620	rBB	464	1873	0.14%	0.018%
26	9.148	620	622	623	rBV	411	673	0.05%	0.007%
27	9.370	633	643	651	rBV	4767	15390	1.18%	0.150%
28	9.666	664	671	680	rBV	163918	450310	34.55%	4.386%
29	9.771	680	681	684	rVB	410	724	0.06%	0.007%
30	9.834	684	687	689	rBV	418	1224	0.09%	0.012%
31	9.982	697	701	704	rBB	440	1526	0.12%	0.015%
32	10.045	705	707	710	rBB	399	925	0.07%	0.009%
33	10.098	711	712	716	rBB	452	933	0.07%	0.009%
34	10.299	720	731	743	rBV	190816	481068	36.91%	4.686%
35	10.457	743	746	751	rVB2	733	2040	0.16%	0.020%
36	10.700	762	769	777	rBV	406156	1079438	82.81%	10.515%
37	10.816	777	780	791	rVB3	2797	8830	0.68%	0.086%
38	10.942	791	792	796	rBV	463	1168	0.09%	0.011%
39	11.037	797	801	803	rVB	417	1225	0.09%	0.012%
40	11.080	803	805	807	rBV	395	913	0.07%	0.009%
41	11.185	812	815	818	rBB	430	1157	0.09%	0.011%
42	11.227	818	819	822	rBB	415	659	0.05%	0.006%

43	11.280	822	824	825	rBV	432	673	0.05%	0.007%
44	11.375	830	833	834	rBV	415	985	0.08%	0.010%
45	11.523	841	847	850	rBB	442	1942	0.15%	0.019%
46	11.565	850	851	855	rBV	422	1186	0.09%	0.012%
47	11.755	868	869	873	rBB	515	1094	0.08%	0.011%
48	11.829	873	876	878	rBV	463	1255	0.10%	0.012%
49	12.051	893	897	909	rBB3	5881	19771	1.52%	0.193%
50	12.219	912	913	915	rBV3	390	677	0.05%	0.007%
51	12.272	915	918	923	rVB	797	1929	0.15%	0.019%
52	12.388	923	929	932	rBV	930	2358	0.18%	0.023%
53	12.546	941	944	949	rBV	481	1724	0.13%	0.017%
54	12.673	949	956	969	rVV	528485	1303491	100.00%	12.697%
55	12.874	973	975	979	rVV	843	1903	0.15%	0.019%
56	12.947	979	982	987	rVB	950	2651	0.20%	0.026%
57	13.042	987	991	997	rBB	735	2235	0.17%	0.022%
58	13.201	997	1006	1008	rBV	436	2488	0.19%	0.024%
59	13.317	1014	1017	1018	rBV	355	861	0.07%	0.008%
60	13.475	1027	1032	1036	rBV3	3444	9039	0.69%	0.088%
61	13.728	1054	1056	1060	rVB	547	1318	0.10%	0.013%
62	13.781	1060	1061	1063	rBV	412	732	0.06%	0.007%
63	13.929	1073	1075	1079	rBV	442	1468	0.11%	0.014%
64	14.245	1099	1105	1128	rBV	257987	599359	45.98%	5.838%
65	14.562	1128	1135	1146	rVV	497157	1141995	87.61%	11.124%
66	14.731	1146	1151	1160	rVB	9454	21775	1.67%	0.212%
67	14.942	1169	1171	1173	rBV	493	1110	0.09%	0.011%
68	15.237	1198	1199	1202	rBB	392	695	0.05%	0.007%
69	15.280	1202	1203	1206	rBV	456	1037	0.08%	0.010%
70	15.343	1207	1209	1211	rVV	497	907	0.07%	0.009%
71	15.385	1211	1213	1216	rVV	617	1192	0.09%	0.012%
72	15.480	1216	1222	1225	rVV	717	2580	0.20%	0.025%
73	15.596	1225	1233	1238	rVB3	4458	19096	1.46%	0.186%
74	15.660	1238	1239	1241	rBV3	492	813	0.06%	0.008%
75	15.776	1241	1250	1253	rVV2	14444	50389	3.87%	0.491%
76	15.839	1253	1256	1270	rVB2	25462	102072	7.83%	0.994%
77	16.061	1270	1277	1287	rBV	396633	916294	70.30%	8.925%
78	16.198	1287	1290	1298	rVB	18176	43659	3.35%	0.425%
79	16.377	1305	1307	1308	rBV	427	732	0.06%	0.007%
80	16.462	1308	1315	1318	rBV	195867	470974	36.13%	4.588%
81	16.514	1318	1320	1330	rVB	100857	242143	18.58%	2.359%
82	16.725	1330	1340	1344	rBV	57908	137279	10.53%	1.337%
83	16.810	1344	1348	1359	rVB	62922	151706	11.64%	1.478%
84	16.947	1359	1361	1363	rBV	517	677	0.05%	0.007%
85	16.989	1363	1365	1368	rBV	1221	2806	0.22%	0.027%
86	17.295	1388	1394	1399	rVV	19172	43948	3.37%	0.428%
87	17.401	1399	1404	1413	rVV	35067	83241	6.39%	0.811%
88	17.580	1413	1421	1427	rVV	531065	1134042	87.00%	11.047%
89	17.675	1427	1430	1435	rVB2	15678	36233	2.78%	0.353%
90	18.277	1480	1487	1492	rBV	25605	55667	4.27%	0.542%
91	18.688	1523	1526	1531	rVV2	1762	3090	0.24%	0.030%
92	19.100	1559	1565	1568	rVB	252	741	0.06%	0.007%
93	20.482	1688	1696	1702	rBV	260	1268	0.10%	0.012%
94	20.630	1708	1710	1714	rBV	598	922	0.07%	0.009%
95	21.664	1806	1808	1811	rVB	499	786	0.06%	0.008%
96	21.727	1811	1814	1818	rBV	544	1211	0.09%	0.012%
97	21.875	1825	1828	1829	rBV	486	693	0.05%	0.007%
98	22.023	1839	1842	1844	rBV2	462	807	0.06%	0.008%
99	22.139	1850	1853	1857	rVB2	506	1533	0.12%	0.015%
100	22.382	1873	1876	1877	rBV	479	763	0.06%	0.007%

Sum of corrected areas: 10266029

File : C:\MSDCHEM\1\DATA\083017\9M982279.D
Operator : JDS
Acquired : 30 Aug 2017 18:22 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-05 B A1 8260C
Misc Info : 1,1
Vial Number: 11
Quant File :8260C.RES (RTE Integrator)



Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

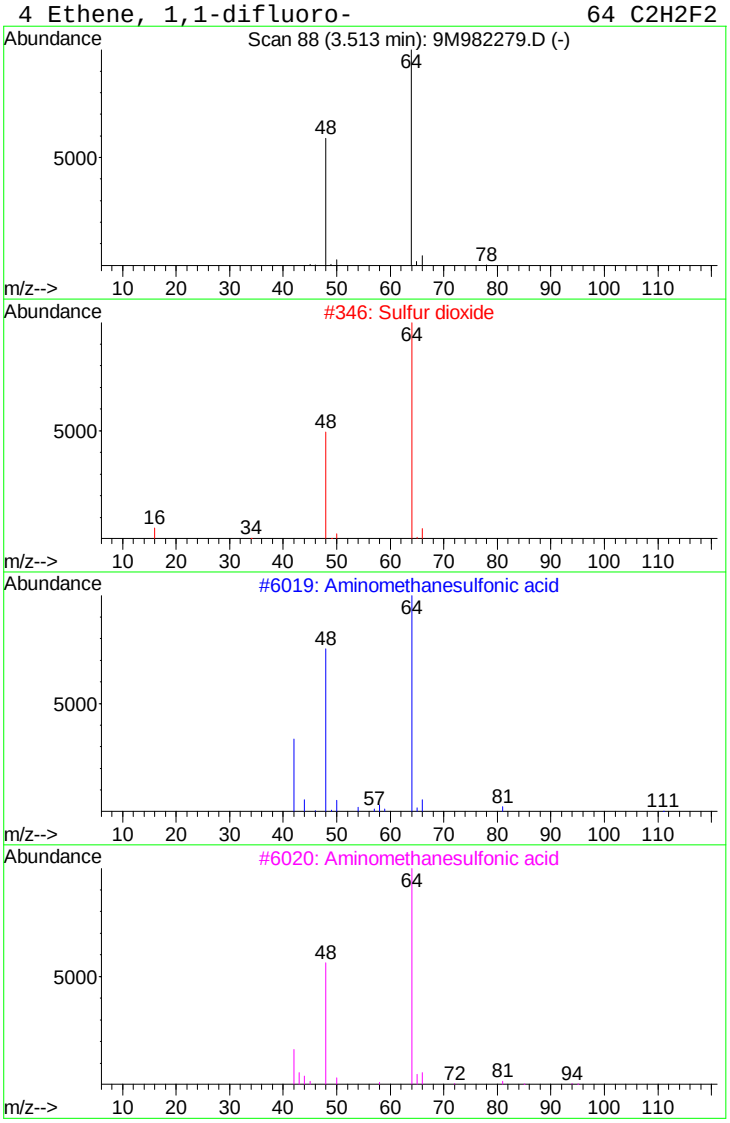
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

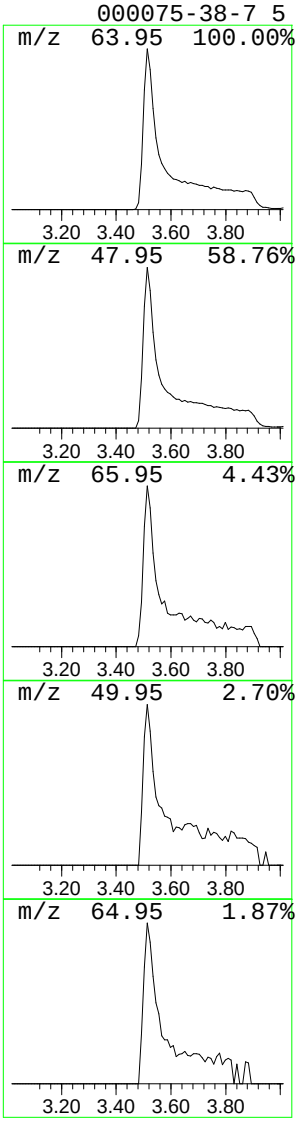
****

Peak Number 1 Sulfur dioxide Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.51	57.76 ug/L	1246930	Fluorobenzene	10.70

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	90
2	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	64
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9
4	Ethene, 1,1-difluoro-	64	C2H2F2	000075-38-7	5





Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

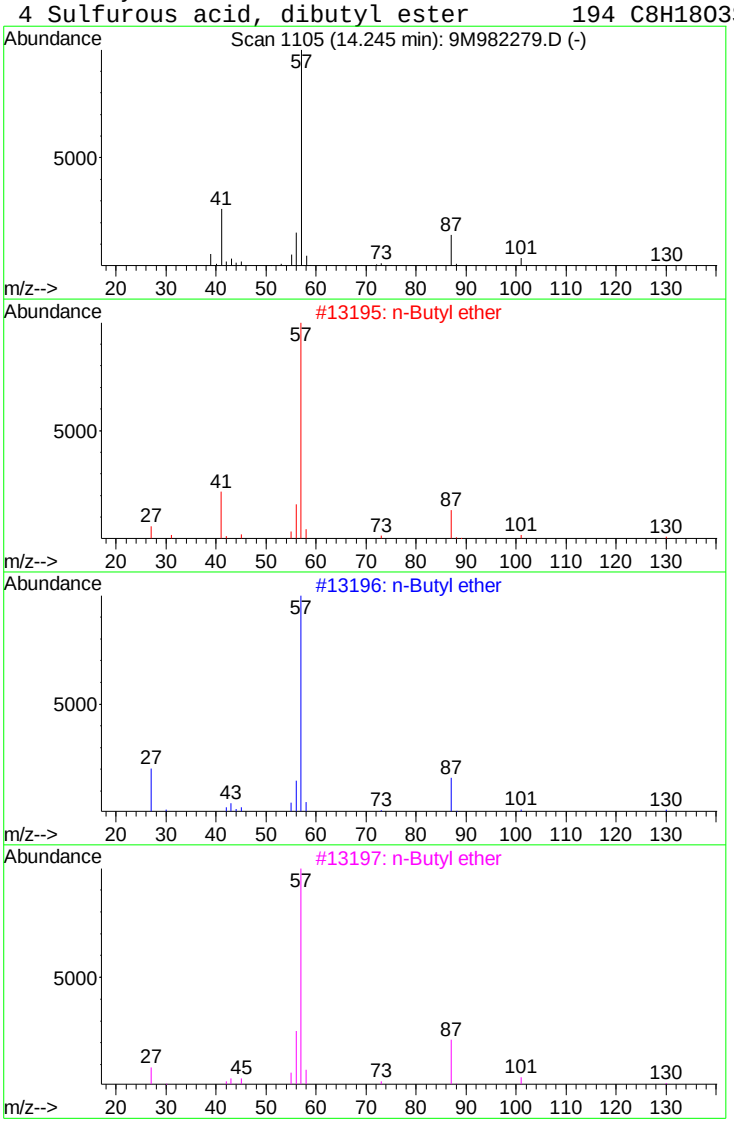
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

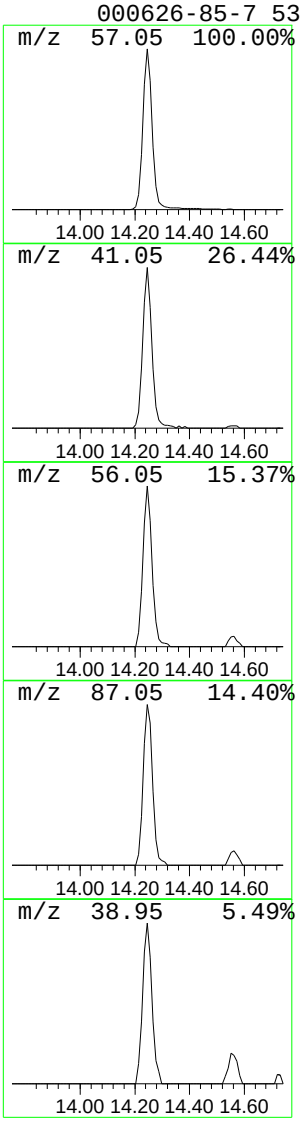
****

Peak Number 2 n-Butyl ether Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
14.25	26.24 ug/L	599359	Chlorobenzene-d5	14.56

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Butyl ether	130	C8H18O	000142-96-1	72
2	n-Butyl ether	130	C8H18O	000142-96-1	72
3	n-Butyl ether	130	C8H18O	000142-96-1	59
4	Sulfurous acid, dibutyl ester	194	C8H18O3S	000626-85-7	53





Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

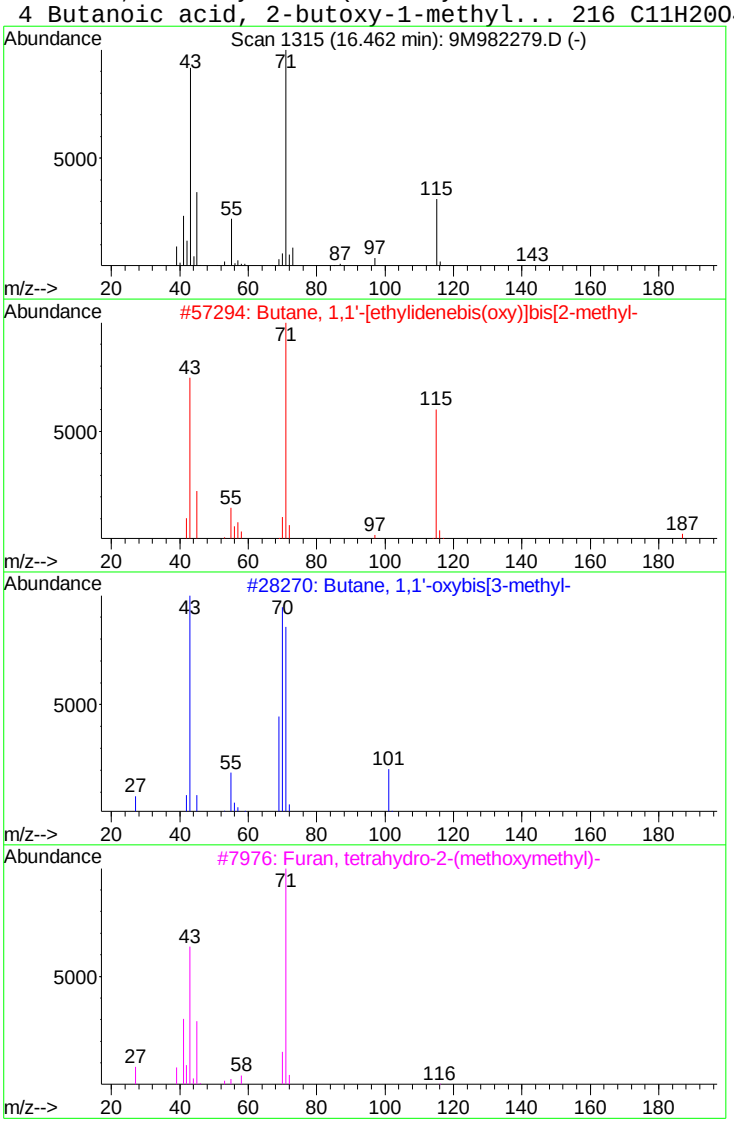
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

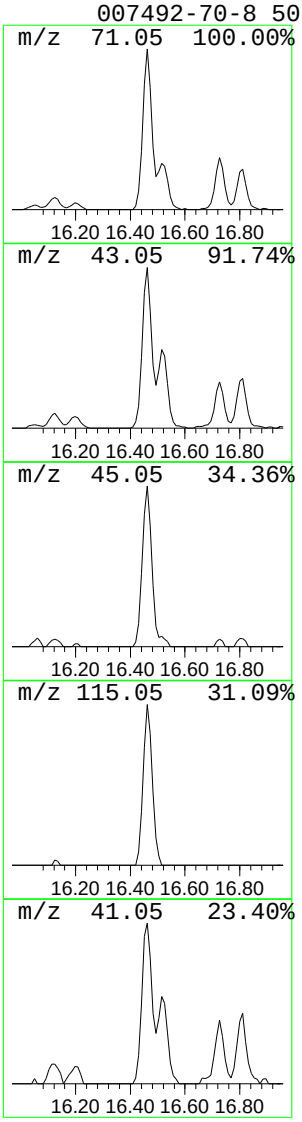
****

Peak Number 3 Butane, 1,1'-[ethylidenebis... Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.46	20.77 ug/L	470974	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Butane, 1,1'-[ethylidenebis(oxy)...	202	C12H26O2	013535-43-8	64
2	Butane, 1,1'-oxybis[3-methyl-	158	C10H22O	000544-01-4	53
3	Furan, tetrahydro-2-(methoxymeth...	116	C6H12O2	019354-27-9	50
4	Butanoic acid, 2-butoxy-1-methyl...	216	C11H20O4	007492-70-8	50





Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

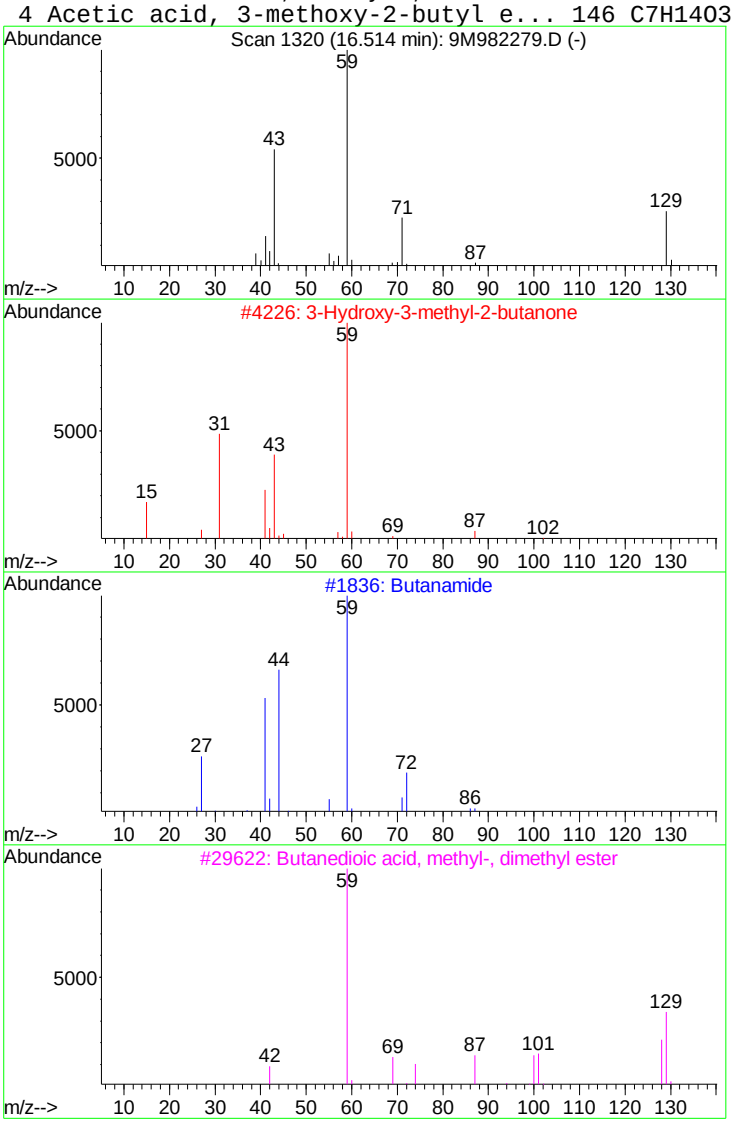
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

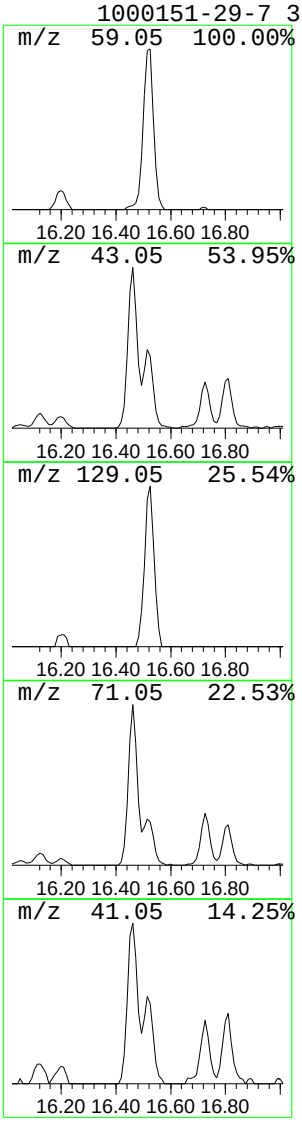
****

Peak Number 4 3-Hydroxy-3-methyl-2-butanone Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.51	10.68 ug/L	242143	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Hydroxy-3-methyl-2-butanone	102	C5H10O2	000115-22-0	38
2	Butanamide	87	C4H9NO	000541-35-5	38
3	Butanedioic acid, methyl-, dimet...	160	C7H12O4	001604-11-1	36
4	Acetic acid, 3-methoxy-2-butyl e...	146	C7H14O3	1000151-29-7	36





Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

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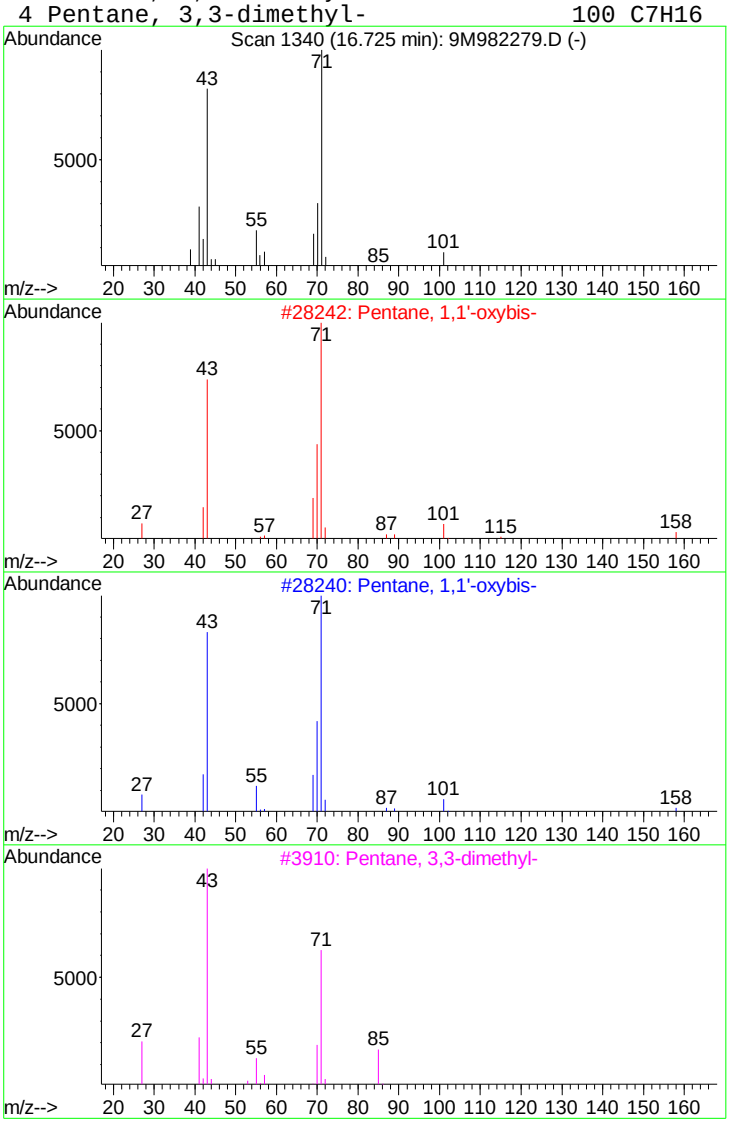
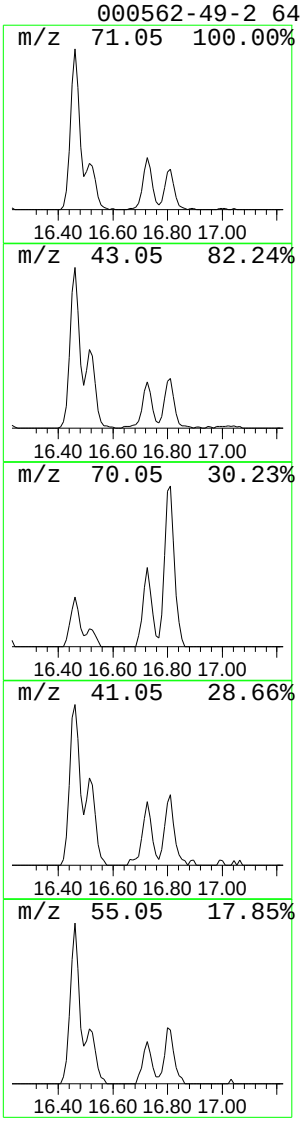
Peak Number 5 Pentane, 1,1'-oxybis- Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.73	6.05 ug/L	137279	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 1,1'-oxybis-	158	C10H22O	000693-65-2	83
2	Pentane, 1,1'-oxybis-	158	C10H22O	000693-65-2	78
3	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	64
4	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	64





Data File : C:\MSDCHEM\1\DATA\083017\9M982279.D Vial: 11
Acq On : 30 Aug 2017 18:22 Operator: JDS
Sample : L17081305-05 B A1 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

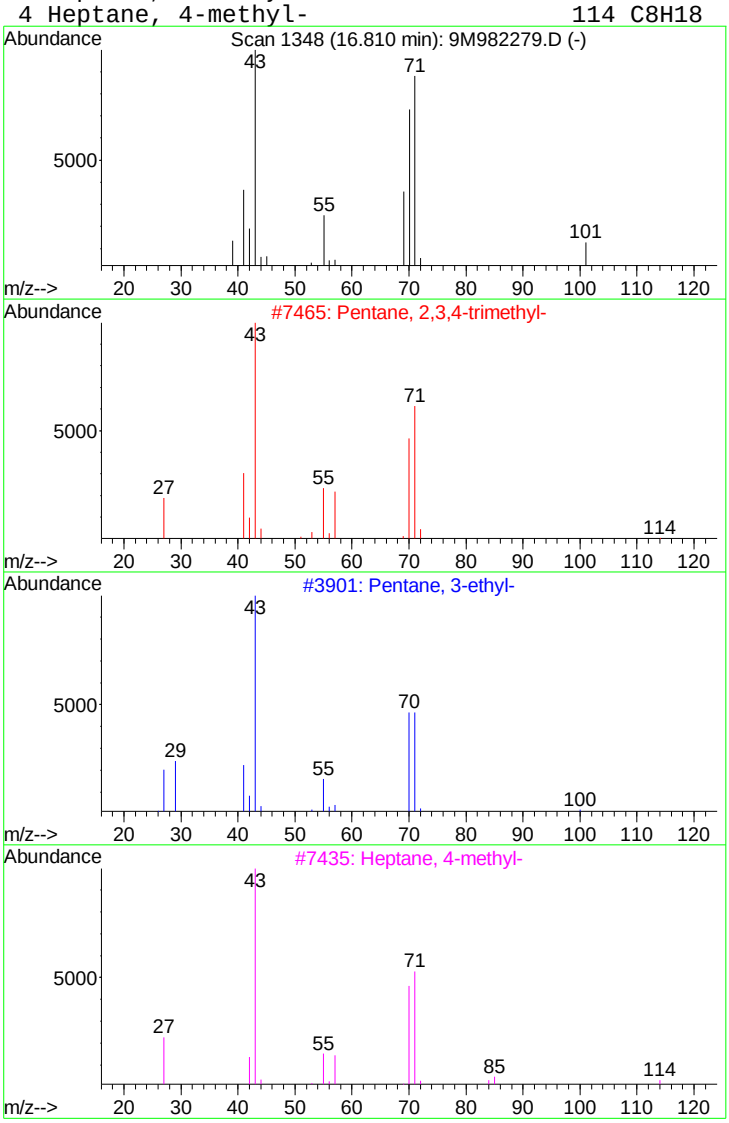
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

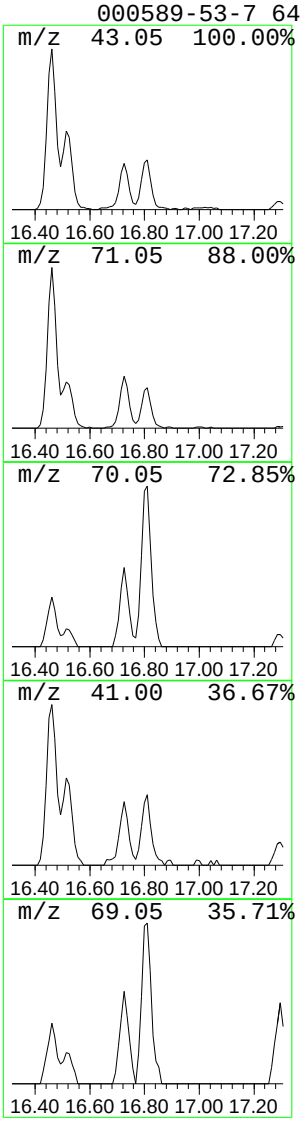
****

Peak Number 6 Pentane, 2,3,4-trimethyl- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.81	6.69 ug/L	151706	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 2,3,4-trimethyl-	114	C8H18	000565-75-3	72
2	Pentane, 3-ethyl-	100	C7H16	000617-78-7	72
3	Heptane, 4-methyl-	114	C8H18	000589-53-7	72
4	Heptane, 4-methyl-	114	C8H18	000589-53-7	64





Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 30 Aug 2017 18:22
Data File: C:\MSDCHEM\1\DATA\083017\9M982279.D
Name: L17081305-05 B A1 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
Sulfur dioxide	3.51	57.8	ug/L	1246930	1	10.70	1079440	50.0
n-Butyl ether	14.25	26.2	ug/L	599359	2	14.56	1142000	50.0
Butane, 1,1'-[eth...	16.46	20.8	ug/L	470974	3	17.58	1134040	50.0
3-Hydroxy-3-methy...	16.51	10.7	ug/L	242143	3	17.58	1134040	50.0
Pentane, 1,1'-oxy...	16.73	6.1	ug/L	137279	3	17.58	1134040	50.0
Pentane, 2,3,4-tr...	16.81	6.7	ug/L	151706	3	17.58	1134040	50.0

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982222.D Vial: 9
Acq On : 28 Aug 2017 18:15 Operator: JDS
Sample : L17081305-07 A TB 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:40 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

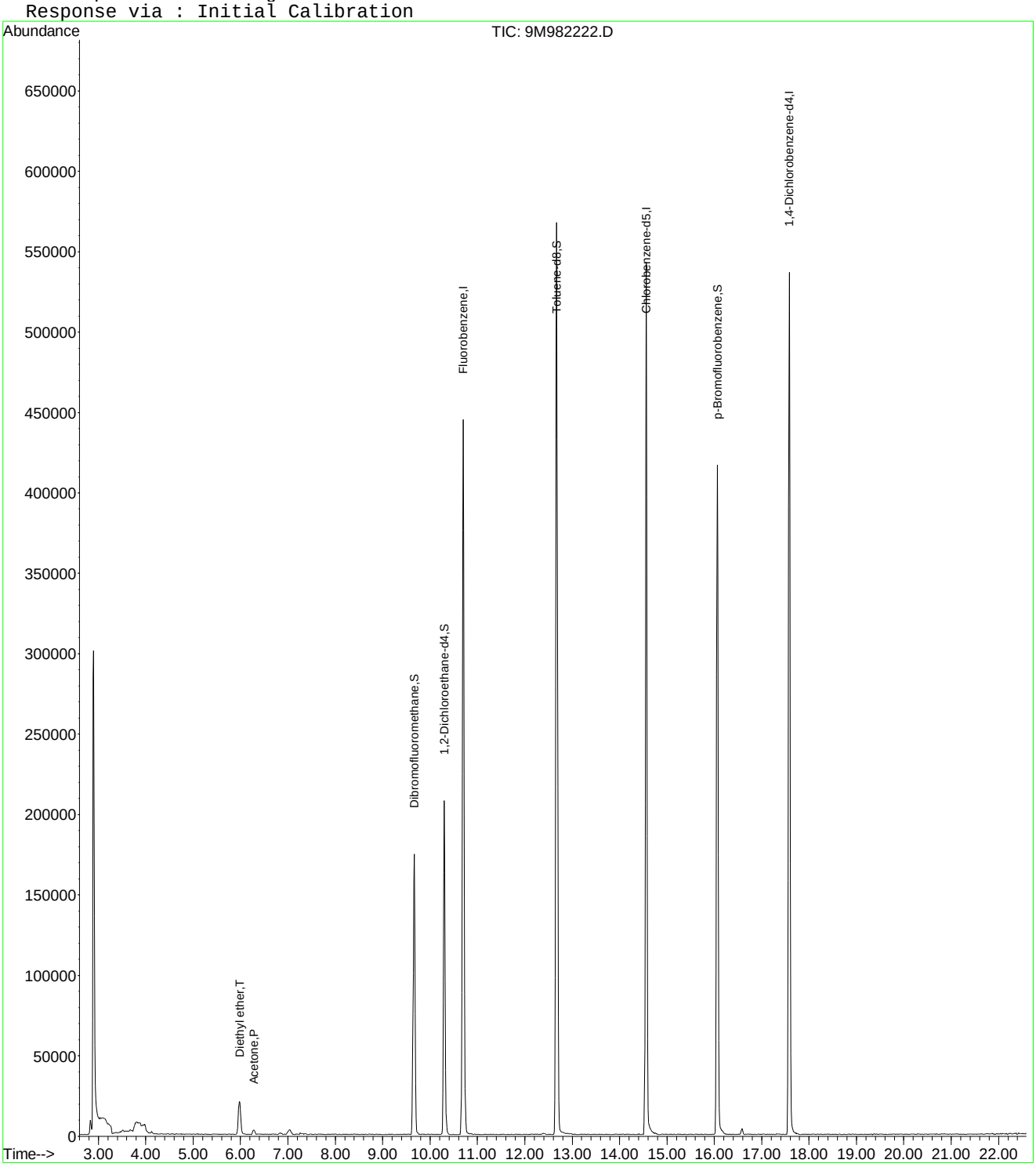
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	552023	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	416276	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	186703	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.67	111	154049	49.8400	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 99.68%			
43) 1,2-Dichloroethane-d4	10.30	65	186996	51.7946	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.58%			
58) Toluene-d8	12.67	98	532152	51.9266	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 103.86%			
79) p-Bromofluorobenzene	16.06	95	189743	57.3155	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 114.64%			
Target Compounds						Qvalue
9) Diethyl ether	5.98	59	1271	0.4044	ug/L	# 1
13) Acetone	6.28	43	6126	3.6519	ug/L	95

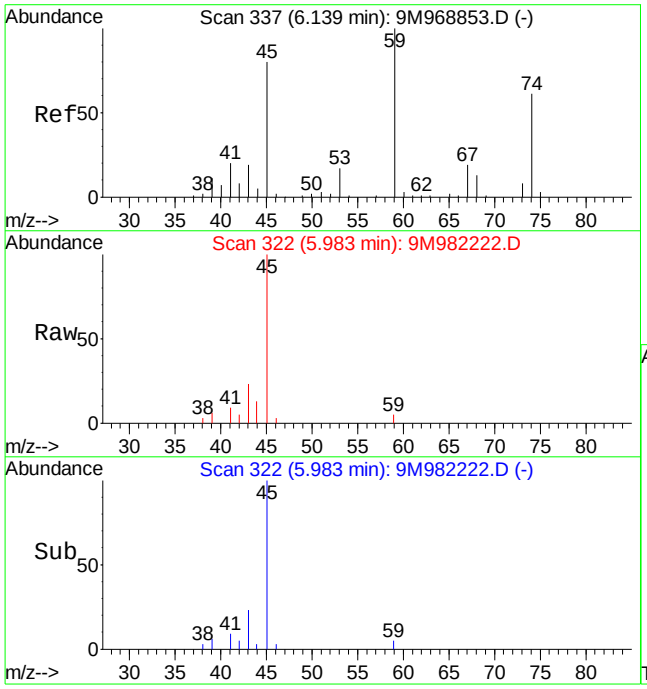
(#) = qualifier out of range (m) = manual integration
9M982222.D 8260C.M Tue Aug 29 09:33:40 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982222.D Vial: 9
Acq On : 28 Aug 2017 18:15 Operator: JDS
Sample : L17081305-07 A TB 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration

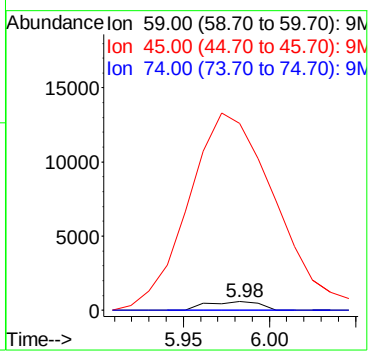


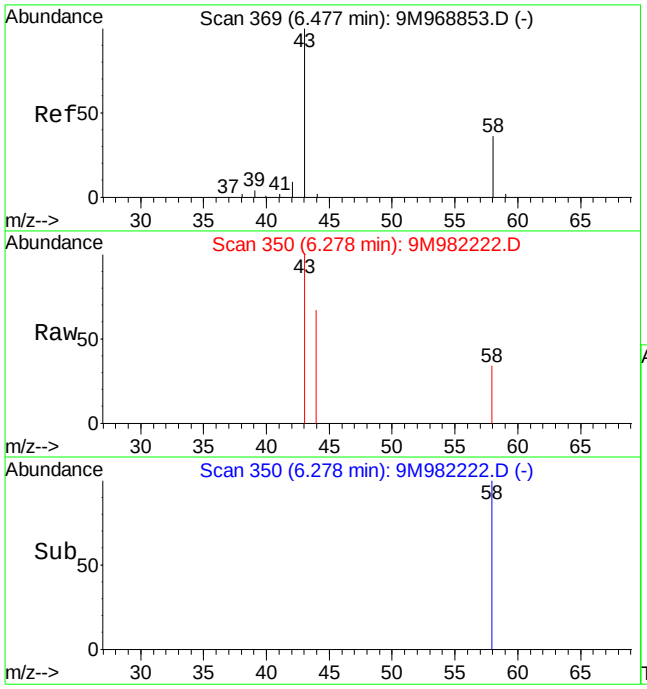


#9
Diethyl ether
Concen: 0.40 ug/L
RT: 5.98 min Scan# 322
Delta R.T. 0.04 min
Lab File: 9M982222.D
Acq: 28 Aug 2017 18:15

Tgt Ion: 59 Resp: 1271

Ion	Ratio	Lower	Upper
59	100		
45	3725.8	48.1	112.3#
74	0.0	37.1	86.5#

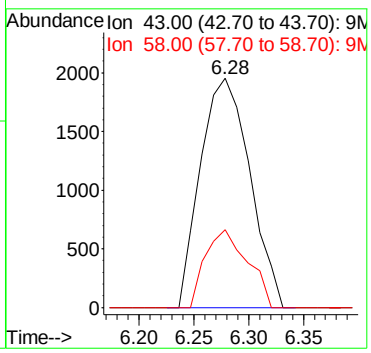




#13
Acetone
Concen: 3.65 ug/L
RT: 6.28 min Scan# 350
Delta R.T. 0.00 min
Lab File: 9M982222.D
Acq: 28 Aug 2017 18:15

Tgt Ion: 43 Resp: 6126

Ion	Ratio	Lower	Upper
43	100		
58	29.0	18.9	44.1



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:47 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

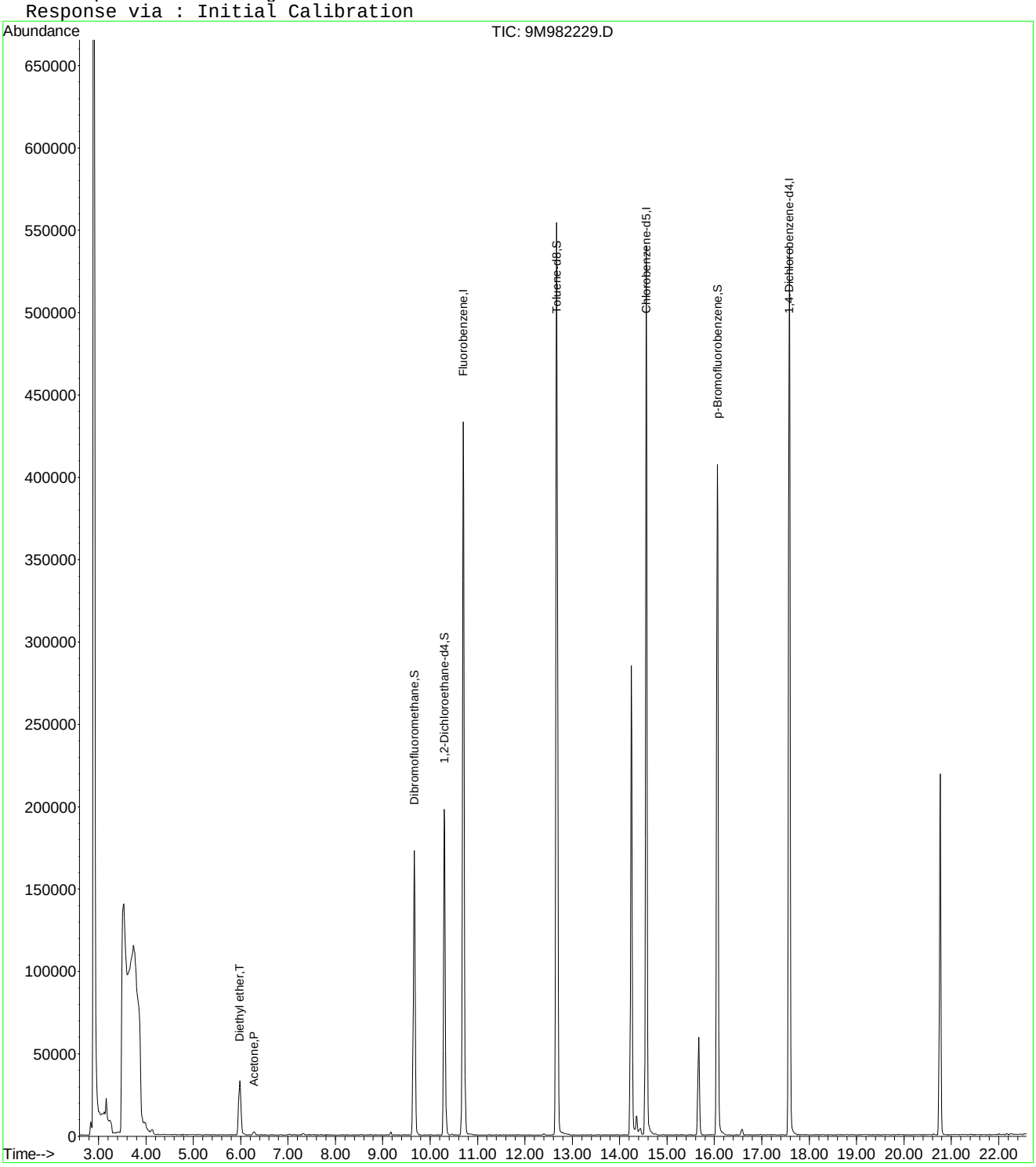
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	534673	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	409502	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	191657	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	152078	50.7990 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 101.60%		
43) 1,2-Dichloroethane-d4	10.30	65	184349	52.7184 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 105.44%		
58) Toluene-d8	12.67	98	511917	50.7784 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 101.56%		
79) p-Bromofluorobenzene	16.06	95	186025	54.7399 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 109.48%		
Target Compounds					Qvalue
9) Diethyl ether	5.97	59	3008	0.9881 ug/L #	1
13) Acetone	6.28	43	4187	2.5770 ug/L	85

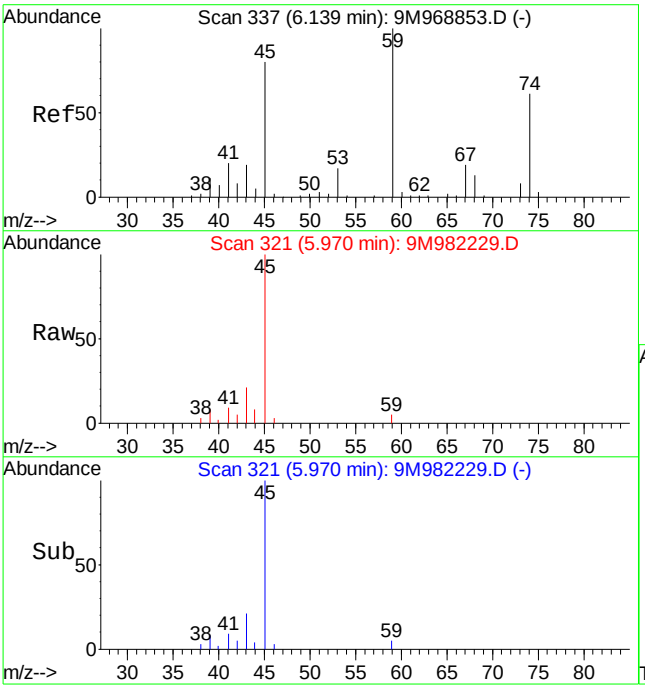
(#) = qualifier out of range (m) = manual integration
9M982229.D 8260C.M Tue Aug 29 09:33:48 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration

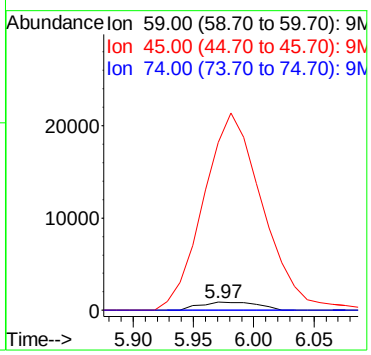


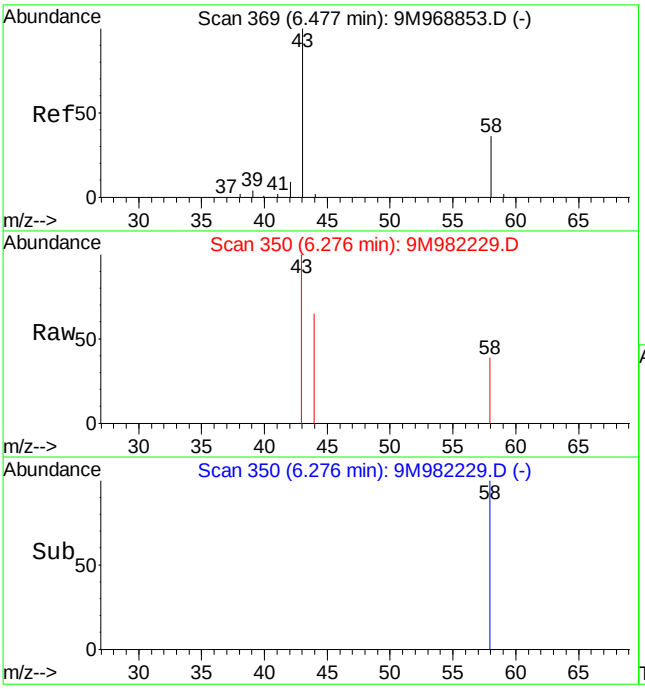


#9
Diethyl ether
Concen: 0.99 ug/L
RT: 5.97 min Scan# 321
Delta R.T. 0.03 min
Lab File: 9M982229.D
Acq: 28 Aug 2017 21:46

Tgt Ion: 59 Resp: 3008

Ion	Ratio	Lower	Upper
59	100		
45	2449.4	48.1	112.3#
74	0.0	37.1	86.5#

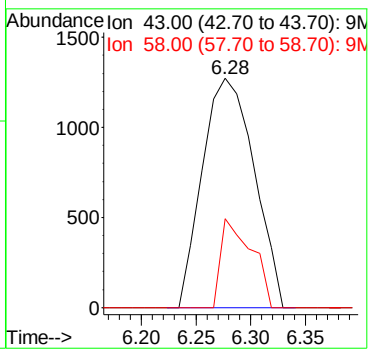




#13
Acetone
Concen: 2.58 ug/L
RT: 6.28 min Scan# 350
Delta R.T. -0.00 min
Lab File: 9M982229.D
Acq: 28 Aug 2017 21:46

Tgt Ion: 43 Resp: 4187

Ion	Ratio	Lower	Upper
43	100		
58	23.0	18.9	44.1



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

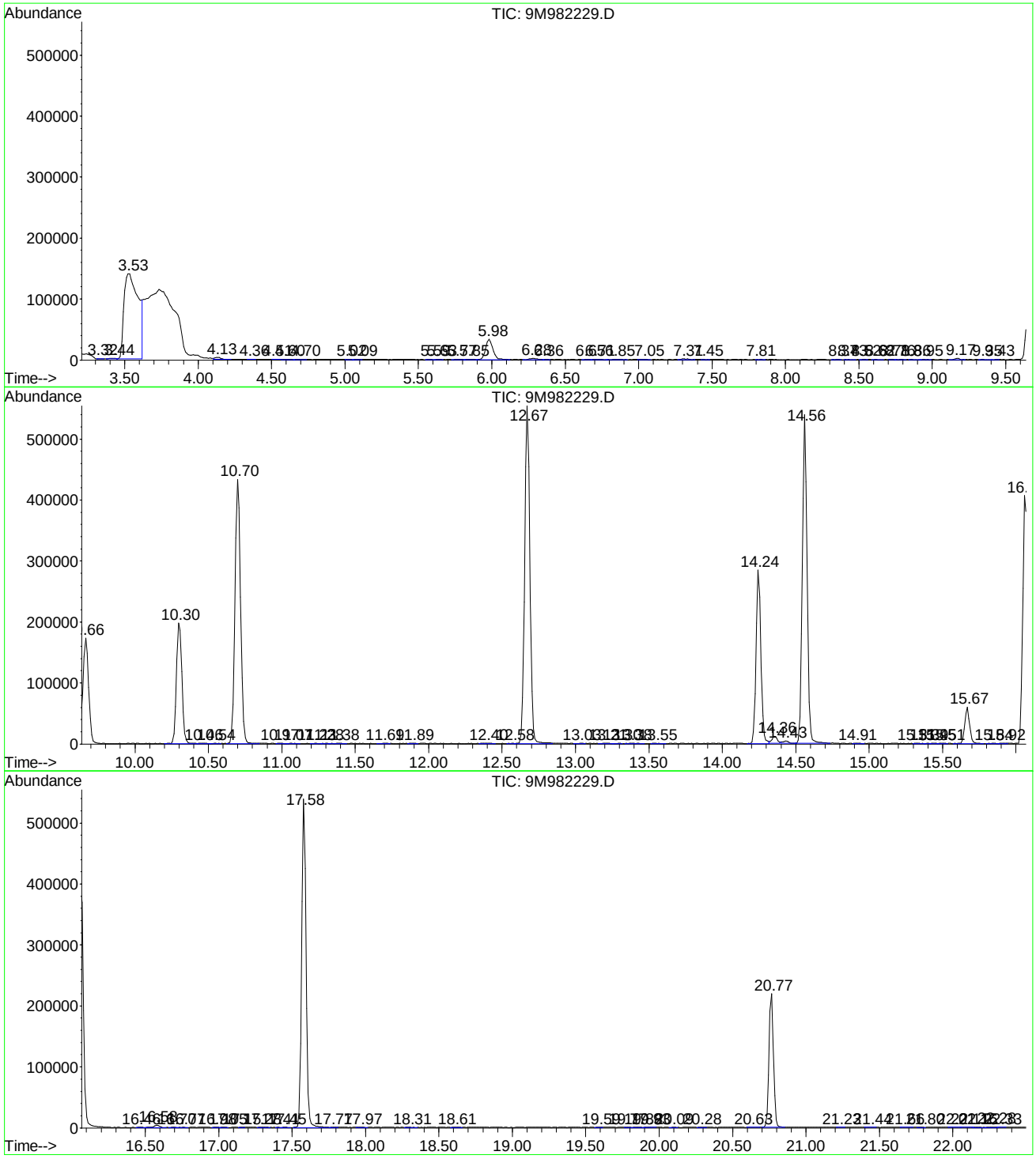
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.322	69	70	73	rBV2	591	989	0.07%	0.011%
2	3.438	75	81	82	rBV2	783	2286	0.17%	0.025%
3	3.533	82	90	98	rBV	138892	950337	69.54%	10.342%
4	4.134	144	147	155	rVB3	3033	8373	0.61%	0.091%
5	4.356	166	168	171	rVB	355	481	0.04%	0.005%
6	4.514	182	183	187	rVB	243	474	0.03%	0.005%
7	4.598	188	191	196	rVB	363	998	0.07%	0.011%
8	4.704	196	201	204	rBV	305	831	0.06%	0.009%
9	5.021	229	231	234	rVB	326	546	0.04%	0.006%
10	5.094	234	238	240	rBV	505	911	0.07%	0.010%
11	5.590	281	285	286	rVB	286	540	0.04%	0.006%
12	5.633	287	289	292	rVV	267	482	0.04%	0.005%
13	5.770	298	302	306	rBV	275	786	0.06%	0.009%
14	5.854	306	310	314	rBV	239	765	0.06%	0.008%
15	5.981	314	322	335	rBV	33093	112534	8.23%	1.225%
16	6.276	344	350	357	rVB2	1967	6912	0.51%	0.075%
17	6.361	357	358	361	rBV	289	496	0.04%	0.005%
18	6.646	382	385	388	rVV	299	570	0.04%	0.006%
19	6.709	388	391	398	rVB	313	1059	0.08%	0.012%
20	6.846	398	404	411	rBV	440	1947	0.14%	0.021%
21	7.047	418	423	426	rVV	419	1163	0.09%	0.013%
22	7.311	444	448	455	rVV	1152	3271	0.24%	0.036%
23	7.448	459	461	464	rVV	484	484	0.04%	0.005%
24	7.807	494	495	500	rBV	313	874	0.06%	0.010%
25	8.366	543	548	549	rVB	252	486	0.04%	0.005%
26	8.429	551	554	558	rVB	238	511	0.04%	0.006%
27	8.524	561	563	566	rVV	282	542	0.04%	0.006%
28	8.619	569	572	576	rBV	185	517	0.04%	0.006%
29	8.714	580	581	584	rVB	284	478	0.03%	0.005%
30	8.756	584	585	591	rBV	261	701	0.05%	0.008%
31	8.862	593	595	600	rBV	206	503	0.04%	0.005%
32	8.946	600	603	607	rBV	229	511	0.04%	0.006%
33	9.168	619	624	629	rBV2	2033	4297	0.31%	0.047%
34	9.347	638	641	646	rVB	284	695	0.05%	0.008%
35	9.432	646	649	651	rBV	312	589	0.04%	0.006%
36	9.664	661	671	681	rVV	172759	470202	34.41%	5.117%
37	10.297	722	731	743	rBV	197874	506047	37.03%	5.507%
38	10.455	743	746	751	rBV2	650	1562	0.11%	0.017%
39	10.540	751	754	758	rBV	300	485	0.04%	0.005%
40	10.698	762	769	783	rBV	432961	1151710	84.28%	12.534%
41	10.972	794	795	801	rVB	234	560	0.04%	0.006%
42	11.067	801	804	809	rBV	159	636	0.05%	0.007%

43	11.226	816	819	823	rBV	301	664	0.05%	0.007%
44	11.278	823	824	828	rBV	236	529	0.04%	0.006%
45	11.384	828	834	839	rBV	234	906	0.07%	0.010%
46	11.690	859	863	867	rVB	252	597	0.04%	0.006%
47	11.890	879	882	885	rBV	334	879	0.06%	0.010%
48	12.397	925	930	935	rVB2	691	2216	0.16%	0.024%
49	12.576	943	947	948	rBV	227	497	0.04%	0.005%
50	12.671	948	956	972	rBV	554041	1366570	100.00%	14.872%
51	13.030	986	990	993	rBV	267	800	0.06%	0.009%
52	13.210	1002	1007	1011	rBV	334	1211	0.09%	0.013%
53	13.305	1011	1016	1017	rBV	276	562	0.04%	0.006%
54	13.378	1019	1023	1031	rVB	214	797	0.06%	0.009%
55	13.547	1036	1039	1045	rBV	225	814	0.06%	0.009%
56	14.244	1098	1105	1112	rBV	284850	647211	47.36%	7.043%
57	14.360	1112	1116	1119	rVV2	11392	29222	2.14%	0.318%
58	14.434	1120	1123	1129	rVV	3715	9607	0.70%	0.105%
59	14.560	1129	1135	1151	rVV	539348	1213212	88.78%	13.203%
60	14.909	1166	1168	1173	rVV	211	534	0.04%	0.006%
61	15.310	1205	1206	1212	rVB	383	1028	0.08%	0.011%
62	15.394	1212	1214	1216	rBV	250	523	0.04%	0.006%
63	15.447	1216	1219	1221	rVV	311	523	0.04%	0.006%
64	15.510	1221	1225	1227	rVV	227	569	0.04%	0.006%
65	15.668	1231	1240	1250	rVB	59462	136756	10.01%	1.488%
66	15.837	1252	1256	1260	rBV	262	907	0.07%	0.010%
67	15.922	1260	1264	1266	rVV	258	645	0.05%	0.007%
68	16.059	1270	1277	1297	rVB	407140	908837	66.50%	9.891%
69	16.460	1313	1315	1319	rVB	318	512	0.04%	0.006%
70	16.576	1319	1326	1332	rBV2	3553	9388	0.69%	0.102%
71	16.703	1334	1338	1339	rVB	243	528	0.04%	0.006%
72	16.766	1339	1344	1346	rBV	320	669	0.05%	0.007%
73	16.977	1362	1364	1367	rVB	253	502	0.04%	0.005%
74	17.051	1367	1371	1372	rVB	249	533	0.04%	0.006%
75	17.146	1379	1380	1383	rBV	265	505	0.04%	0.005%
76	17.283	1391	1393	1399	rBV	238	842	0.06%	0.009%
77	17.410	1403	1405	1407	rVB	427	468	0.03%	0.005%
78	17.452	1407	1409	1412	rBV	308	700	0.05%	0.008%
79	17.578	1414	1421	1438	rBV	539008	1131744	82.82%	12.316%
80	17.768	1438	1439	1443	rVV	384	538	0.04%	0.006%
81	17.969	1455	1458	1462	rVB	289	665	0.05%	0.007%
82	18.307	1486	1490	1494	rVB	304	540	0.04%	0.006%
83	18.613	1516	1519	1523	rBV	259	590	0.04%	0.006%
84	19.594	1609	1612	1614	rBV	267	664	0.05%	0.007%
85	19.773	1628	1629	1633	rVB	247	540	0.04%	0.006%
86	19.879	1634	1639	1641	rVV	376	645	0.05%	0.007%
87	19.932	1641	1644	1648	rVV	228	517	0.04%	0.006%
88	20.090	1657	1659	1662	rVB	282	548	0.04%	0.006%
89	20.280	1675	1677	1681	rBV	297	557	0.04%	0.006%
90	20.628	1707	1710	1715	rVB	631	871	0.06%	0.009%
91	20.765	1717	1723	1731	rVV	219078	459290	33.61%	4.998%
92	21.230	1765	1767	1770	rBV	296	521	0.04%	0.006%
93	21.441	1783	1787	1790	rVV	536	893	0.07%	0.010%
94	21.662	1806	1808	1814	rVB	313	723	0.05%	0.008%
95	21.800	1817	1821	1822	rVB	376	677	0.05%	0.007%
96	22.011	1837	1841	1845	rBV	650	1583	0.12%	0.017%
97	22.106	1845	1850	1853	rVB	446	948	0.07%	0.010%
98	22.158	1853	1855	1861	rVB2	736	2117	0.15%	0.023%
99	22.285	1861	1867	1869	rBV2	788	2729	0.20%	0.030%
100	22.327	1869	1871	1874	rVB	409	680	0.05%	0.007%

Sum of corrected areas: 9188984

File : C:\MSDCHEM\1\DATA\082817\9M982229.D
Operator : JDS
Acquired : 28 Aug 2017 21:46 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-14 A 8260C
Misc Info : 1,1
Vial Number: 16
Quant File :8260C.RES (RTE Integrator)



Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

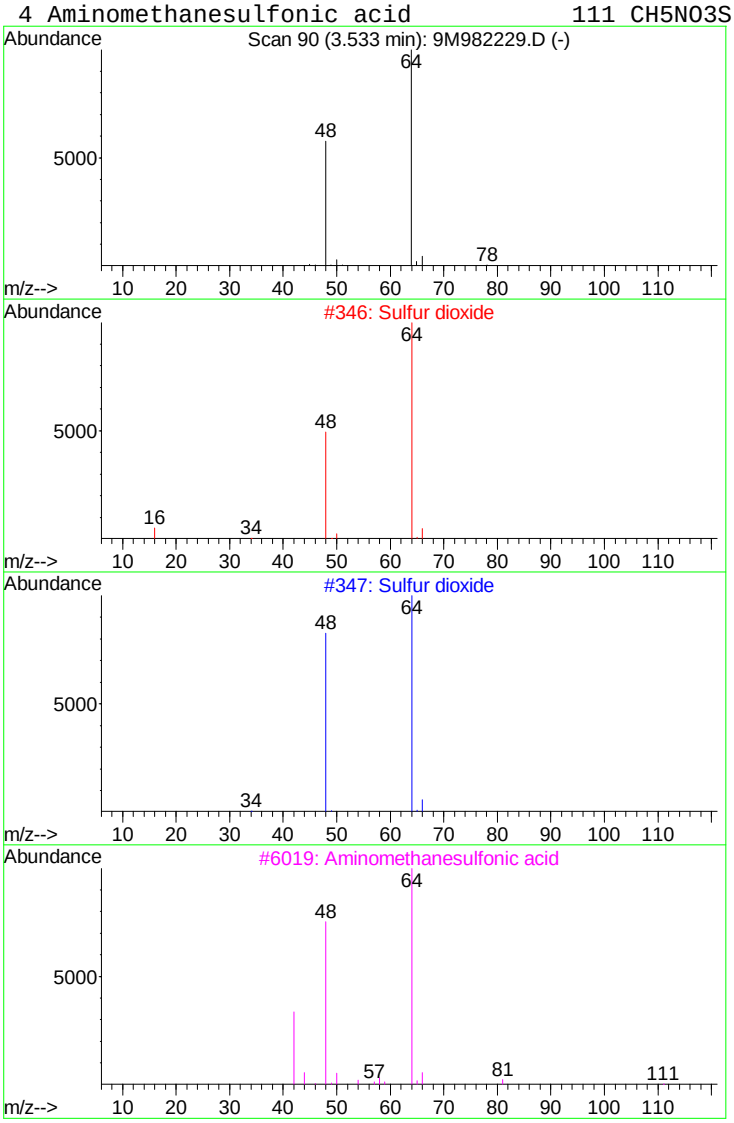
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

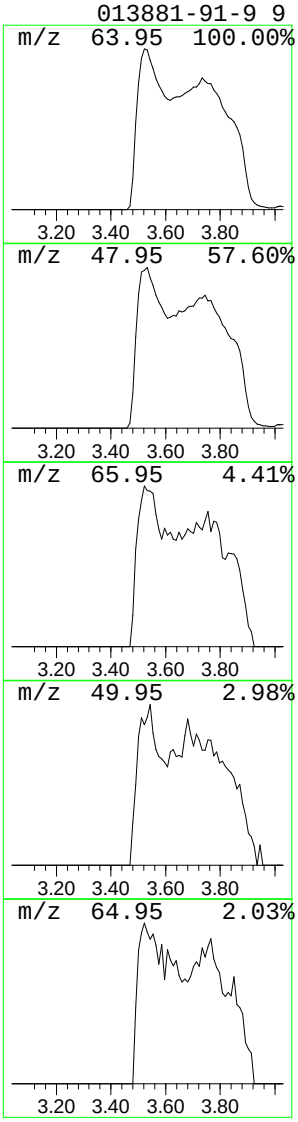
****

Peak Number 1 Sulfur dioxide Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.53	41.26 ug/L	950337	Fluorobenzene	10.70

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	90
2	Sulfur dioxide	64	O2S	007446-09-5	83
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	25
4	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9





Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

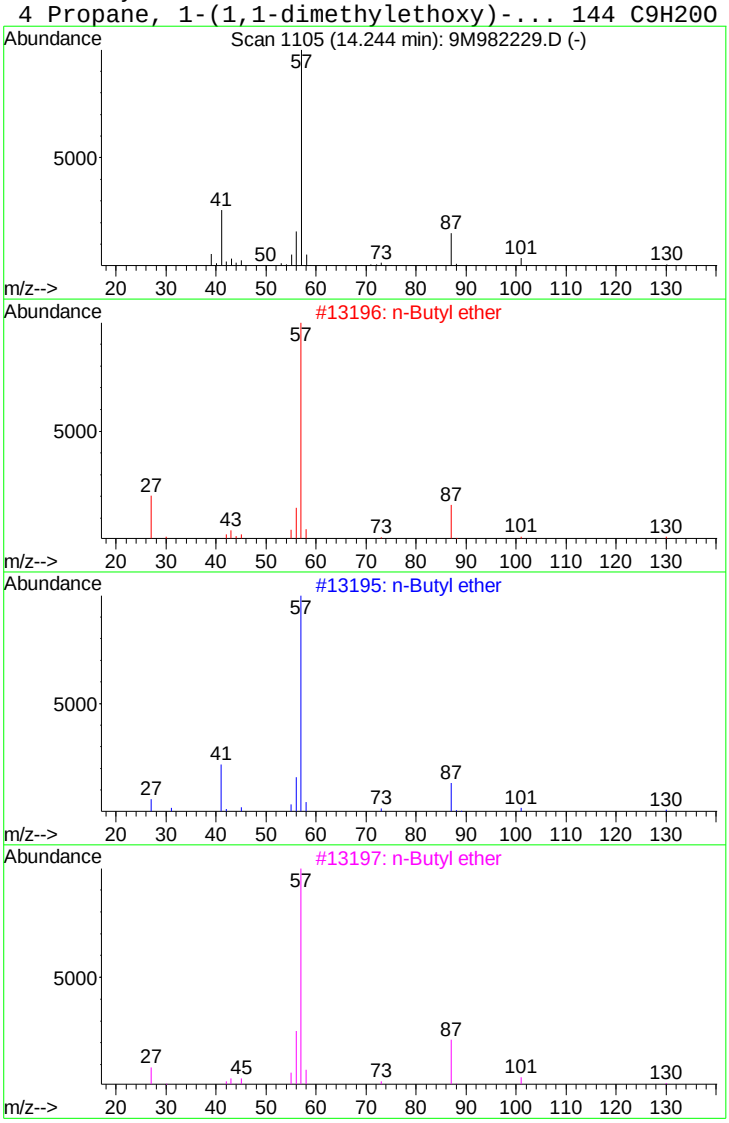
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

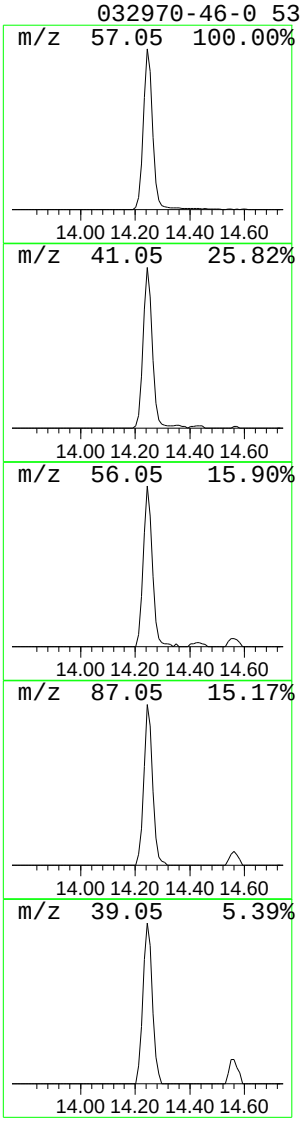
****

Peak Number 2 n-Butyl ether Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
14.24	26.67 ug/L	647211	Chlorobenzene-d5	14.56

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Butyl ether	130	C8H18O	000142-96-1	72
2	n-Butyl ether	130	C8H18O	000142-96-1	72
3	n-Butyl ether	130	C8H18O	000142-96-1	59
4	Propane, 1-(1,1-dimethylethoxy)-...	144	C9H20O	032970-46-0	53





Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

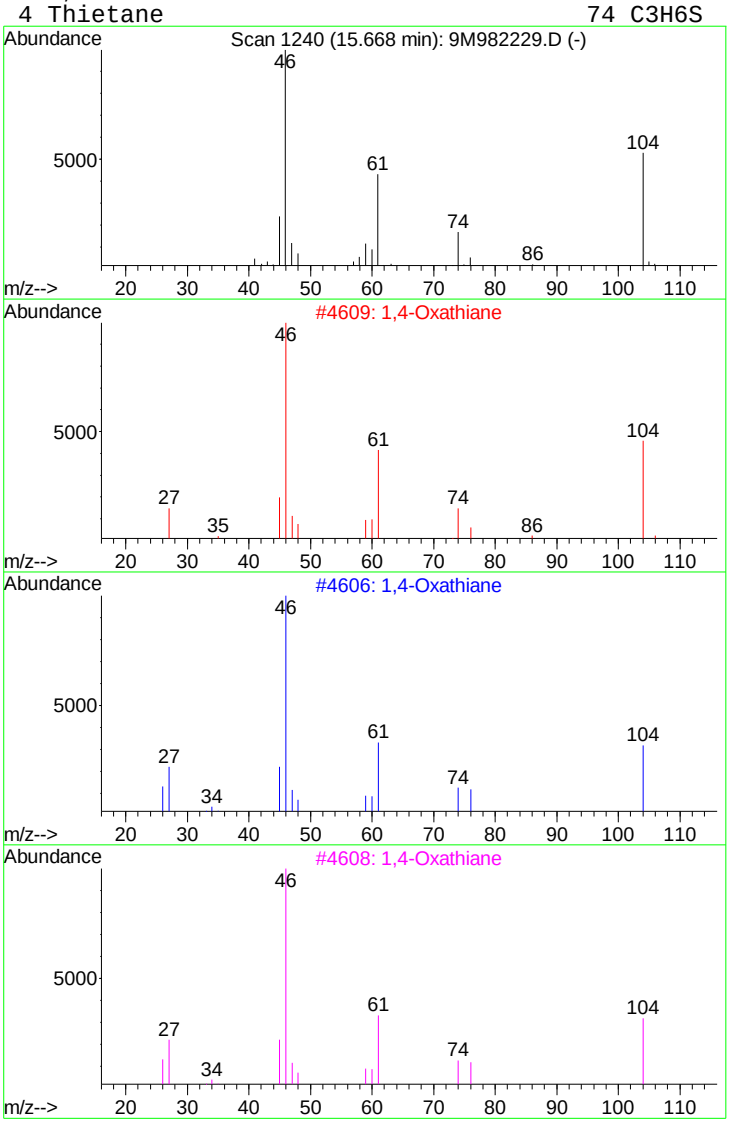
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

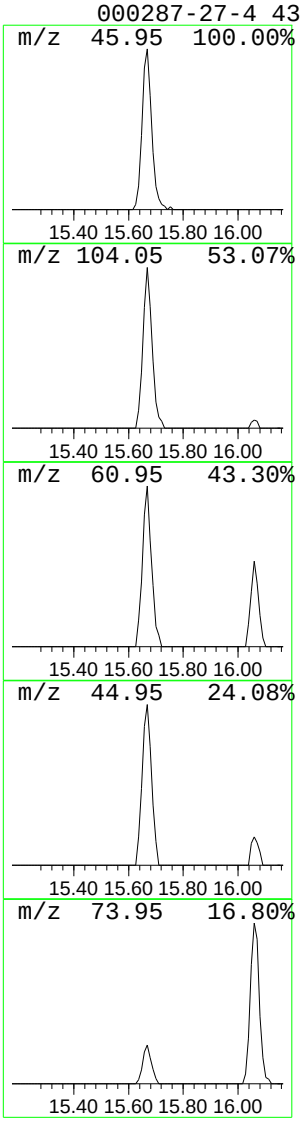
****

Peak Number 3 1,4-Oxathiane Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.67	5.64 ug/L	136756	Chlorobenzene-d5	14.56

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1,4-Oxathiane	104	C4H8OS	015980-15-1	96
2	1,4-Oxathiane	104	C4H8OS	015980-15-1	86
3	1,4-Oxathiane	104	C4H8OS	015980-15-1	86
4	Thietane	74	C3H6S	000287-27-4	43





Data File : C:\MSDCHEM\1\DATA\082817\9M982229.D Vial: 16
Acq On : 28 Aug 2017 21:46 Operator: JDS
Sample : L17081305-14 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

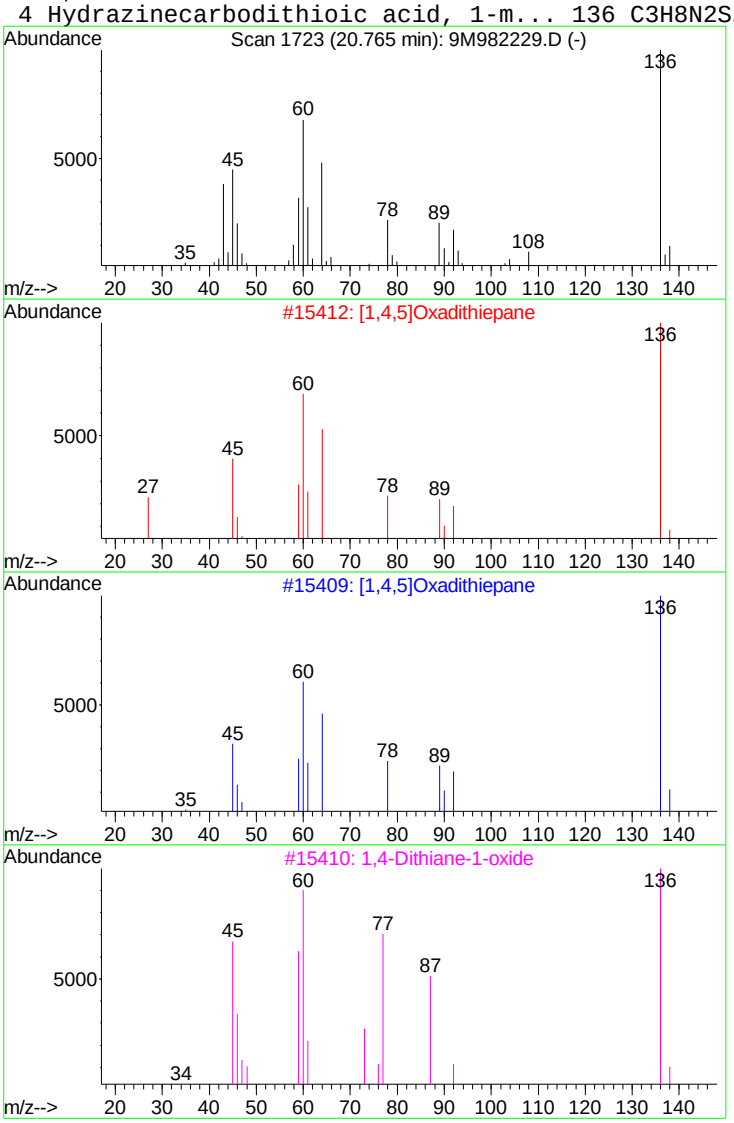
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

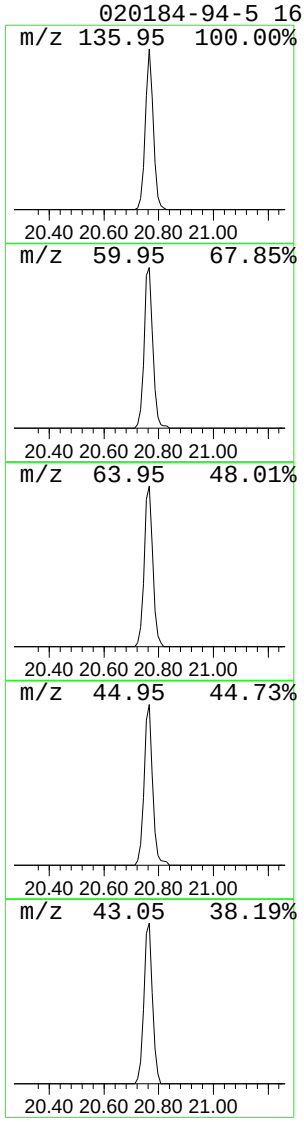
****

Peak Number 4 [1,4,5]Oxadithiepane Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.77	20.29 ug/L	459290	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	98
2	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	96
3	1,4-Dithiane-1-oxide	136	C4H8OS2	019087-70-8	17
4	Hydrazinecarbodithioic acid, 1-m...	136	C3H8N2S2	020184-94-5	16





Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 28 Aug 2017 21:46
Data File: C:\MSDCHEM\1\DATA\082817\9M982229.D
Name: L17081305-14 A 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
Sulfur dioxide	3.53	41.3	ug/L	950337	1	10.70	1151710	50.0
n-Butyl ether	14.24	26.7	ug/L	647211	2	14.56	1213210	50.0
1,4-Oxathiane	15.67	5.6	ug/L	136756	2	14.56	1213210	50.0
[1,4,5]Oxadithiepane	20.77	20.3	ug/L	459290	3	17.58	1131740	50.0

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:48 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

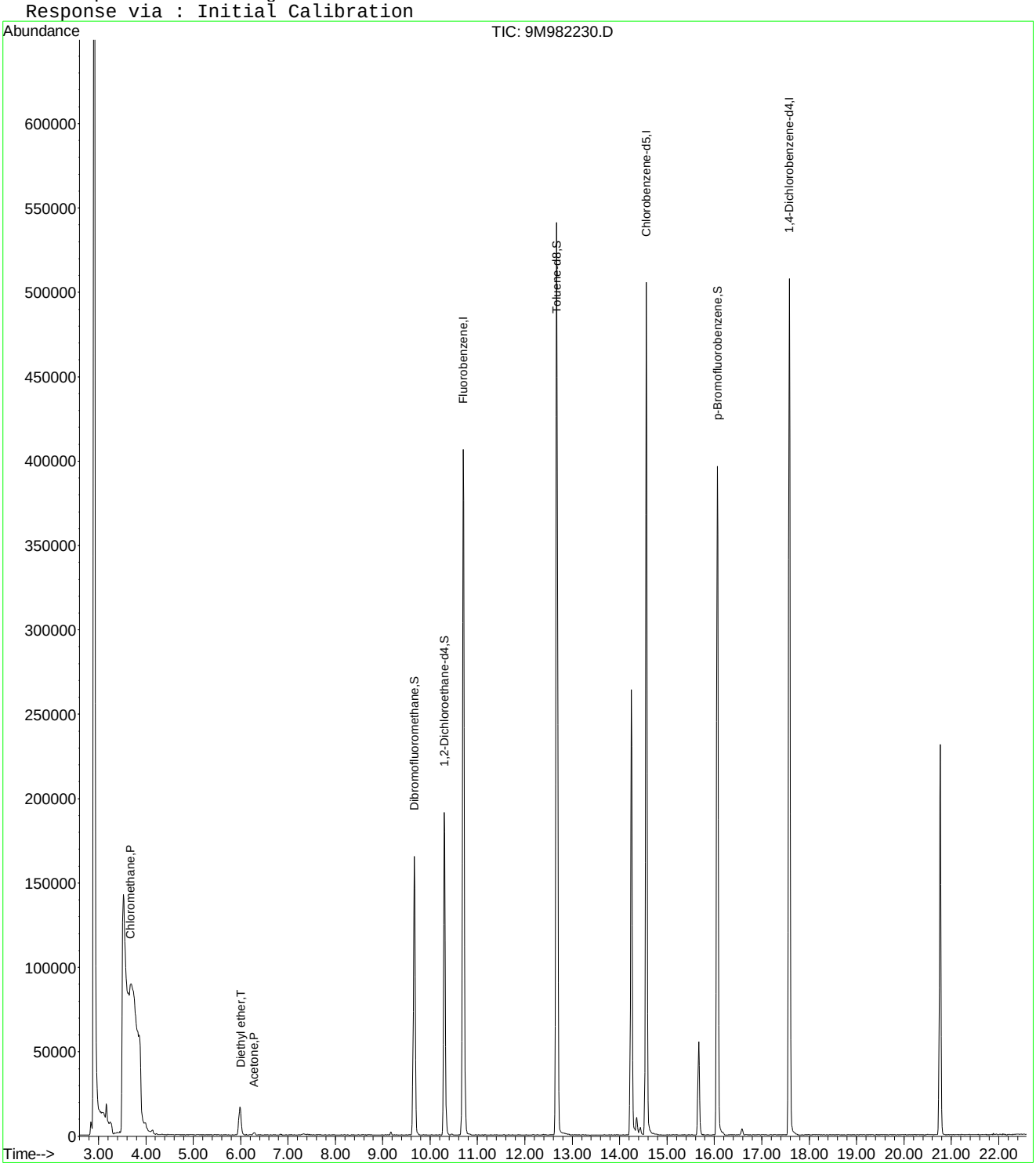
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	511533	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	388283	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	180663	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	147137	51.3718	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.74%			
43) 1,2-Dichloroethane-d4	10.30	65	175985	52.6031	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 105.20%			
58) Toluene-d8	12.67	98	494670	51.7491	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 103.50%			
79) p-Bromofluorobenzene	16.06	95	181359	56.6145	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 113.22%			
Target Compounds						Qvalue
3) Chloromethane	3.67	50	2101	0.4091	ug/L	94
9) Diethyl ether	6.00	59	1268	0.4354	ug/L #	1
13) Acetone	6.28	43	2846	1.8309	ug/L	84

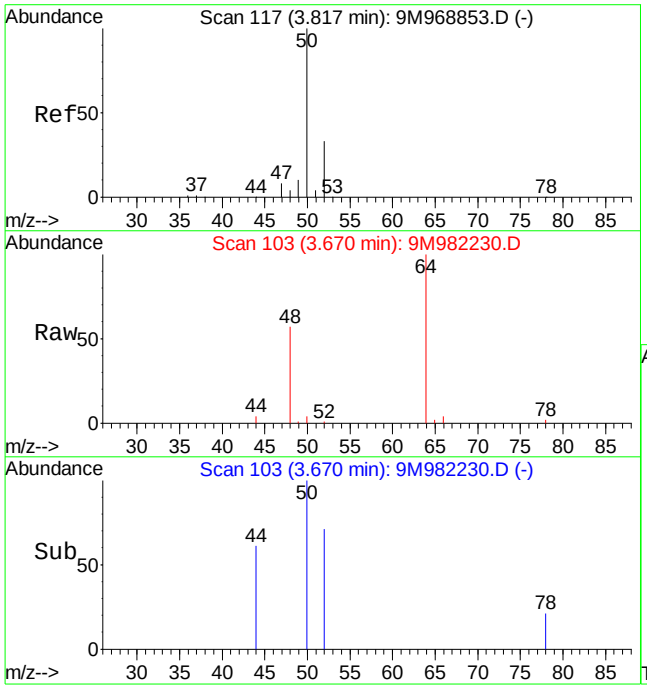
(#) = qualifier out of range (m) = manual integration
9M982230.D 8260C.M Tue Aug 29 09:33:48 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration

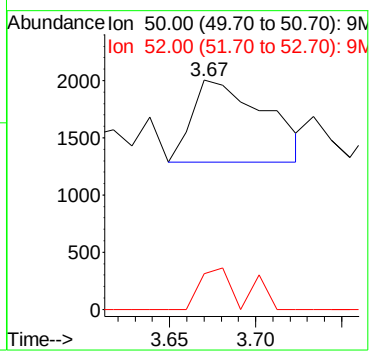


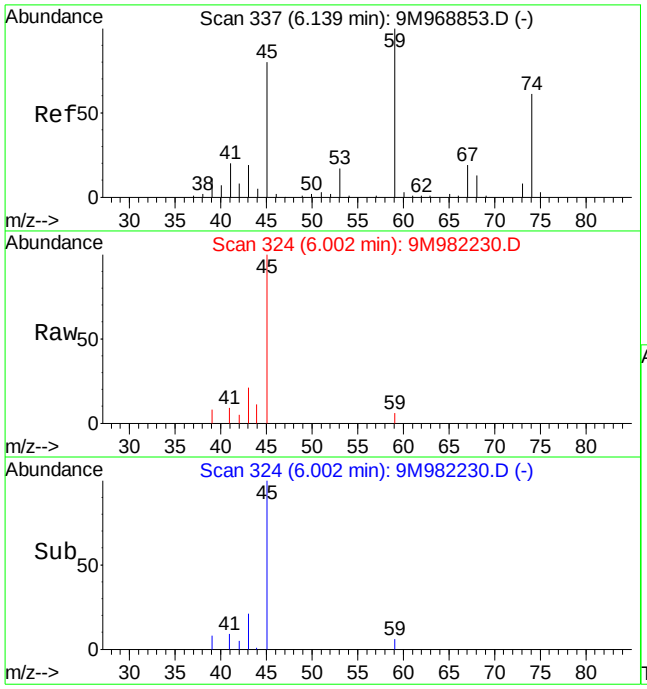


#3
Chloromethane
Concen: 0.41 ug/L
RT: 3.67 min Scan# 103
Delta R.T. -0.01 min
Lab File: 9M982230.D
Acq: 28 Aug 2017 22:16

Tgt Ion: 50 Resp: 2101

Ion	Ratio	Lower	Upper
50	100		
52	29.4	19.6	45.8

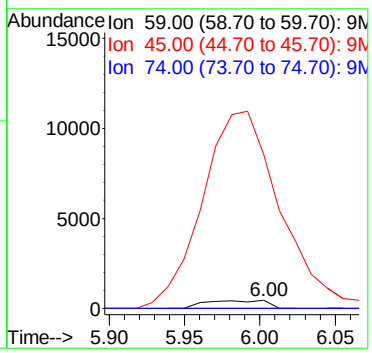


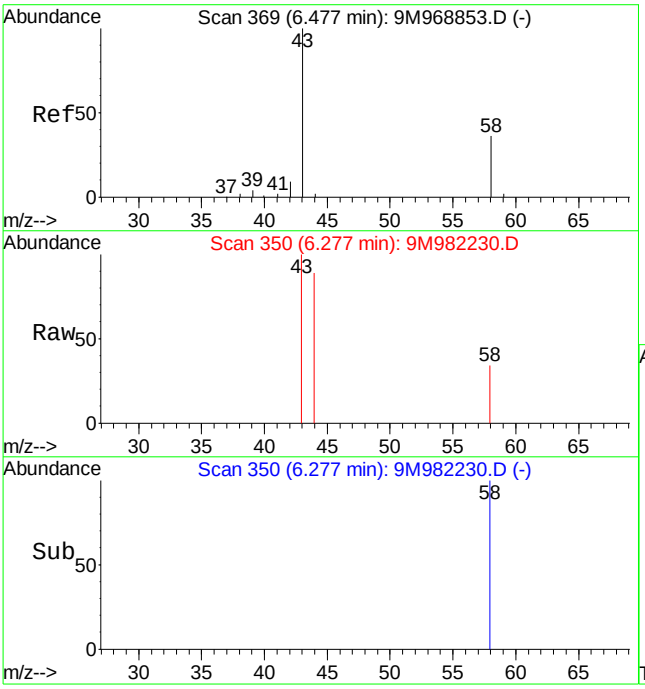


#9
Diethyl ether
Concen: 0.44 ug/L
RT: 6.00 min Scan# 324
Delta R.T. 0.06 min
Lab File: 9M982230.D
Acq: 28 Aug 2017 22:16

Tgt Ion: 59 Resp: 1268

Ion	Ratio	Lower	Upper
59	100		
45	3111.3	48.1	112.3#
74	0.0	37.1	86.5#

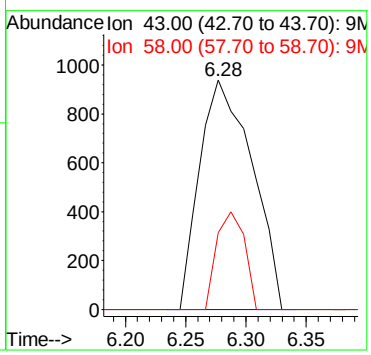




#13
Acetone
Concen: 1.83 ug/L
RT: 6.28 min Scan# 350
Delta R.T. 0.00 min
Lab File: 9M982230.D
Acq: 28 Aug 2017 22:16

Tgt Ion: 43 Resp: 2846

Ion	Ratio	Lower	Upper
43	100		
58	22.7	18.9	44.1



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

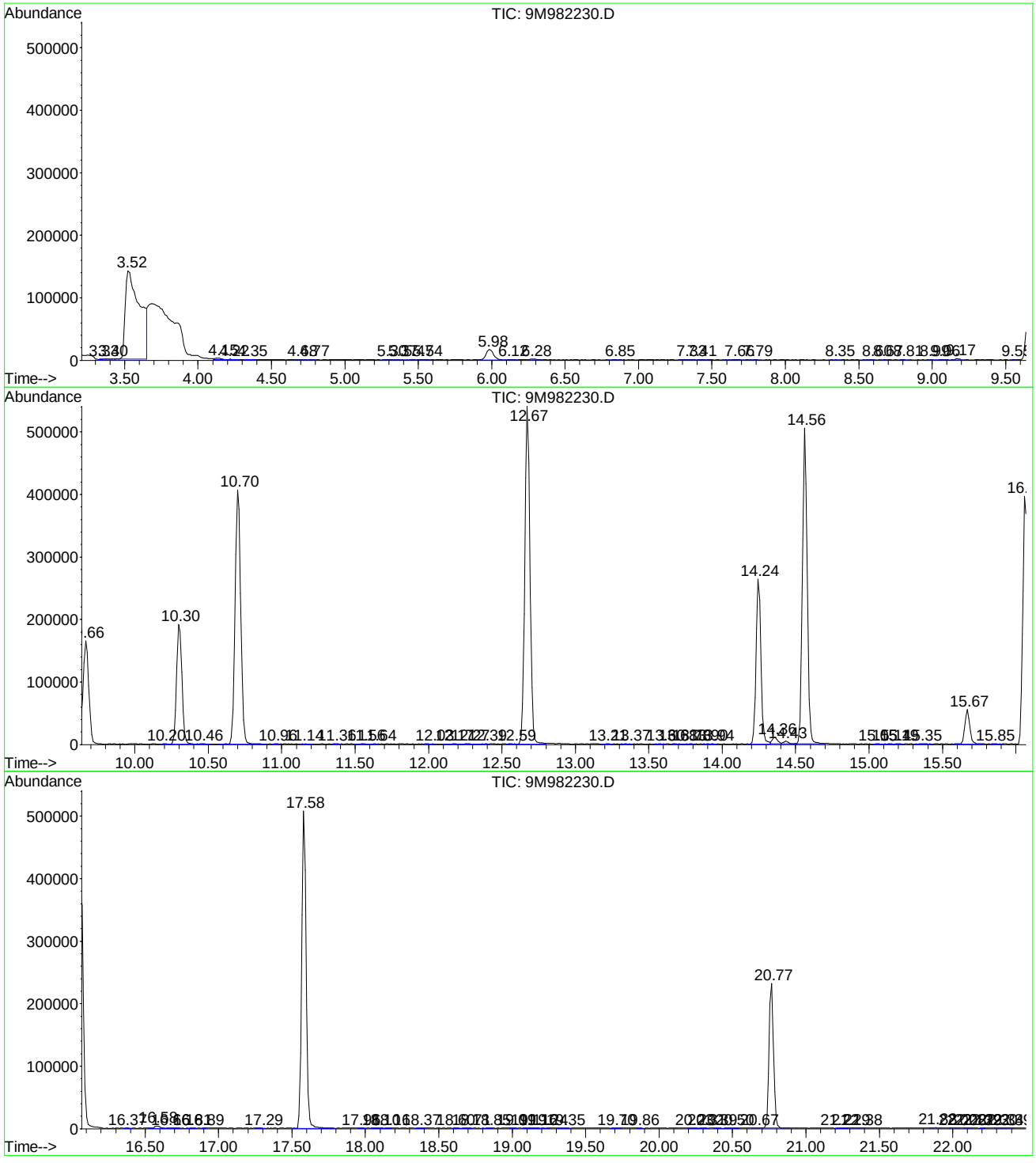
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.333	70	71	73	rBV2	832	1065	0.08%	0.012%
2	3.396	74	77	79	rBV	476	987	0.07%	0.011%
3	3.522	80	89	101	rBV	141205	972803	73.77%	11.017%
4	4.145	144	148	154	rVB3	2694	7681	0.58%	0.087%
5	4.219	154	155	160	rVB	614	824	0.06%	0.009%
6	4.346	164	167	171	rBV	285	738	0.06%	0.008%
7	4.683	197	199	205	rVB	406	1109	0.08%	0.013%
8	4.768	205	207	210	rBV	366	660	0.05%	0.007%
9	5.295	253	257	262	rVV	193	653	0.05%	0.007%
10	5.369	262	264	269	rVB	315	534	0.04%	0.006%
11	5.475	269	274	275	rVB	354	723	0.05%	0.008%
12	5.538	277	280	284	rVB	255	495	0.04%	0.006%
13	5.981	315	322	332	rVB	16597	58035	4.40%	0.657%
14	6.118	332	335	340	rBV	424	584	0.04%	0.007%
15	6.277	347	350	356	rVB3	1345	3858	0.29%	0.044%
16	6.847	399	404	408	rVB2	563	1369	0.10%	0.016%
17	7.332	444	450	454	rBV2	765	3018	0.23%	0.034%
18	7.406	456	457	464	rVV	473	1214	0.09%	0.014%
19	7.659	474	481	486	rBV	277	1287	0.10%	0.015%
20	7.786	490	493	497	rVB	220	524	0.04%	0.006%
21	8.345	542	546	549	rBV	426	1007	0.08%	0.011%
22	8.598	563	570	571	rVB	249	734	0.06%	0.008%
23	8.672	575	577	579	rBV	315	491	0.04%	0.006%
24	8.809	587	590	593	rBV	204	534	0.04%	0.006%
25	8.989	606	607	612	rBV	208	493	0.04%	0.006%
26	9.063	612	614	617	rBV	250	446	0.03%	0.005%
27	9.168	620	624	629	rVV3	1822	3566	0.27%	0.040%
28	9.548	658	660	662	rBV	255	542	0.04%	0.006%
29	9.664	664	671	683	rVB	165232	451137	34.21%	5.109%
30	10.202	720	722	725	rVB	279	529	0.04%	0.006%
31	10.297	725	731	742	rBV	191203	482516	36.59%	5.465%
32	10.456	742	746	751	rVV2	592	1351	0.10%	0.015%
33	10.698	757	769	787	rVB	406312	1095233	83.06%	12.404%
34	10.962	791	794	796	rBV	270	445	0.03%	0.005%
35	11.142	810	811	817	rBV	376	852	0.06%	0.010%
36	11.363	830	832	835	rVB	240	467	0.04%	0.005%
37	11.564	845	851	853	rVB	341	883	0.07%	0.010%
38	11.638	853	858	859	rBV	251	681	0.05%	0.008%
39	12.028	889	895	896	rVB	315	849	0.06%	0.010%
40	12.165	902	908	915	rBV	289	1073	0.08%	0.012%
41	12.271	915	918	923	rVV	257	675	0.05%	0.008%
42	12.387	924	929	931	rVB	501	891	0.07%	0.010%

43	12.587	943	948	949	rVB	202	453	0.03%	0.005%
44	12.672	949	956	968	rBV	540812	1318619	100.00%	14.934%
45	13.210	1004	1007	1011	rBV	210	441	0.03%	0.005%
46	13.368	1016	1022	1023	rVB	264	830	0.06%	0.009%
47	13.600	1038	1044	1045	rVB	173	525	0.04%	0.006%
48	13.685	1049	1052	1058	rVB	227	764	0.06%	0.009%
49	13.780	1058	1061	1063	rBV	253	472	0.04%	0.005%
50	13.896	1069	1072	1074	rVB	260	495	0.04%	0.006%
51	13.938	1074	1076	1078	rBV	330	591	0.04%	0.007%
52	14.244	1099	1105	1113	rBV	263840	615171	46.65%	6.967%
53	14.360	1113	1116	1120	rVV	10082	25223	1.91%	0.286%
54	14.434	1120	1123	1129	rVB2	4498	10293	0.78%	0.117%
55	14.561	1129	1135	1148	rBV	505070	1152191	87.38%	13.049%
56	15.046	1179	1181	1184	rVB	294	571	0.04%	0.006%
57	15.141	1184	1190	1193	rBV	369	1115	0.08%	0.013%
58	15.194	1193	1195	1198	rVB	217	486	0.04%	0.006%
59	15.352	1206	1210	1217	rBV	326	972	0.07%	0.011%
60	15.669	1231	1240	1250	rBV	55338	128477	9.74%	1.455%
61	15.848	1255	1257	1262	rVB	266	642	0.05%	0.007%
62	16.059	1270	1277	1293	rVV	396171	879201	66.68%	9.957%
63	16.365	1305	1306	1310	rBV	235	498	0.04%	0.006%
64	16.576	1321	1326	1332	rVB2	3648	8977	0.68%	0.102%
65	16.661	1332	1334	1342	rVB	333	1316	0.10%	0.015%
66	16.808	1345	1348	1352	rVB	301	499	0.04%	0.006%
67	16.893	1355	1356	1358	rBV	347	577	0.04%	0.007%
68	17.294	1390	1394	1396	rVB	232	512	0.04%	0.006%
69	17.579	1414	1421	1441	rVB	507402	1068938	81.06%	12.106%
70	17.959	1456	1457	1461	rVB	319	568	0.04%	0.006%
71	18.096	1464	1470	1473	rBV	274	875	0.07%	0.010%
72	18.159	1473	1476	1478	rBV	269	512	0.04%	0.006%
73	18.370	1493	1496	1499	rBV	241	498	0.04%	0.006%
74	18.602	1517	1518	1523	rVB	322	659	0.05%	0.007%
75	18.708	1523	1528	1530	rBV	220	605	0.05%	0.007%
76	18.845	1536	1541	1543	rBV	267	663	0.05%	0.008%
77	19.014	1554	1557	1559	rVB	414	646	0.05%	0.007%
78	19.109	1562	1566	1567	rBV	200	555	0.04%	0.006%
79	19.162	1567	1571	1574	rVB	290	846	0.06%	0.010%
80	19.236	1574	1578	1580	rBV	285	604	0.05%	0.007%
81	19.352	1585	1589	1593	rVB	227	599	0.05%	0.007%
82	19.700	1619	1622	1626	rBV	171	443	0.03%	0.005%
83	19.858	1636	1637	1640	rVB	354	519	0.04%	0.006%
84	20.228	1669	1672	1676	rVB	206	473	0.04%	0.005%
85	20.312	1676	1680	1682	rBV	210	527	0.04%	0.006%
86	20.386	1686	1687	1691	rVB	249	450	0.03%	0.005%
87	20.502	1692	1698	1702	rBV	331	971	0.07%	0.011%
88	20.671	1710	1714	1717	rBV	190	550	0.04%	0.006%
89	20.766	1717	1723	1734	rVB	231204	487738	36.99%	5.524%
90	21.220	1764	1766	1772	rBV	376	889	0.07%	0.010%
91	21.293	1772	1773	1779	rBV	182	599	0.05%	0.007%
92	21.378	1779	1781	1783	rVB	510	453	0.03%	0.005%
93	21.884	1825	1829	1832	rBV2	749	1033	0.08%	0.012%
94	22.022	1838	1842	1844	rBV	446	824	0.06%	0.009%
95	22.085	1847	1848	1850	rBV	616	611	0.05%	0.007%
96	22.127	1850	1852	1853	rVB	502	583	0.04%	0.007%
97	22.190	1857	1858	1861	rBV	640	864	0.07%	0.010%
98	22.296	1867	1868	1871	rBV	510	741	0.06%	0.008%
99	22.338	1871	1872	1874	rBV	420	489	0.04%	0.006%
100	22.391	1874	1877	1879	rBV2	406	1014	0.08%	0.011%

Sum of corrected areas: 8829806

File : C:\MSDCHEM\1\DATA\082817\9M982230.D
Operator : JDS
Acquired : 28 Aug 2017 22:16 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-16 A 8260C
Misc Info : 1,1
Vial Number: 17
Quant File :8260C.RES (RTE Integrator)



Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

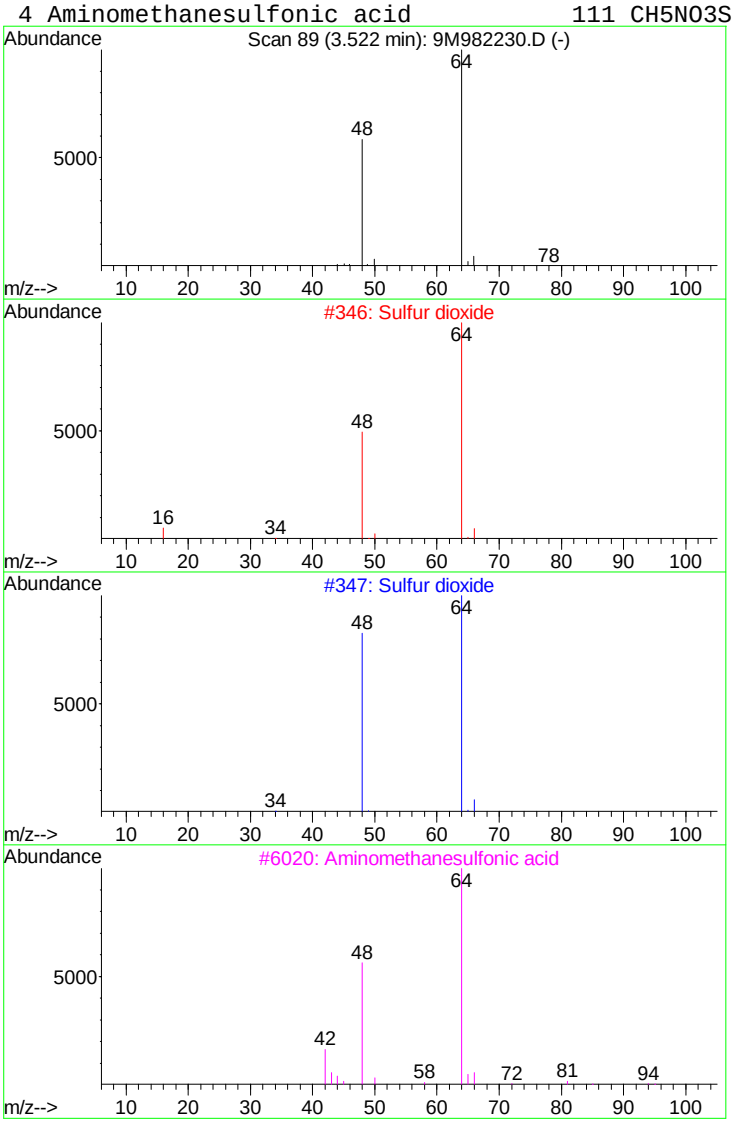
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

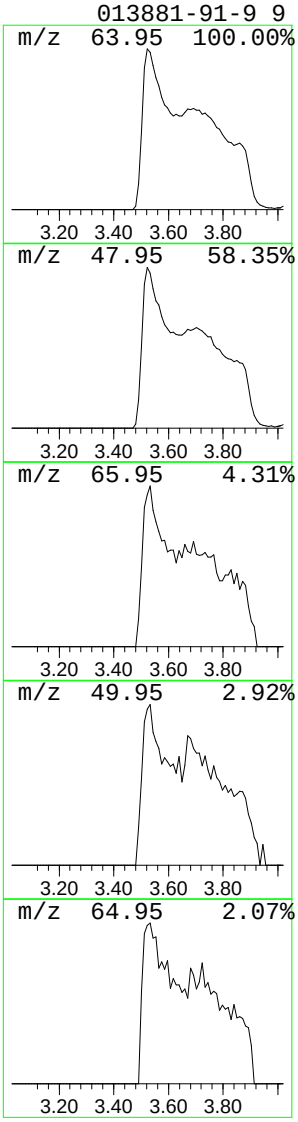
****

Peak Number 1 Sulfur dioxide Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.52	44.41 ug/L	972803	Fluorobenzene	10.70

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfur dioxide	64	O2S	007446-09-5	90
2	Sulfur dioxide	64	O2S	007446-09-5	83
3	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9
4	Aminomethanesulfonic acid	111	CH5NO3S	013881-91-9	9





Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

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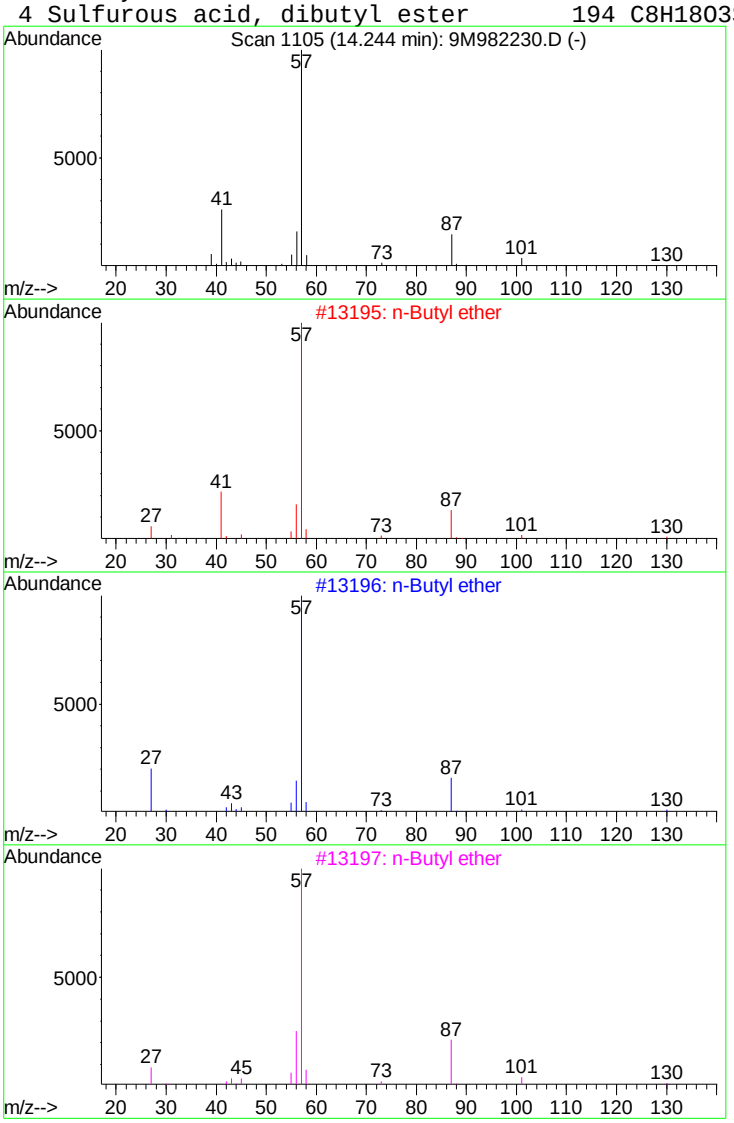
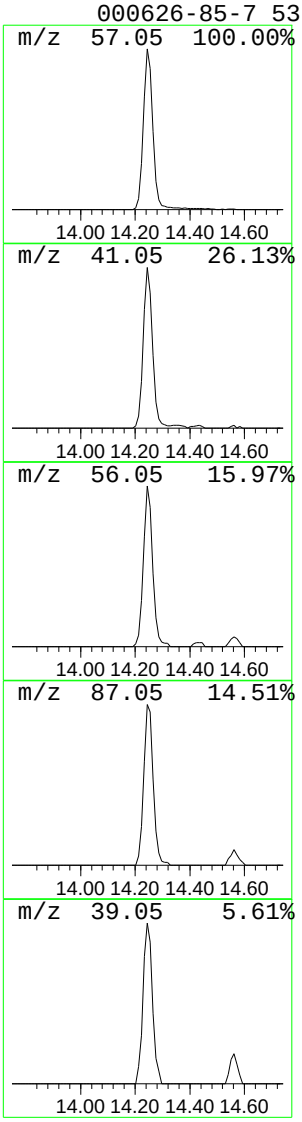
Peak Number 2 n-Butyl ether Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
14.24	26.70 ug/L	615171	Chlorobenzene-d5	14.56

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Butyl ether	130	C8H18O	000142-96-1	78
2	n-Butyl ether	130	C8H18O	000142-96-1	72
3	n-Butyl ether	130	C8H18O	000142-96-1	59
4	Sulfurous acid, dibutyl ester	194	C8H18O3S	000626-85-7	53





Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

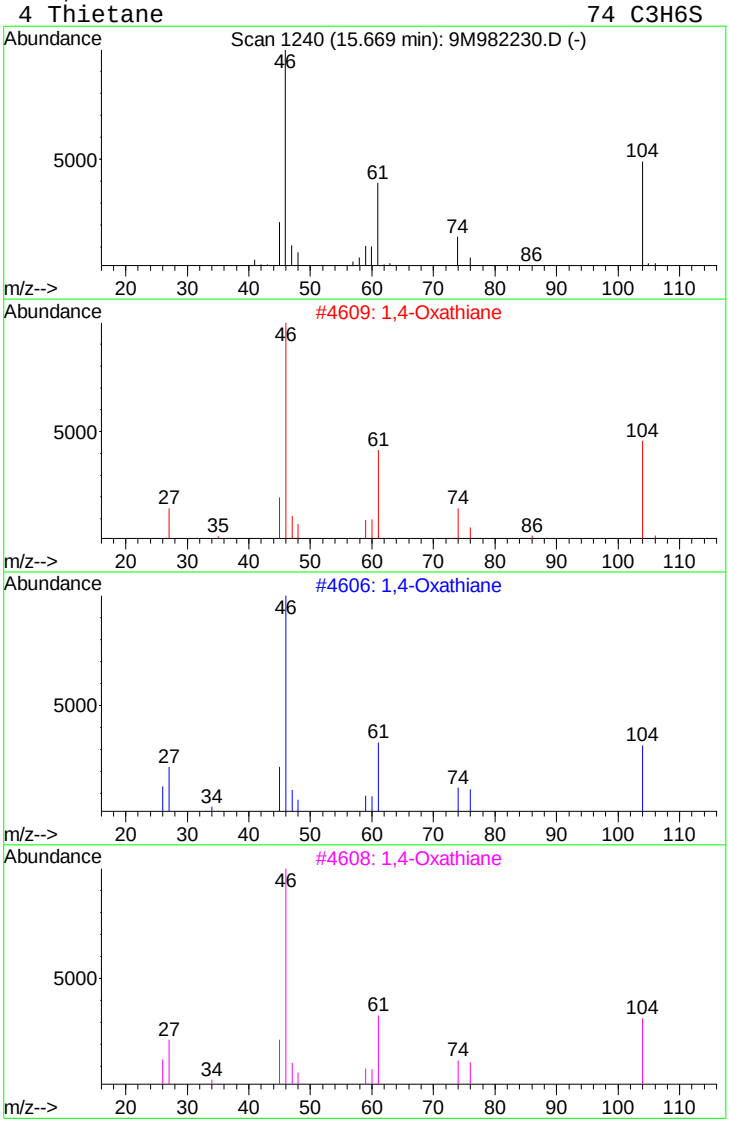
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

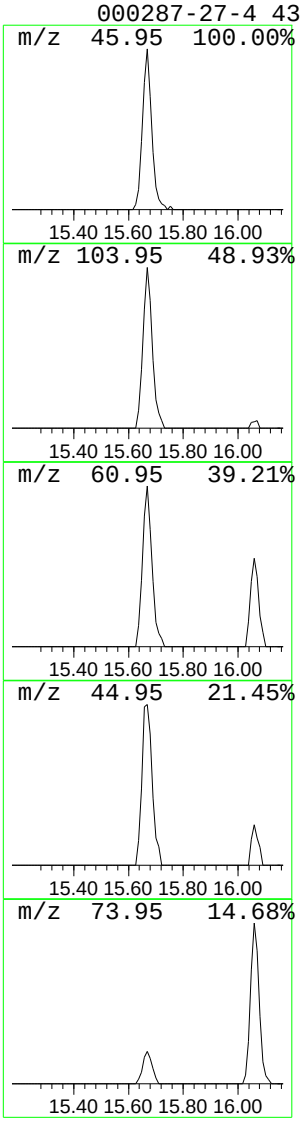
****

Peak Number 3 1,4-Oxathiane Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.67	5.58 ug/L	128477	Chlorobenzene-d5	14.56

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1,4-Oxathiane	104	C4H8OS	015980-15-1	97
2	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
3	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
4	Thietane	74	C3H6S	000287-27-4	43





Data File : C:\MSDCHEM\1\DATA\082817\9M982230.D Vial: 17
Acq On : 28 Aug 2017 22:16 Operator: JDS
Sample : L17081305-16 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

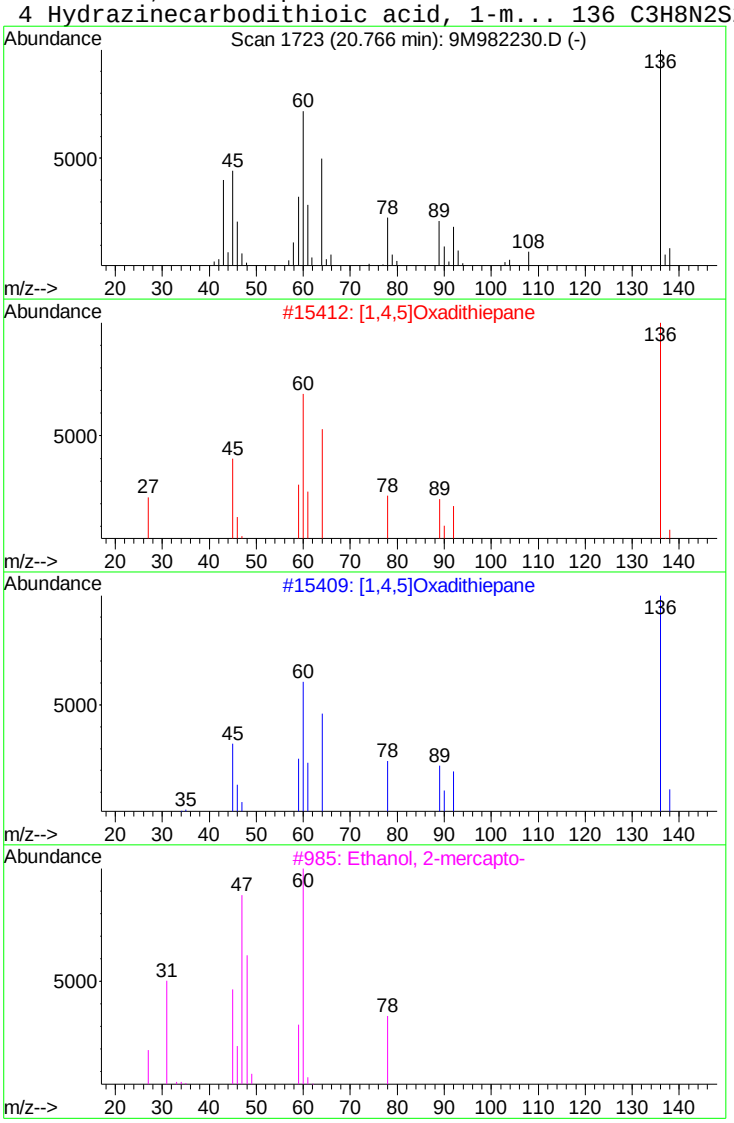
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library : C:\DATABASE\NIST02.L

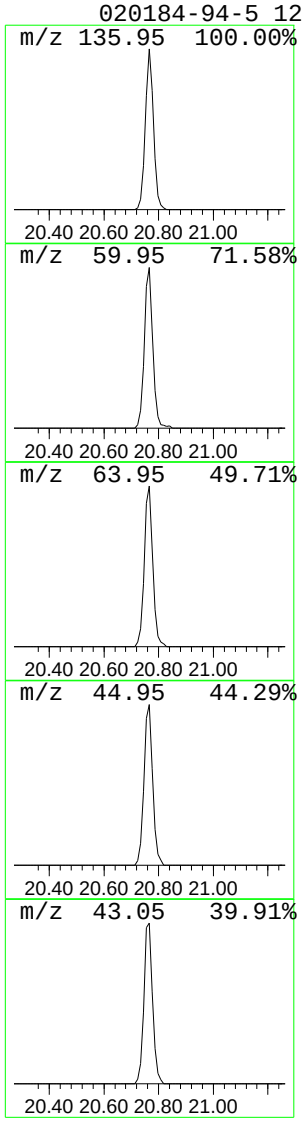
****

Peak Number 4 [1,4,5]Oxadithiepane Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.77	22.81 ug/L	487738	1,4-Dichlorobenzene-d4	17.58

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	98
2	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	96
3	Ethanol, 2-mercapto-	78	C2H6OS	000060-24-2	14
4	Hydrazinecarbodithioic acid, 1-m...	136	C3H8N2S2	020184-94-5	12





Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 28 Aug 2017 22:16
Data File: C:\MSDCHEM\1\DATA\082817\9M982230.D
Name: L17081305-16 A 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
Sulfur dioxide	3.52	44.4	ug/L	972803	1	10.70	1095230	50.0
n-Butyl ether	14.24	26.7	ug/L	615171	2	14.56	1152190	50.0
1,4-Oxathiane	15.67	5.6	ug/L	128477	2	14.56	1152190	50.0
[1,4,5]Oxadithiepane	20.77	22.8	ug/L	487738	3	17.58	1068940	50.0

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982223.D Vial: 10
Acq On : 28 Aug 2017 18:45 Operator: JDS
Sample : L17081305-18 A FB 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:41 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

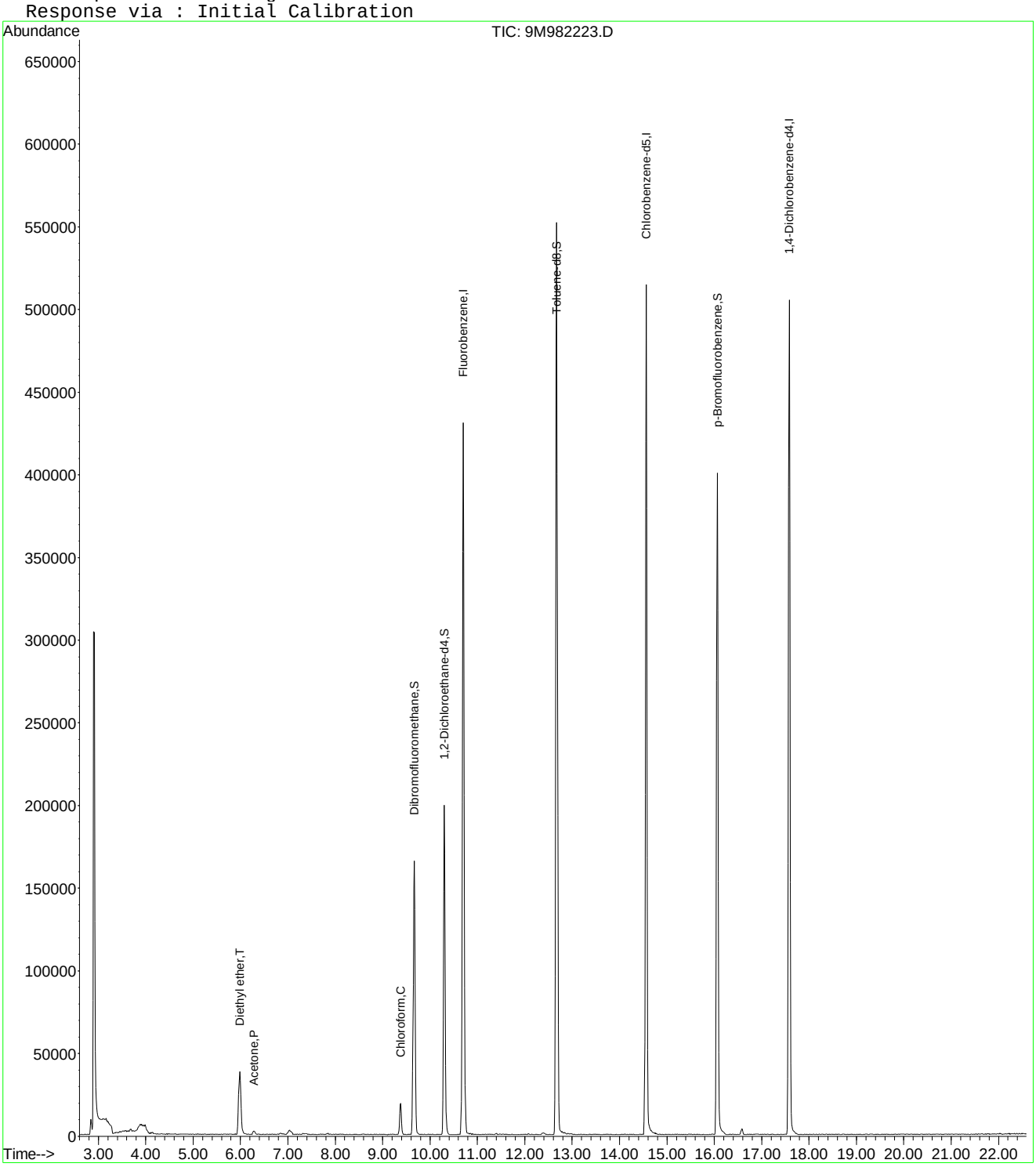
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	525039	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	394290	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	178238	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.67	111	150200	51.0922	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.18%			
43) 1,2-Dichloroethane-d4	10.30	65	177938	51.8187	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.64%			
58) Toluene-d8	12.67	98	505667	52.0936	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 104.18%			
79) p-Bromofluorobenzene	16.06	95	180479	57.1063	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 114.22%			
Target Compounds						Qvalue
9) Diethyl ether	5.98	59	3170	1.0604	ug/L #	1
13) Acetone	6.28	43	4587	2.8750	ug/L	91
33) Chloroform	9.38	83	21946	4.3884	ug/L	99

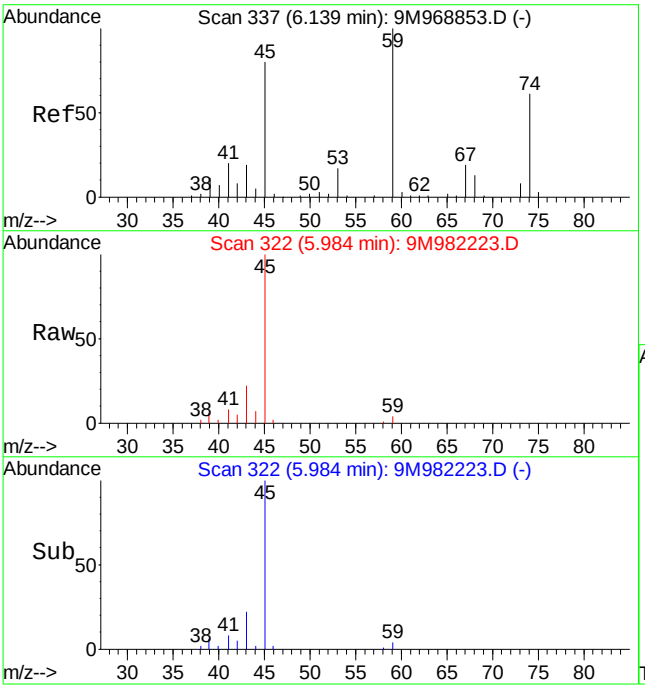
(#) = qualifier out of range (m) = manual integration
9M982223.D 8260C.M Tue Aug 29 09:33:41 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982223.D Vial: 10
Acq On : 28 Aug 2017 18:45 Operator: JDS
Sample : L17081305-18 A FB 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration

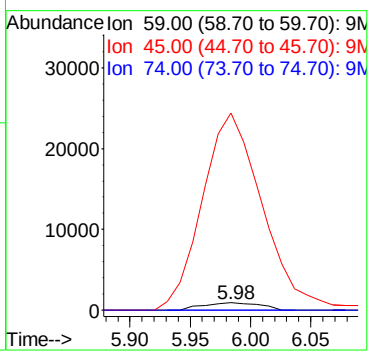


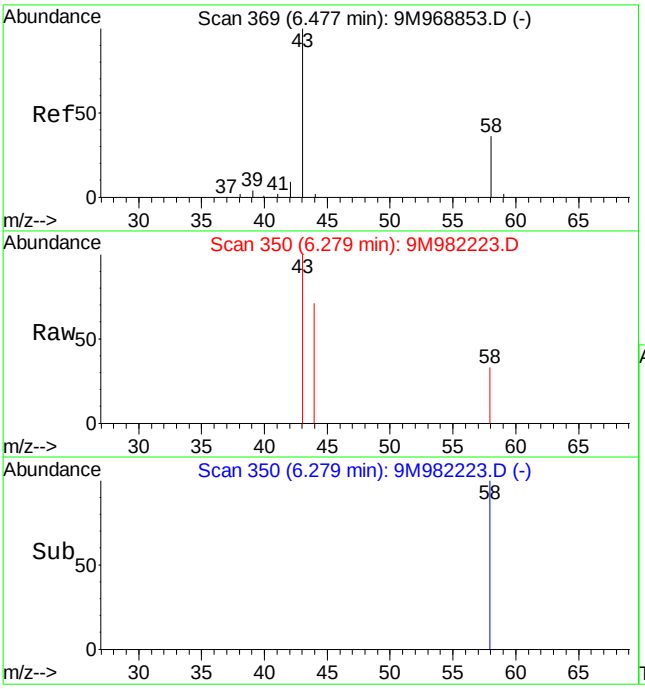


#9
Diethyl ether
Concen: 1.06 ug/L
RT: 5.98 min Scan# 322
Delta R.T. 0.04 min
Lab File: 9M982223.D
Acq: 28 Aug 2017 18:45

Tgt Ion: 59 Resp: 3170

Ion	Ratio	Lower	Upper
59	100		
45	2695.6	48.1	112.3#
74	0.0	37.1	86.5#

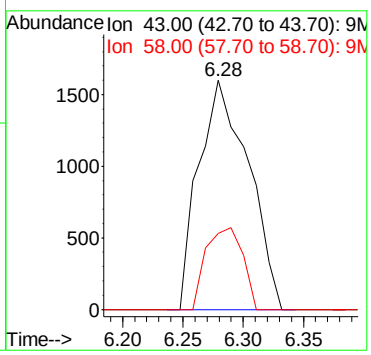


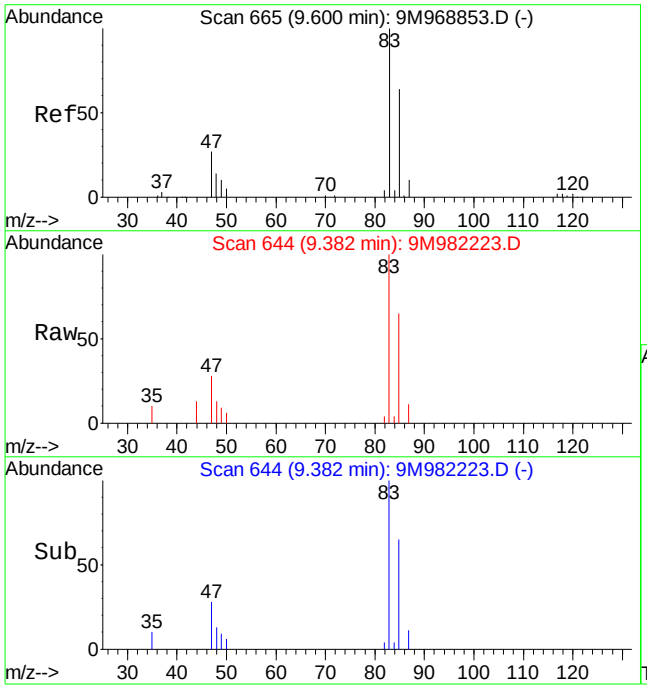


#13
Acetone
Concen: 2.87 ug/L
RT: 6.28 min Scan# 350
Delta R.T. 0.00 min
Lab File: 9M982223.D
Acq: 28 Aug 2017 18:45

Tgt Ion: 43 Resp: 4587

Ion	Ratio	Lower	Upper
43	100		
58	26.4	18.9	44.1

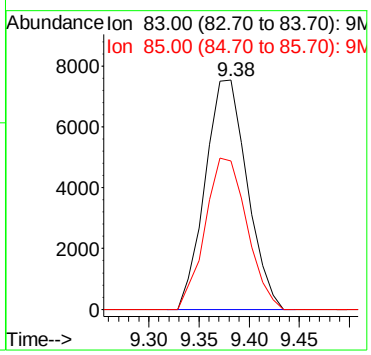




#33
Chloroform
Concen: 4.39 ug/L
RT: 9.38 min Scan# 644
Delta R.T. 0.00 min
Lab File: 9M982223.D
Acq: 28 Aug 2017 18:45

Tgt Ion: 83 Resp: 21946

Ion	Ratio	Lower	Upper
83	100		
85	65.6	39.1	91.1



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982223.D Vial: 10
Acq On : 28 Aug 2017 18:45 Operator: JDS
Sample : L17081305-18 A FB 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

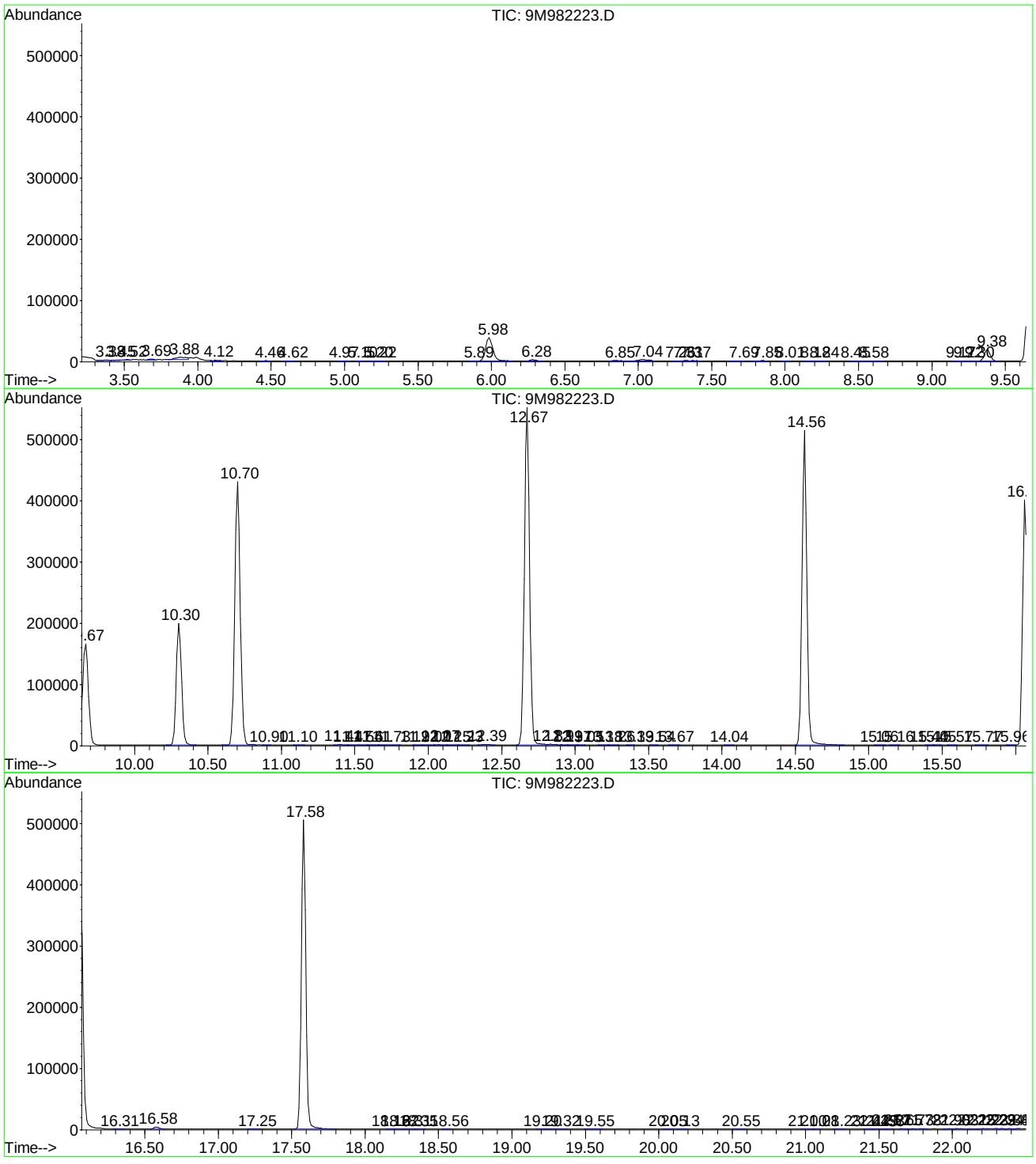
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.377	69	75	78	rBV2	797	2796	0.21%	0.041%
2	3.451	78	82	84	rBV	782	1913	0.14%	0.028%
3	3.525	86	89	90	rBV	732	1222	0.09%	0.018%
4	3.694	101	105	107	rBV2	1279	3135	0.23%	0.046%
5	3.884	115	123	128	rBV3	3923	21446	1.60%	0.313%
6	4.116	142	145	150	rVB	882	2377	0.18%	0.035%
7	4.464	174	178	180	rBV	536	845	0.06%	0.012%
8	4.622	189	193	197	rVB	447	1151	0.09%	0.017%
9	4.970	225	226	232	rBV	250	607	0.05%	0.009%
10	5.097	236	238	241	rVV	482	595	0.04%	0.009%
11	5.203	244	248	249	rBV	357	653	0.05%	0.010%
12	5.224	249	250	255	rVB	312	797	0.06%	0.012%
13	5.889	309	313	314	rBV	570	892	0.07%	0.013%
14	5.984	314	322	337	rVV	38125	131683	9.80%	1.920%
15	6.279	346	350	357	rBV2	2350	7312	0.54%	0.107%
16	6.849	400	404	413	rVB2	867	3901	0.29%	0.057%
17	7.039	413	422	429	rBV2	2677	13224	0.98%	0.193%
18	7.260	440	443	445	rBV	414	778	0.06%	0.011%
19	7.313	445	448	451	rVV	651	1397	0.10%	0.020%
20	7.366	451	453	458	rVB2	606	1749	0.13%	0.025%
21	7.693	477	484	486	rBV	355	1144	0.09%	0.017%
22	7.851	490	499	501	rBV	851	2376	0.18%	0.035%
23	8.010	511	514	516	rBV	363	803	0.06%	0.012%
24	8.179	525	530	532	rVB	377	1117	0.08%	0.016%
25	8.242	532	536	539	rBV	367	946	0.07%	0.014%
26	8.453	555	556	561	rBV	428	776	0.06%	0.011%
27	8.580	561	568	576	rBV	311	1459	0.11%	0.021%
28	9.171	621	624	625	rVV	480	714	0.05%	0.010%
29	9.223	626	629	632	rVV	314	853	0.06%	0.012%
30	9.297	632	636	638	rVV	405	868	0.06%	0.013%
31	9.382	638	644	650	rVV	18944	52685	3.92%	0.768%
32	9.666	662	671	682	rBV	165479	458730	34.15%	6.688%
33	10.300	723	731	742	rVB	199184	491653	36.60%	7.168%
34	10.701	759	769	781	rVV	430667	1124845	83.74%	16.399%
35	10.901	785	788	790	rBV	541	1018	0.08%	0.015%
36	11.102	805	807	812	rVB	395	992	0.07%	0.014%
37	11.408	831	836	840	rVB2	873	2064	0.15%	0.030%
38	11.471	840	842	845	rBV	327	759	0.06%	0.011%
39	11.545	846	849	853	rVV	261	879	0.07%	0.013%
40	11.608	853	855	860	rVB	408	857	0.06%	0.012%
41	11.735	860	867	874	rBV	231	1190	0.09%	0.017%
42	11.925	882	885	888	rBV	377	702	0.05%	0.010%

43	12.009	888	893	896	rBV	374	1259	0.09%	0.018%
44	12.073	896	899	904	rVB	748	1315	0.10%	0.019%
45	12.146	904	906	911	rVB	299	692	0.05%	0.010%
46	12.231	911	914	918	rBV	275	686	0.05%	0.010%
47	12.389	924	929	935	rVV2	1061	3803	0.28%	0.055%
48	12.674	949	956	969	rBV	551839	1343224	100.00%	19.583%
49	12.832	969	971	976	rVV2	1329	4006	0.30%	0.058%
50	12.906	977	978	982	rVV	744	1424	0.11%	0.021%
51	12.970	982	984	988	rVB	612	1380	0.10%	0.020%
52	13.054	988	992	993	rBV	273	590	0.04%	0.009%
53	13.181	1002	1004	1008	rVV	295	758	0.06%	0.011%
54	13.265	1008	1012	1015	rVV	305	898	0.07%	0.013%
55	13.392	1020	1024	1025	rVV	326	692	0.05%	0.010%
56	13.539	1035	1038	1040	rVV	345	603	0.04%	0.009%
57	13.666	1047	1050	1054	rVV	458	721	0.05%	0.011%
58	14.035	1083	1085	1089	rBV	282	612	0.05%	0.009%
59	14.563	1129	1135	1160	rVV	514091	1170892	87.17%	17.070%
60	15.059	1180	1182	1187	rBV	231	686	0.05%	0.010%
61	15.164	1190	1192	1196	rBV	339	824	0.06%	0.012%
62	15.397	1213	1214	1218	rBV	312	614	0.05%	0.009%
63	15.449	1218	1219	1223	rVV	247	603	0.04%	0.009%
64	15.566	1227	1230	1233	rBV	382	783	0.06%	0.011%
65	15.766	1245	1249	1253	rVB	253	726	0.05%	0.011%
66	15.956	1265	1267	1271	rVV	248	622	0.05%	0.009%
67	16.061	1271	1277	1298	rVB	400268	868881	64.69%	12.667%
68	16.315	1298	1301	1305	rVB	341	806	0.06%	0.012%
69	16.579	1322	1326	1331	rBV2	3458	8648	0.64%	0.126%
70	17.254	1385	1390	1393	rBV	453	1144	0.09%	0.017%
71	17.581	1415	1421	1442	rVB	504855	1070367	79.69%	15.605%
72	18.161	1474	1476	1479	rBV	375	735	0.05%	0.011%
73	18.225	1479	1482	1485	rVB	405	931	0.07%	0.014%
74	18.309	1485	1490	1493	rBV	395	1395	0.10%	0.020%
75	18.351	1493	1494	1499	rVB	309	676	0.05%	0.010%
76	18.562	1510	1514	1516	rBV	329	751	0.06%	0.011%
77	19.196	1571	1574	1580	rBV	380	1154	0.09%	0.017%
78	19.322	1580	1586	1591	rBV	274	738	0.05%	0.011%
79	19.554	1602	1608	1614	rBV	286	1058	0.08%	0.015%
80	20.050	1653	1655	1660	rBV	308	691	0.05%	0.010%
81	20.135	1662	1663	1668	rVB	213	594	0.04%	0.009%
82	20.546	1698	1702	1706	rBV	347	889	0.07%	0.013%
83	21.000	1742	1745	1750	rVB	281	702	0.05%	0.010%
84	21.085	1750	1753	1755	rBV	328	686	0.05%	0.010%
85	21.232	1763	1767	1770	rBV	313	962	0.07%	0.014%
86	21.422	1782	1785	1788	rVB	299	698	0.05%	0.010%
87	21.486	1788	1791	1792	rBV	420	615	0.05%	0.009%
88	21.528	1792	1795	1797	rVB	395	696	0.05%	0.010%
89	21.570	1797	1799	1802	rBV	508	777	0.06%	0.011%
90	21.654	1805	1807	1810	rVB	550	843	0.06%	0.012%
91	21.728	1810	1814	1816	rBV	547	952	0.07%	0.014%
92	21.781	1818	1819	1823	rBV	530	671	0.05%	0.010%
93	21.982	1834	1838	1841	rBV	349	615	0.05%	0.009%
94	22.034	1841	1843	1847	rVB	816	1446	0.11%	0.021%
95	22.150	1849	1854	1856	rBV	396	803	0.06%	0.012%
96	22.235	1856	1862	1863	rVB2	780	1999	0.15%	0.029%
97	22.288	1866	1867	1870	rBV2	391	736	0.05%	0.011%
98	22.340	1870	1872	1874	rVB	582	679	0.05%	0.010%
99	22.383	1874	1876	1879	rBV	530	776	0.06%	0.011%
100	22.435	1879	1881	1883	rBV	513	872	0.06%	0.013%

Sum of corrected areas: 6859302

File : C:\MSDCHEM\1\DATA\082817\9M982223.D
Operator : JDS
Acquired : 28 Aug 2017 18:45 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-18 A FB 8260C
Misc Info : 1,1
Vial Number: 10
Quant File :8260C.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 28 Aug 2017 18:45
Data File: C:\MSDCHEM\1\DATA\082817\9M982223.D
Name: L17081305-18 A FB 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					--Internal Standard---			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982236.D Vial: 23
Acq On : 29 Aug 2017 1:16 Operator: JDS
Sample : L17081305-19 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 18:04:50 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

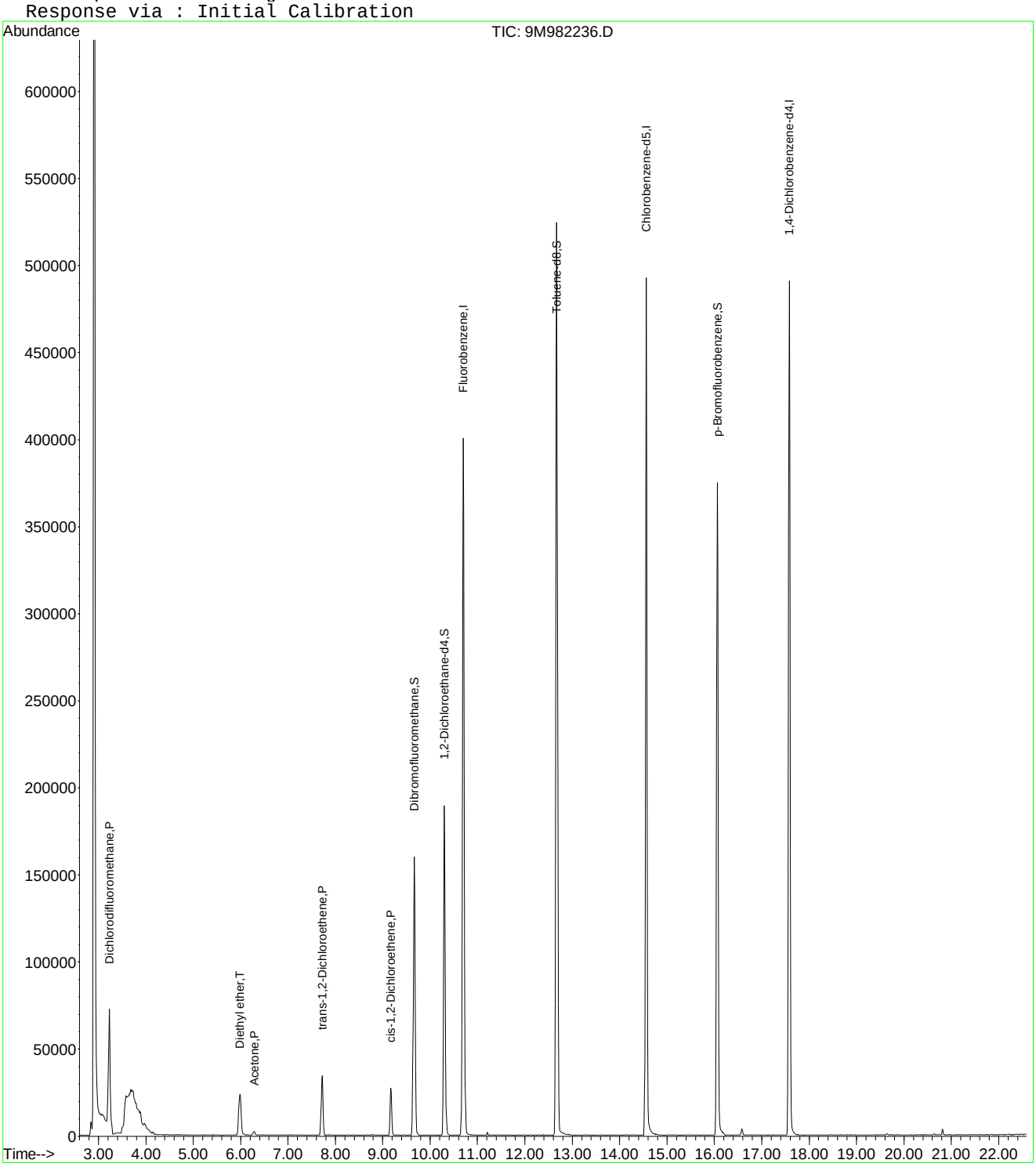
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	493691	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	370660	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	172841	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	140019	50.6534	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 101.30%			
43) 1,2-Dichloroethane-d4	10.30	65	169409	52.4676	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 104.94%			
58) Toluene-d8	12.67	98	477937	52.3758	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 104.76%			
79) p-Bromofluorobenzene	16.06	95	170204	55.5368	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 111.08%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.23	85	77327	21.4016	ug/L	96
9) Diethyl ether	5.98	59	1626	0.5784	ug/L #	1
13) Acetone	6.29	43	4197	2.7976	ug/L	89
23) trans-1,2-Dichloroethene	7.72	61	30553	7.7026	ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	16805	5.9437	ug/L	88

(#) = qualifier out of range (m) = manual integration
9M982236.D 8260C.M Wed Aug 30 18:04:50 2017 Page 1

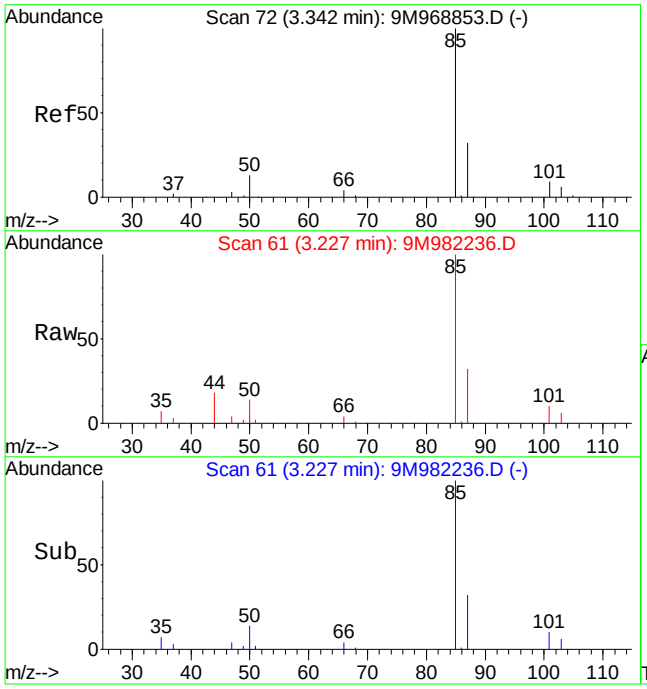
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982236.D Vial: 23
Acq On : 29 Aug 2017 1:16 Operator: JDS
Sample : L17081305-19 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 18:04 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



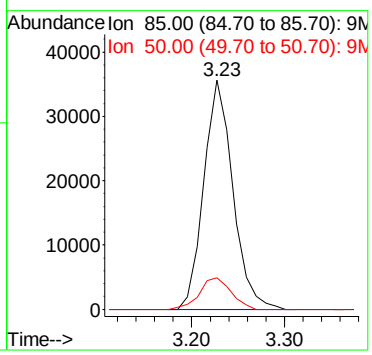
9M982236.D 8260C.M Wed Aug 30 18:04:50 2017 Page 2

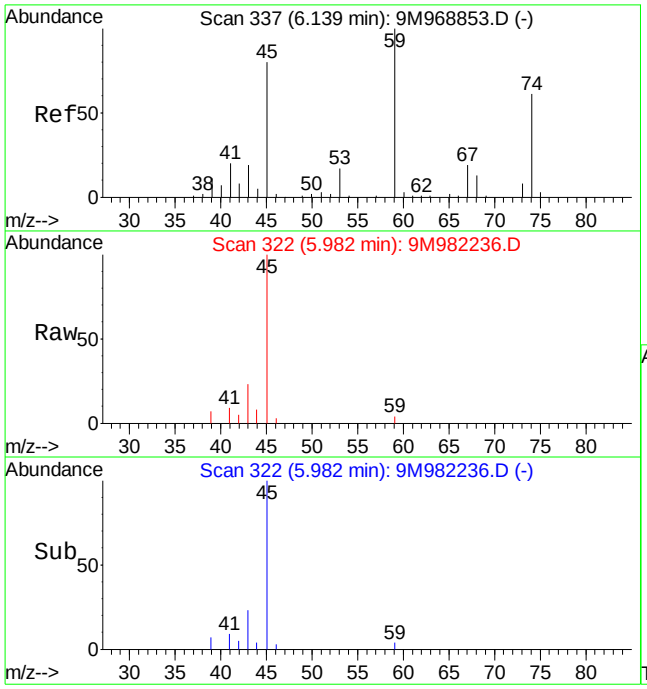


#2
Dichlorodifluoromethane
Concen: 21.40 ug/L
RT: 3.23 min Scan# 61
Delta R.T. 0.00 min
Lab File: 9M982236.D
Acq: 29 Aug 2017 1:16

Tgt Ion: 85 Resp: 77327

Ion	Ratio	Lower	Upper
85	100		
50	14.9	7.9	18.5

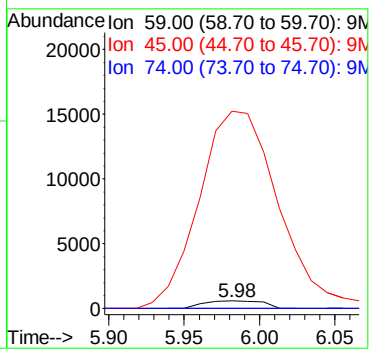


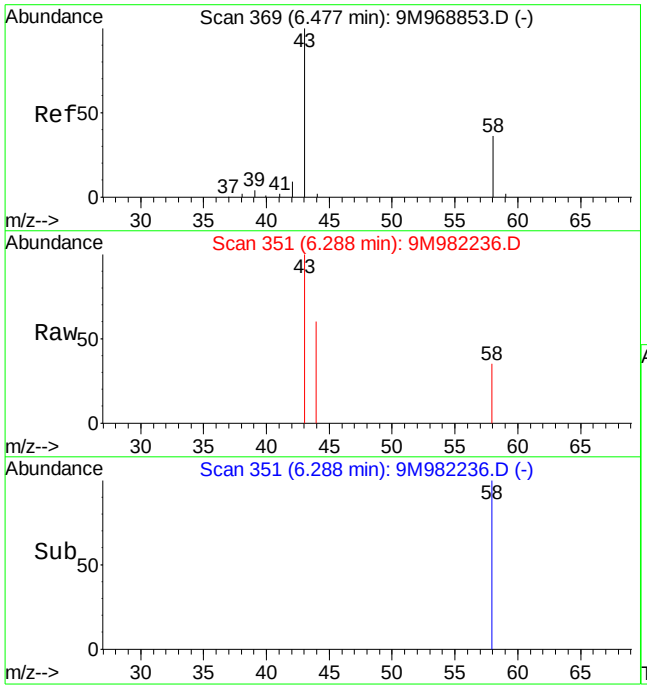


#9
Diethyl ether
Concen: 0.58 ug/L
RT: 5.98 min Scan# 322
Delta R.T. 0.04 min
Lab File: 9M982236.D
Acq: 29 Aug 2017 1:16

Tgt Ion: 59 Resp: 1626

Ion	Ratio	Lower	Upper
59	100		
45	3475.1	48.1	112.3#
74	0.0	37.1	86.5#

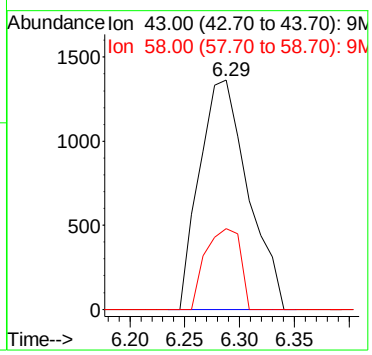


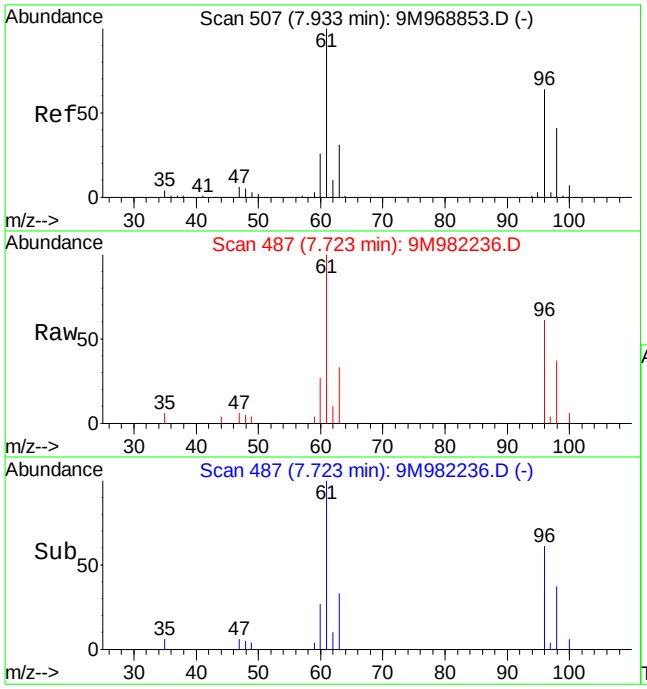


#13
Acetone
Concen: 2.80 ug/L
RT: 6.29 min Scan# 351
Delta R.T. 0.01 min
Lab File: 9M982236.D
Acq: 29 Aug 2017 1:16

Tgt Ion: 43 Resp: 4197

Ion	Ratio	Lower	Upper
43	100		
58	25.3	18.9	44.1

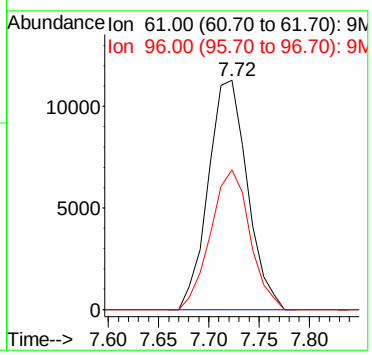


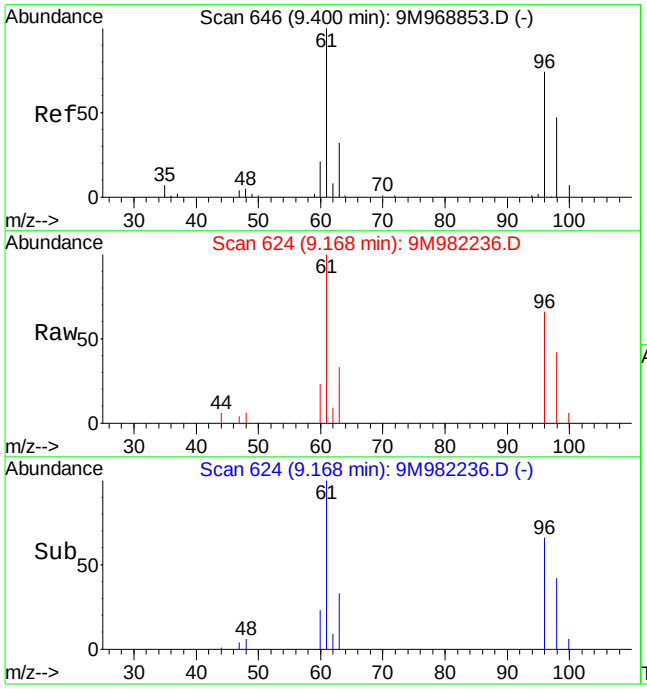


#23
trans-1,2-Dichloroethene
Concen: 7.70 ug/L
RT: 7.72 min Scan# 487
Delta R.T. 0.01 min
Lab File: 9M982236.D
Acq: 29 Aug 2017 1:16

Tgt Ion: 61 Resp: 30553

Ion	Ratio	Lower	Upper
61	100		
96	61.2	37.4	87.2

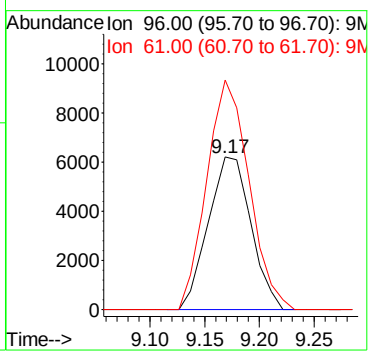




#32
cis-1,2-Dichloroethene
Concen: 5.94 ug/L
RT: 9.17 min Scan# 624
Delta R.T. 0.00 min
Lab File: 9M982236.D
Acq: 29 Aug 2017 1:16

Tgt Ion: 96 Resp: 16805

Ion	Ratio	Lower	Upper
96	100		
61	149.0	99.1	231.1



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982236.D Vial: 23
Acq On : 29 Aug 2017 1:16 Operator: JDS
Sample : L17081305-19 A 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

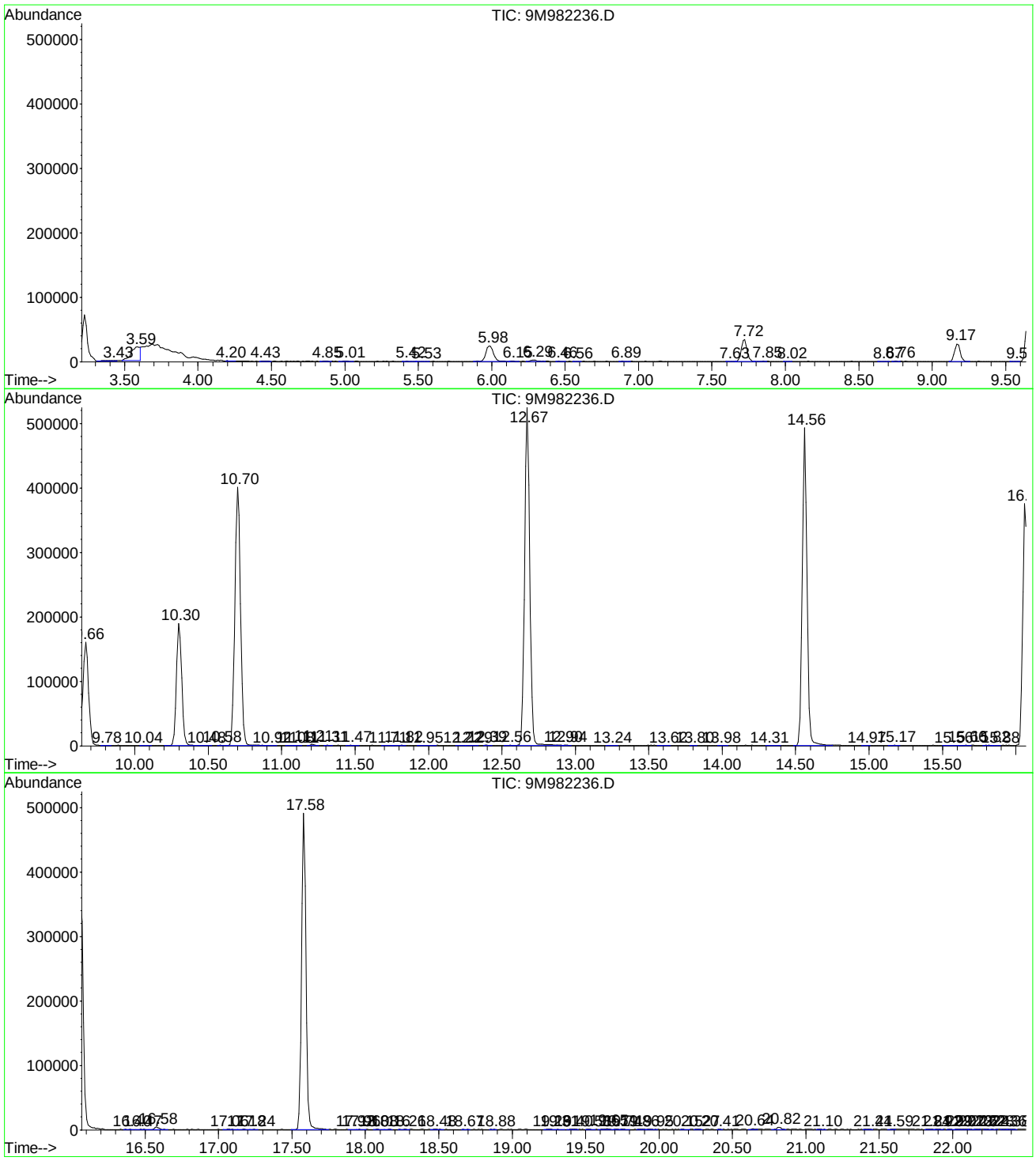
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.428	69	80	82	rBV2	1117	7579	0.60%	0.114%
2	3.586	85	95	97	rBV2	21547	94061	7.39%	1.420%
3	4.198	152	153	158	rVB	770	974	0.08%	0.015%
4	4.430	174	175	181	rVB	302	844	0.07%	0.013%
5	4.852	213	215	220	rBV	275	583	0.05%	0.009%
6	5.011	225	230	234	rVB	149	579	0.05%	0.009%
7	5.422	266	269	275	rVV	266	543	0.04%	0.008%
8	5.528	275	279	283	rVV	136	452	0.04%	0.007%
9	5.982	312	322	335	rVV	23633	85471	6.72%	1.290%
10	6.150	335	338	341	rVB	372	495	0.04%	0.007%
11	6.288	346	351	358	rVV	2027	5758	0.45%	0.087%
12	6.456	365	367	371	rVB	252	453	0.04%	0.007%
13	6.562	376	377	381	rBV	195	424	0.03%	0.006%
14	6.889	406	408	413	rVV	188	489	0.04%	0.007%
15	7.628	475	478	481	rBV	195	548	0.04%	0.008%
16	7.723	481	487	493	rVB	34229	90307	7.10%	1.363%
17	7.849	493	499	501	rBV	493	1017	0.08%	0.015%
18	8.018	512	515	517	rVB	222	429	0.03%	0.006%
19	8.672	573	577	580	rVB	226	647	0.05%	0.010%
20	8.757	582	585	587	rBV	262	464	0.04%	0.007%
21	9.168	619	624	632	rVB	27167	71097	5.59%	1.073%
22	9.580	658	663	664	rBV	193	466	0.04%	0.007%
23	9.664	664	671	681	rVB	160094	431968	33.94%	6.520%
24	9.781	681	682	687	rBV	188	442	0.03%	0.007%
25	10.044	706	707	713	rVB	162	431	0.03%	0.007%
26	10.298	722	731	743	rVB	189488	469554	36.89%	7.087%
27	10.477	744	748	752	rVV	205	495	0.04%	0.007%
28	10.583	756	758	762	rBV	302	790	0.06%	0.012%
29	10.699	762	769	787	rVV	400518	1066066	83.76%	16.090%
30	10.920	787	790	794	rVV	197	469	0.04%	0.007%
31	11.079	800	805	806	rVB	254	652	0.05%	0.010%
32	11.110	806	808	810	rBV	267	469	0.04%	0.007%
33	11.205	814	817	821	rVB2	1837	2835	0.22%	0.043%
34	11.311	825	827	830	rVV	264	457	0.04%	0.007%
35	11.469	839	842	847	rVV	276	670	0.05%	0.010%
36	11.712	862	865	869	rVB	264	651	0.05%	0.010%
37	11.817	869	875	877	rBV	283	874	0.07%	0.013%
38	11.954	885	888	897	rVB	241	1019	0.08%	0.015%
39	12.218	910	913	916	rBV	313	891	0.07%	0.013%
40	12.292	916	920	924	rVV	307	1179	0.09%	0.018%
41	12.387	928	929	933	rVV	618	935	0.07%	0.014%
42	12.556	941	945	946	rVV	295	598	0.05%	0.009%

43	12.672	947	956	975	rVV	524381	1272766	100.00%	19.210%
44	12.904	975	978	979	rVV2	780	1194	0.09%	0.018%
45	12.936	979	981	984	rVV	605	1096	0.09%	0.017%
46	13.242	1007	1010	1014	rBV	251	761	0.06%	0.011%
47	13.622	1040	1046	1048	rBV	213	631	0.05%	0.010%
48	13.801	1061	1063	1065	rBV	265	479	0.04%	0.007%
49	13.981	1079	1080	1085	rBV	250	579	0.05%	0.009%
50	14.308	1110	1111	1119	rVB	230	914	0.07%	0.014%
51	14.561	1128	1135	1153	rBV	492561	1104424	86.77%	16.669%
52	14.973	1172	1174	1177	rBV	237	450	0.04%	0.007%
53	15.173	1189	1193	1196	rVV	257	632	0.05%	0.010%
54	15.563	1224	1230	1234	rVB	191	750	0.06%	0.011%
55	15.658	1234	1239	1242	rVB	312	737	0.06%	0.011%
56	15.817	1250	1254	1256	rVB	258	542	0.04%	0.008%
57	15.880	1256	1260	1261	rBV	230	441	0.03%	0.007%
58	16.059	1271	1277	1294	rVB	374963	823658	64.71%	12.431%
59	16.397	1305	1309	1311	rBV	269	719	0.06%	0.011%
60	16.471	1312	1316	1320	rVB	189	424	0.03%	0.006%
61	16.577	1321	1326	1333	rBV2	3767	7816	0.61%	0.118%
62	17.062	1369	1372	1378	rVB	255	910	0.07%	0.014%
63	17.178	1378	1383	1386	rBV	233	705	0.06%	0.011%
64	17.241	1386	1389	1391	rVB	316	469	0.04%	0.007%
65	17.579	1413	1421	1437	rBV	490739	1028948	80.84%	15.530%
66	17.917	1450	1453	1455	rBV	171	448	0.04%	0.007%
67	17.959	1455	1457	1461	rVV	214	465	0.04%	0.007%
68	18.075	1466	1468	1473	rBV	205	439	0.03%	0.007%
69	18.159	1473	1476	1478	rBV	206	475	0.04%	0.007%
70	18.265	1482	1486	1489	rVB	139	429	0.03%	0.006%
71	18.476	1503	1506	1511	rBV	292	704	0.06%	0.011%
72	18.666	1523	1524	1528	rVB	244	433	0.03%	0.007%
73	18.877	1541	1544	1545	rBV	256	419	0.03%	0.006%
74	19.257	1576	1580	1582	rVV	169	457	0.04%	0.007%
75	19.310	1583	1585	1589	rVB	242	543	0.04%	0.008%
76	19.405	1591	1594	1598	rBV	227	606	0.05%	0.009%
77	19.531	1603	1606	1609	rVB	206	432	0.03%	0.007%
78	19.647	1611	1617	1621	rVB2	1002	2658	0.21%	0.040%
79	19.711	1621	1623	1625	rBV	265	539	0.04%	0.008%
80	19.742	1625	1626	1631	rVB	230	446	0.04%	0.007%
81	19.858	1636	1637	1642	rVB	219	600	0.05%	0.009%
82	19.953	1642	1646	1649	rVB	230	722	0.06%	0.011%
83	20.154	1664	1665	1670	rBV	293	575	0.05%	0.009%
84	20.270	1673	1676	1678	rVB	301	453	0.04%	0.007%
85	20.407	1688	1689	1691	rBV	348	493	0.04%	0.007%
86	20.639	1708	1711	1714	rBV	826	1323	0.10%	0.020%
87	20.819	1723	1728	1732	rVB2	3419	6412	0.50%	0.097%
88	21.104	1752	1755	1758	rBV	311	618	0.05%	0.009%
89	21.441	1782	1787	1788	rVB	217	527	0.04%	0.008%
90	21.589	1798	1801	1803	rBV	190	453	0.04%	0.007%
91	21.842	1822	1825	1828	rVB	526	939	0.07%	0.014%
92	21.916	1828	1832	1834	rBV	498	993	0.08%	0.015%
93	21.990	1836	1839	1841	rVV	509	616	0.05%	0.009%
94	22.075	1841	1847	1850	rVV	553	1398	0.11%	0.021%
95	22.127	1850	1852	1854	rVV	577	641	0.05%	0.010%
96	22.159	1854	1855	1858	rVV	322	700	0.05%	0.011%
97	22.243	1860	1863	1864	rVV	470	750	0.06%	0.011%
98	22.275	1864	1866	1869	rVV	593	679	0.05%	0.010%
99	22.359	1871	1874	1875	rVV	433	766	0.06%	0.012%
100	22.381	1875	1876	1881	rVB	490	1274	0.10%	0.019%

Sum of corrected areas: 6625595

File : C:\MSDCHEM\1\DATA\082817\9M982236.D
Operator : JDS
Acquired : 29 Aug 2017 1:16 using AcqMethod 8260C
Instrument : hpms9
Sample Name: L17081305-19 A 8260C
Misc Info : 1,1
Vial Number: 23
Quant File :8260C.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 29 Aug 2017 1:16
Data File: C:\MSDCHEM\1\DATA\082817\9M982236.D
Name: L17081305-19 A 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc

2.1.1.4 Standards Data

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981990.D Vial: 2
Acq On : 14 Aug 2017 9:43 Operator: ADC
Sample : WG625140-02 0.5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 09:53:15 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

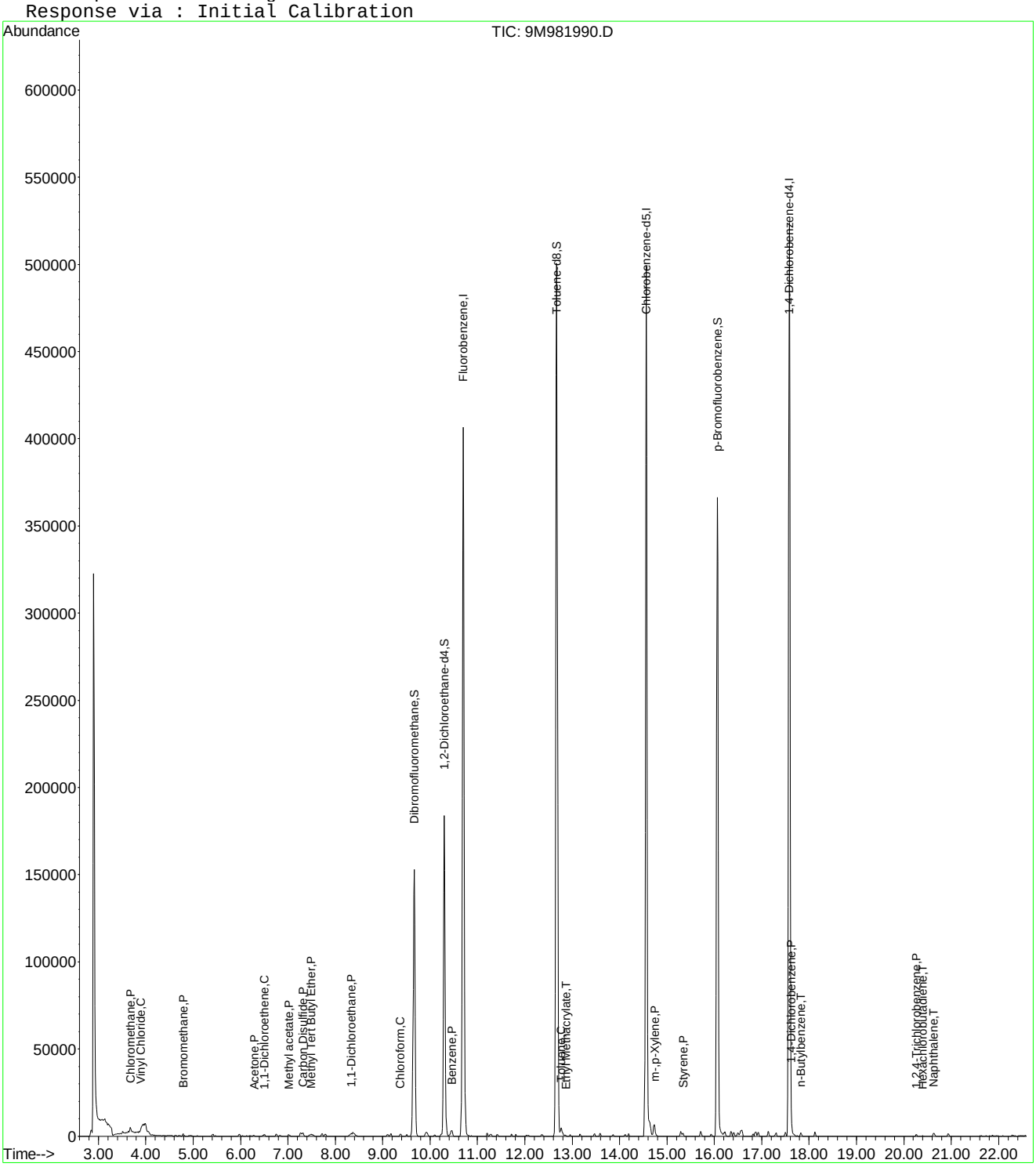
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	500615	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	378912	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	183432	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.67	111	135423	48.3131	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 96.62%			
43) 1,2-Dichloroethane-d4	10.30	65	161653	49.3730	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.74%			
58) Toluene-d8	12.67	98	464558	49.8009	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 99.60%			
79) p-Bromofluorobenzene	16.06	95	165938	51.0186	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 102.04%			
Target Compounds						Qvalue
3) Chloromethane	3.68	50	4479	0.8912	ug/L	95
4) Vinyl Chloride	3.89	62	1880	0.5262	ug/L #	68
6) Bromomethane	4.79	94	914	0.4161	ug/L	99
13) Acetone	6.29	43	743	0.4884	ug/L #	43
14) 1,1-Dichloroethene	6.50	61	1859	0.4294	ug/L #	55
18) Methyl acetate	7.02	43	1852	0.4739	ug/L #	65
20) Carbon Disulfide	7.31	76	3951	0.5595	ug/L #	74
22) Methyl Tert Butyl Ether	7.49	73	3631	0.4093	ug/L #	48
27) 1,1-Dichloroethane	8.34	63	2247	0.4207	ug/L #	63
33) Chloroform	9.37	83	2002	0.4199	ug/L	85
46) Benzene	10.46	78	4644	0.4222	ug/L	87
59) Toluene	12.77	91	4746	0.4323	ug/L	95
60) Ethyl Methacrylate	12.87	69	216	1.4820	ug/L #	57
72) m-,p-Xylene	14.74	106	3536	0.7448	ug/L	76
74) Styrene	15.34	104	1878	0.9616	ug/L #	66
93) 1,4-Dichlorobenzene	17.62	146	2472	0.4255	ug/L #	1
94) n-Butylbenzene	17.82	91	2597	0.8985	ug/L #	65
97) 1,2,4-Trichlorobenzene	20.26	180	966	0.8639	ug/L #	77
98) Hexachlorobutadiene	20.40	225	216	0.7672	ug/L #	23
99) Naphthalene	20.63	128	3871	0.5895	ug/L #	68

(#) = qualifier out of range (m) = manual integration
9M981990.D 8260C.M Tue Aug 15 09:53:52 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981990.D Vial: 2
Acq On : 14 Aug 2017 9:43 Operator: ADC
Sample : WG625140-02 0.5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 9:53 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081417\9M981990.D Vial: 2
Acq On : 14 Aug 2017 9:43 Operator: ADC
Sample : WG625140-02 0.5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	100	0.00
2	P	Dichlorodifluoromethane	-1.0000	0.3761	0.0	100	0.00
3	P	Chloromethane	-1.0000	0.8912	0.0	100	0.00
4	C	Vinyl Chloride	-1.0000	0.5262	0.0	100	0.00
5	T	1,3-Butadiene	-1.0000	0.1642	0.0	100	0.00
6	P	Bromomethane	-1.0000	0.4161	0.0	100	0.01
7	P	Chloroethane	-1.0000	0.3087	0.0	100	0.00
8	P	Trichlorofluoromethane	-1.0000	0.3309	0.0	100	0.01
9	T	Diethyl ether	-1.0000	0.0000	0.0	0	-5.94#
10	T	Isoprene	-1.0000	0.2475	0.0	100	0.00
11	T	Acrolein	-1.0000	0.0000	0.0	0	-6.17#
12	P	1,1,2-Trichloro-1,2,2-Trifl	-1.0000	0.0799	0.0	100	0.00
13	P	Acetone	-1.0000	0.4884	0.0	100	0.01
14	C	1,1-Dichloroethene	-1.0000	0.4294	0.0	100	0.01
15	T	Tert-Butyl Alcohol	-1.0000	0.0000	0.0	0	-6.60#
16	T	Dimethyl Sulfide	-1.0000	0.2525	0.0	100	0.00
17	T	Iodomethane	-1.0000	0.0652	0.0	100	0.00
18	P	Methyl acetate	-1.0000	0.4739	0.0	100	0.00
19	P	Methylene Chloride	-1.0000	0.3949	0.0	100	0.00
20	P	Carbon Disulfide	-1.0000	0.5595	0.0	100	0.00
21	T	Acrylonitrile	-1.0000	0.0000	0.0	0	-7.45#
22	P	Methyl Tert Butyl Ether	-1.0000	0.4093	0.0	100	0.01
23	P	trans-1,2-Dichloroethene	-1.0000	0.3772	0.0	100	0.00
24	T	n-Hexane	-1.0000	0.2467	0.0	100	0.00
25	T	Diisopropyl ether	-1.0000	0.0000	0.0	0	-8.12#
26	T	Vinyl Acetate	-1.0000	0.2482	0.0	100	0.00
27	P	1,1-Dichloroethane	-1.0000	0.4207	0.0	100	0.00
28	T	Ethyl-Tert-Butyl ether	-1.0000	0.0000	0.0	0	-8.70#
29	P	2-Butanone	-1.0000	0.0000	0.0	0	-8.88#
30	T	Propionitrile	-1.0000	0.0000	0.0	0	-9.00#
31	T	2,2-Dichloropropane	-1.0000	0.2990	0.0	100	0.00
32	P	cis-1,2-Dichloroethene	-1.0000	0.1821	0.0	100	0.01
33	C	Chloroform	0.5000	0.4199	16.0	100	0.00
34	T	1-Bromopropane	-1.0000	0.0000	0.0	0	-9.52#
35	T	Bromochloromethane	-1.0000	0.2356	0.0	100	0.00
36	T	Tetrahydrofuran	-1.0000	0.0000	0.0	0	-9.63#
37	S	Dibromofluoromethane	50.0000	48.3131	3.4	100	0.00
38	P	1,1,1-Trichloroethane	-1.0000	0.3390	0.0	100	0.00
39	P	Cyclohexane	-1.0000	0.3752	0.0	100	-0.02
40	T	1,1-Dichloropropene	-1.0000	0.2462	0.0	100	0.00
41	T	Tert-Amyl-Methyl ether	-1.0000	0.0000	0.0	0	-10.20#
42	P	Carbon Tetrachloride	-1.0000	0.3392	0.0	100	0.00
43	S	1,2-Dichloroethane-d4	50.0000	49.3730	1.3	100	0.00
44		Heptane	-1.0000	0.0000	0.0	100	0.00
45	P	1,2-Dichloroethane	-1.0000	0.3992	0.0	100	0.00
46	P	Benzene	-1.0000	0.4222	0.0	100	0.00
47	P	Trichloroethene	-1.0000	0.3306	0.0	100	0.00
48	P	Methylcyclohexane	-1.0000	0.3253	0.0	100	0.00
49	C	1,2-Dichloropropane	-1.0000	0.3561	0.0	100	0.00
50	T	1,4-Dioxane	-1.0000	0.0000	0.0	0	-11.71#
51	P	Bromodichloromethane	-1.0000	0.3337	0.0	100	0.00
52	T	Dibromomethane	-1.0000	0.1751	0.0	100	0.00
53	T	2-Chloroethyl Vinyl Ether	-1.0000	0.0000	0.0	0	-12.02#
54	P	4-Methyl-2-Pentanone	-1.0000	0.0000	0.0	0	-12.05#

(#) = Out of Range
9M981990.D 8260C.M Tue Aug 15 09:53:42 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M981990.D Vial: 2
Acq On : 14 Aug 2017 9:43 Operator: ADC
Sample : WG625140-02 0.5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	-1.0000	0.3061	0.0	100	0.00
56	T	Dimethyl Disulfide	-1.0000	0.0000	0.0	0	-12.62#
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	100	0.00
58	S	Toluene-d8	50.0000	49.8009	0.4	100	0.00
59	C	Toluene	-1.0000	0.4323	0.0	100	0.00
60	T	Ethyl Methacrylate	-1.0000	1.4820	0.0	0	0.00
61	P	trans-1,3-Dichloropropene	-1.0000	0.2260	0.0	100	0.01
62	P	1,1,2-Trichloroethane	-1.0000	0.2930	0.0	100	0.00
63	P	2-Hexanone	-1.0000	0.0000	0.0	0	-13.10#
64	T	1,3-Dichloropropane	-1.0000	0.3321	0.0	100	0.00
65	P	Tetrachloroethene	-1.0000	0.1965	0.0	100	0.00
66	P	Dibromochloromethane	-1.0000	0.3111	0.0	100	0.01
67	P	1,2-Dibromoethane	-1.0000	0.1946	0.0	100	0.00
68	T	1-Chlorohexane	-1.0000	0.2841	0.0	100	0.01
69	P	Chlorobenzene	-1.0000	0.3954	0.0	100	0.00
70	T	1,1,1,2-Tetrachloroethane	-1.0000	0.3100	0.0	100	0.00
71	C	Ethylbenzene	-1.0000	0.3404	0.0	100	0.00
72	P	m-,p-Xylene	1.0000	0.7448	25.5#	100	0.01
73	P	o-Xylene	-1.0000	0.3052	0.0	100	0.00
74	P	Styrene	-1.0000	0.9616	0.0	100	0.01
75	P	Bromoform	-1.0000	0.0000	0.0	0	-15.83#
76	P	Isopropylbenzene	-1.0000	0.3443	0.0	100	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	100	0.00
78	P	1,1,2,2-Tetrachloroethane	-1.0000	0.3124	0.0	100	0.00
79	S	p-Bromofluorobenzene	50.0000	51.0186	-2.0	100	0.00
80	T	1,2,3-Trichloropropane	-1.0000	0.1768	0.0	100	0.00
81	T	trans-1,4-Dichloro-2-Butene	-1.0000	0.0000	0.0	0	-16.17#
82	T	n-Propylbenzene	-1.0000	0.3699	0.0	100	0.00
83	T	Bromobenzene	-1.0000	0.2890	0.0	100	0.00
84	T	1,3,5-Trimethylbenzene	-1.0000	0.3667	0.0	100	0.00
85	T	2-Chlorotoluene	-1.0000	0.3790	0.0	100	0.01
86	T	4-Chlorotoluene	-1.0000	0.3188	0.0	100	0.00
87	T	a-Methylstyrene	-1.0000	0.2242	0.0	0	0.01
88	T	tert-Butylbenzene	-1.0000	0.0000	0.0	0	-16.87#
89	T	1,2,4-Trimethylbenzene	-1.0000	0.3114	0.0	100	0.00
90	T	sec-Butylbenzene	-1.0000	0.3718	0.0	100	0.00
91	T	p-Isopropyltoluene	-1.0000	0.3052	0.0	100	0.00
92	P	1,3-Dichlorobenzene	-1.0000	0.3410	0.0	100	0.00
93	P	1,4-Dichlorobenzene	-1.0000	0.4255	0.0	100	0.00
94	T	n-Butylbenzene	-1.0000	0.8985	0.0	100	0.00
95	P	1,2-Dichlorobenzene	-1.0000	0.3583	0.0	100	0.00
96	P	1,2-Dibromo-3-Chloropropane	-1.0000	0.0000	0.0	0	-19.12#
97	P	1,2,4-Trichlorobenzene	-1.0000	0.8639	0.0	100	0.00
98	T	Hexachlorobutadiene	-1.0000	0.7672	0.0	0	0.00
99	T	Naphthalene	-1.0000	0.5895	0.0	100	0.00
100	T	1,2,3-Trichlorobenzene	-1.0000	0.3035	0.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981992.D Vial: 4
Acq On : 14 Aug 2017 10:43 Operator: ADC
Sample : WG625140-04 2ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 09:53:15 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	464339	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	355509	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	169527	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	127466	49.0271 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 98.06%		
43) 1,2-Dichloroethane-d4	10.30	65	150649	49.6067 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.22%		
58) Toluene-d8	12.67	98	434766	49.6753 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 99.36%		
79) p-Bromofluorobenzene	16.06	95	150977	50.2261 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 100.46%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.23	85	5729	1.6858 ug/L #	78
3) Chloromethane	3.68	50	9898	2.1233 ug/L	94
4) Vinyl Chloride	3.90	62	7044	2.1256 ug/L	94
5) 1,3-Butadiene	3.94	54	2603	2.1336 ug/L	85
6) Bromomethane	4.79	94	4466	2.1918 ug/L	96
7) Chloroethane	4.94	64	3416	1.7734 ug/L	84
8) Trichlorofluoromethane	5.42	101	8345	1.9548 ug/L #	95
9) Diethyl ether	5.94	59	64485	24.3905 ug/L	99
10) Isoprene	5.97	67	5694	1.6372 ug/L	95
11) Acrolein	6.17	56	4729	10.6210 ug/L	100
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	3876	1.7291 ug/L	94
13) Acetone	6.28	43	2884	2.0439 ug/L #	68
14) 1,1-Dichloroethene	6.49	61	7525	1.8742 ug/L	89
15) Tert-Butyl Alcohol	6.60	59	22715	46.6549 ug/L	93
16) Dimethyl Sulfide	6.76	62	5668	1.8044 ug/L	99
17) Iodomethane	7.02	142	3645	1.1863 ug/L	87
18) Methyl acetate	7.03	43	6866	1.8943 ug/L #	95
19) Methylene Chloride	7.27	84	4885	1.8600 ug/L	96
20) Carbon Disulfide	7.32	76	12242	1.8690 ug/L	91
21) Acrylonitrile	7.46	53	20221	11.8644 ug/L	97
22) Methyl Tert Butyl Ether	7.49	73	15492	1.8826 ug/L	90
23) trans-1,2-Dichloroethene	7.71	61	6990	1.8736 ug/L	91
24) n-Hexane	7.79	57	5195	1.4776 ug/L	96
25) Diisopropyl ether	8.13	45	247891	24.5592 ug/L	99
26) Vinyl Acetate	8.31	43	10144	1.6072 ug/L #	78
27) 1,1-Dichloroethane	8.33	63	9180	1.8530 ug/L #	92
28) Ethyl-Tert-Butyl ether	8.70	59	227261	24.6364 ug/L	99
29) 2-Butanone	8.90	43	3311	1.5756 ug/L #	57
30) Propionitrile	9.00	54	15227	24.1467 ug/L	94
31) 2,2-Dichloropropane	9.09	77	6536	1.8116 ug/L	81
32) cis-1,2-Dichloroethene	9.17	96	4680	1.7599 ug/L	99
33) Chloroform	9.38	83	8191	1.8520 ug/L	99
35) Bromochloromethane	9.60	130	3521	1.8476 ug/L	97
36) Tetrahydrofuran	9.63	42	31805	24.2993 ug/L	97
38) 1,1,1-Trichloroethane	9.90	97	7359	1.8135 ug/L	94
39) Cyclohexane	9.93	56	8958	1.7582 ug/L	93
40) 1,1-Dichloropropene	10.10	75	5023	1.6377 ug/L	91
41) Tert-Amyl-Methyl ether	10.20	73	186023	24.3049 ug/L	97
42) Carbon Tetrachloride	10.24	117	6473	1.7641 ug/L	95
45) 1,2-Dichloroethane	10.42	62	7705	1.8040 ug/L	96

(#) = qualifier out of range (m) = manual integration
9M981992.D 8260C.M Tue Aug 15 09:55:05 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981992.D Vial: 4
Acq On : 14 Aug 2017 10:43 Operator: ADC
Sample : WG625140-04 2ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 09:53:15 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

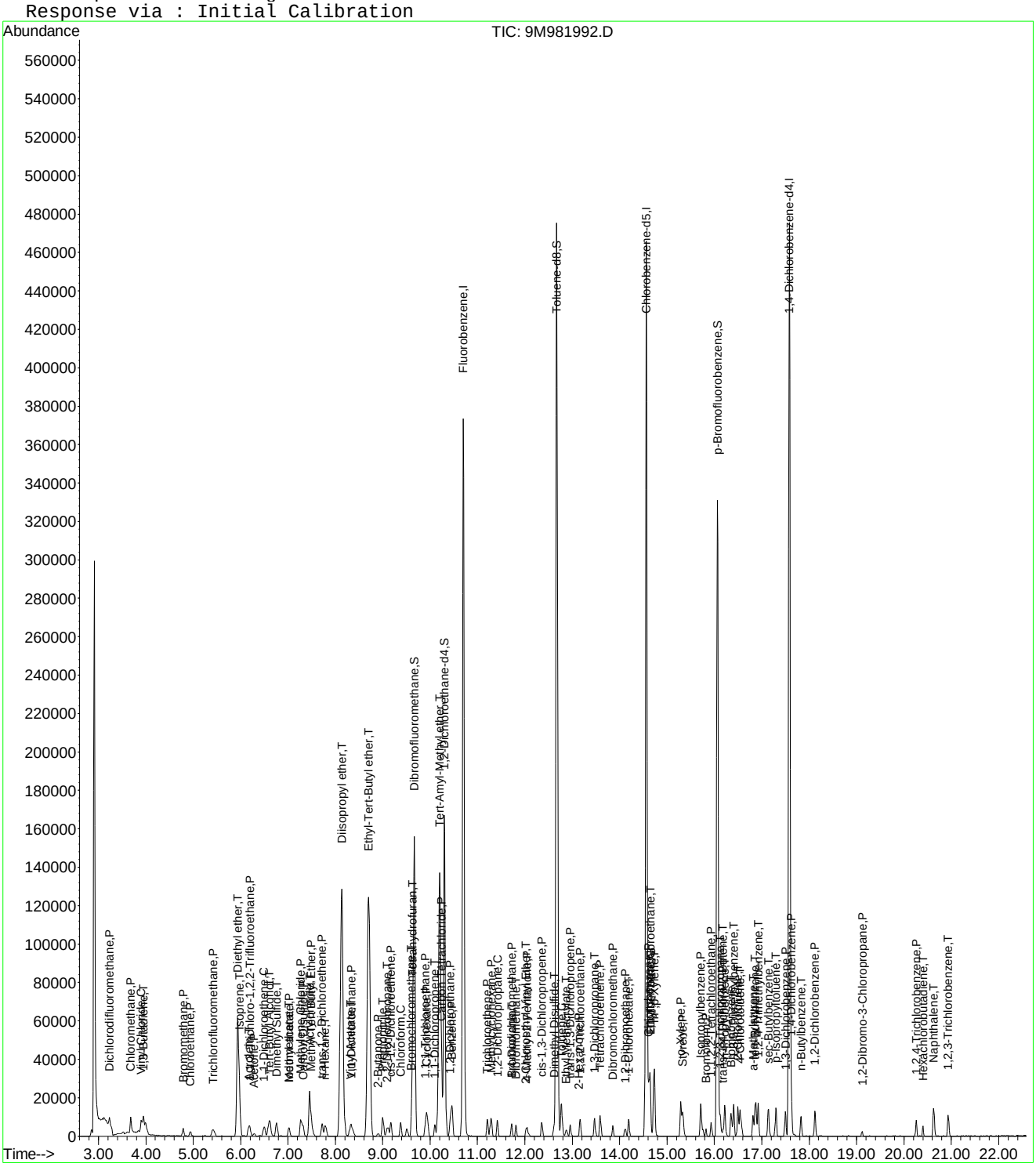
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
46)	Benzene	10.46	78	19765	1.9371	ug/L		97
47)	Trichloroethene	11.21	130	4840	1.7856	ug/L		99
48)	Methylcyclohexane	11.29	83	6790	1.6819	ug/L		97
49)	1,2-Dichloropropane	11.43	63	4922	1.7415	ug/L		93
50)	1,4-Dioxane	11.72	88	1373	54.0454	ug/L		83
51)	Bromodichloromethane	11.72	83	6019	1.7721	ug/L	#	90
52)	Dibromomethane	11.81	174	3082	1.6580	ug/L		93
53)	2-Chloroethyl Vinyl Ether	12.02	63	2299	1.0281	ug/L	#	49
54)	4-Methyl-2-Pentanone	12.05	58	1848	1.0945	ug/L	#	41
55)	cis-1,3-Dichloropropene	12.36	75	6049	1.5968	ug/L		89
56)	Dimethyl Disulfide	12.62	79	2492	4.3225	ug/L		95
59)	Toluene	12.78	91	18902	1.8352	ug/L		100
60)	Ethyl Methacrylate	12.87	69	4018	2.3668	ug/L	#	57
61)	trans-1,3-Dichloropropene	12.96	75	5534	1.6018	ug/L		82
62)	1,1,2-Trichloroethane	13.17	97	4298	1.6993	ug/L		97
63)	2-Hexanone	13.14	43	676	3.6194	ug/L	#	30
64)	1,3-Dichloropropane	13.47	76	7581	1.8280	ug/L		97
65)	Tetrachloroethene	13.59	164	3480	1.6679	ug/L		99
66)	Dibromochloromethane	13.85	129	4935	1.6715	ug/L		94
67)	1,2-Dibromoethane	14.12	107	4513	1.6833	ug/L		97
68)	1-Chlorohexane	14.19	91	4129	1.4642	ug/L		99
69)	Chlorobenzene	14.61	112	12205	1.7083	ug/L		99
70)	1,1,1,2-Tetrachloroethane	14.65	131	4535	1.6271	ug/L		91
71)	Ethylbenzene	14.65	106	6193	1.6447	ug/L		98
72)	m-,p-Xylene	14.73	106	15596	3.5015	ug/L		93
73)	o-Xylene	15.29	106	7635	1.6559	ug/L		94
74)	Styrene	15.33	104	10177	1.9256	ug/L		92
75)	Bromoform	15.83	173	2943	2.4910	ug/L		97
76)	Isopropylbenzene	15.71	105	19508	1.6853	ug/L		95
78)	1,1,2,2-Tetrachloroethane	15.93	83	5918	1.7128	ug/L	#	96
80)	1,2,3-Trichloropropane	16.12	110	2362	2.0358	ug/L	#	1
81)	trans-1,4-Dichloro-2-Buten	16.18	53	1332	1.0401	ug/L	#	1
82)	n-Propylbenzene	16.22	91	20304	1.7497	ug/L		98
83)	Bromobenzene	16.35	156	5257	1.7927	ug/L		97
84)	1,3,5-Trimethylbenzene	16.41	105	15380	1.7111	ug/L		99
85)	2-Chlorotoluene	16.49	91	15452	2.0140	ug/L		90
86)	4-Chlorotoluene	16.54	91	11356	1.6650	ug/L		96
87)	a-Methylstyrene	16.82	118	6236	1.3085	ug/L		81
88)	tert-Butylbenzene	16.86	134	3544	1.8320	ug/L		100
89)	1,2,4-Trimethylbenzene	16.92	105	16076	1.7249	ug/L		96
90)	sec-Butylbenzene	17.15	105	18800	1.7183	ug/L		96
91)	p-Isopropyltoluene	17.29	119	14455	1.5850	ug/L		99
92)	1,3-Dichlorobenzene	17.51	146	8798	1.6970	ug/L		95
93)	1,4-Dichlorobenzene	17.62	146	9643	1.7960	ug/L		94
94)	n-Butylbenzene	17.83	91	10953	1.8809	ug/L	#	93
95)	1,2-Dichlorobenzene	18.12	146	9624	1.7155	ug/L		95
96)	1,2-Dibromo-3-Chloropropan	19.12	157	974	2.1958	ug/L		87
97)	1,2,4-Trichlorobenzene	20.26	180	4931	1.8202	ug/L		94
98)	Hexachlorobutadiene	20.41	225	2467	1.9735	ug/L		84
99)	Naphthalene	20.63	128	18110	1.6852	ug/L		98
100)	1,2,3-Trichlorobenzene	20.93	180	5851	1.5215	ug/L		99

(#) = qualifier out of range (m) = manual integration
9M981992.D 8260C.M Tue Aug 15 09:55:06 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981992.D Vial: 4
Acq On : 14 Aug 2017 10:43 Operator: ADC
Sample : WG625140-04 2ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 9:53 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081417\9M981992.D Vial: 4
Acq On : 14 Aug 2017 10:43 Operator: ADC
Sample : WG625140-04 2ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	100	0.00
2	P	Dichlorodifluoromethane	2.0000	1.6858	15.7	100	0.00
3	P	Chloromethane	2.0000	2.1233	-6.2	100	0.00
4	C	Vinyl Chloride	2.0000	2.1256	-6.3	100	0.01
5	T	1,3-Butadiene	2.0000	2.1336	-6.7	100	0.01
6	P	Bromomethane	2.0000	2.1918	-9.6	100	0.01
7	P	Chloroethane	2.0000	1.7734	11.3	100	0.00
8	P	Trichlorofluoromethane	2.0000	1.9548	2.3	100	0.01
9	T	Diethyl ether	25.0000	24.3905	2.4	100	0.00
10	T	Isoprene	2.0000	1.6372	18.1	100	0.00
11	T	Acrolein	12.5000	10.6210	15.0	100	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	2.0000	1.7291	13.5	100	0.01
13	P	Acetone	2.0000	2.0439	-2.2	100	0.00
14	C	1,1-Dichloroethene	2.0000	1.8742	6.3	100	0.00
15	T	Tert-Butyl Alcohol	50.0000	46.6549	6.7	100	0.00
16	T	Dimethyl Sulfide	2.0000	1.8044	9.8	100	0.01
17	T	Iodomethane	-1.0000	1.1863	0.0	100	0.01
18	P	Methyl acetate	2.0000	1.8944	5.3	100	0.01
19	P	Methylene Chloride	2.0000	1.8601	7.0	100	0.00
20	P	Carbon Disulfide	2.0000	1.8690	6.6	100	0.01
21	T	Acrylonitrile	12.5000	11.8644	5.1	100	0.01
22	P	Methyl Tert Butyl Ether	2.0000	1.8826	5.9	100	0.01
23	P	trans-1,2-Dichloroethene	2.0000	1.8736	6.3	100	0.00
24	T	n-Hexane	-1.0000	1.4776	0.0	100	0.00
25	T	Diisopropyl ether	25.0000	24.5592	1.8	100	0.01
26	T	Vinyl Acetate	-1.0000	1.6072	0.0	100	0.01
27	P	1,1-Dichloroethane	2.0000	1.8530	7.4	100	0.00
28	T	Ethyl-Tert-Butyl ether	25.0000	24.6364	1.5	100	0.00
29	P	2-Butanone	-1.0000	1.5756	0.0	100	0.02
30	T	Propionitrile	25.0000	24.1467	3.4	100	0.00
31	T	2,2-Dichloropropane	2.0000	1.8116	9.4	100	0.00
32	P	cis-1,2-Dichloroethene	2.0000	1.7599	12.0	100	0.00
33	C	Chloroform	2.0000	1.8520	7.4	100	0.00
34	T	1-Bromopropane	-1.0000	0.0000	0.0	0	-9.52#
35	T	Bromochloromethane	2.0000	1.8476	7.6	100	0.00
36	T	Tetrahydrofuran	25.0000	24.2993	2.8	100	0.00
37	S	Dibromofluoromethane	50.0000	49.0271	1.9	100	0.00
38	P	1,1,1-Trichloroethane	2.0000	1.8136	9.3	100	0.00
39	P	Cyclohexane	-1.0000	1.7582	0.0	100	0.00
40	T	1,1-Dichloropropene	2.0000	1.6377	18.1	100	0.00
41	T	Tert-Amyl-Methyl ether	25.0000	24.3049	2.8	100	0.00
42	P	Carbon Tetrachloride	2.0000	1.7641	11.8	100	0.00
43	S	1,2-Dichloroethane-d4	50.0000	49.6067	0.8	100	0.00
44		Heptane	-1.0000	0.0000	0.0	100	0.00
45	P	1,2-Dichloroethane	2.0000	1.8040	9.8	100	0.00
46	P	Benzene	2.0000	1.9371	3.1	100	0.00
47	P	Trichloroethene	2.0000	1.7856	10.7	100	0.00
48	P	Methylcyclohexane	-1.0000	1.6819	0.0	100	0.00
49	C	1,2-Dichloropropane	2.0000	1.7415	12.9	100	0.01
50	T	1,4-Dioxane	50.0000	54.0454	-8.1	100	0.01
51	P	Bromodichloromethane	2.0000	1.7721	11.4	100	0.00
52	T	Dibromomethane	2.0000	1.6580	17.1	100	0.00
53	T	2-Chloroethyl Vinyl Ether	-1.0000	1.0281	0.0	0	0.00
54	P	4-Methyl-2-Pentanone	-1.0000	1.0945	0.0	100	0.00

(#) = Out of Range
9M981992.D 8260C.M Tue Aug 15 09:55:00 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M981992.D Vial: 4
Acq On : 14 Aug 2017 10:43 Operator: ADC
Sample : WG625140-04 2ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	2.0000	1.5968	20.2	100	0.00
56	T	Dimethyl Disulfide	-1.0000	4.3225	0.0	0	0.00
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	100	0.00
58	S	Toluene-d8	50.0000	49.6753	0.6	100	0.00
59	C	Toluene	2.0000	1.8352	8.2	100	0.00
60	T	Ethyl Methacrylate	2.0000	2.3668	-18.3	100	0.00
61	P	trans-1,3-Dichloropropene	2.0000	1.6018	19.9	100	0.01
62	P	1,1,2-Trichloroethane	2.0000	1.6993	15.0	100	0.00
63	P	2-Hexanone	-1.0000	3.6194	0.0	0	0.03
64	T	1,3-Dichloropropane	2.0000	1.8280	8.6	100	0.00
65	P	Tetrachloroethene	2.0000	1.6679	16.6	100	0.00
66	P	Dibromochloromethane	2.0000	1.6715	16.4	100	0.00
67	P	1,2-Dibromoethane	2.0000	1.6833	15.8	100	0.00
68	T	1-Chlorohexane	2.0000	1.4642	26.8#	100	0.00
69	P	Chlorobenzene	2.0000	1.7083	14.6	100	0.00
70	T	1,1,1,2-Tetrachloroethane	2.0000	1.6271	18.6	100	0.00
71	C	Ethylbenzene	2.0000	1.6447	17.8	100	0.01
72	P	m-,p-Xylene	4.0000	3.5015	12.5	100	0.00
73	P	o-Xylene	2.0000	1.6559	17.2	100	0.00
74	P	Styrene	2.0000	1.9256	3.7	100	0.00
75	P	Bromoform	2.0000	2.4910	-24.6	100	0.00
76	P	Isopropylbenzene	2.0000	1.6853	15.7	100	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	100	0.00
78	P	1,1,2,2-Tetrachloroethane	2.0000	1.7128	14.4	100	0.00
79	S	p-Bromofluorobenzene	50.0000	50.2261	-0.5	100	0.00
80	T	1,2,3-Trichloropropane	2.0000	2.0358	-1.8	100	0.00
81	T	trans-1,4-Dichloro-2-Butene	-1.0000	1.0401	0.0	0	0.00
82	T	n-Propylbenzene	2.0000	1.7497	12.5	100	0.00
83	T	Bromobenzene	2.0000	1.7927	10.4	100	0.00
84	T	1,3,5-Trimethylbenzene	2.0000	1.7111	14.4	100	0.00
85	T	2-Chlorotoluene	2.0000	2.0140	-0.7	100	0.00
86	T	4-Chlorotoluene	2.0000	1.6650	16.7	100	0.00
87	T	a-Methylstyrene	2.0000	1.3085	34.6#	100	0.01
88	T	tert-Butylbenzene	2.0000	1.8320	8.4	100	-0.01
89	T	1,2,4-Trimethylbenzene	2.0000	1.7249	13.8	100	0.00
90	T	sec-Butylbenzene	2.0000	1.7183	14.1	100	0.01
91	T	p-Isopropyltoluene	2.0000	1.5850	20.7	100	0.00
92	P	1,3-Dichlorobenzene	2.0000	1.6970	15.1	100	0.01
93	P	1,4-Dichlorobenzene	2.0000	1.7960	10.2	100	0.00
94	T	n-Butylbenzene	2.0000	1.8809	6.0	100	0.01
95	P	1,2-Dichlorobenzene	2.0000	1.7155	14.2	100	0.00
96	P	1,2-Dibromo-3-Chloropropane	2.0000	2.1958	-9.8	100	0.00
97	P	1,2,4-Trichlorobenzene	2.0000	1.8202	9.0	100	0.00
98	T	Hexachlorobutadiene	2.0000	1.9735	1.3	100	0.00
99	T	Naphthalene	2.0000	1.6852	15.7	100	0.00
100	T	1,2,3-Trichlorobenzene	2.0000	1.5215	23.9	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M981992.D 8260C.M Tue Aug 15 09:55:00 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981993.D Vial: 5
Acq On : 14 Aug 2017 11:14 Operator: ADC
Sample : WG625140-05 5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:16 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	471805	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	353767	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	172047	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	130535	49.4130	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 98.82%			
43) 1,2-Dichloroethane-d4	10.30	65	156161	50.6080	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.22%			
58) Toluene-d8	12.67	98	446300	51.2442	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 102.48%			
79) p-Bromofluorobenzene	16.06	95	163598	53.6276	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 107.26%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.23	85	15106	4.3748	ug/L	100
3) Chloromethane	3.68	50	23231	4.9046	ug/L	95
4) Vinyl Chloride	3.89	62	15820	4.6984	ug/L	99
5) 1,3-Butadiene	3.93	54	6309	5.0894	ug/L	96
6) Bromomethane	4.78	94	10579	5.1098	ug/L	94
7) Chloroethane	4.94	64	9762	4.9876	ug/L	98
8) Trichlorofluoromethane	5.41	101	21346	4.9211	ug/L	98
9) Diethyl ether	5.94	59	138548	51.5746	ug/L	99
10) Isoprene	5.97	67	16848	4.7677	ug/L	97
11) Acrolein	6.17	56	11246	24.8579	ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	10804	4.7435	ug/L	99
13) Acetone	6.28	43	6982	4.8699	ug/L	97
14) 1,1-Dichloroethene	6.49	61	19411	4.7579	ug/L	97
15) Tert-Butyl Alcohol	6.60	59	48701	98.4453	ug/L	96
16) Dimethyl Sulfide	6.75	62	15521	4.8629	ug/L	99
17) Iodomethane	7.00	142	12130	3.8854	ug/L	93
18) Methyl acetate	7.01	43	18082	4.9099	ug/L	96
19) Methylene Chloride	7.27	84	13473	5.0489	ug/L	98
20) Carbon Disulfide	7.31	76	31775	4.7743	ug/L	99
21) Acrylonitrile	7.45	53	43648	25.2046	ug/L	98
22) Methyl Tert Butyl Ether	7.48	73	41298	4.9392	ug/L	96
23) trans-1,2-Dichloroethene	7.71	61	18178	4.7954	ug/L	96
24) n-Hexane	7.80	57	15501	4.3391	ug/L	98
25) Diisopropyl ether	8.13	45	538100	52.4673	ug/L	99
26) Vinyl Acetate	8.30	43	29203	4.5536	ug/L	92
27) 1,1-Dichloroethane	8.33	63	24883	4.9432	ug/L	98
28) Ethyl-Tert-Butyl ether	8.70	59	490274	52.3075	ug/L	100
29) 2-Butanone	8.89	43	8980	4.2057	ug/L	96
30) Propionitrile	9.00	54	32730	47.1845	ug/L	98
31) 2,2-Dichloropropane	9.10	77	18241	4.9759	ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	13009	4.8146	ug/L	97
33) Chloroform	9.38	83	23080	5.1359	ug/L	98
34) 1-Bromopropane	9.51	122	1749	3.4446	ug/L	98
35) Bromochloromethane	9.61	130	9744	5.0321	ug/L	98
36) Tetrahydrofuran	9.63	42	68075	51.1869	ug/L	99
38) 1,1,1-Trichloroethane	9.91	97	19772	4.7955	ug/L	97
39) Cyclohexane	9.94	56	23937	4.6238	ug/L	97
40) 1,1-Dichloropropene	10.10	75	14725	4.7248	ug/L	100
41) Tert-Amyl-Methyl ether	10.20	73	407805	52.4387	ug/L	98
42) Carbon Tetrachloride	10.24	117	18132	4.8634	ug/L	99

(#) = qualifier out of range (m) = manual integration
9M981993.D 8260C.M Tue Aug 15 10:01:17 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981993.D Vial: 5
Acq On : 14 Aug 2017 11:14 Operator: ADC
Sample : WG625140-05 5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:16 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

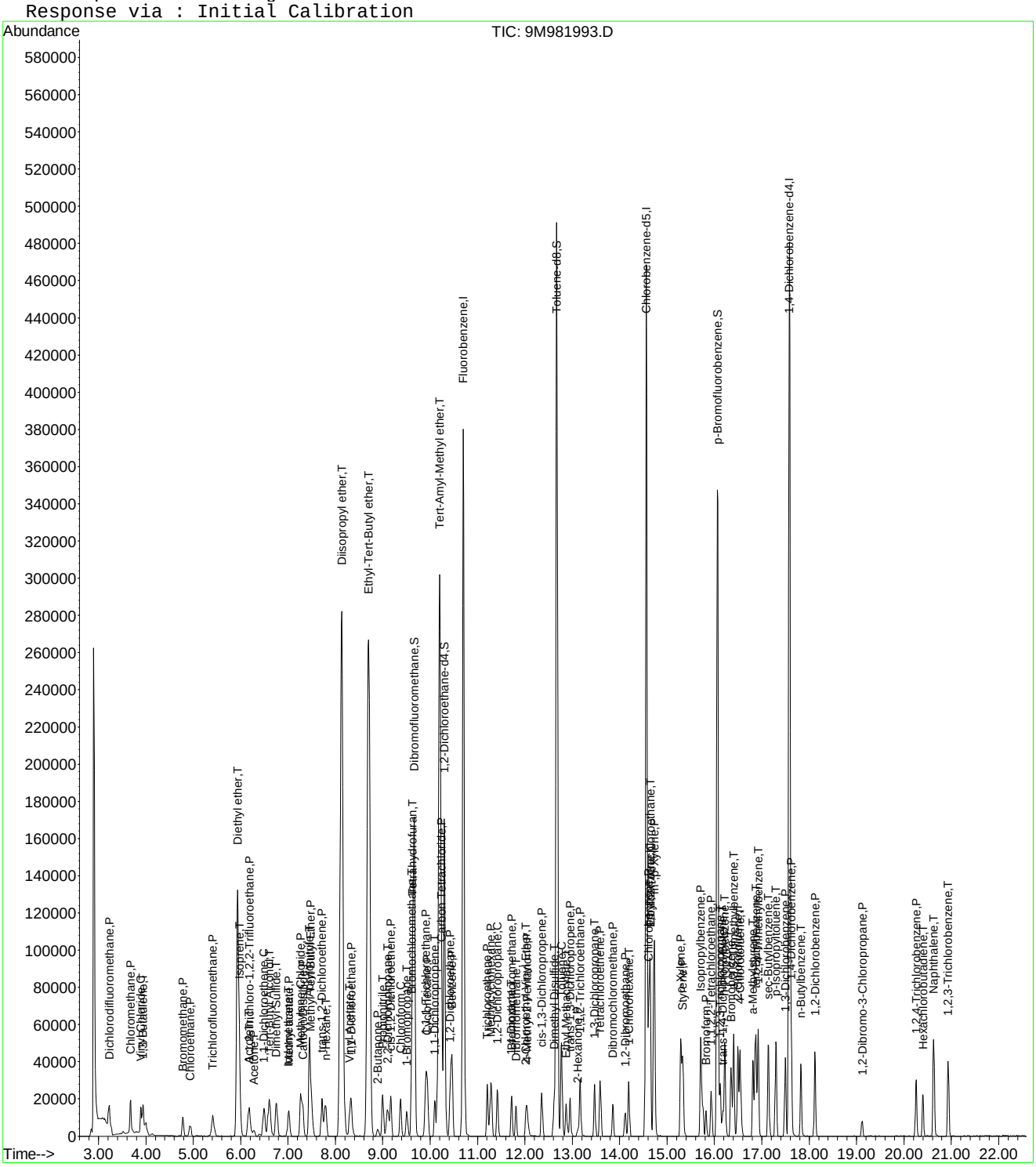
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	22344	5.1487 ug/L		97
46)	Benzene	10.46	78	51478	4.9653 ug/L		99
47)	Trichloroethene	11.20	130	13329	4.8396 ug/L		99
48)	Methylcyclohexane	11.28	83	18599	4.5342 ug/L		96
49)	1,2-Dichloropropane	11.42	63	13903	4.8414 ug/L		100
50)	1,4-Dioxane	11.71	88	4510	103.7004 ug/L		99
51)	Bromodichloromethane	11.72	83	16762	4.8571 ug/L		99
52)	Dibromomethane	11.82	174	9138	4.8382 ug/L		98
53)	2-Chloroethyl Vinyl Ether	12.02	63	8286	3.6470 ug/L		89
54)	4-Methyl-2-Pentanone	12.05	58	5650	3.2934 ug/L		93
55)	cis-1,3-Dichloropropene	12.35	75	17803	4.6252 ug/L		99
56)	Dimethyl Disulfide	12.62	79	7502	6.0978 ug/L		88
59)	Toluene	12.78	91	52057	5.0792 ug/L		99
60)	Ethyl Methacrylate	12.87	69	14425	4.7967 ug/L		99
61)	trans-1,3-Dichloropropene	12.96	75	15542	4.5208 ug/L		96
62)	1,1,2-Trichloroethane	13.17	97	12730	5.0577 ug/L		100
63)	2-Hexanone	13.11	43	8730	5.8859 ug/L	#	66
64)	1,3-Dichloropropane	13.47	76	20450	4.9554 ug/L		100
65)	Tetrachloroethene	13.59	164	10735	5.1703 ug/L		98
66)	Dibromochloromethane	13.85	129	13547	4.6110 ug/L		94
67)	1,2-Dibromoethane	14.12	107	13059	4.8949 ug/L		100
68)	1-Chlorohexane	14.20	91	12410	4.4224 ug/L		96
69)	Chlorobenzene	14.61	112	34475	4.8491 ug/L		88
70)	1,1,1,2-Tetrachloroethane	14.64	131	13569	4.8923 ug/L		98
71)	Ethylbenzene	14.64	106	18258	4.8727 ug/L		98
72)	m-,p-Xylene	14.73	106	46091	10.3989 ug/L		99
73)	o-Xylene	15.29	106	22639	4.9341 ug/L		99
74)	Styrene	15.33	104	31647	4.4030 ug/L		97
75)	Bromoform	15.83	173	9573	4.8289 ug/L		97
76)	Isopropylbenzene	15.71	105	56740	4.9258 ug/L		97
78)	1,1,2,2-Tetrachloroethane	15.93	83	17857	5.0926 ug/L		98
80)	1,2,3-Trichloropropane	16.12	110	6086	5.1688 ug/L		85
81)	trans-1,4-Dichloro-2-Buten	16.17	53	5521	4.2480 ug/L		96
82)	n-Propylbenzene	16.22	91	60679	5.1524 ug/L		99
83)	Bromobenzene	16.35	156	15670	5.2654 ug/L		80
84)	1,3,5-Trimethylbenzene	16.41	105	46213	5.0660 ug/L		97
85)	2-Chlorotoluene	16.49	91	37658	4.8364 ug/L		99
86)	4-Chlorotoluene	16.54	91	32639	4.7155 ug/L		90
87)	a-Methylstyrene	16.81	118	20733	4.2867 ug/L		78
88)	tert-Butylbenzene	16.87	134	10368	5.2811 ug/L		95
89)	1,2,4-Trimethylbenzene	16.92	105	48002	5.0751 ug/L		99
90)	sec-Butylbenzene	17.13	105	55434	4.9924 ug/L		98
91)	p-Isopropyltoluene	17.29	119	46616	5.0366 ug/L		99
92)	1,3-Dichlorobenzene	17.49	146	25721	4.8886 ug/L		99
93)	1,4-Dichlorobenzene	17.62	146	26585	4.8789 ug/L		88
94)	n-Butylbenzene	17.82	91	34409	4.5172 ug/L		96
95)	1,2-Dichlorobenzene	18.13	146	28202	4.9535 ug/L		97
96)	1,2-Dibromo-3-Chloropropan	19.12	157	3684	4.6441 ug/L		82
97)	1,2,4-Trichlorobenzene	20.26	180	15941	4.3722 ug/L		99
98)	Hexachlorobutadiene	20.41	225	7723	4.7097 ug/L		99
99)	Naphthalene	20.63	128	59990	4.7767 ug/L		99
100)	1,2,3-Trichlorobenzene	20.93	180	18017	4.6167 ug/L		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981993.D Vial: 5
Acq On : 14 Aug 2017 11:14 Operator: ADC
Sample : WG625140-05 5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\081417\9M981993.D Vial: 5
Acq On : 14 Aug 2017 11:14 Operator: ADC
Sample : WG625140-05 5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	100	0.00
2	P	Dichlorodifluoromethane	5.0000	4.3748	12.5	100	0.00
3	P	Chloromethane	5.0000	4.9046	1.9	100	0.00
4	C	Vinyl Chloride	5.0000	4.6984	6.0	100	0.00
5	T	1,3-Butadiene	5.0000	5.0894	-1.8	100	0.00
6	P	Bromomethane	5.0000	5.1098	-2.2	100	0.00
7	P	Chloroethane	5.0000	4.9876	0.2	100	0.00
8	P	Trichlorofluoromethane	5.0000	4.9211	1.6	100	0.00
9	T	Diethyl ether	50.0000	51.5746	-3.1	100	0.00
10	T	Isoprene	5.0000	4.7677	4.6	100	0.00
11	T	Acrolein	25.0000	24.8579	0.6	100	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	5.0000	4.7435	5.1	100	0.00
13	P	Acetone	5.0000	4.8699	2.6	100	0.00
14	C	1,1-Dichloroethene	5.0000	4.7579	4.8	100	0.00
15	T	Tert-Butyl Alcohol	100.0000	98.4453	1.6	100	0.00
16	T	Dimethyl Sulfide	5.0000	4.8629	2.7	100	0.00
17	T	Iodomethane	5.0000	3.8854	22.3	100	0.00
18	P	Methyl acetate	5.0000	4.9099	1.8	100	0.00
19	P	Methylene Chloride	5.0000	5.0489	-1.0	100	0.00
20	P	Carbon Disulfide	5.0000	4.7743	4.5	100	0.00
21	T	Acrylonitrile	25.0000	25.2046	-0.8	100	0.00
22	P	Methyl Tert Butyl Ether	5.0000	4.9392	1.2	100	0.00
23	P	trans-1,2-Dichloroethene	5.0000	4.7954	4.1	100	0.00
24	T	n-Hexane	5.0000	4.3391	13.2	100	0.01
25	T	Diisopropyl ether	50.0000	52.4673	-4.9	100	0.01
26	T	Vinyl Acetate	5.0000	4.5536	8.9	100	0.00
27	P	1,1-Dichloroethane	5.0000	4.9432	1.1	100	0.00
28	T	Ethyl-Tert-Butyl ether	50.0000	52.3075	-4.6	100	0.00
29	P	2-Butanone	5.0000	4.2057	15.9	100	0.01
30	T	Propionitrile	50.0000	47.1845	5.6	100	0.00
31	T	2,2-Dichloropropane	5.0000	4.9759	0.5	100	0.00
32	P	cis-1,2-Dichloroethene	5.0000	4.8146	3.7	100	0.00
33	C	Chloroform	5.0000	5.1359	-2.7	100	0.00
34	T	1-Bromopropane	5.0000	3.4446	31.1#	100	-0.01
35	T	Bromochloromethane	5.0000	5.0321	-0.6	100	0.00
36	T	Tetrahydrofuran	50.0000	51.1870	-2.4	100	0.00
37	S	Dibromofluoromethane	50.0000	49.4130	1.2	100	0.00
38	P	1,1,1-Trichloroethane	5.0000	4.7955	4.1	100	0.00
39	P	Cyclohexane	5.0000	4.6238	7.5	100	0.00
40	T	1,1-Dichloropropene	5.0000	4.7248	5.5	100	0.00
41	T	Tert-Amyl-Methyl ether	50.0000	52.4387	-4.9	100	0.00
42	P	Carbon Tetrachloride	5.0000	4.8634	2.7	100	0.00
43	S	1,2-Dichloroethane-d4	50.0000	50.6080	-1.2	100	0.00
44		Heptane	-1.0000	0.0000	0.0	100	0.00
45	P	1,2-Dichloroethane	5.0000	5.1487	-3.0	100	0.00
46	P	Benzene	5.0000	4.9653	0.7	100	0.00
47	P	Trichloroethene	5.0000	4.8396	3.2	100	0.00
48	P	Methylcyclohexane	5.0000	4.5343	9.3	100	-0.01
49	C	1,2-Dichloropropane	5.0000	4.8414	3.2	100	0.00
50	T	1,4-Dioxane	100.0000	103.7004	-3.7	100	0.00
51	P	Bromodichloromethane	5.0000	4.8571	2.9	100	0.00
52	T	Dibromomethane	5.0000	4.8382	3.2	100	0.01
53	T	2-Chloroethyl Vinyl Ether	5.0000	3.6470	27.1#	100	0.00
54	P	4-Methyl-2-Pentanone	5.0000	3.2934	34.1#	100	0.00

(#) = Out of Range
9M981993.D 8260C.M Tue Aug 15 09:55:26 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M981993.D Vial: 5
Acq On : 14 Aug 2017 11:14 Operator: ADC
Sample : WG625140-05 5ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	5.0000	4.6252	7.5	100	0.00
56	T	Dimethyl Disulfide	5.0000	6.0978	-22.0	100	0.00
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	100	0.00
58	S	Toluene-d8	50.0000	51.2442	-2.5	100	0.00
59	C	Toluene	5.0000	5.0792	-1.6	100	0.00
60	T	Ethyl Methacrylate	5.0000	4.7967	4.1	100	0.00
61	P	trans-1,3-Dichloropropene	5.0000	4.5209	9.6	100	0.01
62	P	1,1,2-Trichloroethane	5.0000	5.0577	-1.2	100	0.00
63	P	2-Hexanone	5.0000	5.8859	-17.7	100	0.01
64	T	1,3-Dichloropropane	5.0000	4.9554	0.9	100	0.00
65	P	Tetrachloroethene	5.0000	5.1703	-3.4	100	0.00
66	P	Dibromochloromethane	5.0000	4.6110	7.8	100	0.00
67	P	1,2-Dibromoethane	5.0000	4.8949	2.1	100	0.00
68	T	1-Chlorohexane	5.0000	4.4224	11.6	100	0.01
69	P	Chlorobenzene	5.0000	4.8491	3.0	100	0.00
70	T	1,1,1,2-Tetrachloroethane	5.0000	4.8923	2.2	100	0.00
71	C	Ethylbenzene	5.0000	4.8727	2.5	100	0.01
72	P	m-,p-Xylene	10.0000	10.3989	-4.0	100	0.00
73	P	o-Xylene	5.0000	4.9341	1.3	100	0.00
74	P	Styrene	5.0000	4.4030	11.9	100	0.00
75	P	Bromoform	5.0000	4.8289	3.4	100	0.00
76	P	Isopropylbenzene	5.0000	4.9258	1.5	100	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	100	0.00
78	P	1,1,2,2-Tetrachloroethane	5.0000	5.0926	-1.9	100	0.00
79	S	p-Bromofluorobenzene	50.0000	53.6276	-7.3	100	0.00
80	T	1,2,3-Trichloropropane	5.0000	5.1688	-3.4	100	0.00
81	T	trans-1,4-Dichloro-2-Butene	5.0000	4.2480	15.0	100	0.00
82	T	n-Propylbenzene	5.0000	5.1524	-3.0	100	0.00
83	T	Bromobenzene	5.0000	5.2654	-5.3	100	0.00
84	T	1,3,5-Trimethylbenzene	5.0000	5.0660	-1.3	100	0.00
85	T	2-Chlorotoluene	5.0000	4.8364	3.3	100	0.00
86	T	4-Chlorotoluene	5.0000	4.7154	5.7	100	0.00
87	T	a-Methylstyrene	5.0000	4.2867	14.3	100	0.00
88	T	tert-Butylbenzene	5.0000	5.2811	-5.6	100	0.00
89	T	1,2,4-Trimethylbenzene	5.0000	5.0751	-1.5	100	0.00
90	T	sec-Butylbenzene	5.0000	4.9924	0.2	100	0.00
91	T	p-Isopropyltoluene	5.0000	5.0366	-0.7	100	0.00
92	P	1,3-Dichlorobenzene	5.0000	4.8886	2.2	100	0.00
93	P	1,4-Dichlorobenzene	5.0000	4.8789	2.4	100	0.00
94	T	n-Butylbenzene	5.0000	4.5172	9.7	100	0.00
95	P	1,2-Dichlorobenzene	5.0000	4.9535	0.9	100	0.01
96	P	1,2-Dibromo-3-Chloropropane	5.0000	4.6441	7.1	100	0.00
97	P	1,2,4-Trichlorobenzene	5.0000	4.3722	12.6	100	0.00
98	T	Hexachlorobutadiene	5.0000	4.7097	5.8	100	0.00
99	T	Naphthalene	5.0000	4.7767	4.5	100	0.00
100	T	1,2,3-Trichlorobenzene	5.0000	4.6167	7.7	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M981993.D 8260C.M Tue Aug 15 09:55:26 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981994.D Vial: 6
Acq On : 14 Aug 2017 11:44 Operator: ADC
Sample : WG625140-03 1ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:17 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	469029	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	355151	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	168811	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.67	111	127803	48.6651	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 97.34%			
43) 1,2-Dichloroethane-d4	10.30	65	154344	50.3152	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.64%			
58) Toluene-d8	12.67	98	438373	50.1379	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 100.28%			
79) p-Bromofluorobenzene	16.06	95	154286	51.5446	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 103.08%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.23	85	2414	0.7032	ug/L #	67
3) Chloromethane	3.68	50	5731	1.2171	ug/L	97
4) Vinyl Chloride	3.89	62	3018	0.9016	ug/L	99
5) 1,3-Butadiene	3.94	54	1034	0.8391	ug/L #	55
6) Bromomethane	4.79	94	2256	1.0961	ug/L	76
7) Chloroethane	4.93	64	1611	0.8280	ug/L #	45
8) Trichlorofluoromethane	5.40	101	3680	0.8534	ug/L #	88
9) Diethyl ether	5.94	59	13124	4.9143	ug/L	95
10) Isoprene	5.98	67	2874	0.8181	ug/L	89
11) Acrolein	6.17	56	647	1.4386	ug/L #	13
12) 1,1,2-Trichloro-1,2,2-Trif	6.21	101	1509	0.6664	ug/L	94
13) Acetone	6.28	43	1561	1.0952	ug/L #	43
14) 1,1-Dichloroethene	6.50	61	3944	0.9725	ug/L	81
15) Tert-Butyl Alcohol	6.60	59	4039	8.2129	ug/L #	57
16) Dimethyl Sulfide	6.75	62	2479	0.7813	ug/L	93
17) Iodomethane	7.02	142	1843	0.5938	ug/L #	49
18) Methyl acetate	7.03	43	3514	0.9598	ug/L #	75
19) Methylene Chloride	7.27	84	2422	0.9130	ug/L	98
20) Carbon Disulfide	7.31	76	6115	0.9242	ug/L #	74
21) Acrylonitrile	7.45	53	3872	2.2491	ug/L	93
22) Methyl Tert Butyl Ether	7.49	73	7958	0.9574	ug/L #	72
23) trans-1,2-Dichloroethene	7.71	61	3628	0.9627	ug/L	81
24) n-Hexane	7.80	57	2742	0.7721	ug/L	91
25) Diisopropyl ether	8.14	45	48036	4.7115	ug/L	98
26) Vinyl Acetate	8.31	43	4378	0.6867	ug/L #	78
27) 1,1-Dichloroethane	8.34	63	4389	0.8771	ug/L #	82
28) Ethyl-Tert-Butyl ether	8.71	59	42939	4.6083	ug/L	99
30) Propionitrile	9.01	54	1840	5.9643	ug/L #	61
31) 2,2-Dichloropropane	9.10	77	3688	1.0120	ug/L #	52
32) cis-1,2-Dichloroethene	9.17	96	2229	0.8298	ug/L	95
33) Chloroform	9.37	83	4137	0.9260	ug/L	97
35) Bromochloromethane	9.61	130	1549	0.8047	ug/L	96
36) Tetrahydrofuran	9.64	42	5897	4.4603	ug/L	90
38) 1,1,1-Trichloroethane	9.91	97	3748	0.9144	ug/L	96
39) Cyclohexane	9.94	56	4465	0.8676	ug/L #	89
40) 1,1-Dichloropropene	10.10	75	2833	0.9144	ug/L	79
41) Tert-Amyl-Methyl ether	10.21	73	34510	4.4638	ug/L	93
42) Carbon Tetrachloride	10.24	117	3167	0.8545	ug/L #	89
45) 1,2-Dichloroethane	10.43	62	4006	0.9286	ug/L	89
46) Benzene	10.46	78	9986	0.9689	ug/L	94

(#) = qualifier out of range (m) = manual integration
9M981994.D 8260C.M Tue Aug 15 10:01:17 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981994.D Vial: 6
Acq On : 14 Aug 2017 11:44 Operator: ADC
Sample : WG625140-03 1ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:17 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

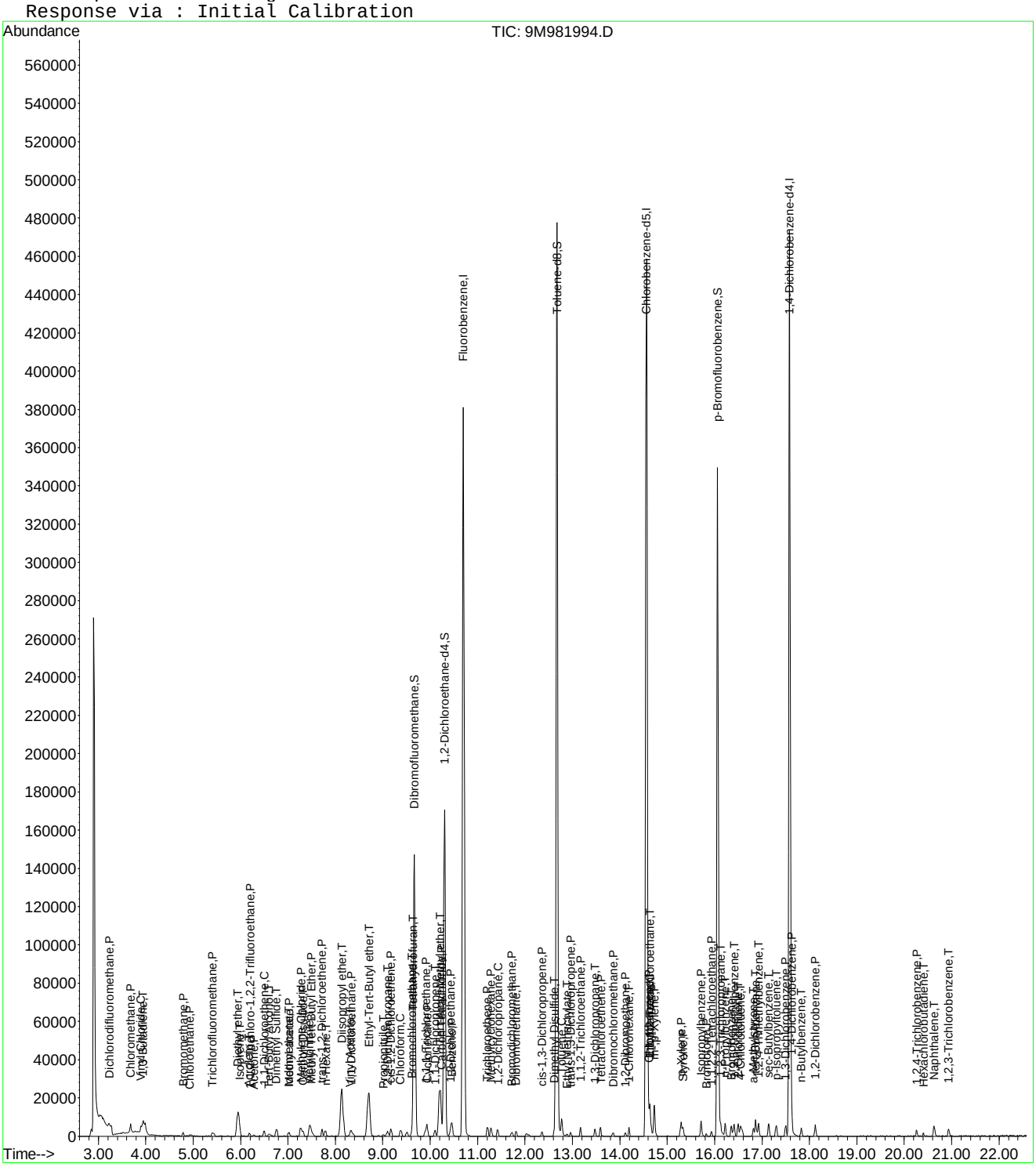
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
47)	Trichloroethene	11.21	130	2417	0.8828 ug/L		94
48)	Methylcyclohexane	11.28	83	3254	0.7980 ug/L		96
49)	1,2-Dichloropropane	11.43	63	2549	0.8929 ug/L	#	68
51)	Bromodichloromethane	11.72	83	2767	0.8065 ug/L	#	94
52)	Dibromomethane	11.81	174	1483	0.7898 ug/L		85
55)	cis-1,3-Dichloropropene	12.36	75	2807	0.7336 ug/L	#	65
56)	Dimethyl Disulfide	12.62	79	817	3.7116 ug/L	#	1
59)	Toluene	12.77	91	9708	0.9435 ug/L		97
60)	Ethyl Methacrylate	12.89	69	770	1.6137 ug/L	#	57
61)	trans-1,3-Dichloropropene	12.96	75	2454	0.7110 ug/L	#	49
62)	1,1,2-Trichloroethane	13.17	97	2280	0.9023 ug/L		99
64)	1,3-Dichloropropane	13.48	76	3712	0.8960 ug/L		97
65)	Tetrachloroethene	13.60	164	2053	0.9849 ug/L		85
66)	Dibromochloromethane	13.86	129	2308	0.7825 ug/L		92
67)	1,2-Dibromoethane	14.12	107	2023	0.7553 ug/L		97
68)	1-Chlorohexane	14.19	91	2163	0.7678 ug/L		99
69)	Chlorobenzene	14.62	112	6854	0.9603 ug/L		95
70)	1,1,1,2-Tetrachloroethane	14.64	131	2454	0.8813 ug/L		99
71)	Ethylbenzene	14.64	106	3171	0.8430 ug/L		100
72)	m-,p-Xylene	14.73	106	7771	1.7464 ug/L		88
73)	o-Xylene	15.29	106	3824	0.8302 ug/L		97
74)	Styrene	15.33	104	4470	1.2723 ug/L		92
75)	Bromoform	15.83	173	1400	1.9512 ug/L	#	60
76)	Isopropylbenzene	15.71	105	9854	0.8521 ug/L		95
78)	1,1,2,2-Tetrachloroethane	15.94	83	2953	0.8583 ug/L	#	91
80)	1,2,3-Trichloropropane	16.13	110	810	0.7011 ug/L	#	1
82)	n-Propylbenzene	16.22	91	10248	0.8869 ug/L		91
83)	Bromobenzene	16.36	156	2672	0.9150 ug/L		64
84)	1,3,5-Trimethylbenzene	16.41	105	8231	0.9196 ug/L		91
85)	2-Chlorotoluene	16.49	91	7730	1.0118 ug/L		81
86)	4-Chlorotoluene	16.55	91	5356	0.7886 ug/L		93
87)	a-Methylstyrene	16.81	118	3273	0.6897 ug/L		86
88)	tert-Butylbenzene	16.86	134	1553	0.8062 ug/L		78
89)	1,2,4-Trimethylbenzene	16.93	105	8182	0.8816 ug/L		79
90)	sec-Butylbenzene	17.14	105	9319	0.8554 ug/L		93
91)	p-Isopropyltoluene	17.30	119	6959	0.7663 ug/L		93
92)	1,3-Dichlorobenzene	17.50	146	4328	0.8384 ug/L		84
93)	1,4-Dichlorobenzene	17.62	146	4767	0.8916 ug/L		86
94)	n-Butylbenzene	17.82	91	4833	1.1803 ug/L	#	78
95)	1,2-Dichlorobenzene	18.12	146	4897	0.8766 ug/L		89
97)	1,2,4-Trichlorobenzene	20.26	180	2523	1.2525 ug/L	#	86
98)	Hexachlorobutadiene	20.41	225	923	1.1541 ug/L		87
99)	Naphthalene	20.63	128	8783	0.9848 ug/L		90
100)	1,2,3-Trichlorobenzene	20.94	180	2800	0.7312 ug/L		95

(#) = qualifier out of range (m) = manual integration
9M981994.D 8260C.M Tue Aug 15 10:01:17 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981994.D Vial: 6
Acq On : 14 Aug 2017 11:44 Operator: ADC
Sample : WG625140-03 1ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\081417\9M981994.D Vial: 6
Acq On : 14 Aug 2017 11:44 Operator: ADC
Sample : WG625140-03 1ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	100	0.00
2	P	Dichlorodifluoromethane	-1.0000	0.7032	0.0	100	0.00
3	P	Chloromethane	1.0000	1.2171	-21.7	100	0.00
4	C	Vinyl Chloride	1.0000	0.9016	9.8	100	0.00
5	T	1,3-Butadiene	1.0000	0.8391	16.1	100	0.00
6	P	Bromomethane	1.0000	1.0961	-9.6	100	0.01
7	P	Chloroethane	1.0000	0.8280	17.2	100	0.00
8	P	Trichlorofluoromethane	1.0000	0.8534	14.7	100	0.00
9	T	Diethyl ether	5.0000	4.9143	1.7	100	0.00
10	T	Isoprene	1.0000	0.8181	18.2	100	0.01
11	T	Acrolein	-1.0000	1.4386	0.0	100	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	-1.0000	0.6664	0.0	100	0.02
13	P	Acetone	-1.0000	1.0952	0.0	100	0.00
14	C	1,1-Dichloroethene	1.0000	0.9725	2.8	100	0.01
15	T	Tert-Butyl Alcohol	10.0000	8.2128	17.9	100	0.00
16	T	Dimethyl Sulfide	1.0000	0.7813	21.9	100	0.00
17	T	Iodomethane	-1.0000	0.5938	0.0	100	0.01
18	P	Methyl acetate	1.0000	0.9598	4.0	100	0.01
19	P	Methylene Chloride	1.0000	0.9130	8.7	100	0.00
20	P	Carbon Disulfide	1.0000	0.9242	7.6	100	0.00
21	T	Acrylonitrile	2.5000	2.2491	10.0	100	0.00
22	P	Methyl Tert Butyl Ether	1.0000	0.9574	4.3	100	0.01
23	P	trans-1,2-Dichloroethene	1.0000	0.9627	3.7	100	0.00
24	T	n-Hexane	-1.0000	0.7721	0.0	100	0.01
25	T	Diisopropyl ether	5.0000	4.7115	5.8	100	0.01
26	T	Vinyl Acetate	-1.0000	0.6867	0.0	100	0.00
27	P	1,1-Dichloroethane	1.0000	0.8771	12.3	100	0.00
28	T	Ethyl-Tert-Butyl ether	5.0000	4.6083	7.8	100	0.00
29	P	2-Butanone	-1.0000	0.3109	0.0	100	0.02
30	T	Propionitrile	5.0000	5.9642	-19.3	100	0.01
31	T	2,2-Dichloropropane	1.0000	1.0120	-1.2	100	0.00
32	P	cis-1,2-Dichloroethene	1.0000	0.8298	17.0	100	0.00
33	C	Chloroform	1.0000	0.9261	7.4	100	0.00
34	T	1-Bromopropane	-1.0000	0.0000	0.0	0	-9.52#
35	T	Bromochloromethane	1.0000	0.8047	19.5	100	0.00
36	T	Tetrahydrofuran	5.0000	4.4603	10.8	100	0.00
37	S	Dibromofluoromethane	50.0000	48.6651	2.7	100	0.00
38	P	1,1,1-Trichloroethane	1.0000	0.9144	8.6	100	0.00
39	P	Cyclohexane	-1.0000	0.8676	0.0	100	0.00
40	T	1,1-Dichloropropene	1.0000	0.9144	8.6	100	0.00
41	T	Tert-Amyl-Methyl ether	5.0000	4.4638	10.7	100	0.00
42	P	Carbon Tetrachloride	1.0000	0.8545	14.6	100	0.00
43	S	1,2-Dichloroethane-d4	50.0000	50.3152	-0.6	100	0.00
44		Heptane	-1.0000	0.0000	0.0	100	0.00
45	P	1,2-Dichloroethane	1.0000	0.9286	7.1	100	0.00
46	P	Benzene	1.0000	0.9689	3.1	100	0.00
47	P	Trichloroethene	1.0000	0.8828	11.7	100	0.00
48	P	Methylcyclohexane	-1.0000	0.7980	0.0	100	0.00
49	C	1,2-Dichloropropane	1.0000	0.8929	10.7	100	0.01
50	T	1,4-Dioxane	-1.0000	0.0000	0.0	0	-11.71#
51	P	Bromodichloromethane	1.0000	0.8065	19.3	100	0.00
52	T	Dibromomethane	1.0000	0.7898	21.0	100	0.00
53	T	2-Chloroethyl Vinyl Ether	-1.0000	0.2209	0.0	0	0.01
54	P	4-Methyl-2-Pentanone	-1.0000	0.0000	0.0	0	-12.05#

(#) = Out of Range
9M981994.D 8260C.M Tue Aug 15 09:56:16 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M981994.D Vial: 6
Acq On : 14 Aug 2017 11:44 Operator: ADC
Sample : WG625140-03 1ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	1.0000	0.7336	26.6#	100	0.00
56	T	Dimethyl Disulfide	-1.0000	3.7116	0.0	0	0.00
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	100	0.00
58	S	Toluene-d8	50.0000	50.1379	-0.3	100	0.00
59	C	Toluene	1.0000	0.9435	5.6	100	0.00
60	T	Ethyl Methacrylate	-1.0000	1.6137	0.0	0	0.01
61	P	trans-1,3-Dichloropropene	1.0000	0.7110	28.9#	100	0.01
62	P	1,1,2-Trichloroethane	1.0000	0.9023	9.8	100	0.00
63	P	2-Hexanone	-1.0000	0.0000	0.0	0	-13.10#
64	T	1,3-Dichloropropane	1.0000	0.8960	10.4	100	0.00
65	P	Tetrachloroethene	1.0000	0.9849	1.5	100	0.01
66	P	Dibromochloromethane	1.0000	0.7825	21.7	100	0.00
67	P	1,2-Dibromoethane	1.0000	0.7553	24.5	100	0.00
68	T	1-Chlorohexane	1.0000	0.7678	23.2	100	0.00
69	P	Chlorobenzene	1.0000	0.9603	4.0	100	0.00
70	T	1,1,1,2-Tetrachloroethane	1.0000	0.8813	11.9	100	0.00
71	C	Ethylbenzene	1.0000	0.8430	15.7	100	0.00
72	P	m-,p-Xylene	2.0000	1.7464	12.7	100	0.00
73	P	o-Xylene	1.0000	0.8302	17.0	100	0.00
74	P	Styrene	1.0000	1.2723	-27.2#	100	0.00
75	P	Bromoform	-1.0000	1.9512	0.0	100	0.00
76	P	Isopropylbenzene	1.0000	0.8521	14.8	100	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	100	0.00
78	P	1,1,2,2-Tetrachloroethane	1.0000	0.8583	14.2	100	0.00
79	S	p-Bromofluorobenzene	50.0000	51.5446	-3.1	100	0.00
80	T	1,2,3-Trichloropropane	1.0000	0.7011	29.9#	100	0.00
81	T	trans-1,4-Dichloro-2-Butene	-1.0000	0.0000	0.0	0	-16.17#
82	T	n-Propylbenzene	1.0000	0.8869	11.3	100	0.00
83	T	Bromobenzene	1.0000	0.9151	8.5	100	0.00
84	T	1,3,5-Trimethylbenzene	1.0000	0.9196	8.0	100	0.00
85	T	2-Chlorotoluene	1.0000	1.0118	-1.2	100	0.00
86	T	4-Chlorotoluene	1.0000	0.7886	21.1	100	0.00
87	T	a-Methylstyrene	-1.0000	0.6897	0.0	0	0.00
88	T	tert-Butylbenzene	1.0000	0.8062	19.4	100	0.00
89	T	1,2,4-Trimethylbenzene	1.0000	0.8816	11.8	100	0.00
90	T	sec-Butylbenzene	1.0000	0.8554	14.5	100	0.00
91	T	p-Isopropyltoluene	1.0000	0.7663	23.4	100	0.00
92	P	1,3-Dichlorobenzene	1.0000	0.8384	16.2	100	0.00
93	P	1,4-Dichlorobenzene	1.0000	0.8916	10.8	100	0.00
94	T	n-Butylbenzene	1.0000	1.1803	-18.0	100	0.00
95	P	1,2-Dichlorobenzene	1.0000	0.8766	12.3	100	0.00
96	P	1,2-Dibromo-3-Chloropropane	-1.0000	0.0000	0.0	0	-19.12#
97	P	1,2,4-Trichlorobenzene	1.0000	1.2525	-25.3#	100	0.00
98	T	Hexachlorobutadiene	1.0000	1.1541	-15.4	100	0.00
99	T	Naphthalene	1.0000	0.9848	1.5	100	0.00
100	T	1,2,3-Trichlorobenzene	1.0000	0.7312	26.9#	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981995.D Vial: 7
Acq On : 14 Aug 2017 12:14 Operator: ADC
Sample : WG625140-06 20ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:18 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	462190	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	354778	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	176050	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	131158	50.6817 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 101.36%		
43) 1,2-Dichloroethane-d4	10.31	65	152033	50.2952 ug/L	0.01
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.60%		
58) Toluene-d8	12.67	98	445978	51.0613 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 102.12%		
79) p-Bromofluorobenzene	16.06	95	164572	52.7203 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 105.44%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.23	85	72607	21.4649 ug/L	100
3) Chloromethane	3.68	50	90275	19.4556 ug/L	100
4) Vinyl Chloride	3.90	62	70830	21.4735 ug/L	99
5) 1,3-Butadiene	3.94	54	26409	21.7472 ug/L	97
6) Bromomethane	4.79	94	38214	18.8419 ug/L	100
7) Chloroethane	4.94	64	40151	20.9406 ug/L	99
8) Trichlorofluoromethane	5.42	101	86730	20.4105 ug/L	99
9) Diethyl ether	5.94	59	200535	76.2022 ug/L	99
10) Isoprene	5.98	67	70390	20.3335 ug/L	98
11) Acrolein	6.18	56	17065	38.5048 ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	45733	20.4966 ug/L	98
13) Acetone	6.28	43	28832	20.5283 ug/L	98
14) 1,1-Dichloroethene	6.50	61	79279	19.8368 ug/L	96
15) Tert-Butyl Alcohol	6.61	59	69533	143.4796 ug/L	100
16) Dimethyl Sulfide	6.76	62	64624	20.6688 ug/L	98
17) Iodomethane	7.02	142	59285	19.3849 ug/L	98
18) Methyl acetate	7.03	43	72544	20.1082 ug/L	99
19) Methylene Chloride	7.27	84	53176	20.3418 ug/L	98
20) Carbon Disulfide	7.31	76	130118	19.9575 ug/L	99
21) Acrylonitrile	7.46	53	65047	38.3429 ug/L	100
22) Methyl Tert Butyl Ether	7.48	73	162487	19.8376 ug/L	100
23) trans-1,2-Dichloroethene	7.72	61	73639	19.8303 ug/L	99
24) n-Hexane	7.79	57	66361	18.9623 ug/L	99
25) Diisopropyl ether	8.13	45	785039	78.1374 ug/L	100
26) Vinyl Acetate	8.30	43	121980	19.4159 ug/L	98
27) 1,1-Dichloroethane	8.33	63	100723	20.4257 ug/L	99
28) Ethyl-Tert-Butyl ether	8.70	59	710238	77.3519 ug/L	100
29) 2-Butanone	8.89	43	42286	20.2162 ug/L	100
30) Propionitrile	9.00	54	50032	71.6702 ug/L	99
31) 2,2-Dichloropropane	9.10	77	71434	19.8915 ug/L	100
32) cis-1,2-Dichloroethene	9.17	96	55166	20.8414 ug/L	98
33) Chloroform	9.38	83	92219	20.9482 ug/L	98
34) 1-Bromopropane	9.52	122	9895	19.8934 ug/L	98
35) Bromochloromethane	9.61	130	38498	20.2953 ug/L	98
36) Tetrahydrofuran	9.63	42	100409	77.0702 ug/L	99
38) 1,1,1-Trichloroethane	9.91	97	81641	20.2131 ug/L	100
39) Cyclohexane	9.94	56	100072	19.7325 ug/L	99
40) 1,1-Dichloropropene	10.10	75	61224	20.0537 ug/L	99
41) Tert-Amyl-Methyl ether	10.20	73	591991	77.7064 ug/L	99
42) Carbon Tetrachloride	10.24	117	74006	20.2630 ug/L	100

(#) = qualifier out of range (m) = manual integration
9M981995.D 8260C.M Tue Aug 15 10:01:18 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981995.D Vial: 7
Acq On : 14 Aug 2017 12:14 Operator: ADC
Sample : WG625140-06 20ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:18 2017 Quant Results File: 8260C.RES

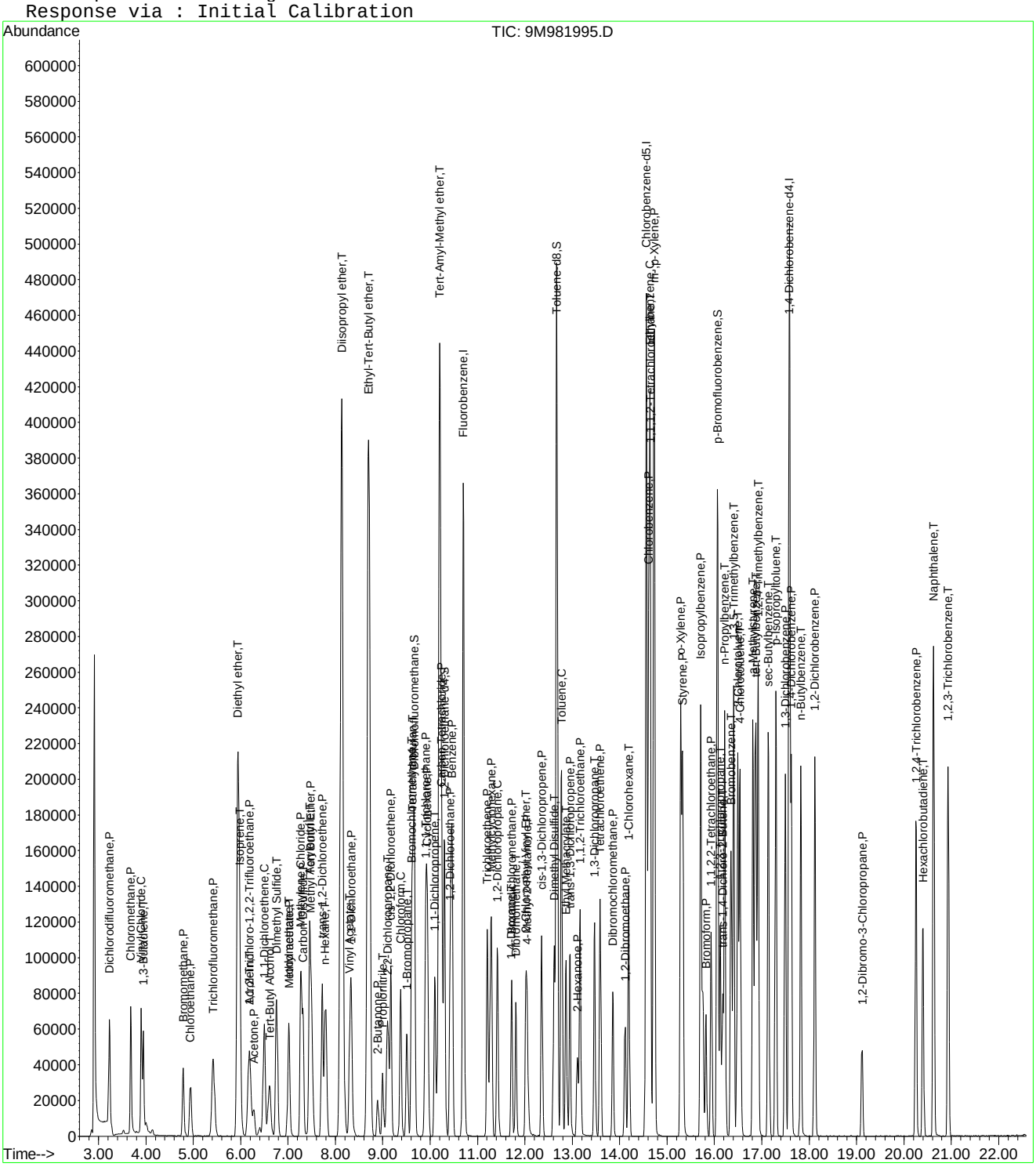
Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	86287	20.2967 ug/L		99
46)	Benzene	10.46	78	204278	20.1134 ug/L		99
47)	Trichloroethene	11.20	130	54898	20.3473 ug/L		97
48)	Methylcyclohexane	11.29	83	78861	19.6255 ug/L		99
49)	1,2-Dichloropropane	11.42	63	57213	20.3375 ug/L		100
50)	1,4-Dioxane	11.71	88	7138	147.9604 ug/L		89
51)	Bromodichloromethane	11.72	83	67677	20.0185 ug/L		99
52)	Dibromomethane	11.81	174	38160	20.6244 ug/L		98
53)	2-Chloroethyl Vinyl Ether	12.02	63	42851	19.2527 ug/L		98
54)	4-Methyl-2-Pentanone	12.05	58	31755	18.8953 ug/L		98
55)	cis-1,3-Dichloropropene	12.35	75	78284	20.7610 ug/L		98
56)	Dimethyl Disulfide	12.62	79	38079	17.3029 ug/L		84
59)	Toluene	12.78	91	211350	20.5626 ug/L		98
60)	Ethyl Methacrylate	12.87	69	71161	17.9718 ug/L		99
61)	trans-1,3-Dichloropropene	12.96	75	71305	20.6820 ug/L		98
62)	1,1,2-Trichloroethane	13.17	97	52201	20.6808 ug/L		100
63)	2-Hexanone	13.10	43	53767	18.5116 ug/L	#	83
64)	1,3-Dichloropropane	13.47	76	84584	20.4379 ug/L		97
65)	Tetrachloroethene	13.59	164	40868	19.6272 ug/L		98
66)	Dibromochloromethane	13.85	129	60004	20.3654 ug/L		98
67)	1,2-Dibromoethane	14.12	107	55246	20.6487 ug/L		99
68)	1-Chlorohexane	14.19	91	57205	20.3275 ug/L		99
69)	Chlorobenzene	14.61	112	144615	20.2831 ug/L		97
70)	1,1,1,2-Tetrachloroethane	14.64	131	56814	20.4260 ug/L		100
71)	Ethylbenzene	14.63	106	77064	20.5082 ug/L		97
72)	m-,p-Xylene	14.73	106	190636	42.8882 ug/L		97
73)	o-Xylene	15.29	106	95507	20.7560 ug/L		100
74)	Styrene	15.33	104	150619	18.0497 ug/L		100
75)	Bromoform	15.83	173	44766	17.1672 ug/L		99
76)	Isopropylbenzene	15.71	105	239590	20.7404 ug/L		100
78)	1,1,2,2-Tetrachloroethane	15.93	83	75374	21.0071 ug/L		99
80)	1,2,3-Trichloropropane	16.12	110	25481	21.1487 ug/L		89
81)	trans-1,4-Dichloro-2-Buten	16.17	53	26525	19.9448 ug/L		86
82)	n-Propylbenzene	16.22	91	262895	21.8153 ug/L		100
83)	Bromobenzene	16.35	156	64900	21.3116 ug/L		99
84)	1,3,5-Trimethylbenzene	16.41	105	204940	21.9554 ug/L		97
85)	2-Chlorotoluene	16.49	91	165260	20.7415 ug/L		89
86)	4-Chlorotoluene	16.54	91	161665	22.8251 ug/L		91
87)	a-Methylstyrene	16.81	118	101966	20.6030 ug/L		99
88)	tert-Butylbenzene	16.87	134	43618	21.7123 ug/L		99
89)	1,2,4-Trimethylbenzene	16.92	105	212865	21.9939 ug/L		100
90)	sec-Butylbenzene	17.14	105	249647	21.9720 ug/L		99
91)	p-Isopropyltoluene	17.29	119	212438	22.4310 ug/L		98
92)	1,3-Dichlorobenzene	17.49	146	113648	21.1091 ug/L		99
93)	1,4-Dichlorobenzene	17.62	146	114924	20.6115 ug/L		98
94)	n-Butylbenzene	17.82	91	165400	18.9170 ug/L		99
95)	1,2-Dichlorobenzene	18.12	146	122954	21.1050 ug/L		98
96)	1,2-Dibromo-3-Chloropropan	19.12	157	19618	18.7116 ug/L		96
97)	1,2,4-Trichlorobenzene	20.26	180	78568	18.5689 ug/L		99
98)	Hexachlorobutadiene	20.41	225	33593	17.8716 ug/L		97
99)	Naphthalene	20.63	128	291834	21.5082 ug/L		99
100)	1,2,3-Trichlorobenzene	20.93	180	87912	22.0143 ug/L		100

(#) = qualifier out of range (m) = manual integration
9M981995.D 8260C.M Tue Aug 15 10:01:18 2017 Page 2

Data File : C:\MSDCHEM\1\DATA\081417\9M981995.D Vial: 7
Acq On : 14 Aug 2017 12:14 Operator: ADC
Sample : WG625140-06 20ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981996.D Vial: 8
Acq On : 14 Aug 2017 12:44 Operator: ADC
Sample : WG625140-07 50ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:19 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	467532	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	362100	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	186814	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.67	111	133166	50.8696 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 101.74%		
43) 1,2-Dichloroethane-d4	10.30	65	152705	49.9403 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.88%		
58) Toluene-d8	12.67	98	447907	50.2452 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 100.50%		
79) p-Bromofluorobenzene	16.06	95	164352	49.6162 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 99.24%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.23	85	187929	54.9228 ug/L	100
3) Chloromethane	3.69	50	240724	51.2867 ug/L	100
4) Vinyl Chloride	3.90	62	183919	55.1215 ug/L	99
5) 1,3-Butadiene	3.95	54	68089	55.4290 ug/L	98
6) Bromomethane	4.79	94	98582	48.0517 ug/L	100
7) Chloroethane	4.94	64	108202	55.7876 ug/L	100
8) Trichlorofluoromethane	5.42	101	229158	53.3124 ug/L	99
9) Diethyl ether	5.94	59	269192	101.1227 ug/L	99
10) Isoprene	5.98	67	192096	54.8566 ug/L	100
11) Acrolein	6.18	56	23495	52.4075 ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	119862	53.1060 ug/L	100
13) Acetone	6.28	43	70847	49.8666 ug/L	99
14) 1,1-Dichloroethene	6.50	61	213252	52.7491 ug/L	98
15) Tert-Butyl Alcohol	6.62	59	98080	200.0732 ug/L	99
16) Dimethyl Sulfide	6.76	62	170545	53.9224 ug/L	99
17) Iodomethane	7.02	142	166516	53.8249 ug/L	100
18) Methyl acetate	7.03	43	187778	51.4546 ug/L	99
19) Methylene Chloride	7.27	84	137841	52.1269 ug/L	98
20) Carbon Disulfide	7.31	76	353465	53.5951 ug/L	100
21) Acrylonitrile	7.46	53	92012	53.6180 ug/L	98
22) Methyl Tert Butyl Ether	7.48	73	430298	51.9337 ug/L	99
23) trans-1,2-Dichloroethene	7.72	61	196603	52.3384 ug/L	100
24) n-Hexane	7.79	57	185509	52.4027 ug/L	99
25) Diisopropyl ether	8.14	45	1045382	102.8613 ug/L	100
26) Vinyl Acetate	8.30	43	324691	51.0915 ug/L	100
27) 1,1-Dichloroethane	8.34	63	267800	53.6868 ug/L	100
28) Ethyl-Tert-Butyl ether	8.71	59	954230	102.7375 ug/L	100
29) 2-Butanone	8.88	43	106859	50.5036 ug/L	98
30) Propionitrile	9.00	54	69348	96.9116 ug/L	98
31) 2,2-Dichloropropane	9.11	77	187353	51.5741 ug/L	98
32) cis-1,2-Dichloroethene	9.17	96	145542	54.3566 ug/L	100
33) Chloroform	9.38	83	241443	54.2188 ug/L	99
34) 1-Bromopropane	9.52	122	27084	53.8289 ug/L	97
35) Bromochloromethane	9.61	130	102972	53.6643 ug/L	99
36) Tetrahydrofuran	9.63	42	136247	103.3831 ug/L	99
38) 1,1,1-Trichloroethane	9.91	97	219366	53.6913 ug/L	99
39) Cyclohexane	9.94	56	266014	51.8540 ug/L	100
40) 1,1-Dichloropropene	10.10	75	168701	54.6261 ug/L	99
41) Tert-Amyl-Methyl ether	10.20	73	794022	103.0347 ug/L	99
42) Carbon Tetrachloride	10.25	117	199929	54.1154 ug/L	100

(#) = qualifier out of range (m) = manual integration
9M981996.D 8260C.M Tue Aug 15 10:01:19 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981996.D Vial: 8
Acq On : 14 Aug 2017 12:44 Operator: ADC
Sample : WG625140-07 50ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:19 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

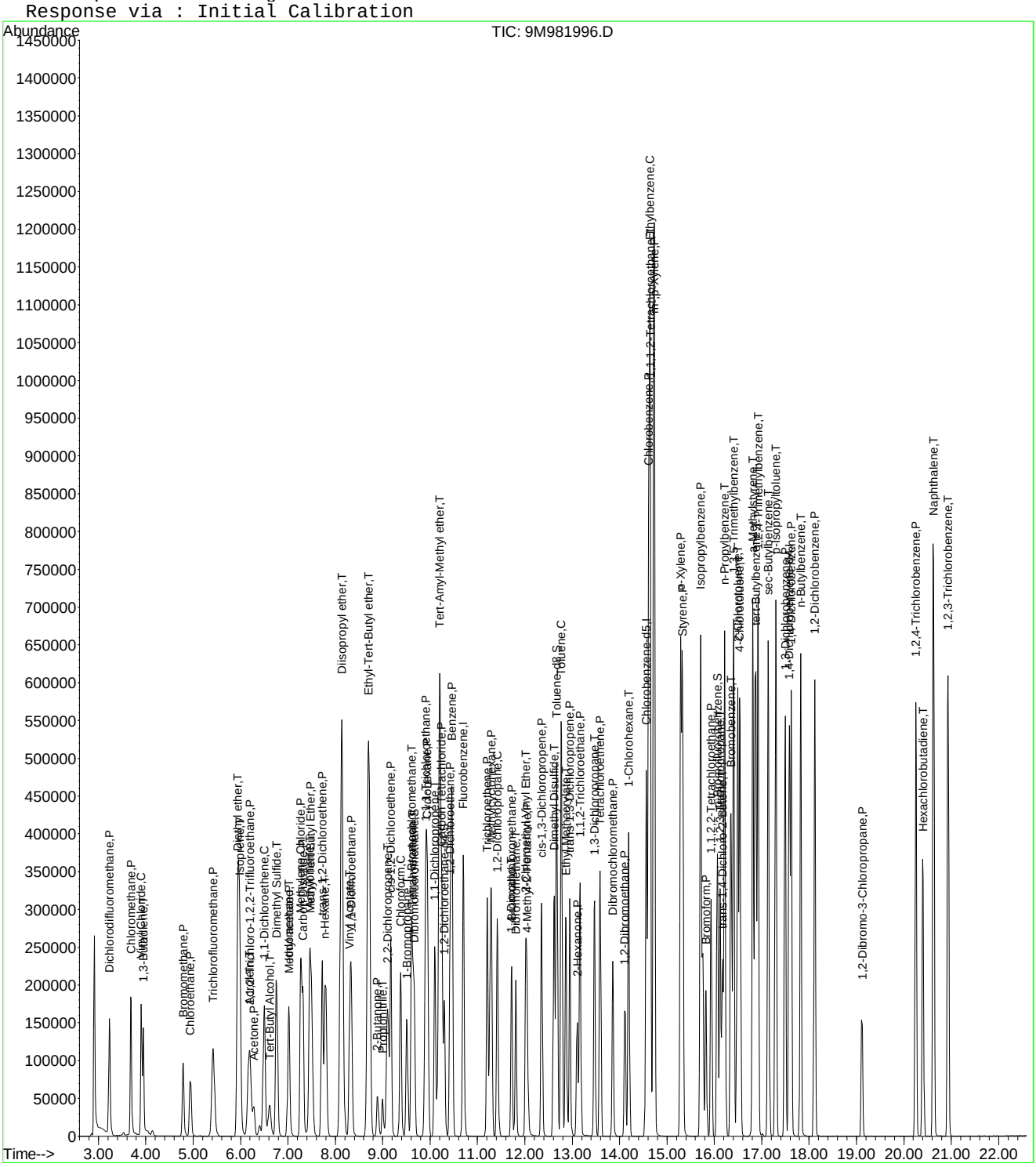
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
45)	1,2-Dichloroethane	10.43	62	223741	52.0278	ug/L		100
46)	Benzene	10.46	78	530801	51.6659	ug/L		100
47)	Trichloroethene	11.21	130	147386	54.0027	ug/L		98
48)	Methylcyclohexane	11.29	83	210823	51.8662	ug/L		99
49)	1,2-Dichloropropane	11.42	63	153783	54.0407	ug/L		100
50)	1,4-Dioxane	11.71	88	9850	190.2603	ug/L		95
51)	Bromodichloromethane	11.72	83	185897	54.3591	ug/L		100
52)	Dibromomethane	11.81	174	102983	55.0236	ug/L		98
53)	2-Chloroethyl Vinyl Ether	12.02	63	114911	51.0389	ug/L		99
54)	4-Methyl-2-Pentanone	12.05	58	86422	50.8366	ug/L		98
55)	cis-1,3-Dichloropropene	12.36	75	216522	56.7658	ug/L		99
56)	Dimethyl Disulfide	12.62	79	119337	46.4352	ug/L		99
59)	Toluene	12.77	91	558519	53.2405	ug/L		100
60)	Ethyl Methacrylate	12.87	69	205889	48.3132	ug/L		99
61)	trans-1,3-Dichloropropene	12.95	75	208913	59.3700	ug/L		99
62)	1,1,2-Trichloroethane	13.17	97	138018	53.5737	ug/L		100
63)	2-Hexanone	13.11	43	157000	46.5776	ug/L	#	83
64)	1,3-Dichloropropane	13.47	76	225263	53.3292	ug/L		99
65)	Tetrachloroethene	13.59	164	113407	53.3632	ug/L		99
66)	Dibromochloromethane	13.85	129	167353	55.6513	ug/L		97
67)	1,2-Dibromoethane	14.11	107	152646	55.8992	ug/L		100
68)	1-Chlorohexane	14.19	91	164819	57.3833	ug/L		100
69)	Chlorobenzene	14.61	112	390202	53.6214	ug/L		100
70)	1,1,1,2-Tetrachloroethane	14.65	131	154624	54.4670	ug/L		99
71)	Ethylbenzene	14.64	106	209466	54.6158	ug/L		98
72)	m-,p-Xylene	14.73	106	514779	113.4702	ug/L		99
73)	o-Xylene	15.29	106	256126	54.5370	ug/L		99
74)	Styrene	15.33	104	427348	48.8242	ug/L		99
75)	Bromoform	15.83	173	129787	46.0769	ug/L		99
76)	Isopropylbenzene	15.71	105	650121	55.1406	ug/L		100
78)	1,1,2,2-Tetrachloroethane	15.93	83	211481	55.5448	ug/L		99
80)	1,2,3-Trichloropropane	16.12	110	71412	55.8553	ug/L		97
81)	trans-1,4-Dichloro-2-Buten	16.17	53	73828	52.3144	ug/L		93
82)	n-Propylbenzene	16.22	91	727029	56.8536	ug/L		100
83)	Bromobenzene	16.36	156	173792	53.7810	ug/L		98
84)	1,3,5-Trimethylbenzene	16.41	105	552197	55.7489	ug/L		100
85)	2-Chlorotoluene	16.49	91	457667	54.1313	ug/L		91
86)	4-Chlorotoluene	16.54	91	435558	57.9522	ug/L		91
87)	a-Methylstyrene	16.81	118	302477	57.5961	ug/L		99
88)	tert-Butylbenzene	16.87	134	116743	54.7644	ug/L		89
89)	1,2,4-Trimethylbenzene	16.93	105	576835	56.1665	ug/L		100
90)	sec-Butylbenzene	17.14	105	691464	57.3508	ug/L		100
91)	p-Isopropyltoluene	17.30	119	588233	58.5319	ug/L		100
92)	1,3-Dichlorobenzene	17.50	146	319317	55.8929	ug/L		100
93)	1,4-Dichlorobenzene	17.62	146	317078	53.5910	ug/L		99
94)	n-Butylbenzene	17.82	91	493440	52.0554	ug/L		99
95)	1,2-Dichlorobenzene	18.12	146	341286	55.2061	ug/L		100
96)	1,2-Dibromo-3-Chloropropan	19.12	157	61548	52.7825	ug/L		99
97)	1,2,4-Trichlorobenzene	20.25	180	240363	52.3059	ug/L		100
98)	Hexachlorobutadiene	20.41	225	104638	51.1811	ug/L		99
99)	Naphthalene	20.63	128	855520	58.8553	ug/L		100
100)	1,2,3-Trichlorobenzene	20.94	180	260694	61.5197	ug/L		99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981996.D Vial: 8
Acq On : 14 Aug 2017 12:44 Operator: ADC
Sample : WG625140-07 50ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981997.D Vial: 9
Acq On : 14 Aug 2017 13:14 Operator: ADC
Sample : WG625140-08 100ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:19 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	524098	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	411214	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	235373	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	147069	50.1170	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 100.24%			
43) 1,2-Dichloroethane-d4	10.30	65	168392	49.1268	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 98.26%			
58) Toluene-d8	12.67	98	491835	48.5833	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 97.16%			
79) p-Bromofluorobenzene	16.06	95	192329	46.0835	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 92.16%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.23	85	393487	102.5860	ug/L	99
3) Chloromethane	3.68	50	465873	88.5425	ug/L	99
4) Vinyl Chloride	3.90	62	357232	95.5089	ug/L	100
5) 1,3-Butadiene	3.93	54	136973	99.4703	ug/L	98
6) Bromomethane	4.78	94	213941	93.0260	ug/L	100
7) Chloroethane	4.93	64	234034	107.6416	ug/L	100
8) Trichlorofluoromethane	5.41	101	494382	102.6018	ug/L	99
9) Diethyl ether	5.94	59	589863	197.6680	ug/L	99
10) Isoprene	5.97	67	418185	106.5314	ug/L	100
11) Acrolein	6.17	56	52047	103.5649	ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	259410	102.5292	ug/L	99
13) Acetone	6.28	43	152101	95.5035	ug/L	99
14) 1,1-Dichloroethene	6.49	61	463523	102.2804	ug/L	99
15) Tert-Butyl Alcohol	6.61	59	225464	410.2840	ug/L	99
16) Dimethyl Sulfide	6.75	62	369876	104.3243	ug/L	100
17) Iodomethane	7.00	142	365166	105.2972	ug/L	98
18) Methyl acetate	7.01	43	409739	100.1581	ug/L	100
19) Methylene Chloride	7.27	84	304211	102.6259	ug/L	98
20) Carbon Disulfide	7.31	76	755920	102.2476	ug/L	100
21) Acrylonitrile	7.46	53	202406	105.2177	ug/L	99
22) Methyl Tert Butyl Ether	7.48	73	949625	102.2424	ug/L	99
23) trans-1,2-Dichloroethene	7.71	61	432867	102.7977	ug/L	100
24) n-Hexane	7.79	57	404501	101.9311	ug/L	99
25) Diisopropyl ether	8.13	45	2263831	198.7101	ug/L	99
26) Vinyl Acetate	8.30	43	714040	100.2304	ug/L	100
27) 1,1-Dichloroethane	8.33	63	578772	103.5054	ug/L	100
28) Ethyl-Tert-Butyl ether	8.70	59	2085043	200.2580	ug/L	99
29) 2-Butanone	8.88	43	236298	99.6255	ug/L	97
30) Propionitrile	9.00	54	156295	191.3131	ug/L	100
31) 2,2-Dichloropropane	9.10	77	411663	101.0908	ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	322996	107.6119	ug/L	99
33) Chloroform	9.38	83	526105	105.3918	ug/L	100
34) 1-Bromopropane	9.52	122	58487	103.6958	ug/L	98
35) Bromochloromethane	9.61	130	228925	106.4287	ug/L	98
36) Tetrahydrofuran	9.63	42	305984	207.1192	ug/L	100
38) 1,1,1-Trichloroethane	9.91	97	476804	104.1054	ug/L	100
39) Cyclohexane	9.93	56	569826	99.0875	ug/L	99
40) 1,1-Dichloropropene	10.10	75	377284	108.9807	ug/L	99
41) Tert-Amyl-Methyl ether	10.20	73	1753019	202.9254	ug/L	100
42) Carbon Tetrachloride	10.24	117	445652	107.6068	ug/L	100

(#) = qualifier out of range (m) = manual integration
9M981997.D 8260C.M Tue Aug 15 10:01:20 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M981997.D Vial: 9
Acq On : 14 Aug 2017 13:14 Operator: ADC
Sample : WG625140-08 100ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:19 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

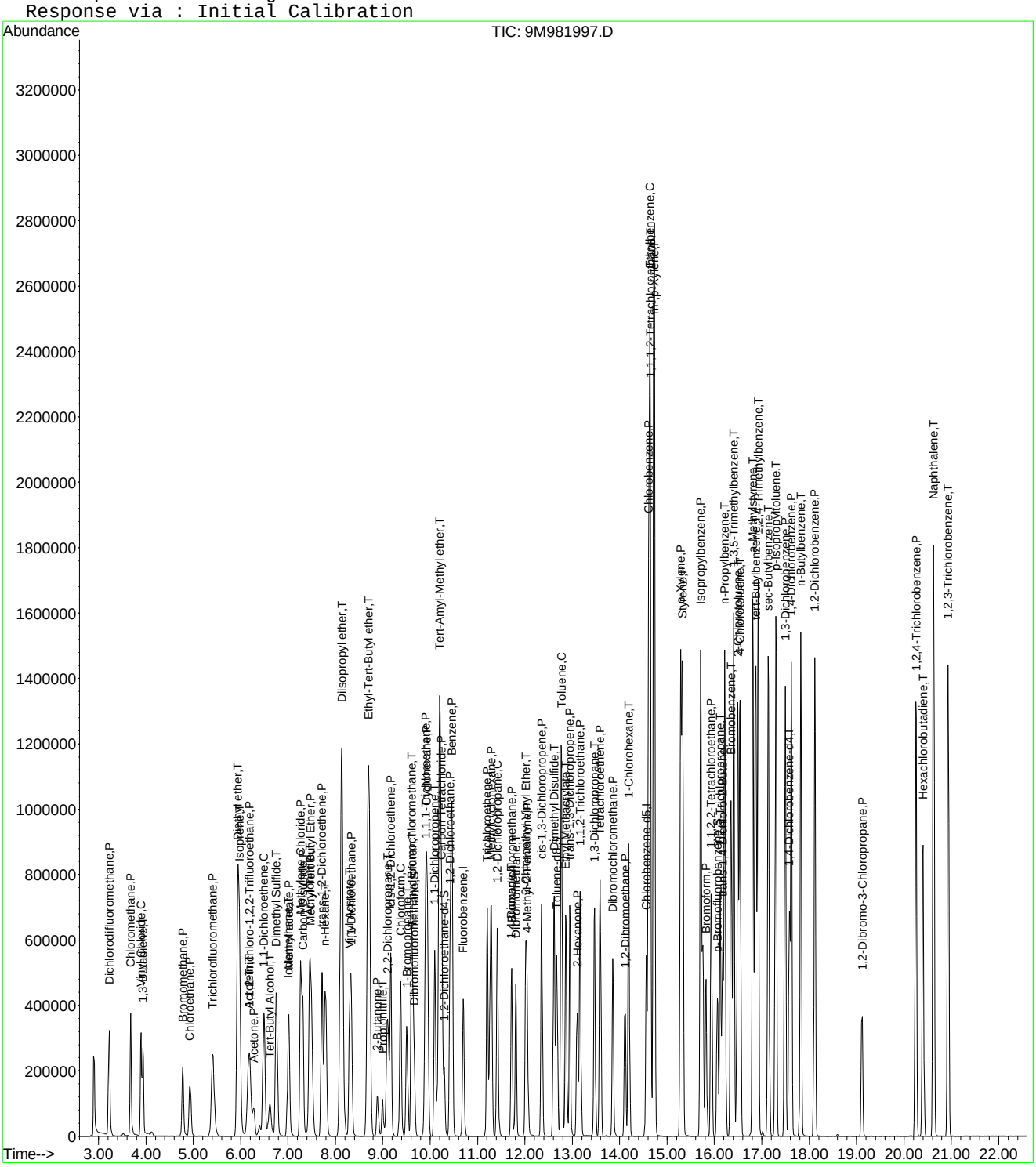
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
45)	1,2-Dichloroethane	10.42	62	492358	102.1338 ug/L	99
46)	Benzene	10.45	78	1154551	100.2499 ug/L	100
47)	Trichloroethene	11.20	130	324026	105.9102 ug/L	98
48)	Methylcyclohexane	11.29	83	453868	99.6082 ug/L	99
49)	1,2-Dichloropropane	11.42	63	336783	105.5751 ug/L	99
50)	1,4-Dioxane	11.71	88	24206	379.1734 ug/L	95
51)	Bromodichloromethane	11.72	83	418086	109.0597 ug/L	99
52)	Dibromomethane	11.81	174	231464	110.3229 ug/L	100
53)	2-Chloroethyl Vinyl Ether	12.02	63	261242	103.5098 ug/L	98
54)	4-Methyl-2-Pentanone	12.05	58	195296	102.4812 ug/L	99
55)	cis-1,3-Dichloropropene	12.35	75	491181	114.8749 ug/L	98
56)	Dimethyl Disulfide	12.62	79	279524	93.3024 ug/L	96
59)	Toluene	12.78	91	1215943	102.0652 ug/L	100
60)	Ethyl Methacrylate	12.86	69	471318	95.9309 ug/L	99
61)	trans-1,3-Dichloropropene	12.95	75	462931	115.8454 ug/L	100
62)	1,1,2-Trichloroethane	13.17	97	307408	105.0731 ug/L	100
63)	2-Hexanone	13.10	43	369751	92.9101 ug/L	100
64)	1,3-Dichloropropane	13.47	76	502791	104.8150 ug/L	100
65)	Tetrachloroethene	13.59	164	250258	103.6933 ug/L	99
66)	Dibromochloromethane	13.85	129	388725	113.8269 ug/L	99
67)	1,2-Dibromoethane	14.12	107	344908	111.2203 ug/L	100
68)	1-Chlorohexane	14.19	91	364255	111.6720 ug/L	99
69)	Chlorobenzene	14.61	112	867135	104.9290 ug/L	99
70)	1,1,1,2-Tetrachloroethane	14.64	131	346637	107.5208 ug/L	99
71)	Ethylbenzene	14.63	106	473163	108.6366 ug/L	95
72)	m-,p-Xylene	14.73	106	1151445	223.4935 ug/L	98
73)	o-Xylene	15.29	106	579368	108.6306 ug/L	98
74)	Styrene	15.33	104	977194	97.5394 ug/L	99
75)	Bromoform	15.83	173	310088	95.3267 ug/L	99
76)	Isopropylbenzene	15.71	105	1447192	108.0847 ug/L	99
78)	1,1,2,2-Tetrachloroethane	15.93	83	494705	103.1267 ug/L	100
80)	1,2,3-Trichloropropane	16.12	110	164687	102.2363 ug/L	92
81)	trans-1,4-Dichloro-2-Buten	16.17	53	176997	99.5449 ug/L	91
82)	n-Propylbenzene	16.22	91	1625824	100.9096 ug/L	99
83)	Bromobenzene	16.35	156	401762	98.6780 ug/L	100
84)	1,3,5-Trimethylbenzene	16.41	105	1255203	100.5794 ug/L	99
85)	2-Chlorotoluene	16.49	91	999503	93.8288 ug/L	91
86)	4-Chlorotoluene	16.54	91	1017685	107.4707 ug/L	90
87)	a-Methylstyrene	16.81	118	710854	107.4320 ug/L	100
88)	tert-Butylbenzene	16.87	134	269390	100.3002 ug/L	89
89)	1,2,4-Trimethylbenzene	16.92	105	1309275	101.1834 ug/L	99
90)	sec-Butylbenzene	17.13	105	1563016	102.8930 ug/L	99
91)	p-Isopropyltoluene	17.29	119	1354148	106.9453 ug/L	99
92)	1,3-Dichlorobenzene	17.49	146	764189	106.1667 ug/L	100
93)	1,4-Dichlorobenzene	17.62	146	780818	104.7438 ug/L	99
94)	n-Butylbenzene	17.82	91	1180765	98.3061 ug/L	100
95)	1,2-Dichlorobenzene	18.12	146	821333	105.4486 ug/L	99
96)	1,2-Dibromo-3-Chloropropan	19.12	157	145271	97.7462 ug/L	100
97)	1,2,4-Trichlorobenzene	20.26	180	570672	97.9878 ug/L	99
98)	Hexachlorobutadiene	20.41	225	256337	98.8898 ug/L	99
99)	Naphthalene	20.63	128	1886247	102.7530 ug/L	99
100)	1,2,3-Trichlorobenzene	20.93	180	598689	112.1339 ug/L	99

(#) = qualifier out of range (m) = manual integration
9M981997.D 8260C.M Tue Aug 15 10:01:20 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981997.D Vial: 9
Acq On : 14 Aug 2017 13:14 Operator: ADC
Sample : WG625140-08 100ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981998.D Vial: 10
Acq On : 14 Aug 2017 13:45 Operator: ADC
Sample : WG625140-09 200ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:20 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	498409	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	406161	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	248332	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.67	111	144860	51.9086 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 103.82%		
43) 1,2-Dichloroethane-d4	10.30	65	164822	50.5637 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.12%		
58) Toluene-d8	12.67	98	489551	48.9593 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 97.92%		
79) p-Bromofluorobenzene	16.06	95	208157	47.2733 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 94.54%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.23	85	791228	216.9133 ug/L	98
3) Chloromethane	3.68	50	857031	171.2802 ug/L	100
4) Vinyl Chloride	3.90	62	686270	192.9367 ug/L	99
5) 1,3-Butadiene	3.94	54	272499	208.0895 ug/L	98
6) Bromomethane	4.78	94	416684	190.5213 ug/L	100
7) Chloroethane	4.93	64	433641	209.7289 ug/L	99
8) Trichlorofluoromethane	5.41	101	982634	214.4424 ug/L	99
10) Isoprene	5.97	67	839883	224.9855 ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	517075	214.9022 ug/L	99
13) Acetone	6.28	43	319285	210.8106 ug/L	100
14) 1,1-Dichloroethene	6.49	61	921643	213.8506 ug/L	100
16) Dimethyl Sulfide	6.75	62	746050	221.2707 ug/L	100
17) Iodomethane	7.01	142	741518	224.8406 ug/L	99
18) Methyl acetate	7.02	43	813296	209.0518 ug/L	99
19) Methylene Chloride	7.27	84	598365	212.2632 ug/L	98
20) Carbon Disulfide	7.31	76	1538505	218.8280 ug/L	100
21) Acrylonitrile	7.48	53	21103	11.5355 ug/L #	30
22) Methyl Tert Butyl Ether	7.48	73	1873349	212.0920 ug/L	99
23) trans-1,2-Dichloroethene	7.71	61	861046	215.0215 ug/L	99
24) n-Hexane	7.79	57	834531	221.1344 ug/L	100
26) Vinyl Acetate	8.30	43	1524577	225.0366 ug/L	99
27) 1,1-Dichloroethane	8.34	63	1146179	215.5434 ug/L	100
29) 2-Butanone	8.88	43	482133	213.7489 ug/L	98
31) 2,2-Dichloropropane	9.11	77	813314	210.0172 ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	640519	224.3994 ug/L	99
33) Chloroform	9.38	83	1039943	219.0638 ug/L	100
34) 1-Bromopropane	9.51	122	118672	221.2466 ug/L	99
35) Bromochloromethane	9.61	130	455230	222.5477 ug/L	97
38) 1,1,1-Trichloroethane	9.91	97	953137	218.8342 ug/L	100
39) Cyclohexane	9.93	56	1154761	211.1521 ug/L	99
40) 1,1-Dichloropropene	10.10	75	748515	227.3570 ug/L	100
42) Carbon Tetrachloride	10.25	117	881632	223.8505 ug/L	99
45) 1,2-Dichloroethane	10.43	62	974611	212.5917 ug/L	99
46) Benzene	10.46	78	2251855	205.6071 ug/L	99
47) Trichloroethene	11.21	130	640089	220.0012 ug/L	99
48) Methylcyclohexane	11.28	83	922157	212.8125 ug/L	100
49) 1,2-Dichloropropane	11.42	63	676279	222.9276 ug/L	99
50) 1,4-Dioxane	11.71	88	765	43.3504 ug/L #	9
51) Bromodichloromethane	11.72	83	843804	231.4552 ug/L	100
52) Dibromomethane	11.81	174	470310	235.7181 ug/L	99

(#) = qualifier out of range (m) = manual integration
9M981998.D 8260C.M Tue Aug 15 10:01:21 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M981998.D Vial: 10
Acq On : 14 Aug 2017 13:45 Operator: ADC
Sample : WG625140-09 200ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:20 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

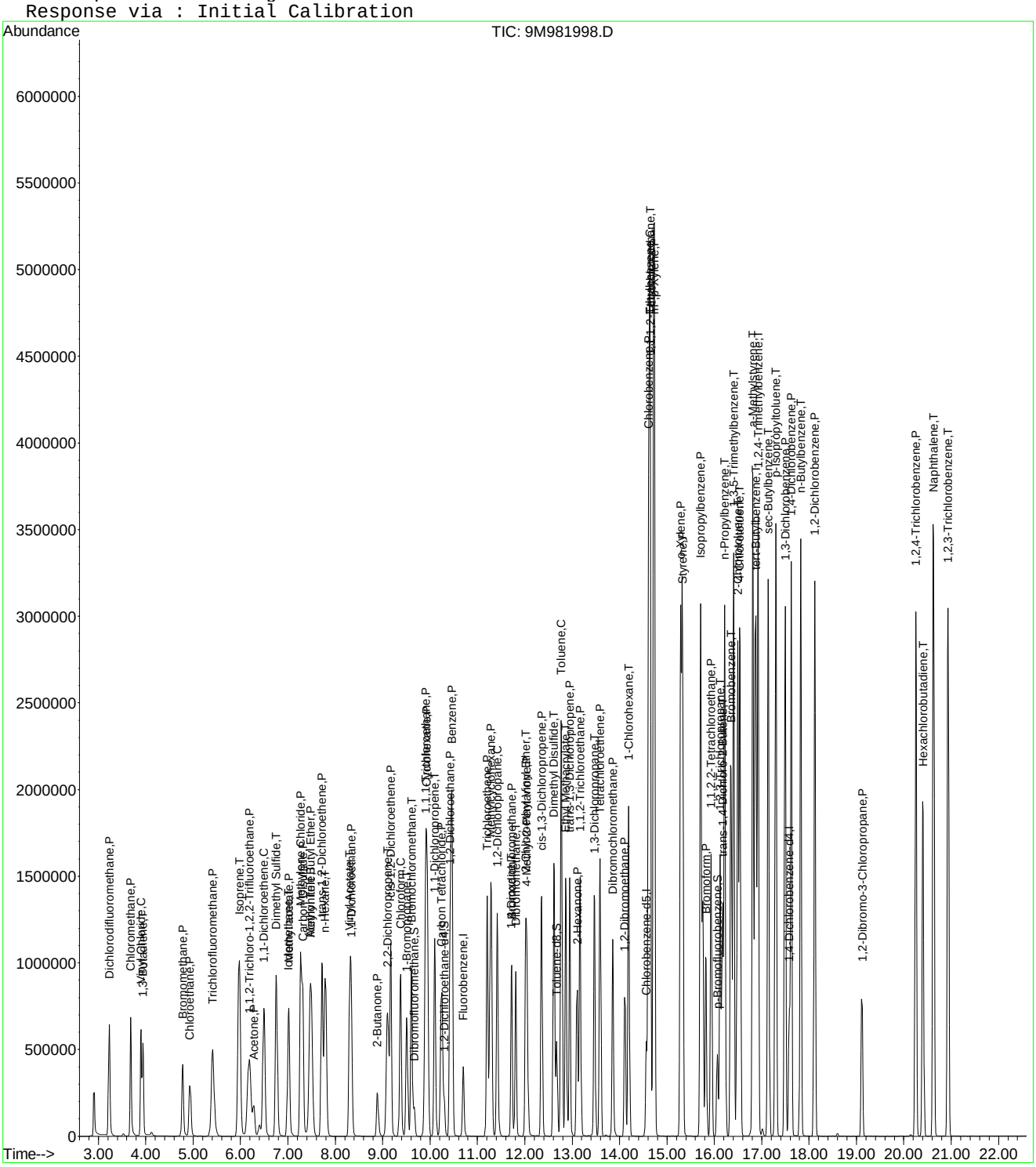
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
53)	2-Chloroethyl Vinyl Ether	12.02	63	543378	226.3952 ug/L		98
54)	4-Methyl-2-Pentanone	12.04	58	423184	233.5106 ug/L		99
55)	cis-1,3-Dichloropropene	12.36	75	992885	244.1795 ug/L		98
56)	Dimethyl Disulfide	12.61	79	606272	208.4207 ug/L		93
59)	Toluene	12.77	91	2375622	201.8885 ug/L		98
60)	Ethyl Methacrylate	12.86	69	1000949	204.6148 ug/L		98
61)	trans-1,3-Dichloropropene	12.95	75	950375	240.7837 ug/L		98
62)	1,1,2-Trichloroethane	13.17	97	624321	216.0499 ug/L		99
63)	2-Hexanone	13.11	43	801175	199.7270 ug/L		98
64)	1,3-Dichloropropane	13.48	76	1006636	212.4604 ug/L		100
65)	Tetrachloroethene	13.59	164	506089	212.3046 ug/L		99
66)	Dibromochloromethane	13.86	129	802773	237.9933 ug/L		99
67)	1,2-Dibromoethane	14.11	107	711496	232.2859 ug/L		100
68)	1-Chlorohexane	14.19	91	775588	240.7353 ug/L		99
69)	Chlorobenzene	14.61	112	1762852	215.9705 ug/L		98
70)	1,1,1,2-Tetrachloroethane	14.65	131	726522	228.1581 ug/L		100
71)	Ethylbenzene	14.64	106	994646	231.2085 ug/L		88
72)	m-,p-Xylene	14.73	106	2325138	456.9200 ug/L		90
73)	o-Xylene	15.29	106	1201310	228.0461 ug/L		95
74)	Styrene	15.33	104	2046725	205.9858 ug/L		98
75)	Bromoform	15.83	173	684067	211.1093 ug/L		100
76)	Isopropylbenzene	15.71	105	2907876	219.8789 ug/L		96
78)	1,1,2,2-Tetrachloroethane	15.93	83	1087362	214.8439 ug/L		99
80)	1,2,3-Trichloropropane	16.12	110	357009	210.0627 ug/L		67
81)	trans-1,4-Dichloro-2-Buten	16.18	53	405714	216.2704 ug/L	#	46
82)	n-Propylbenzene	16.22	91	3300798	194.1788 ug/L		96
83)	Bromobenzene	16.36	156	865604	201.5091 ug/L		100
84)	1,3,5-Trimethylbenzene	16.41	105	2615198	198.6202 ug/L		97
85)	2-Chlorotoluene	16.49	91	2148801	191.1931 ug/L		93
86)	4-Chlorotoluene	16.54	91	2119562	212.1519 ug/L		88
87)	a-Methylstyrene	16.81	118	1590901	227.8875 ug/L		97
88)	tert-Butylbenzene	16.87	134	588079	207.5296 ug/L		85
89)	1,2,4-Trimethylbenzene	16.93	105	2746791	201.1999 ug/L		97
90)	sec-Butylbenzene	17.14	105	3245392	202.4946 ug/L		96
91)	p-Isopropyltoluene	17.30	119	2864824	214.4459 ug/L		96
92)	1,3-Dichlorobenzene	17.50	146	1671395	220.0850 ug/L		97
93)	1,4-Dichlorobenzene	17.62	146	1706322	216.9518 ug/L		98
94)	n-Butylbenzene	17.82	91	2557272	201.1428 ug/L		97
95)	1,2-Dichlorobenzene	18.12	146	1743934	212.2148 ug/L		98
96)	1,2-Dibromo-3-Chloropropan	19.12	157	317226	200.9198 ug/L		99
97)	1,2,4-Trichlorobenzene	20.25	180	1243582	201.6924 ug/L		100
98)	Hexachlorobutadiene	20.41	225	554946	202.2201 ug/L		100
99)	Naphthalene	20.63	128	3635353	187.4367 ug/L		95
100)	1,2,3-Trichlorobenzene	20.94	180	1275571	226.4458 ug/L		99

(#) = qualifier out of range (m) = manual integration
9M981998.D 8260C.M Tue Aug 15 10:01:21 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981998.D Vial: 10
Acq On : 14 Aug 2017 13:45 Operator: ADC
Sample : WG625140-09 200ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



9M981998.D 8260C.M Tue Aug 15 10:01:21 2017 Page 3

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981999.D Vial: 11
Acq On : 14 Aug 2017 14:15 Operator: ADC
Sample : WG625140-10 300ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:21 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	493476	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	392462	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	230145	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.67	111	140929	51.0048 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.00%		
43) 1,2-Dichloroethane-d4	10.30	65	161923	50.1709 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 100.34%		
58) Toluene-d8	12.67	98	485922	50.2926 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 100.58%		
79) p-Bromofluorobenzene	16.06	95	195428	47.8898 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 95.78%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.23	85	2800	0.7753 ug/L #	67
3) Chloromethane	3.68	50	13650	2.7553 ug/L	98
4) Vinyl Chloride	3.91	62	1479	0.4200 ug/L #	70
5) 1,3-Butadiene	3.94	54	328748	253.5527 ug/L	99
6) Bromomethane	4.77	94	49187	22.7147 ug/L	99
9) Diethyl ether	5.94	59	891755	317.3783 ug/L	98
10) Isoprene	5.97	67	1226043	331.7121 ug/L	99
11) Acrolein	6.18	56	78757	166.4380 ug/L	97
12) 1,1,2-Trichloro-1,2,2-Trif	6.21	101	1089	0.4571 ug/L #	34
13) Acetone	6.28	43	436932	291.3718 ug/L	99
14) 1,1-Dichloroethene	6.49	61	1826	0.4279 ug/L	98
15) Tert-Butyl Alcohol	6.64	59	415493	803.0036 ug/L	95
16) Dimethyl Sulfide	6.75	62	1084028	324.7254 ug/L	99
17) Iodomethane	7.01	142	936703	286.8631 ug/L	99
18) Methyl acetate	7.02	43	1189858	308.9017 ug/L	98
20) Carbon Disulfide	7.31	76	2219094	318.7862 ug/L	100
21) Acrylonitrile	7.46	53	287970	158.9860 ug/L	98
23) trans-1,2-Dichloroethene	7.72	61	4051	1.0217 ug/L	89
24) n-Hexane	7.79	57	1133320	303.3096 ug/L	99
25) Diisopropyl ether	8.14	45	3305348	308.1339 ug/L	99
26) Vinyl Acetate	8.31	43	1950279	290.7504 ug/L	99
28) Ethyl-Tert-Butyl ether	8.71	59	3091533	315.3518 ug/L	98
29) 2-Butanone	8.89	43	718880	321.8944 ug/L	96
30) Propionitrile	9.00	54	250195	322.8097 ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	1411	0.4993 ug/L	84
34) 1-Bromopropane	9.51	122	174717	328.9905 ug/L	98
36) Tetrahydrofuran	9.64	42	450447	323.8261 ug/L	99
39) Cyclohexane	9.93	56	1632388	301.4718 ug/L	100
40) 1,1-Dichloropropene	10.10	75	2772	0.8504 ug/L #	65
41) Tert-Amyl-Methyl ether	10.21	73	2610916	320.9882 ug/L	99
47) Trichloroethene	11.21	130	2096	0.7276 ug/L	94
48) Methylcyclohexane	11.28	83	1305634	304.3222 ug/L	99
50) 1,4-Dioxane	11.71	88	39568	634.8601 ug/L	97
53) 2-Chloroethyl Vinyl Ether	12.01	63	798546	336.0353 ug/L	98
54) 4-Methyl-2-Pentanone	12.04	58	639203	356.2346 ug/L	99
56) Dimethyl Disulfide	12.61	79	878502	303.4410 ug/L	92
59) Toluene	12.77	91	5306	0.4667 ug/L	99
60) Ethyl Methacrylate	12.86	69	1435556	303.0058 ug/L	98
61) trans-1,3-Dichloropropene	12.96	75	1578	0.4138 ug/L #	49
63) 2-Hexanone	13.10	43	1214519	311.3878 ug/L	98

(#) = qualifier out of range (m) = manual integration
9M981999.D 8260C.M Tue Aug 15 10:01:21 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M981999.D Vial: 11
Acq On : 14 Aug 2017 14:15 Operator: ADC
Sample : WG625140-10 300ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:21 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

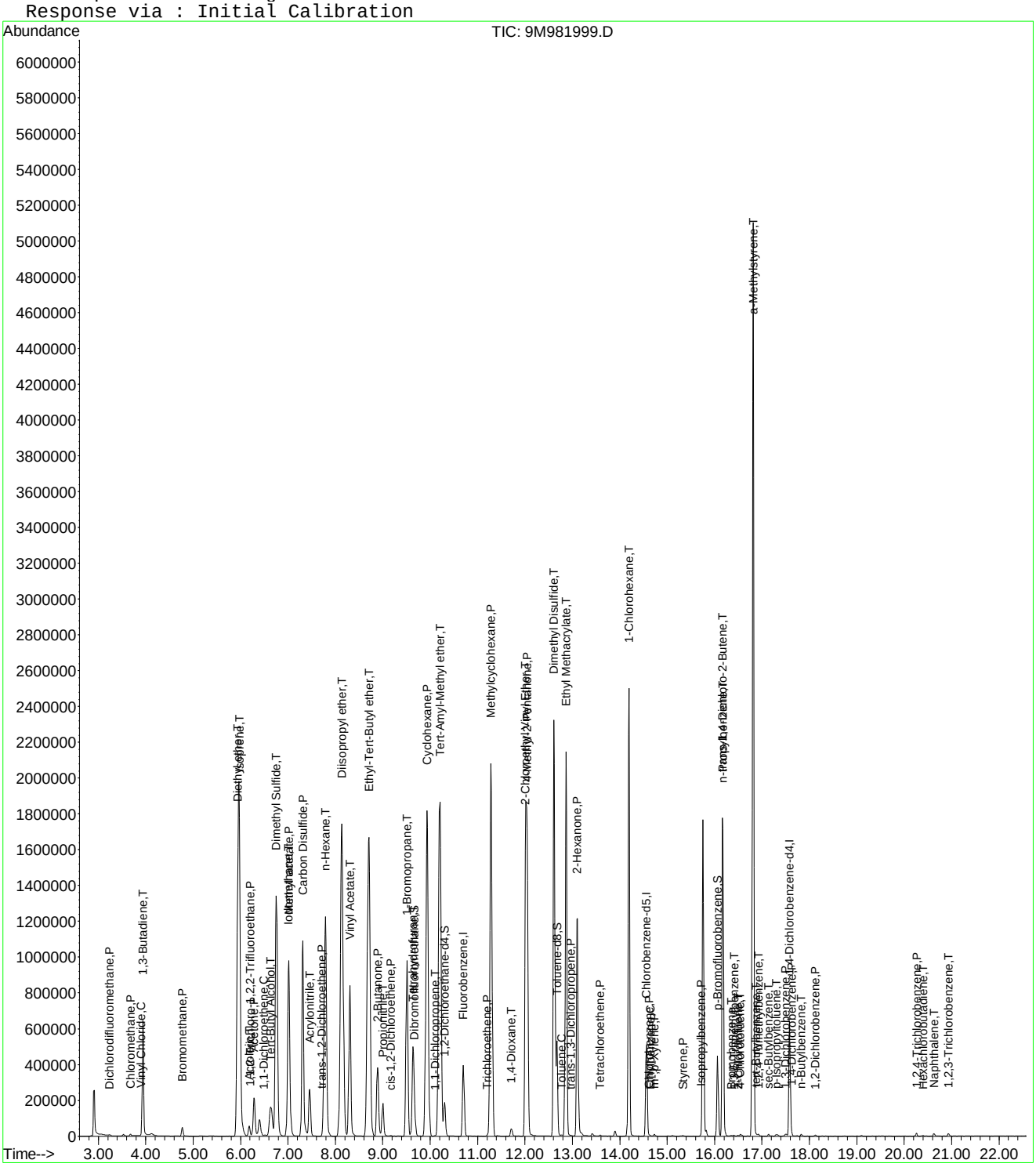
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
65)	Tetrachloroethene	13.58	164	2126	0.9230	ug/L		96
68)	1-Chlorohexane	14.19	91	1056428	339.3510	ug/L		98
69)	Chlorobenzene	14.62	112	4058	0.5145	ug/L		98
71)	Ethylbenzene	14.65	106	1722	0.4143	ug/L		62
72)	m-,p-Xylene	14.73	106	5601	1.1391	ug/L		88
74)	Styrene	15.33	104	3673	1.1409	ug/L		91
76)	Isopropylbenzene	15.71	105	11738	0.9185	ug/L		97
81)	trans-1,4-Dichloro-2-Buten	16.17	53	537259	309.0238	ug/L		61
82)	n-Propylbenzene	16.18	91	122392	7.7690	ug/L	#	58
83)	Bromobenzene	16.36	156	2031	0.5102	ug/L		58
84)	1,3,5-Trimethylbenzene	16.41	105	6792	0.5566	ug/L		97
85)	2-Chlorotoluene	16.50	91	5972	0.5734	ug/L		82
86)	4-Chlorotoluene	16.54	91	8861	0.9570	ug/L		92
87)	a-Methylstyrene	16.81	118	2120622	327.7720	ug/L		99
88)	tert-Butylbenzene	16.88	134	1511	0.5754	ug/L	#	1
89)	1,2,4-Trimethylbenzene	16.93	105	8046	0.6359	ug/L		89
90)	sec-Butylbenzene	17.14	105	14405	0.9698	ug/L		100
91)	p-Isopropyltoluene	17.30	119	9967	0.8050	ug/L		95
92)	1,3-Dichlorobenzene	17.50	146	7863	1.1172	ug/L		98
93)	1,4-Dichlorobenzene	17.62	146	8965	1.2299	ug/L		94
94)	n-Butylbenzene	17.82	91	11691	1.6120	ug/L		98
95)	1,2-Dichlorobenzene	18.12	146	5194	0.6820	ug/L		99
97)	1,2,4-Trichlorobenzene	20.26	180	9215	2.2600	ug/L		96
98)	Hexachlorobutadiene	20.40	225	2067	1.4710	ug/L		89
99)	Naphthalene	20.63	128	19880	1.4239	ug/L		97
100)	1,2,3-Trichlorobenzene	20.94	180	7876	1.5087	ug/L		96

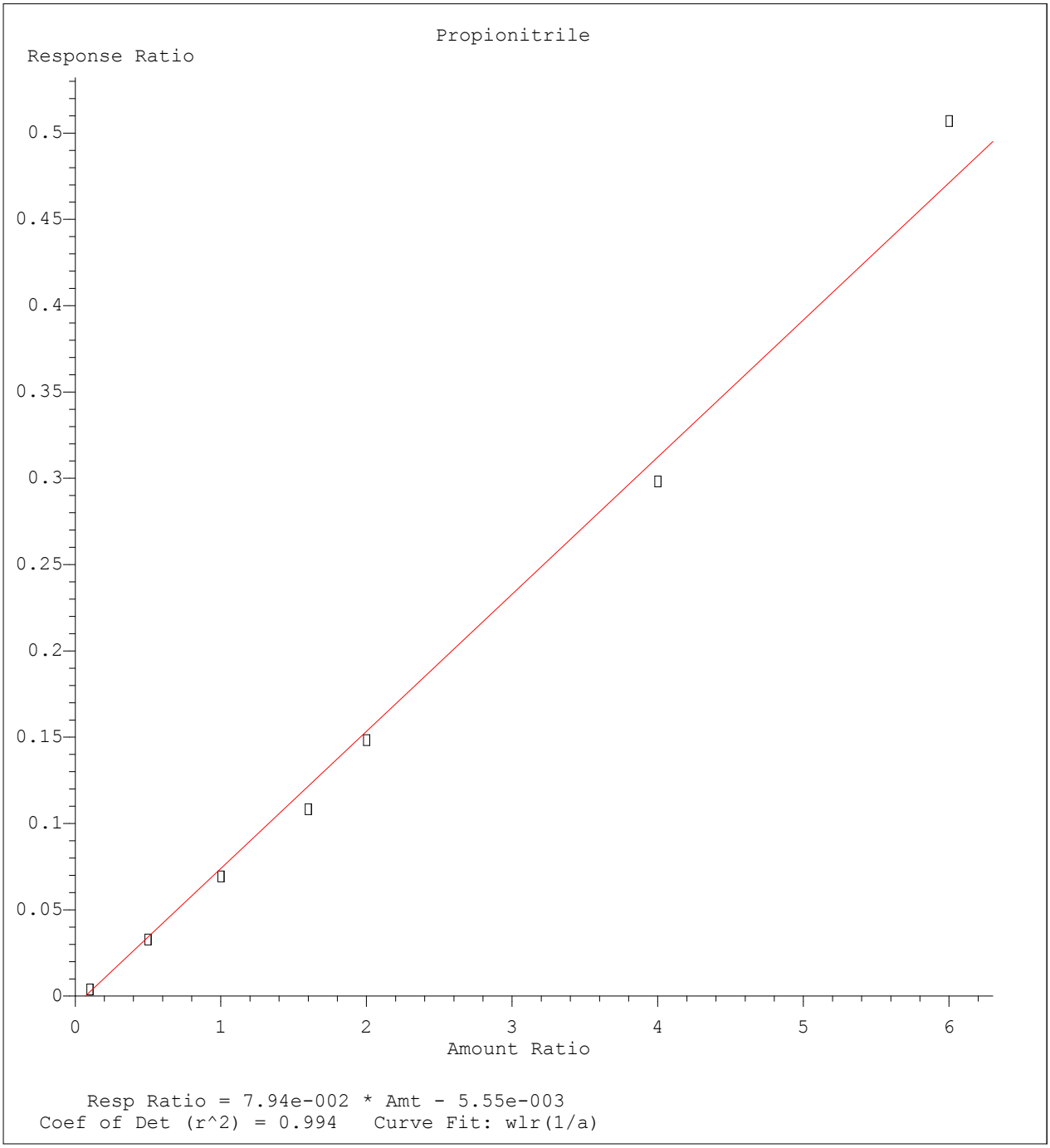
(#) = qualifier out of range (m) = manual integration
9M981999.D 8260C.M Tue Aug 15 10:01:21 2017 Page 2

Quantitation Report (Not Reviewed)

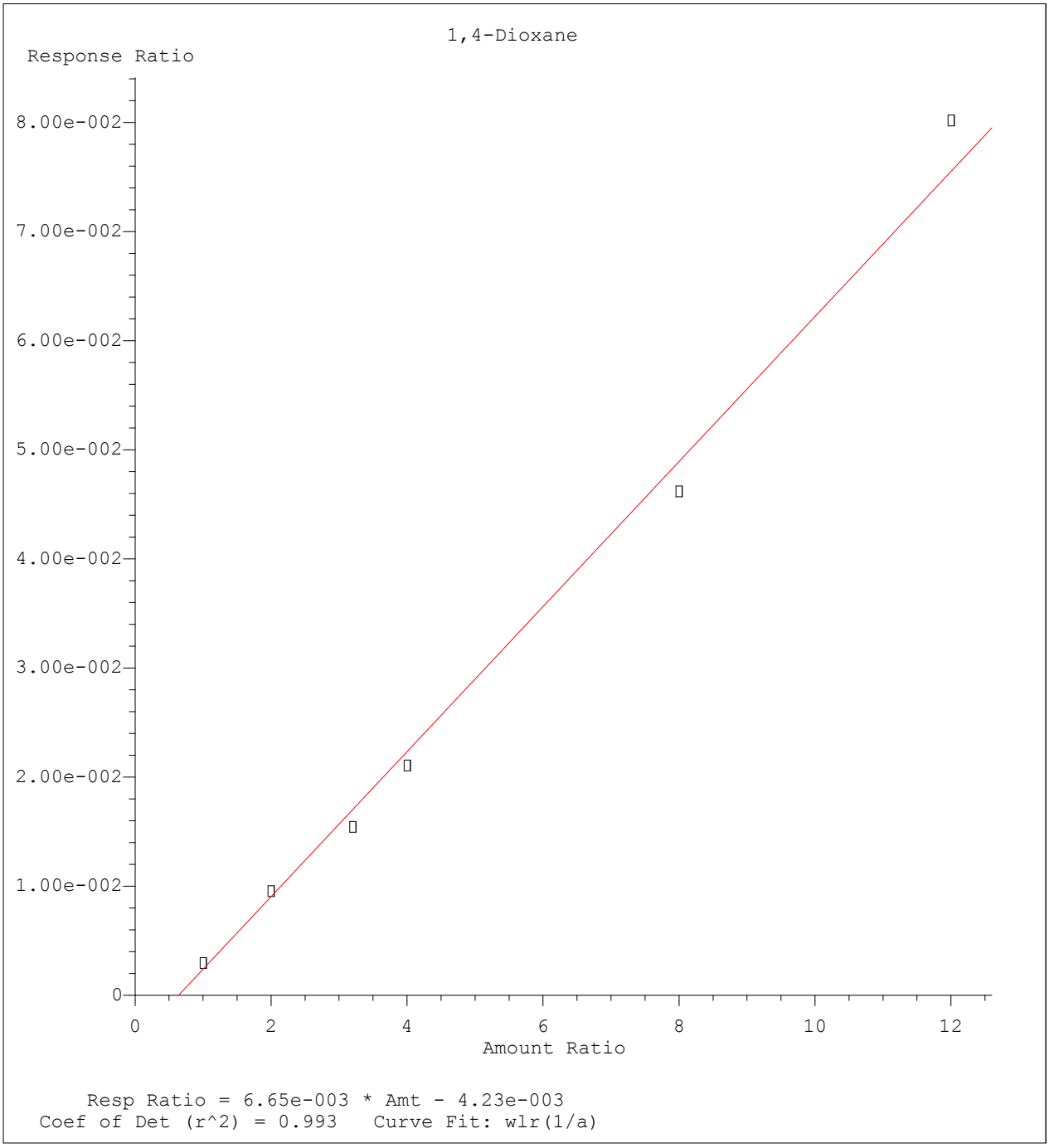
Data File : C:\MSDCHEM\1\DATA\081417\9M981999.D Vial: 11
Acq On : 14 Aug 2017 14:15 Operator: ADC
Sample : WG625140-10 300ug/L ICAL 8260C Inst : hpms9
Misc : 1,1 STD83326 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration

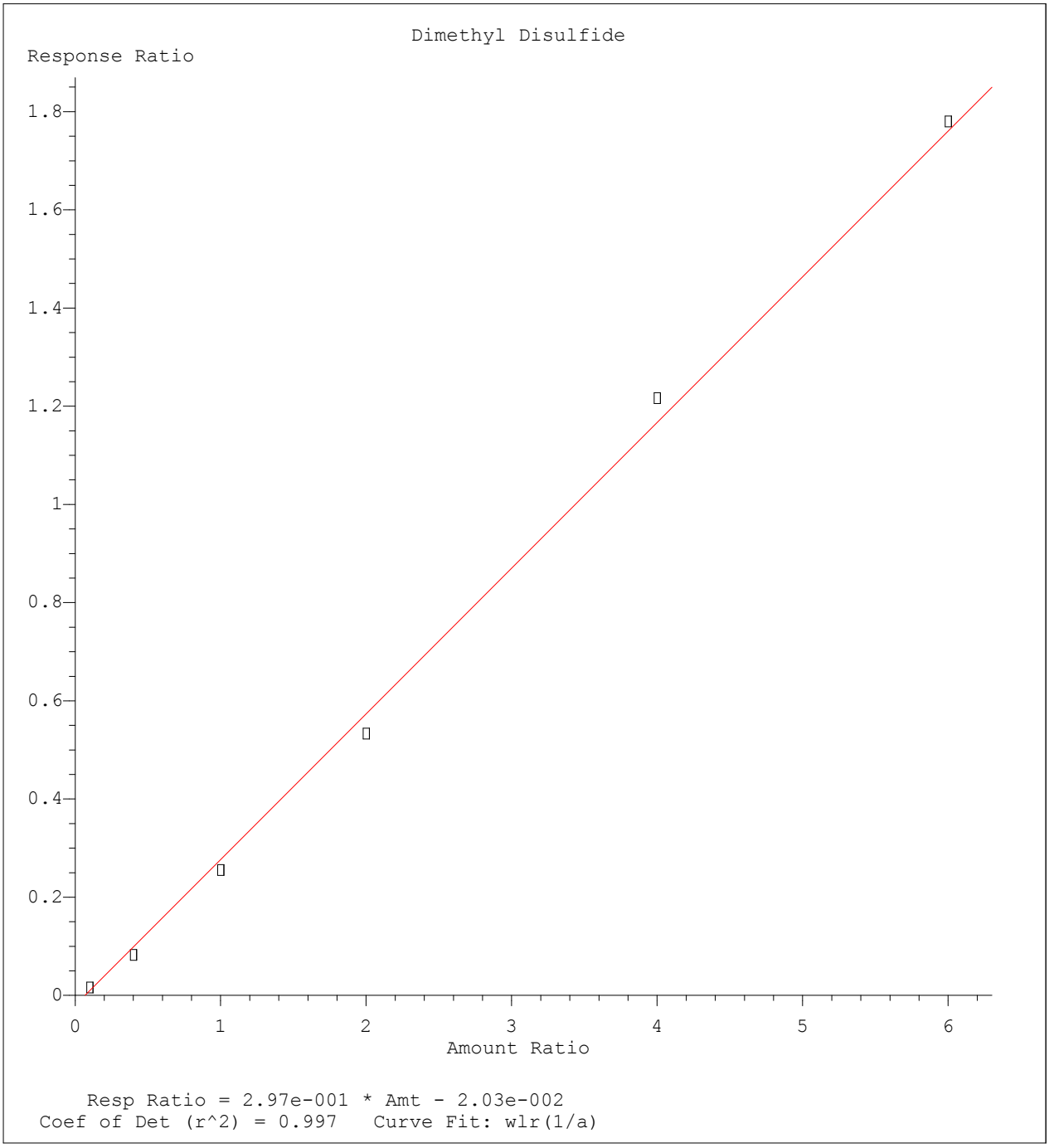




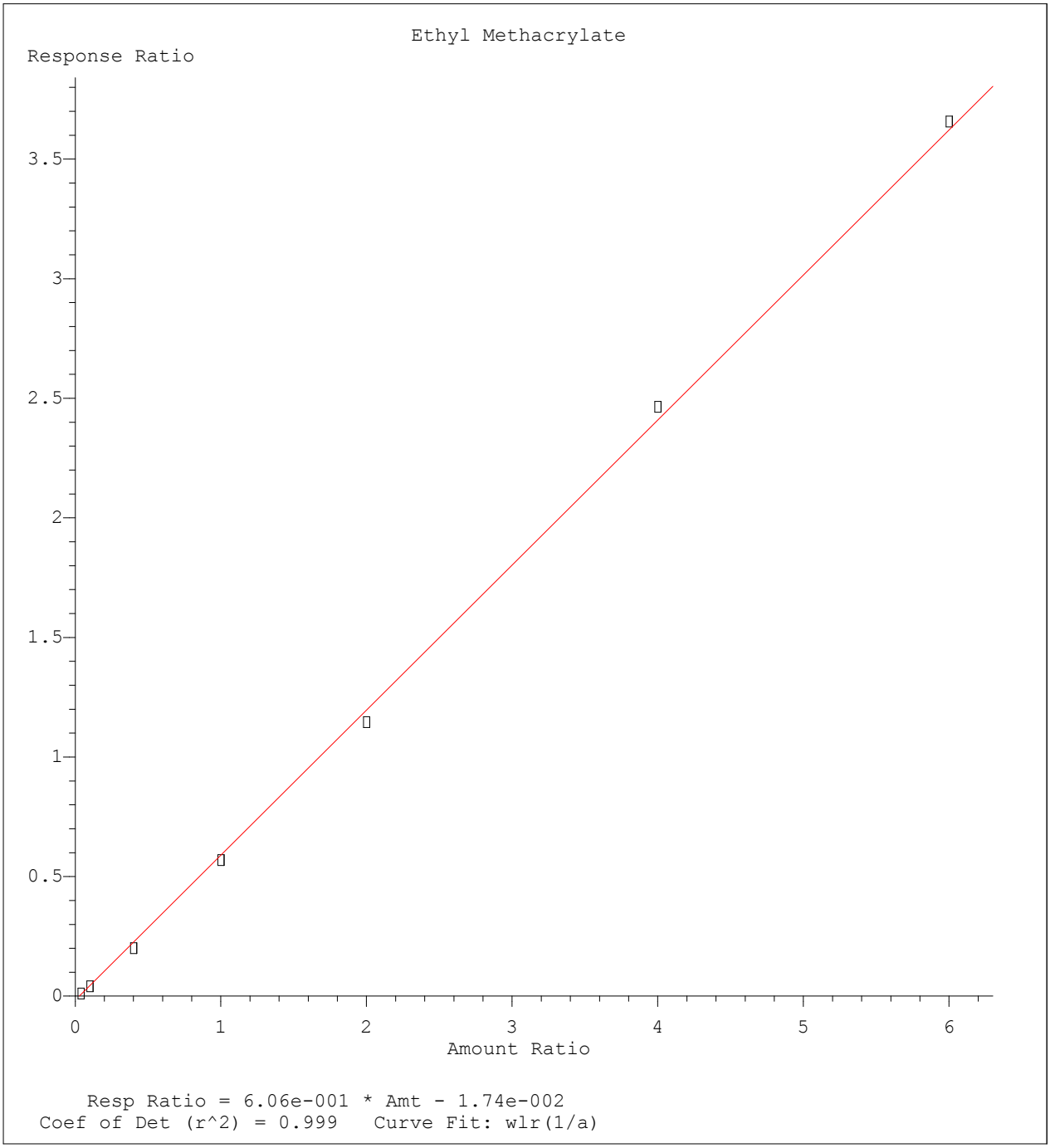
Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



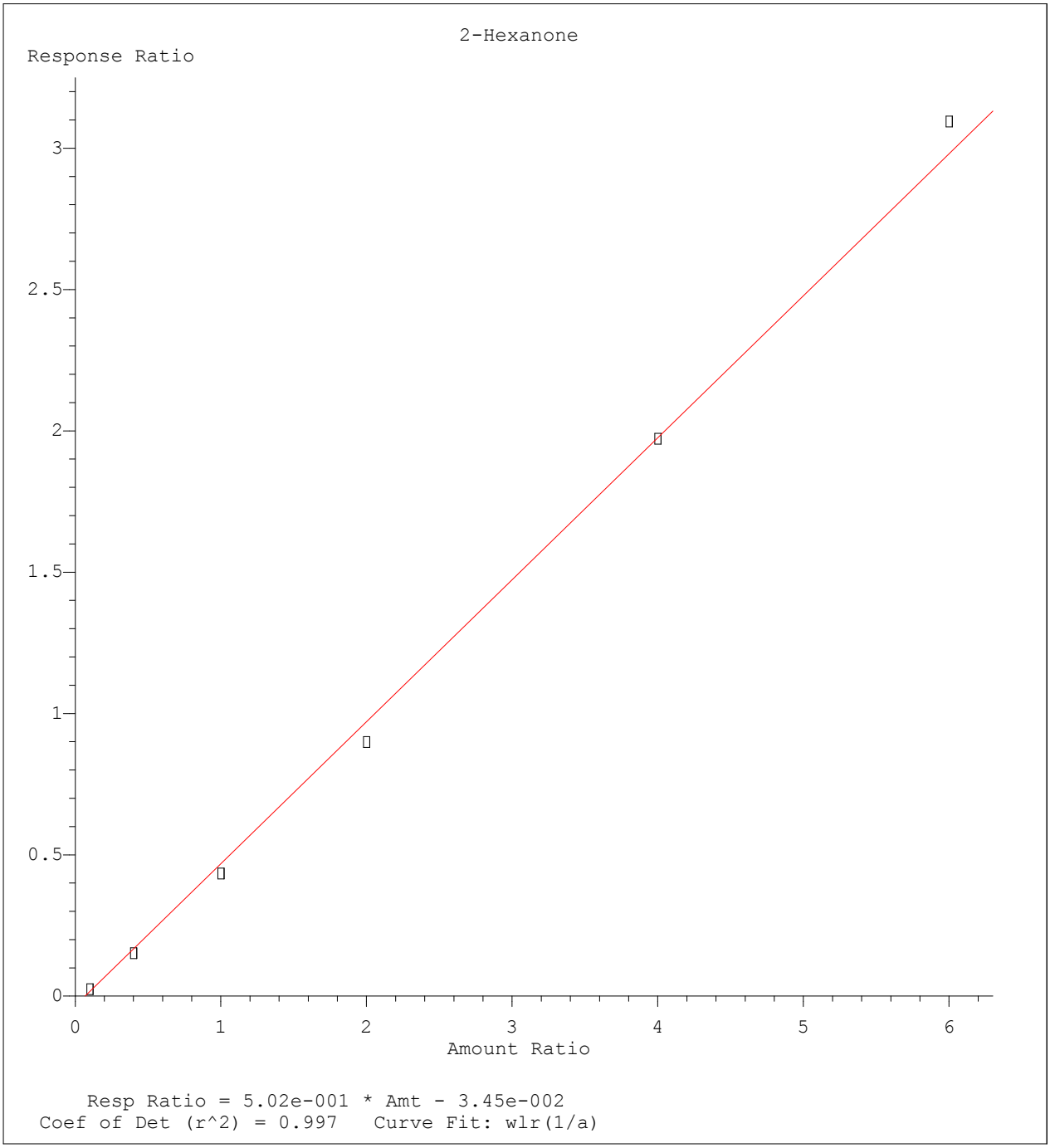
Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



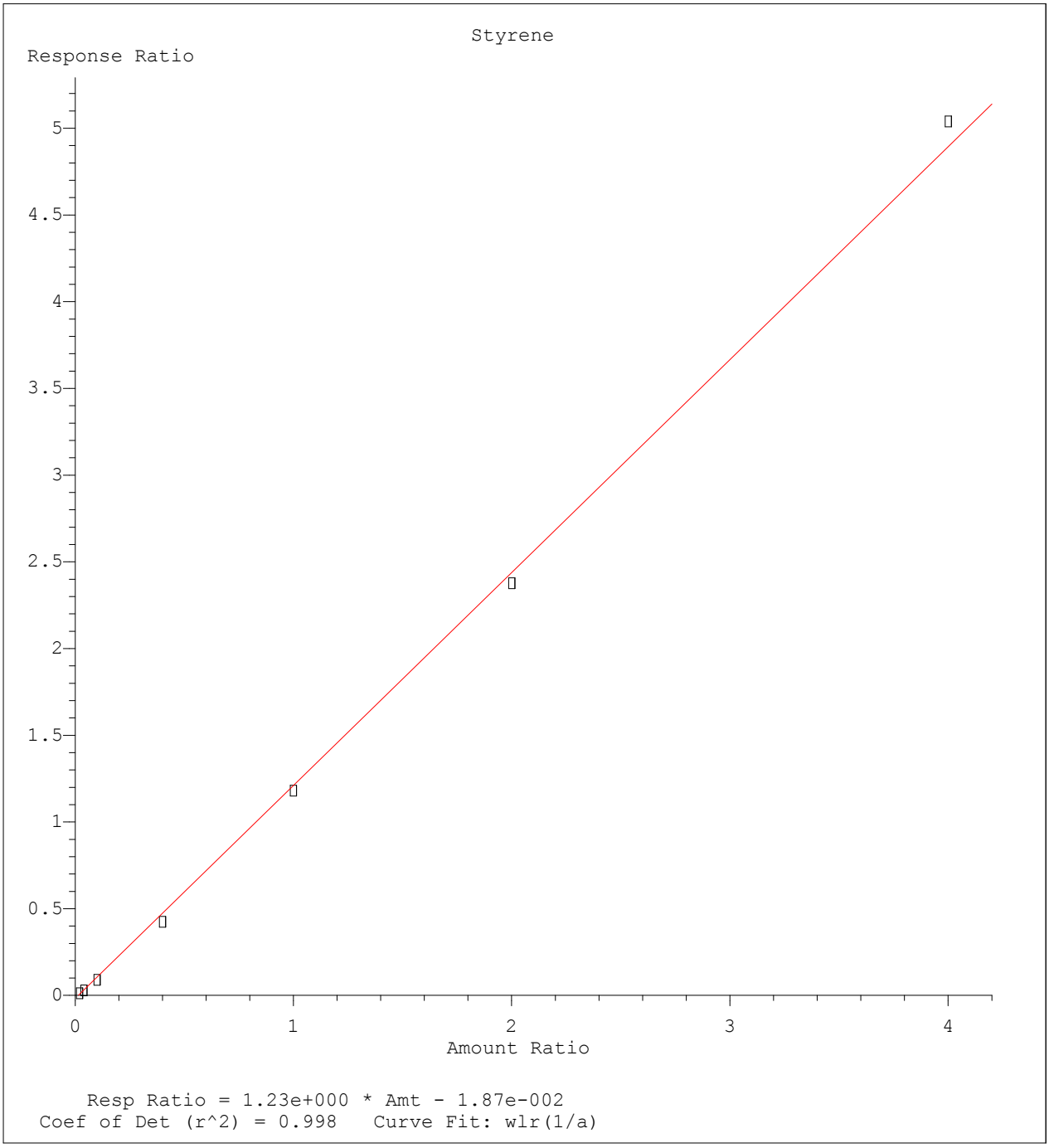
Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



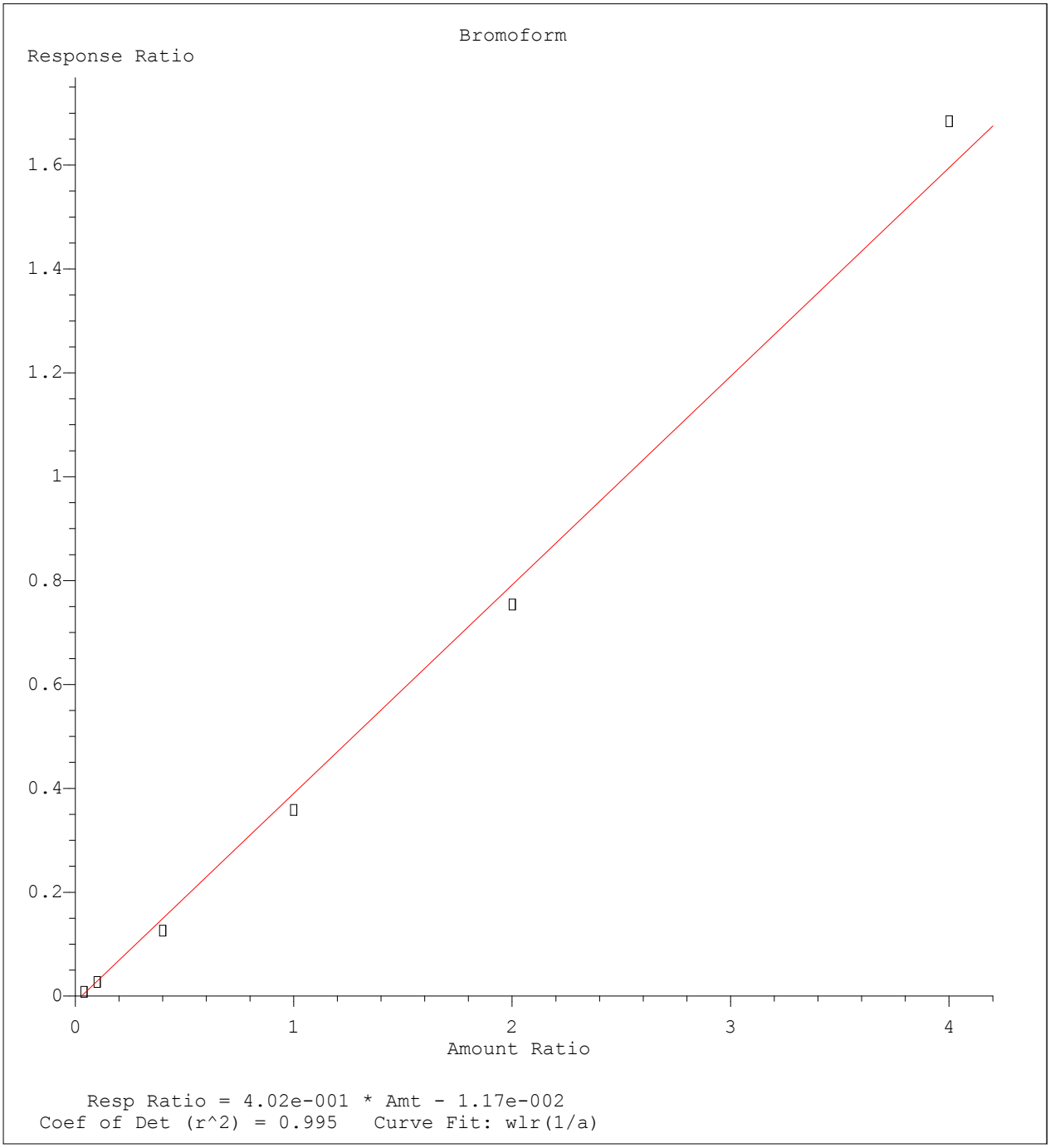
Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



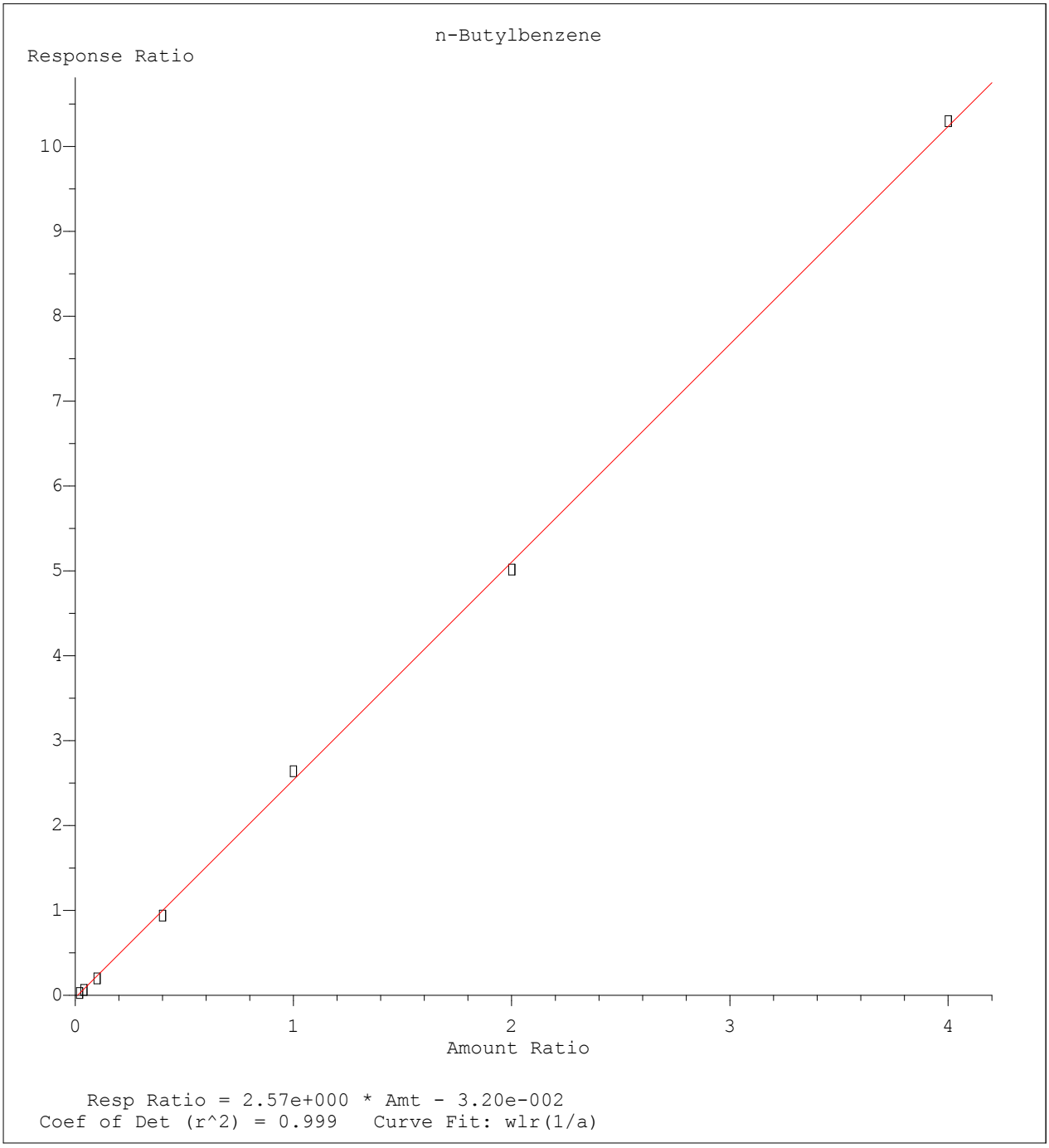
Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



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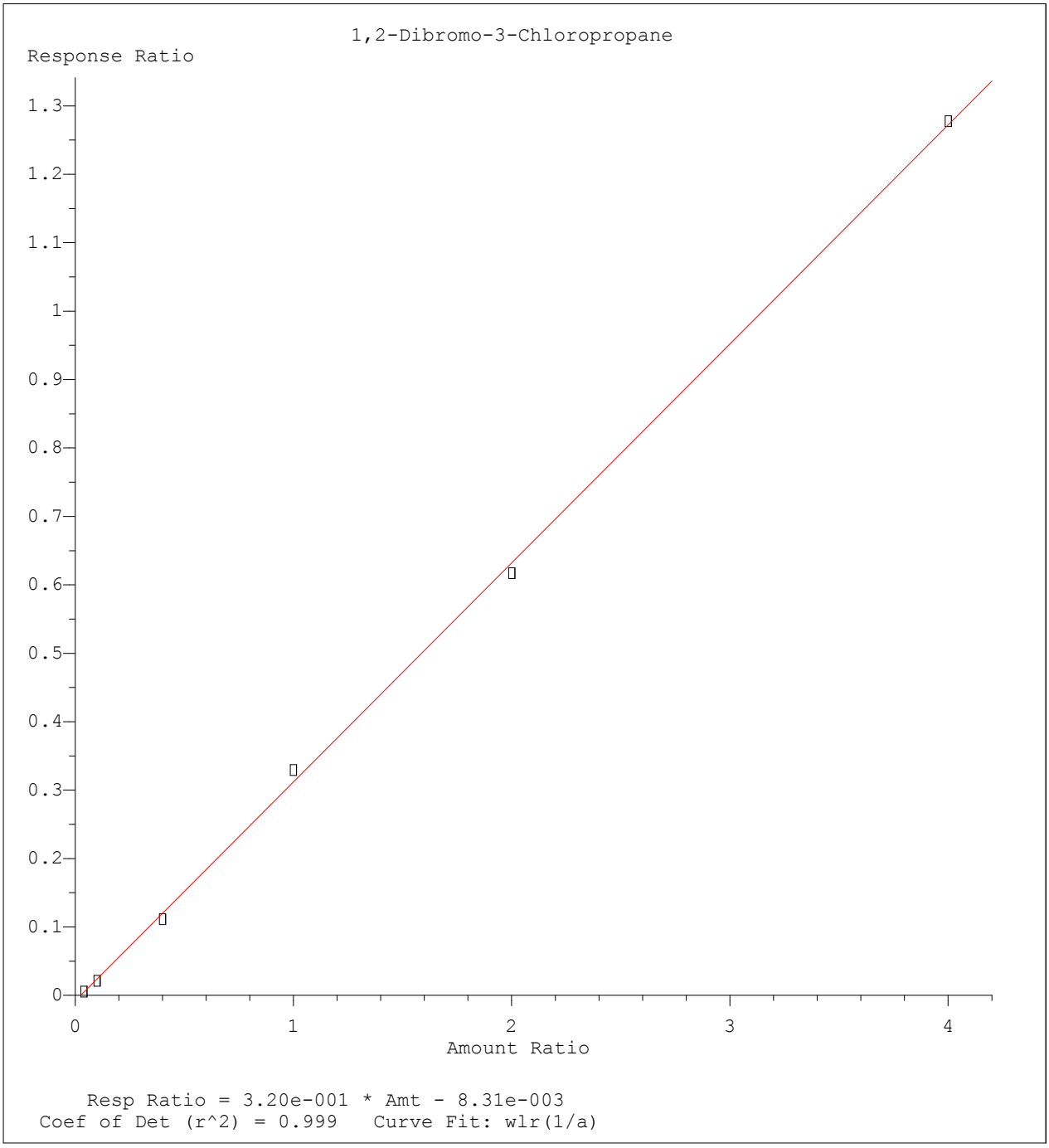
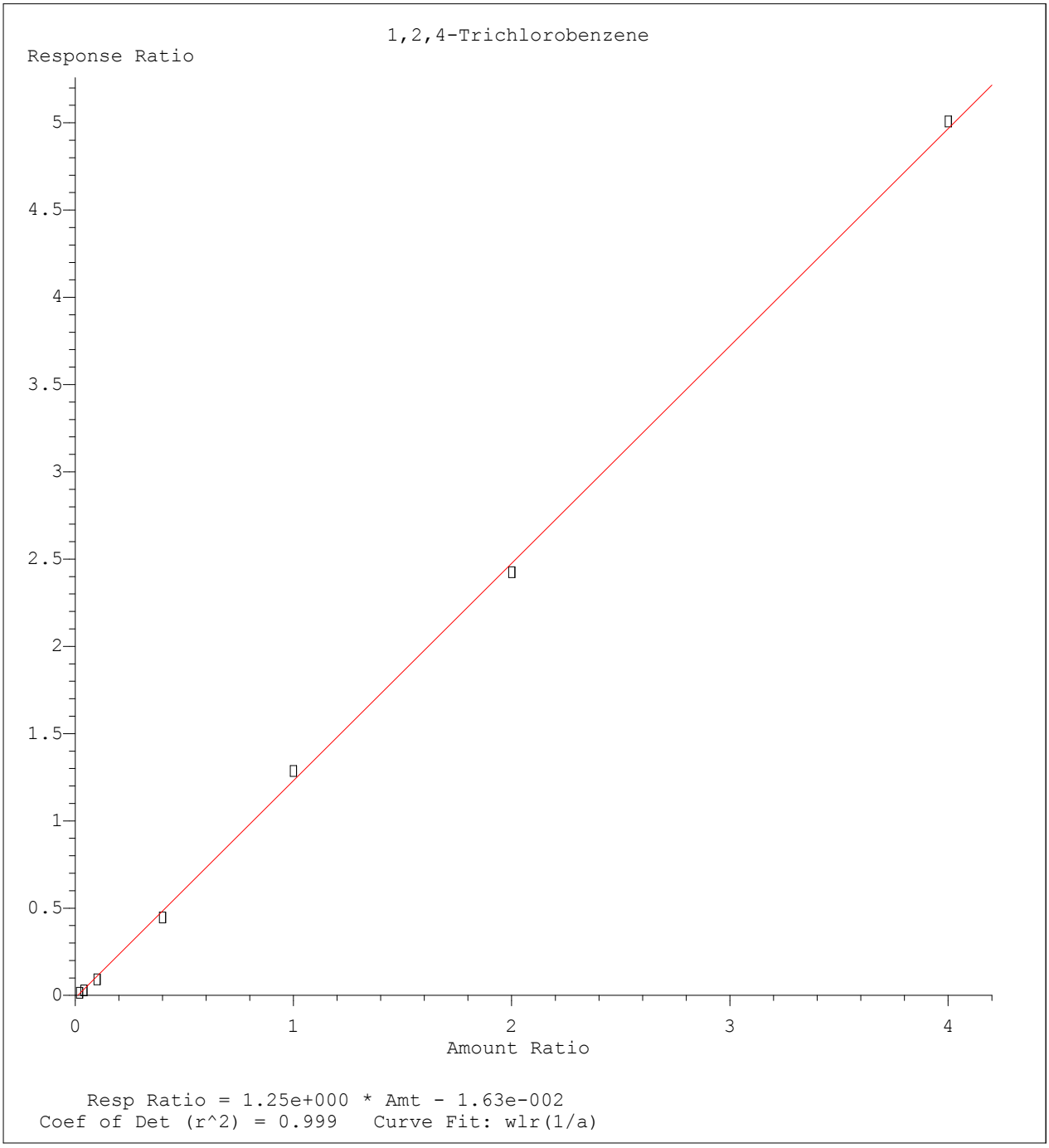
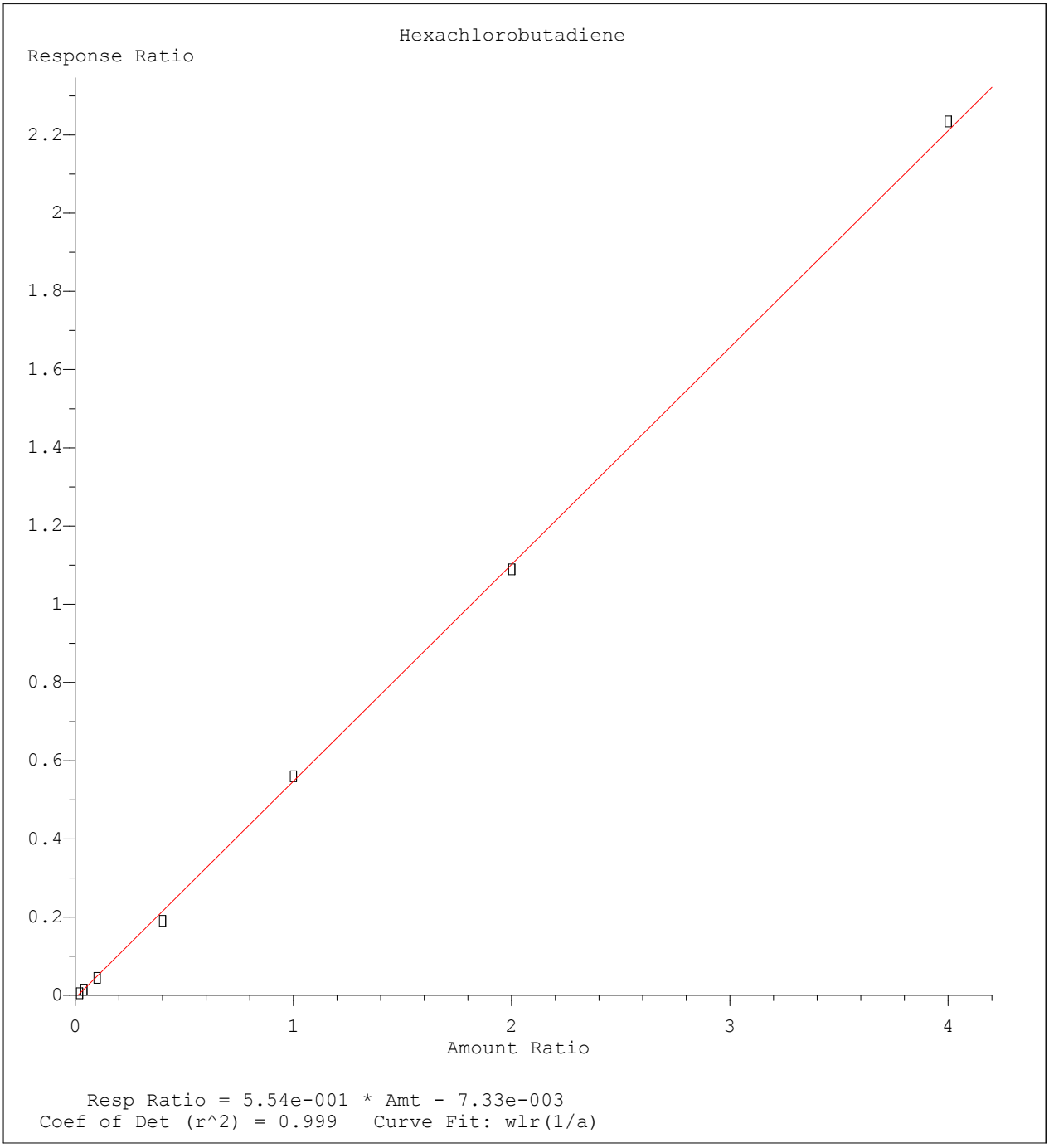
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



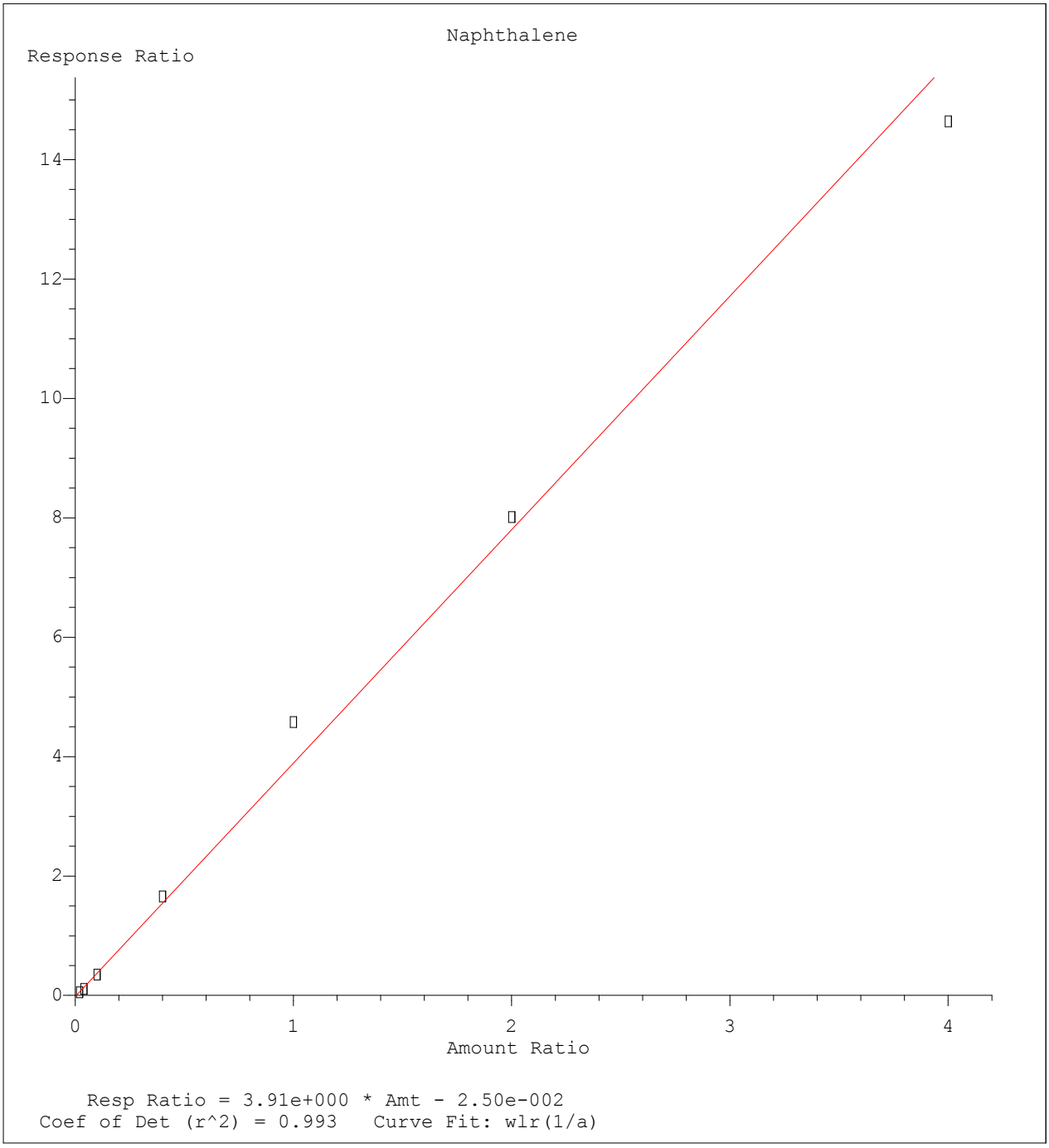
Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017



Method Name: C:\MSDCHEM\1\METHODS\8260C.M
Calibration Table Last Updated: Mon Aug 14 14:47:27 2017

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M982001.D Vial: 13
Acq On : 14 Aug 2017 15:16 Operator: ADC
Sample : WG625140-11 50ug/L ICV 8260C Inst : hpms9
Misc : 1,1 STD83237 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:23 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	472400	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	373527	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	229758	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	135356	51.1734 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.34%		
43) 1,2-Dichloroethane-d4	10.30	65	153527	49.6918 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 99.38%		
58) Toluene-d8	12.67	98	453677	49.3356 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 98.68%		
79) p-Bromofluorobenzene	16.06	95	189736	46.5733 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 93.14%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.22	85	189066	54.6857 ug/L	100
3) Chloromethane	3.67	50	230922	48.6914 ug/L	99
4) Vinyl Chloride	3.88	62	152498	45.2335 ug/L	99
5) 1,3-Butadiene	3.93	54	57601	46.4078 ug/L	97
6) Bromomethane	4.75	94	87327	42.1271 ug/L	99
7) Chloroethane	4.91	64	107798	55.0066 ug/L	99
8) Trichlorofluoromethane	5.39	101	218191	50.2379 ug/L	100
9) Diethyl ether	5.93	59	254704	94.6943 ug/L	99
10) Isoprene	5.95	67	196471	55.5278 ug/L	100
11) Acrolein	6.17	56	56083	123.8086 ug/L	98
12) 1,1,2-Trichloro-1,2,2-Trif	6.16	101	126227	55.3498 ug/L	99
13) Acetone	6.28	43	73264	51.0364 ug/L	99
14) 1,1-Dichloroethene	6.48	61	193278	47.3158 ug/L	100
15) Tert-Butyl Alcohol	6.65	59	137847	278.2962 ug/L	95
16) Dimethyl Sulfide	6.74	62	135018	42.2497 ug/L	99
17) Iodomethane	7.00	142	206727	66.1342 ug/L	99
18) Methyl acetate	7.02	43	179127	48.5783 ug/L	99
19) Methylene Chloride	7.26	84	131666	49.2786 ug/L	98
20) Carbon Disulfide	7.30	76	315031	47.2752 ug/L	99
21) Acrylonitrile	7.45	53	96625	55.7259 ug/L	99
22) Methyl Tert Butyl Ether	7.48	73	428228	51.1513 ug/L	99
23) trans-1,2-Dichloroethene	7.70	61	184988	48.7388 ug/L	99
24) n-Hexane	7.78	57	174266	48.7195 ug/L	100
25) Diisopropyl ether	8.13	45	1029502	100.2549 ug/L	100
26) Vinyl Acetate	8.30	43	382001	59.4900 ug/L	99
27) 1,1-Dichloroethane	8.33	63	249376	49.4781 ug/L	100
28) Ethyl-Tert-Butyl ether	8.70	59	955091	101.7706 ug/L	99
29) 2-Butanone	8.89	43	111253	52.0385 ug/L	98
30) Propionitrile	9.00	54	76852	105.9533 ug/L	99
31) 2,2-Dichloropropane	9.10	77	188856	51.4521 ug/L	99
32) cis-1,2-Dichloroethene	9.16	96	138568	51.2187 ug/L	100
33) Chloroform	9.37	83	233605	51.9181 ug/L	100
34) 1-Bromopropane	9.51	122	33099	65.1057 ug/L	99
35) Bromochloromethane	9.60	130	97019	50.0409 ug/L	99
36) Tetrahydrofuran	9.64	42	132833	99.7540 ug/L	99
38) 1,1,1-Trichloroethane	9.90	97	206093	49.9228 ug/L	99
39) Cyclohexane	9.93	56	254115	49.0241 ug/L	99
40) 1,1-Dichloropropene	10.09	75	161588	51.7837 ug/L	100
41) Tert-Amyl-Methyl ether	10.20	73	805900	103.4984 ug/L	99
42) Carbon Tetrachloride	10.24	117	188504	50.4972 ug/L	99

(#) = qualifier out of range (m) = manual integration
9M982001.D 8260C.M Tue Aug 15 10:01:23 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M982001.D Vial: 13
Acq On : 14 Aug 2017 15:16 Operator: ADC
Sample : WG625140-11 50ug/L ICV 8260C Inst : hpms9
Misc : 1,1 STD83237 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01:23 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

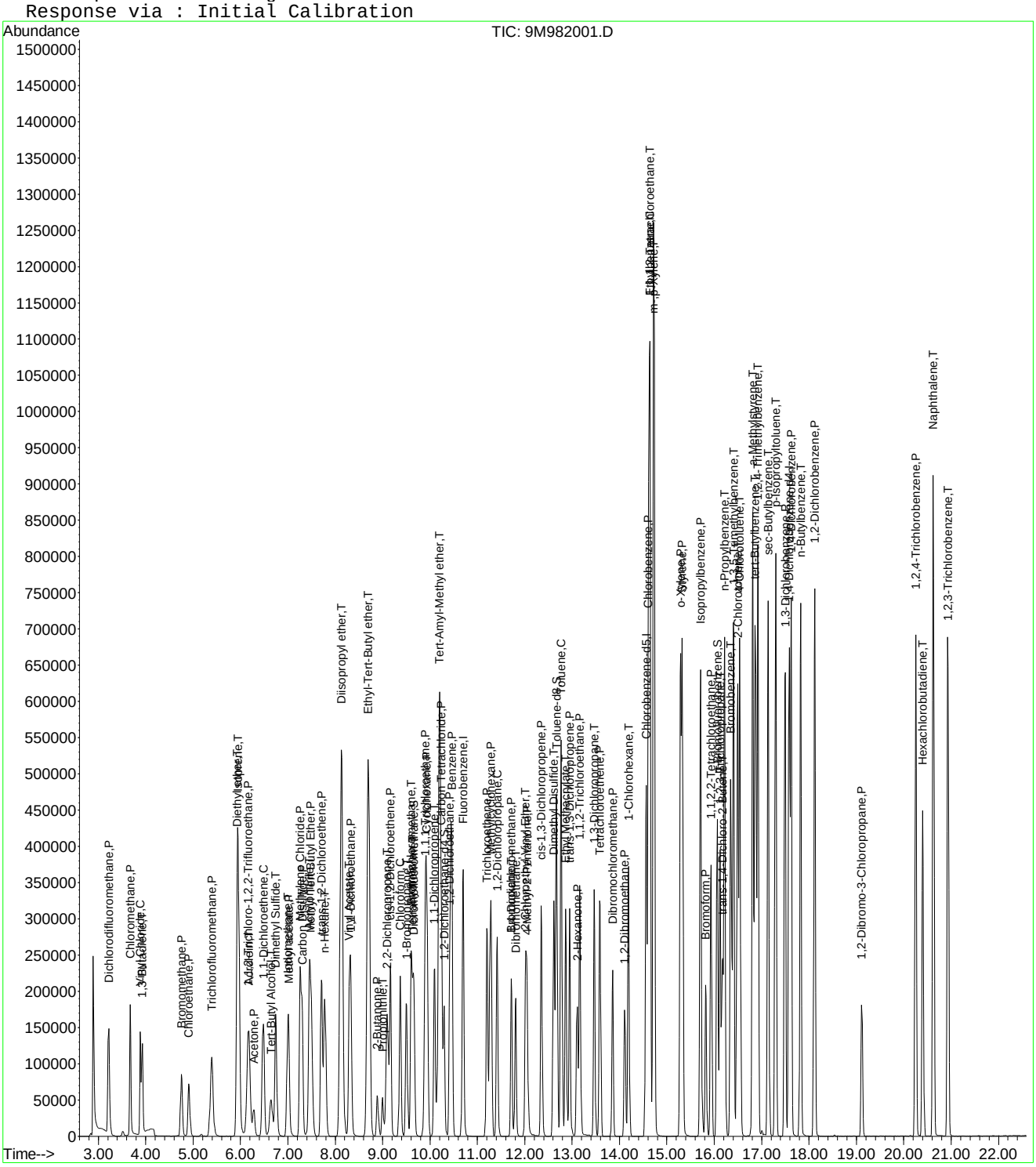
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	215284	49.5453	ug/L		100
46)	Benzene	10.46	78	508127	48.9492	ug/L		99
47)	Trichloroethene	11.20	130	138193	50.1126	ug/L		100
48)	Methylcyclohexane	11.28	83	205338	49.9963	ug/L		99
49)	1,2-Dichloropropane	11.42	63	148482	51.6402	ug/L		100
50)	1,4-Dioxane	11.71	88	12195	225.9620	ug/L		96
51)	Bromodichloromethane	11.71	83	175988	50.9313	ug/L		99
52)	Dibromomethane	11.81	174	99482	52.6053	ug/L		100
53)	2-Chloroethyl Vinyl Ether	12.01	63	113947	50.0892	ug/L		98
54)	4-Methyl-2-Pentanone	12.05	58	97479	56.7498	ug/L		99
55)	cis-1,3-Dichloropropene	12.35	75	225084	58.4024	ug/L		99
56)	Dimethyl Disulfide	12.61	79	117639	45.3861	ug/L		99
59)	Toluene	12.77	91	542597	50.1404	ug/L		99
60)	Ethyl Methacrylate	12.86	69	220766	50.1628	ug/L		100
61)	trans-1,3-Dichloropropene	12.95	75	205759	56.6849	ug/L		100
62)	1,1,2-Trichloroethane	13.16	97	139118	52.3487	ug/L		99
63)	2-Hexanone	13.11	43	191068	54.3339	ug/L	#	86
64)	1,3-Dichloropropane	13.47	76	236193	54.2062	ug/L		99
65)	Tetrachloroethene	13.58	164	109853	50.1096	ug/L		100
66)	Dibromochloromethane	13.86	129	166100	53.5449	ug/L		98
67)	1,2-Dibromoethane	14.11	107	152604	54.1742	ug/L		99
68)	1-Chlorohexane	14.19	91	161126	54.3814	ug/L		98
69)	Chlorobenzene	14.61	112	399213	53.1814	ug/L		99
70)	1,1,1,2-Tetrachloroethane	14.64	131	154156	52.6410	ug/L		99
71)	Ethylbenzene	14.64	106	212763	53.7784	ug/L		96
72)	m-,p-Xylene	14.72	106	519058	110.9133	ug/L		98
73)	o-Xylene	15.29	106	264047	54.5036	ug/L		99
74)	Styrene	15.32	104	449596	49.7796	ug/L		100
75)	Bromoform	15.82	173	137515	47.2874	ug/L		99
76)	Isopropylbenzene	15.71	105	645075	53.0389	ug/L		100
78)	1,1,2,2-Tetrachloroethane	15.94	83	255128	54.4840	ug/L		99
80)	1,2,3-Trichloropropane	16.13	110	87183	55.4452	ug/L		96
81)	trans-1,4-Dichloro-2-Buten	16.17	53	78921	45.4707	ug/L		82
82)	n-Propylbenzene	16.22	91	778219	49.4820	ug/L		100
83)	Bromobenzene	16.35	156	192757	48.5007	ug/L		97
84)	1,3,5-Trimethylbenzene	16.41	105	595904	48.9167	ug/L		100
85)	2-Chlorotoluene	16.50	91	518828	49.8955	ug/L		91
86)	4-Chlorotoluene	16.54	91	474177	51.2983	ug/L		91
87)	a-Methylstyrene	16.81	118	364735	56.4699	ug/L		98
88)	tert-Butylbenzene	16.86	134	131910	50.3135	ug/L		88
89)	1,2,4-Trimethylbenzene	16.92	105	663907	52.5620	ug/L		99
90)	sec-Butylbenzene	17.14	105	774167	52.2087	ug/L		99
91)	p-Isopropyltoluene	17.30	119	670555	54.2520	ug/L		99
92)	1,3-Dichlorobenzene	17.50	146	378710	53.8989	ug/L		99
93)	1,4-Dichlorobenzene	17.62	146	401549	55.1827	ug/L		99
94)	n-Butylbenzene	17.82	91	575564	49.4023	ug/L		100
95)	1,2-Dichlorobenzene	18.12	146	430066	56.5643	ug/L		100
96)	1,2-Dibromo-3-Chloropropan	19.11	157	70625	49.3332	ug/L		100
97)	1,2,4-Trichlorobenzene	20.25	180	281436	49.8281	ug/L		99
98)	Hexachlorobutadiene	20.40	225	125712	50.0113	ug/L		99
99)	Naphthalene	20.62	128	954809	53.4382	ug/L		100
100)	1,2,3-Trichlorobenzene	20.94	180	296552	56.9013	ug/L		99

(#) = qualifier out of range (m) = manual integration
9M982001.D 8260C.M Tue Aug 15 10:01:23 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\081417\9M982001.D Vial: 13
Acq On : 14 Aug 2017 15:16 Operator: ADC
Sample : WG625140-11 50ug/L ICV 8260C Inst : hpms9
Misc : 1,1 STD83237 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 15 10:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\081417\9M982001.D Vial: 13
Acq On : 14 Aug 2017 15:16 Operator: ADC
Sample : WG625140-11 50ug/L ICV 8260C Inst : hpms9
Misc : 1,1 STD83237 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	101	0.00
2	P	Dichlorodifluoromethane	50.0000	54.6857	-9.4	101	0.00
3	P	Chloromethane	50.0000	48.6914	2.6	96	0.00
4	C	Vinyl Chloride	50.0000	45.2335	9.5	83	0.00
5	T	1,3-Butadiene	50.0000	46.4078	7.2	85	0.00
6	P	Bromomethane	50.0000	42.1271	15.7	89	-0.03
7	P	Chloroethane	50.0000	55.0066	-10.0	100	-0.03
8	P	Trichlorofluoromethane	50.0000	50.2379	-0.5	95	-0.02
9	T	Diethyl ether	100.0000	94.6942	5.3	95	0.00
10	T	Isoprene	50.0000	55.5278	-11.1	102	-0.02
11	T	Acrolein	50.0000	123.8086	-147.6#	239	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	50.0000	55.3498	-10.7	105	-0.02
13	P	Acetone	50.0000	51.0365	-2.1	103	0.00
14	C	1,1-Dichloroethene	50.0000	47.3158	5.4	91	0.00
15	T	Tert-Butyl Alcohol	200.0000	278.2962	-39.1#	141	0.05
16	T	Dimethyl Sulfide	50.0000	42.2497	15.5	79	0.00
17	T	Iodomethane	50.0000	66.1342	-32.3#	124	0.00
18	P	Methyl acetate	50.0000	48.5783	2.8	95	0.00
19	P	Methylene Chloride	50.0000	49.2786	1.4	96	0.00
20	P	Carbon Disulfide	50.0000	47.2752	5.4	89	0.00
21	T	Acrylonitrile	50.0000	55.7259	-11.5	105	0.00
22	P	Methyl Tert Butyl Ether	50.0000	51.1513	-2.3	100	0.00
23	P	trans-1,2-Dichloroethene	50.0000	48.7388	2.5	94	0.00
24	T	n-Hexane	50.0000	48.7195	2.6	94	0.00
25	T	Diisopropyl ether	100.0000	100.2549	-0.3	98	0.00
26	T	Vinyl Acetate	50.0000	59.4900	-19.0	118	0.00
27	P	1,1-Dichloroethane	50.0000	49.4781	1.0	93	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	101.7706	-1.8	100	0.00
29	P	2-Butanone	50.0000	52.0385	-4.1	104	0.00
30	T	Propionitrile	100.0000	105.9533	-6.0	111	0.00
31	T	2,2-Dichloropropane	50.0000	51.4521	-2.9	101	0.00
32	P	cis-1,2-Dichloroethene	50.0000	51.2187	-2.4	95	0.00
33	C	Chloroform	50.0000	51.9181	-3.8	97	0.00
34	T	1-Bromopropane	50.0000	65.1057	-30.2#	122	0.00
35	T	Bromochloromethane	50.0000	50.0409	-0.1	94	0.00
36	T	Tetrahydrofuran	100.0000	99.7540	0.2	97	0.00
37	S	Dibromofluoromethane	50.0000	51.1734	-2.3	102	0.00
38	P	1,1,1-Trichloroethane	50.0000	49.9228	0.2	94	0.00
39	P	Cyclohexane	50.0000	49.0241	2.0	96	0.00
40	T	1,1-Dichloropropene	50.0000	51.7837	-3.6	96	0.00
41	T	Tert-Amyl-Methyl ether	100.0000	103.4984	-3.5	101	0.00
42	P	Carbon Tetrachloride	50.0000	50.4972	-1.0	94	0.00
43	S	1,2-Dichloroethane-d4	50.0000	49.6918	0.6	101	0.00
44		Heptane	-1.0000	0.0000	0.0	98	0.00
45	P	1,2-Dichloroethane	50.0000	49.5453	0.9	96	0.00
46	P	Benzene	50.0000	48.9492	2.1	96	0.00
47	P	Trichloroethene	50.0000	50.1126	-0.2	94	0.00
48	P	Methylcyclohexane	50.0000	49.9963	0.0	97	0.00
49	C	1,2-Dichloropropane	50.0000	51.6402	-3.3	97	0.00
50	T	1,4-Dioxane	200.0000	225.9620	-13.0	124	0.00
51	P	Bromodichloromethane	50.0000	50.9313	-1.9	95	0.00
52	T	Dibromomethane	50.0000	52.6053	-5.2	97	0.00
53	T	2-Chloroethyl Vinyl Ether	50.0000	50.0892	-0.2	99	0.00
54	P	4-Methyl-2-Pentanone	50.0000	56.7498	-13.5	113	0.00

(#) = Out of Range
9M982001.D 8260C.M Tue Aug 15 10:03:53 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\081417\9M982001.D Vial: 13
Acq On : 14 Aug 2017 15:16 Operator: ADC
Sample : WG625140-11 50ug/L ICV 8260C Inst : hpms9
Misc : 1,1 STD83237 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	50.0000	58.4024	-16.8	104	0.00
56	T	Dimethyl Disulfide	50.0000	45.3861	9.2	99	0.00
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	103	0.00
58	S	Toluene-d8	50.0000	49.3356	1.3	101	0.00
59	C	Toluene	50.0000	50.1404	-0.3	97	0.00
60	T	Ethyl Methacrylate	50.0000	50.1628	-0.3	107	0.00
61	P	trans-1,3-Dichloropropene	50.0000	56.6849	-13.4	98	0.00
62	P	1,1,2-Trichloroethane	50.0000	52.3487	-4.7	101	0.00
63	P	2-Hexanone	50.0000	54.3339	-8.7	122	0.00
64	T	1,3-Dichloropropane	50.0000	54.2062	-8.4	105	0.00
65	P	Tetrachloroethene	50.0000	50.1096	-0.2	97	0.00
66	P	Dibromochloromethane	50.0000	53.5449	-7.1	99	0.00
67	P	1,2-Dibromoethane	50.0000	54.1742	-8.3	100	0.00
68	T	1-Chlorohexane	50.0000	54.3814	-8.8	98	0.00
69	P	Chlorobenzene	50.0000	53.1814	-6.4	102	0.00
70	T	1,1,1,2-Tetrachloroethane	50.0000	52.6410	-5.3	100	0.00
71	C	Ethylbenzene	50.0000	53.7784	-7.6	102	0.00
72	P	m-,p-Xylene	100.0000	110.9133	-10.9	101	0.00
73	P	o-Xylene	50.0000	54.5036	-9.0	103	0.00
74	P	Styrene	50.0000	49.7796	0.4	105	0.00
75	P	Bromoform	50.0000	47.2874	5.4	106	0.00
76	P	Isopropylbenzene	50.0000	53.0389	-6.1	99	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	123	0.00
78	P	1,1,2,2-Tetrachloroethane	50.0000	54.4840	-9.0	121	0.00
79	S	p-Bromofluorobenzene	50.0000	46.5733	6.9	115	0.00
80	T	1,2,3-Trichloropropane	50.0000	55.4452	-10.9	122	0.00
81	T	trans-1,4-Dichloro-2-Butene	50.0000	45.4707	9.1	107	0.00
82	T	n-Propylbenzene	50.0000	49.4819	1.0	107	0.00
83	T	Bromobenzene	50.0000	48.5007	3.0	111	0.00
84	T	1,3,5-Trimethylbenzene	50.0000	48.9167	2.2	108	0.00
85	T	2-Chlorotoluene	50.0000	49.8955	0.2	113	0.00
86	T	4-Chlorotoluene	50.0000	51.2983	-2.6	109	0.00
87	T	a-Methylstyrene	50.0000	56.4699	-12.9	121	0.00
88	T	tert-Butylbenzene	50.0000	50.3135	-0.6	113	0.00
89	T	1,2,4-Trimethylbenzene	50.0000	52.5620	-5.1	115	0.00
90	T	sec-Butylbenzene	50.0000	52.2087	-4.4	112	0.00
91	T	p-Isopropyltoluene	50.0000	54.2520	-8.5	114	0.00
92	P	1,3-Dichlorobenzene	50.0000	53.8989	-7.8	119	0.00
93	P	1,4-Dichlorobenzene	50.0000	55.1827	-10.4	127	0.00
94	T	n-Butylbenzene	50.0000	49.4023	1.2	117	0.00
95	P	1,2-Dichlorobenzene	50.0000	56.5643	-13.1	126	0.00
96	P	1,2-Dibromo-3-Chloropropane	50.0000	49.3332	1.3	115	0.00
97	P	1,2,4-Trichlorobenzene	50.0000	49.8281	0.3	117	0.00
98	T	Hexachlorobutadiene	50.0000	50.0114	-0.0	120	0.00
99	T	Naphthalene	50.0000	53.4382	-6.9	112	0.00
100	T	1,2,3-Trichlorobenzene	50.0000	56.9014	-13.8	114	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M982001.D 8260C.M Tue Aug 15 10:03:53 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 14:31:32 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	635075	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	487062	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	260486	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	180430	50.7412 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 101.48%		
43) 1,2-Dichloroethane-d4	10.30	65	210284	50.6280 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.26%		
58) Toluene-d8	12.67	98	613648	51.1765 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 102.36%		
79) p-Bromofluorobenzene	16.06	95	232903	50.4253 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 100.86%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.22	85	226716	48.7784 ug/L	99
3) Chloromethane	3.67	50	300057	47.0625 ug/L	98
4) Vinyl Chloride	3.88	62	210554	46.4563 ug/L	100
5) 1,3-Butadiene	3.93	54	83542	50.0669 ug/L	98
6) Bromomethane	4.77	94	117569	42.1881 ug/L	99
7) Chloroethane	4.93	64	137432	52.1647 ug/L	99
8) Trichlorofluoromethane	5.40	101	300950	51.5435 ug/L	99
9) Diethyl ether	5.93	59	365575	101.0995 ug/L	99
10) Isoprene	5.96	67	249427	52.4373 ug/L	100
11) Acrolein	6.16	56	35958	59.0473 ug/L	100
12) 1,1,2-Trichloro-1,2,2-Trif	6.17	101	167401	54.6017 ug/L	99
13) Acetone	6.27	43	83256	43.1410 ug/L	97
14) 1,1-Dichloroethene	6.48	61	281464	51.2544 ug/L	98
15) Tert-Butyl Alcohol	6.61	59	114112	171.3666 ug/L	99
16) Dimethyl Sulfide	6.74	62	215758	50.2208 ug/L	99
17) Iodomethane	7.00	142	190115	45.2408 ug/L	98
18) Methyl acetate	7.02	43	244580	49.3386 ug/L	100
19) Methylene Chloride	7.26	84	174708	48.6387 ug/L	99
20) Carbon Disulfide	7.30	76	450135	50.2467 ug/L	99
21) Acrylonitrile	7.45	53	115928	49.7326 ug/L	99
22) Methyl Tert Butyl Ether	7.47	73	541603	48.1224 ug/L	99
23) trans-1,2-Dichloroethene	7.71	61	254788	49.9339 ug/L	100
24) n-Hexane	7.79	57	280068	58.2423 ug/L	100
25) Diisopropyl ether	8.13	45	1394492	101.0135 ug/L	100
26) Vinyl Acetate	8.29	43	361784	41.9096 ug/L	100
27) 1,1-Dichloroethane	8.33	63	342201	50.5038 ug/L	99
28) Ethyl-Tert-Butyl ether	8.70	59	1281192	101.5492 ug/L	100
29) 2-Butanone	8.89	43	123415	42.9404 ug/L	99
30) Propionitrile	8.99	54	84818	87.6081 ug/L	99
31) 2,2-Dichloropropane	9.10	77	269120	54.5385 ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	185719	51.0631 ug/L	99
33) Chloroform	9.37	83	304059	50.2666 ug/L	100
34) 1-Bromopropane	9.51	122	33897	49.5964 ug/L	97
35) Bromochloromethane	9.60	130	127702	48.9949 ug/L	99
36) Tetrahydrofuran	9.64	42	168697	94.2359 ug/L	100
38) 1,1,1-Trichloroethane	9.90	97	277502	50.0019 ug/L	100
39) Cyclohexane	9.93	56	346792	49.7661 ug/L	99
40) 1,1-Dichloropropene	10.10	75	222486	53.0361 ug/L	99
41) Tert-Amyl-Methyl ether	10.19	73	1066378	101.8705 ug/L	99
42) Carbon Tetrachloride	10.24	117	260035	51.8159 ug/L	100

(#) = qualifier out of range (m) = manual integration
9M982214.D 8260C.M Mon Aug 28 14:31:33 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 14:31:32 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

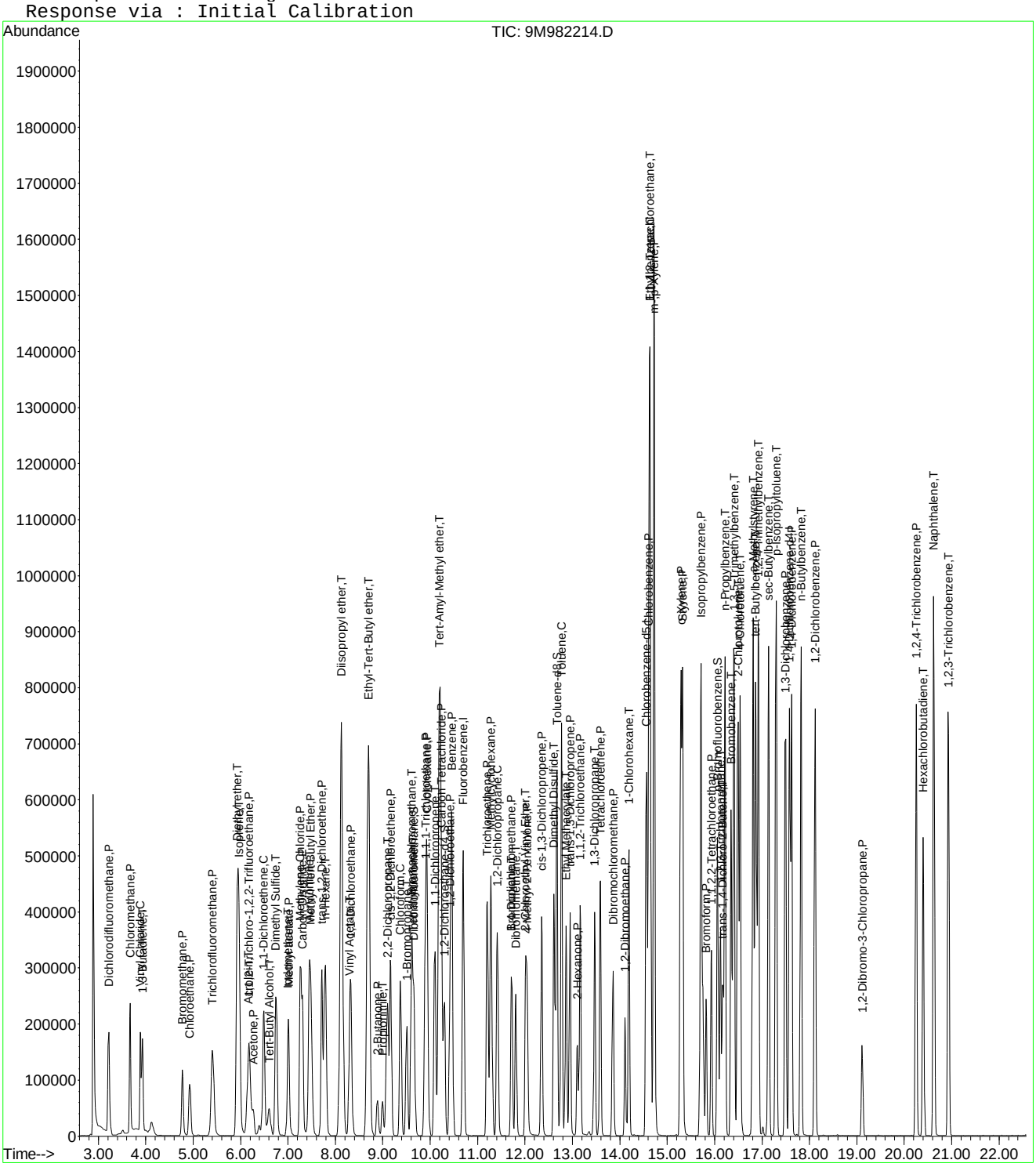
	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	283164	48.4746	ug/L		99
46)	Benzene	10.46	78	671841	48.1421	ug/L		100
47)	Trichloroethene	11.21	130	203249	54.8244	ug/L		99
48)	Methylcyclohexane	11.28	83	292905	53.0493	ug/L		99
49)	1,2-Dichloropropane	11.42	63	194108	50.2160	ug/L		100
50)	1,4-Dioxane	11.71	88	11972	173.5880	ug/L		100
51)	Bromodichloromethane	11.71	83	233362	50.2361	ug/L		98
52)	Dibromomethane	11.81	174	129751	51.0364	ug/L		100
53)	2-Chloroethyl Vinyl Ether	12.01	63	143437	46.9015	ug/L		98
54)	4-Methyl-2-Pentanone	12.04	58	100300	43.4349	ug/L		99
55)	cis-1,3-Dichloropropene	12.35	75	279253	53.8975	ug/L		100
56)	Dimethyl Disulfide	12.61	79	160481	46.0050	ug/L		98
59)	Toluene	12.77	91	716313	50.7634	ug/L		100
60)	Ethyl Methacrylate	12.86	69	254447	44.5055	ug/L		100
61)	trans-1,3-Dichloropropene	12.95	75	262713	55.5044	ug/L		100
62)	1,1,2-Trichloroethane	13.16	97	170732	49.2691	ug/L		100
63)	2-Hexanone	13.11	43	179100	40.0229	ug/L	#	83
64)	1,3-Dichloropropane	13.47	76	278796	49.0689	ug/L		99
65)	Tetrachloroethene	13.59	164	152121	53.2152	ug/L		99
66)	Dibromochloromethane	13.86	129	212304	52.4861	ug/L		99
67)	1,2-Dibromoethane	14.11	107	185224	50.4268	ug/L		99
68)	1-Chlorohexane	14.19	91	222296	57.5379	ug/L		97
69)	Chlorobenzene	14.61	112	502091	51.2950	ug/L		99
70)	1,1,1,2-Tetrachloroethane	14.64	131	193206	50.5966	ug/L		100
71)	Ethylbenzene	14.64	106	274537	53.2170	ug/L		95
72)	m-,p-Xylene	14.72	106	667282	109.3490	ug/L		98
73)	o-Xylene	15.29	106	328003	51.9229	ug/L		100
74)	Styrene	15.32	104	550464	46.7871	ug/L		100
75)	Bromoform	15.82	173	157608	41.7402	ug/L		99
76)	Isopropylbenzene	15.71	105	839048	52.9064	ug/L		99
78)	1,1,2,2-Tetrachloroethane	15.94	83	227669	42.8846	ug/L		100
80)	1,2,3-Trichloropropane	16.13	110	81780	45.8738	ug/L		94
81)	trans-1,4-Dichloro-2-Buten	16.17	53	86184	43.7978	ug/L		86
82)	n-Propylbenzene	16.22	91	948899	53.2171	ug/L		98
83)	Bromobenzene	16.35	156	225714	50.0936	ug/L		97
84)	1,3,5-Trimethylbenzene	16.41	105	727394	52.6668	ug/L		100
85)	2-Chlorotoluene	16.49	91	610351	51.7731	ug/L		92
86)	4-Chlorotoluene	16.54	91	551835	52.6573	ug/L		90
87)	a-Methylstyrene	16.81	118	393286	53.7074	ug/L		98
88)	tert-Butylbenzene	16.86	134	153793	51.7403	ug/L		88
89)	1,2,4-Trimethylbenzene	16.92	105	747770	52.2178	ug/L		100
90)	sec-Butylbenzene	17.14	105	919762	54.7104	ug/L		100
91)	p-Isopropyltoluene	17.30	119	793812	56.6481	ug/L		100
92)	1,3-Dichlorobenzene	17.50	146	422450	53.0316	ug/L		99
93)	1,4-Dichlorobenzene	17.62	146	427142	51.7753	ug/L		99
94)	n-Butylbenzene	17.82	91	677131	51.2405	ug/L		99
95)	1,2-Dichlorobenzene	18.12	146	432771	50.2056	ug/L		100
96)	1,2-Dibromo-3-Chloropropan	19.12	157	63245	39.2394	ug/L		98
97)	1,2,4-Trichlorobenzene	20.25	180	319458	49.8871	ug/L		99
98)	Hexachlorobutadiene	20.40	225	148928	52.2285	ug/L		99
99)	Naphthalene	20.62	128	999864	49.3830	ug/L		100
100)	1,2,3-Trichlorobenzene	20.94	180	324683	54.9500	ug/L		99

(#) = qualifier out of range (m) = manual integration
9M982214.D 8260C.M Mon Aug 28 14:31:33 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 14:31 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.0000	1.0000	0.0	136	0.00
2	P	Dichlorodifluoromethane	0.3659	0.3570	2.4	121	0.00
3	P	Chloromethane	0.5020	0.4725	5.9	125	0.00
4	C	Vinyl Chloride	0.3568	0.3315	7.1	114	0.00
5	T	1,3-Butadiene	0.1314	0.1316	-0.1	123	0.00
6	P	Bromomethane	0.2194	0.1851	15.6	119	0.00
7	P	Chloroethane	0.2074	0.2164	-4.3	127	0.00
8	P	Trichlorofluoromethane	0.4597	0.4739	-3.1	131	0.00
9	T	Diethyl ether	0.2847	0.2878	-1.1	136	0.00
10	T	Isoprene	0.3745	0.3927	-4.9	130	0.00
11	T	Acrolein	0.0479	0.0566	-18.1	153	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	0.2414	0.2636	-9.2	140	0.00
13	P	Acetone	0.1519	0.1311	13.7	118	0.00
14	C	1,1-Dichloroethene	0.4324	0.4432	-2.5	132	0.00
15	T	Tert-Butyl Alcohol	0.0524	0.0449	14.3	116	0.00
16	T	Dimethyl Sulfide	0.3382	0.3397	-0.4	127	0.00
17	T	Iodomethane	0.3308	0.2994	9.5	114	0.00
18	P	Methyl acetate	0.3903	0.3851	1.3	130	0.00
19	P	Methylene Chloride	0.2828	0.2751	2.7	127	0.00
20	P	Carbon Disulfide	0.7053	0.7088	-0.5	127	0.00
21	T	Acrylonitrile	0.1835	0.1825	0.5	126	0.00
22	P	Methyl Tert Butyl Ether	0.8861	0.8528	3.8	126	0.00
23	P	trans-1,2-Dichloroethene	0.4017	0.4012	0.1	130	0.00
24	T	n-Hexane	0.3786	0.4410	-16.5	151	0.00
25	T	Diisopropyl ether	1.0869	1.0979	-1.0	133	0.00
26	T	Vinyl Acetate	0.6796	0.5697	16.2	111	0.00
27	P	1,1-Dichloroethane	0.5335	0.5388	-1.0	128	0.00
28	T	Ethyl-Tert-Butyl ether	0.9933	1.0087	-1.5	134	0.00
29	P	2-Butanone	0.2263	0.1943	14.1	115	0.00
30	T	Propionitrile	0.0679	0.0668	1.6	122	0.00
31	T	2,2-Dichloropropane	0.3885	0.4238	-9.1	144	0.00
32	P	cis-1,2-Dichloroethene	0.2863	0.2924	-2.1	128	0.00
33	C	Chloroform	0.4762	0.4788	-0.5	126	0.00
34	T	1-Bromopropane	0.0538	0.0534	0.8	125	0.00
35	T	Bromochloromethane	0.2052	0.2011	2.0	124	0.00
36	T	Tetrahydrofuran	0.1409	0.1328	5.8	124	0.00
37	S	Dibromofluoromethane	0.2800	0.2841	-1.5	135	0.00
38	P	1,1,1-Trichloroethane	0.4369	0.4370	-0.0	127	0.00
39	P	Cyclohexane	0.5486	0.5461	0.5	130	0.00
40	T	1,1-Dichloropropene	0.3303	0.3503	-6.1	132	0.00
41	T	Tert-Amyl-Methyl ether	0.8242	0.8396	-1.9	134	0.00
42	P	Carbon Tetrachloride	0.3951	0.4095	-3.6	130	0.00
43	S	1,2-Dichloroethane-d4	0.3270	0.3311	-1.3	138	0.00
44		Heptane	0.0000	0.0000	0.0	139	0.00
45	P	1,2-Dichloroethane	0.4599	0.4459	3.1	127	0.00
46	P	Benzene	1.0987	1.0579	3.7	127	0.00
47	P	Trichloroethene	0.2919	0.3200	-9.6	138	0.00
48	P	Methylcyclohexane	0.4347	0.4612	-6.1	139	0.00
49	C	1,2-Dichloropropane	0.3043	0.3056	-0.4	126	0.00
50	T	1,4-Dioxane	0.0050	0.0047	6.7	122	0.00
51	P	Bromodichloromethane	0.3657	0.3675	-0.5	126	0.00
52	T	Dibromomethane	0.2002	0.2043	-2.1	126	0.00
53	T	2-Chloroethyl Vinyl Ether	0.2408	0.2259	6.2	125	0.00
54	P	4-Methyl-2-Pentanone	0.1818	0.1579	13.1	116	0.00

(#) = Out of Range
9M982214.D 8260C.M Mon Aug 28 15:05:24 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	0.4079	0.4397	-7.8	129	0.00
56	T	Dimethyl Disulfide	0.2480	0.2527	-1.9	134	0.00
57	I	Chlorobenzene-d5	1.0000	1.0000	0.0	135	0.00
58	S	Toluene-d8	1.2309	1.2599	-2.4	137	0.00
59	C	Toluene	1.4486	1.4707	-1.5	128	0.00
60	T	Ethyl Methacrylate	0.5084	0.5224	-2.7	124	0.00
61	P	trans-1,3-Dichloropropene	0.4859	0.5394	-11.0	126	0.00
62	P	1,1,2-Trichloroethane	0.3557	0.3505	1.5	124	0.00
63	P	2-Hexanone	0.4196	0.3677	12.4	114	0.00
64	T	1,3-Dichloropropane	0.5833	0.5724	1.9	124	0.00
65	P	Tetrachloroethene	0.2934	0.3123	-6.4	134	0.00
66	P	Dibromochloromethane	0.4152	0.4359	-5.0	127	0.00
67	P	1,2-Dibromoethane	0.3771	0.3803	-0.9	121	0.00
68	T	1-Chlorohexane	0.3966	0.4564	-15.1	135	0.00
69	P	Chlorobenzene	1.0048	1.0309	-2.6	129	0.00
70	T	1,1,1,2-Tetrachloroethane	0.3920	0.3967	-1.2	125	0.00
71	C	Ethylbenzene	0.5296	0.5637	-6.4	131	0.00
72	P	m-,p-Xylene	0.6264	0.6850	-9.3	130	0.00
73	P	o-Xylene	0.6485	0.6734	-3.8	128	0.00
74	P	Styrene	0.9899	1.1302	-14.2	129	0.00
75	P	Bromoform	0.3249	0.3236	0.4	121	0.00
76	P	Isopropylbenzene	1.6280	1.7227	-5.8	129	0.00
77	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	139	0.00
78	P	1,1,2,2-Tetrachloroethane	1.0190	0.8740	14.2	108	0.00
79	S	p-Bromofluorobenzene	0.8866	0.8941	-0.9	142	0.00
80	T	1,2,3-Trichloropropane	0.3422	0.3140	8.3	115	0.00
81	T	trans-1,4-Dichloro-2-Butene	0.3777	0.3309	12.4	117	0.00
82	T	n-Propylbenzene	3.4226	3.6428	-6.4	131	0.00
83	T	Bromobenzene	0.8649	0.8665	-0.2	130	0.00
84	T	1,3,5-Trimethylbenzene	2.6511	2.7925	-5.3	132	0.00
85	T	2-Chlorotoluene	2.2629	2.3431	-3.5	133	0.00
86	T	4-Chlorotoluene	2.0116	2.1185	-5.3	127	0.00
87	T	a-Methylstyrene	1.4056	1.5098	-7.4	130	0.00
88	T	tert-Butylbenzene	0.5706	0.5904	-3.5	132	0.00
89	T	1,2,4-Trimethylbenzene	2.7487	2.8707	-4.4	130	0.00
90	T	sec-Butylbenzene	3.2269	3.5309	-9.4	133	0.00
91	T	p-Isopropyltoluene	2.6898	3.0474	-13.3	135	0.00
92	P	1,3-Dichlorobenzene	1.5291	1.6218	-6.1	132	0.00
93	P	1,4-Dichlorobenzene	1.5836	1.6398	-3.6	135	0.00
94	T	n-Butylbenzene	2.1599	2.5995	-20.4	137	0.00
95	P	1,2-Dichlorobenzene	1.6546	1.6614	-0.4	127	0.00
96	P	1,2-Dibromo-3-Chloropropane	0.2656	0.2428	8.6	103	0.00
97	P	1,2,4-Trichlorobenzene	1.0382	1.2264	-18.1	133	0.00
98	T	Hexachlorobutadiene	0.4609	0.5717	-24.0	142	0.00
99	T	Naphthalene	3.5928	3.8385	-6.8	117	0.00
100	T	1,2,3-Trichlorobenzene	1.1342	1.2465	-9.9	125	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M982214.D 8260C.M Mon Aug 28 15:05:24 2017 Page 2

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	136	0.00
2	P	Dichlorodifluoromethane	50.0000	48.7784	2.4	121	0.00
3	P	Chloromethane	50.0000	47.0625	5.9	125	0.00
4	C	Vinyl Chloride	50.0000	46.4563	7.1	114	0.00
5	T	1,3-Butadiene	50.0000	50.0669	-0.1	123	0.00
6	P	Bromomethane	50.0000	42.1881	15.6	119	0.00
7	P	Chloroethane	50.0000	52.1647	-4.3	127	0.00
8	P	Trichlorofluoromethane	50.0000	51.5435	-3.1	131	0.00
9	T	Diethyl ether	100.0000	101.0995	-1.1	136	0.00
10	T	Isoprene	50.0000	52.4373	-4.9	130	0.00
11	T	Acrolein	50.0000	59.0473	-18.1	153	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	50.0000	54.6017	-9.2	140	0.00
13	P	Acetone	50.0000	43.1410	13.7	118	0.00
14	C	1,1-Dichloroethene	50.0000	51.2544	-2.5	132	0.00
15	T	Tert-Butyl Alcohol	200.0000	171.3666	14.3	116	0.00
16	T	Dimethyl Sulfide	50.0000	50.2208	-0.4	127	0.00
17	T	Iodomethane	50.0000	45.2408	9.5	114	0.00
18	P	Methyl acetate	50.0000	49.3386	1.3	130	0.00
19	P	Methylene Chloride	50.0000	48.6387	2.7	127	0.00
20	P	Carbon Disulfide	50.0000	50.2467	-0.5	127	0.00
21	T	Acrylonitrile	50.0000	49.7326	0.5	126	0.00
22	P	Methyl Tert Butyl Ether	50.0000	48.1224	3.8	126	0.00
23	P	trans-1,2-Dichloroethene	50.0000	49.9339	0.1	130	0.00
24	T	n-Hexane	50.0000	58.2422	-16.5	151	0.00
25	T	Diisopropyl ether	100.0000	101.0135	-1.0	133	0.00
26	T	Vinyl Acetate	50.0000	41.9096	16.2	111	0.00
27	P	1,1-Dichloroethane	50.0000	50.5038	-1.0	128	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	101.5492	-1.5	134	0.00
29	P	2-Butanone	50.0000	42.9404	14.1	115	0.00
30	T	Propionitrile	100.0000	87.6081	12.4	122	0.00
31	T	2,2-Dichloropropane	50.0000	54.5385	-9.1	144	0.00
32	P	cis-1,2-Dichloroethene	50.0000	51.0631	-2.1	128	0.00
33	C	Chloroform	50.0000	50.2666	-0.5	126	0.00
34	T	1-Bromopropane	50.0000	49.5964	0.8	125	0.00
35	T	Bromochloromethane	50.0000	48.9949	2.0	124	0.00
36	T	Tetrahydrofuran	100.0000	94.2359	5.8	124	0.00
37	S	Dibromofluoromethane	50.0000	50.7411	-1.5	135	0.00
38	P	1,1,1-Trichloroethane	50.0000	50.0019	-0.0	127	0.00
39	P	Cyclohexane	50.0000	49.7661	0.5	130	0.00
40	T	1,1-Dichloropropene	50.0000	53.0361	-6.1	132	0.00
41	T	Tert-Amyl-Methyl ether	100.0000	101.8705	-1.9	134	0.00
42	P	Carbon Tetrachloride	50.0000	51.8159	-3.6	130	0.00
43	S	1,2-Dichloroethane-d4	50.0000	50.6280	-1.3	138	0.00
44		Heptane	-1.0000	0.0000	0.0	139	0.00
45	P	1,2-Dichloroethane	50.0000	48.4746	3.1	127	0.00
46	P	Benzene	50.0000	48.1421	3.7	127	0.00
47	P	Trichloroethene	50.0000	54.8244	-9.6	138	0.00
48	P	Methylcyclohexane	50.0000	53.0493	-6.1	139	0.00
49	C	1,2-Dichloropropane	50.0000	50.2160	-0.4	126	0.00
50	T	1,4-Dioxane	200.0000	173.5880	13.2	122	0.00
51	P	Bromodichloromethane	50.0000	50.2362	-0.5	126	0.00
52	T	Dibromomethane	50.0000	51.0364	-2.1	126	0.00
53	T	2-Chloroethyl Vinyl Ether	50.0000	46.9016	6.2	125	0.00
54	P	4-Methyl-2-Pentanone	50.0000	43.4349	13.1	116	0.00

(#) = Out of Range
9M982214.D 8260C.M Mon Aug 28 15:05:25 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\082817\9M982214.D Vial: 1
Acq On : 28 Aug 2017 14:08 Operator: JDS
Sample : WG627474-02 50ug/L CCV Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	50.0000	53.8975	-7.8	129	0.00
56	T	Dimethyl Disulfide	50.0000	46.0050	8.0	134	0.00
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	135	0.00
58	S	Toluene-d8	50.0000	51.1765	-2.4	137	0.00
59	C	Toluene	50.0000	50.7634	-1.5	128	0.00
60	T	Ethyl Methacrylate	50.0000	44.5055	11.0	124	0.00
61	P	trans-1,3-Dichloropropene	50.0000	55.5044	-11.0	126	0.00
62	P	1,1,2-Trichloroethane	50.0000	49.2691	1.5	124	0.00
63	P	2-Hexanone	50.0000	40.0229	20.0	114	0.00
64	T	1,3-Dichloropropane	50.0000	49.0689	1.9	124	0.00
65	P	Tetrachloroethene	50.0000	53.2152	-6.4	134	0.00
66	P	Dibromochloromethane	50.0000	52.4861	-5.0	127	0.00
67	P	1,2-Dibromoethane	50.0000	50.4268	-0.9	121	0.00
68	T	1-Chlorohexane	50.0000	57.5379	-15.1	135	0.00
69	P	Chlorobenzene	50.0000	51.2950	-2.6	129	0.00
70	T	1,1,1,2-Tetrachloroethane	50.0000	50.5966	-1.2	125	0.00
71	C	Ethylbenzene	50.0000	53.2170	-6.4	131	0.00
72	P	m-,p-Xylene	100.0000	109.3490	-9.3	130	0.00
73	P	o-Xylene	50.0000	51.9229	-3.8	128	0.00
74	P	Styrene	50.0000	46.7871	6.4	129	0.00
75	P	Bromoform	50.0000	41.7402	16.5	121	0.00
76	P	Isopropylbenzene	50.0000	52.9064	-5.8	129	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	139	0.00
78	P	1,1,2,2-Tetrachloroethane	50.0000	42.8846	14.2	108	0.00
79	S	p-Bromofluorobenzene	50.0000	50.4253	-0.9	142	0.00
80	T	1,2,3-Trichloropropane	50.0000	45.8738	8.3	115	0.00
81	T	trans-1,4-Dichloro-2-Butene	50.0000	43.7978	12.4	117	0.00
82	T	n-Propylbenzene	50.0000	53.2171	-6.4	131	0.00
83	T	Bromobenzene	50.0000	50.0936	-0.2	130	0.00
84	T	1,3,5-Trimethylbenzene	50.0000	52.6668	-5.3	132	0.00
85	T	2-Chlorotoluene	50.0000	51.7731	-3.5	133	0.00
86	T	4-Chlorotoluene	50.0000	52.6573	-5.3	127	0.00
87	T	a-Methylstyrene	50.0000	53.7074	-7.4	130	0.00
88	T	tert-Butylbenzene	50.0000	51.7403	-3.5	132	0.00
89	T	1,2,4-Trimethylbenzene	50.0000	52.2178	-4.4	130	0.00
90	T	sec-Butylbenzene	50.0000	54.7104	-9.4	133	0.00
91	T	p-Isopropyltoluene	50.0000	56.6481	-13.3	135	0.00
92	P	1,3-Dichlorobenzene	50.0000	53.0316	-6.1	132	0.00
93	P	1,4-Dichlorobenzene	50.0000	51.7753	-3.6	135	0.00
94	T	n-Butylbenzene	50.0000	51.2405	-2.5	137	0.00
95	P	1,2-Dichlorobenzene	50.0000	50.2056	-0.4	127	0.00
96	P	1,2-Dibromo-3-Chloropropane	50.0000	39.2394	21.5	103	0.00
97	P	1,2,4-Trichlorobenzene	50.0000	49.8871	0.2	133	0.00
98	T	Hexachlorobutadiene	50.0000	52.2285	-4.5	142	0.00
99	T	Naphthalene	50.0000	49.3830	1.2	117	0.00
100	T	1,2,3-Trichlorobenzene	50.0000	54.9500	-9.9	125	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M982214.D 8260C.M Mon Aug 28 15:05:25 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 13:43:34 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	583814	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	448351	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	239836	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	163489	50.0139	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 100.02%			
43) 1,2-Dichloroethane-d4	10.30	65	193818	50.7609	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 101.52%			
58) Toluene-d8	12.67	98	558048	50.5579	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 101.12%			
79) p-Bromofluorobenzene	16.06	95	213054	50.0995	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 100.20%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.23	85	240515	56.2909	ug/L	97
3) Chloromethane	3.68	50	283899	48.4380	ug/L	99
4) Vinyl Chloride	3.89	62	204408	49.0602	ug/L	99
5) 1,3-Butadiene	3.93	54	74275	48.4216	ug/L	97
6) Bromomethane	4.78	94	93025	36.3118	ug/L	99
7) Chloroethane	4.94	64	121850	50.3112	ug/L	99
8) Trichlorofluoromethane	5.41	101	272534	50.7751	ug/L	99
9) Diethyl ether	5.94	59	325537	97.9318	ug/L	99
10) Isoprene	5.97	67	211576	48.3853	ug/L	100
11) Acrolein	6.17	56	24498	43.7608	ug/L	100
12) 1,1,2-Trichloro-1,2,2-Trif	6.17	101	144626	51.3151	ug/L	99
13) Acetone	6.28	43	76642	43.2008	ug/L	98
14) 1,1-Dichloroethene	6.49	61	249550	49.4330	ug/L	98
15) Tert-Butyl Alcohol	6.60	59	102421	167.3148	ug/L	99
16) Dimethyl Sulfide	6.75	62	187001	47.3490	ug/L	100
17) Iodomethane	7.01	142	150414	38.9361	ug/L	98
18) Methyl acetate	7.02	43	193049	42.3628	ug/L	100
19) Methylene Chloride	7.27	84	159199	48.2126	ug/L	99
20) Carbon Disulfide	7.31	76	379129	46.0365	ug/L	100
21) Acrylonitrile	7.45	53	105369	49.1718	ug/L	97
22) Methyl Tert Butyl Ether	7.48	73	483157	46.6987	ug/L	99
23) trans-1,2-Dichloroethene	7.71	61	226459	48.2788	ug/L	99
24) n-Hexane	7.79	57	230432	52.1276	ug/L	99
25) Diisopropyl ether	8.12	45	1240466	97.7459	ug/L	100
26) Vinyl Acetate	8.30	43	407297	51.3247	ug/L	100
27) 1,1-Dichloroethane	8.34	63	309804	49.7371	ug/L	99
28) Ethyl-Tert-Butyl ether	8.70	59	1134612	97.8274	ug/L	100
29) 2-Butanone	8.88	43	112687	42.6503	ug/L	99
30) Propionitrile	9.00	54	76087	85.5748	ug/L	100
31) 2,2-Dichloropropane	9.11	77	235084	51.8240	ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	165633	49.5391	ug/L	97
33) Chloroform	9.38	83	273355	49.1586	ug/L	100
34) 1-Bromopropane	9.52	122	29042	46.2239	ug/L	98
35) Bromochloromethane	9.61	130	117547	49.0586	ug/L	99
36) Tetrahydrofuran	9.63	42	151384	91.9898	ug/L	99
38) 1,1,1-Trichloroethane	9.91	97	239504	46.9444	ug/L	99
39) Cyclohexane	9.93	56	291900	45.5668	ug/L	99
40) 1,1-Dichloropropene	10.10	75	191806	49.7372	ug/L	99
41) Tert-Amyl-Methyl ether	10.20	73	934325	97.0925	ug/L	100
42) Carbon Tetrachloride	10.25	117	228514	49.5330	ug/L	100

(#) = qualifier out of range (m) = manual integration
9M982269.D 8260C.M Wed Aug 30 13:43:35 2017 Page 1

Data File : C:\MSDchem\1\data\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 13:43:34 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

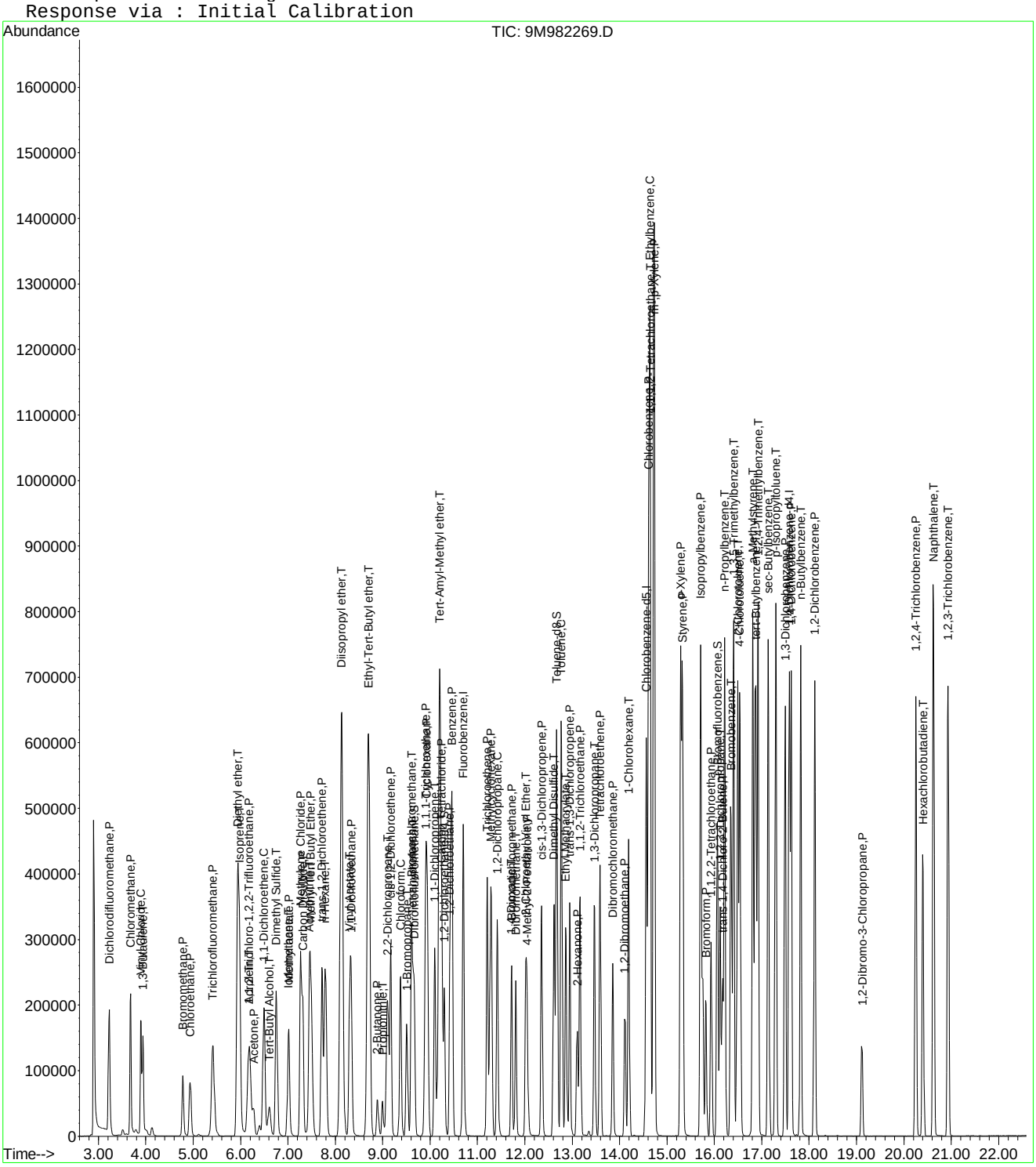
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
45)	1,2-Dichloroethane	10.41	62	261093	48.6207 ug/L		100
46)	Benzene	10.46	78	594464	46.3377 ug/L		100
47)	Trichloroethene	11.21	130	185305	54.3730 ug/L		98
48)	Methylcyclohexane	11.28	83	239201	47.1267 ug/L		99
49)	1,2-Dichloropropane	11.42	63	173589	48.8508 ug/L		100
50)	1,4-Dioxane	11.71	88	11168	175.6793 ug/L		92
51)	Bromodichloromethane	11.72	83	210885	49.3836 ug/L		100
52)	Dibromomethane	11.81	174	117492	50.2723 ug/L		99
53)	2-Chloroethyl Vinyl Ether	12.02	63	117087	41.6471 ug/L		98
54)	4-Methyl-2-Pentanone	12.05	58	91033	42.8832 ug/L		98
55)	cis-1,3-Dichloropropene	12.36	75	247525	51.9686 ug/L		99
56)	Dimethyl Disulfide	12.61	79	133516	41.9602 ug/L		99
59)	Toluene	12.77	91	635226	48.9038 ug/L		100
60)	Ethyl Methacrylate	12.86	69	222185	42.2917 ug/L		99
61)	trans-1,3-Dichloropropene	12.95	75	235587	54.0709 ug/L		99
62)	1,1,2-Trichloroethane	13.17	97	153785	48.2103 ug/L		100
63)	2-Hexanone	13.10	43	162827	39.5705 ug/L	#	83
64)	1,3-Dichloropropane	13.47	76	258743	49.4714 ug/L		99
65)	Tetrachloroethene	13.59	164	129659	49.2737 ug/L		98
66)	Dibromochloromethane	13.85	129	188525	50.6315 ug/L		99
67)	1,2-Dibromoethane	14.11	107	165783	49.0310 ug/L		98
68)	1-Chlorohexane	14.19	91	185518	52.1645 ug/L		98
69)	Chlorobenzene	14.61	112	448496	49.7757 ug/L		99
70)	1,1,1,2-Tetrachloroethane	14.65	131	170796	48.5898 ug/L		100
71)	Ethylbenzene	14.64	106	236929	49.8923 ug/L		98
72)	m-,p-Xylene	14.73	106	592932	105.5544 ug/L		99
73)	o-Xylene	15.29	106	289868	49.8480 ug/L		100
74)	Styrene	15.33	104	486525	44.9532 ug/L		99
75)	Bromoform	15.83	173	136286	39.2983 ug/L		99
76)	Isopropylbenzene	15.71	105	734832	50.3357 ug/L		99
78)	1,1,2,2-Tetrachloroethane	15.93	83	199651	40.8450 ug/L		100
80)	1,2,3-Trichloropropane	16.12	110	76922	46.8639 ug/L		96
81)	trans-1,4-Dichloro-2-Buten	16.18	53	75798	41.8363 ug/L		91
82)	n-Propylbenzene	16.22	91	831906	50.6729 ug/L		99
83)	Bromobenzene	16.36	156	200633	48.3611 ug/L		98
84)	1,3,5-Trimethylbenzene	16.41	105	634219	49.8743 ug/L		100
85)	2-Chlorotoluene	16.49	91	530236	48.8499 ug/L		91
86)	4-Chlorotoluene	16.53	91	499928	51.8116 ug/L		89
87)	a-Methylstyrene	16.81	118	339228	50.3138 ug/L		98
88)	tert-Butylbenzene	16.87	134	133699	48.8530 ug/L		89
89)	1,2,4-Trimethylbenzene	16.92	105	662983	50.2832 ug/L		99
90)	sec-Butylbenzene	17.14	105	798666	51.5976 ug/L		100
91)	p-Isopropyltoluene	17.29	119	679544	52.6691 ug/L		100
92)	1,3-Dichlorobenzene	17.49	146	372547	50.7938 ug/L		100
93)	1,4-Dichlorobenzene	17.62	146	378261	49.7980 ug/L		99
94)	n-Butylbenzene	17.82	91	575356	47.3356 ug/L		100
95)	1,2-Dichlorobenzene	18.12	146	387557	48.8314 ug/L		100
96)	1,2-Dibromo-3-Chloropropan	19.12	157	54126	36.5646 ug/L		98
97)	1,2,4-Trichlorobenzene	20.25	180	278403	47.2540 ug/L		99
98)	Hexachlorobutadiene	20.41	225	122535	46.7428 ug/L		99
99)	Naphthalene	20.63	128	903028	48.4465 ug/L		100
100)	1,2,3-Trichlorobenzene	20.94	180	290700	53.4347 ug/L		99

(#) = qualifier out of range (m) = manual integration
9M982269.D 8260C.M Wed Aug 30 13:43:35 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 13:43 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.0000	1.0000	0.0	125	0.00
2	P	Dichlorodifluoromethane	0.3659	0.4120	-12.6	128	0.00
3	P	Chloromethane	0.5020	0.4863	3.1	118	0.00
4	C	Vinyl Chloride	0.3568	0.3501	1.9	111	0.00
5	T	1,3-Butadiene	0.1314	0.1272	3.2	109	0.00
6	P	Bromomethane	0.2194	0.1593	27.4#	94	0.00
7	P	Chloroethane	0.2074	0.2087	-0.6	113	0.00
8	P	Trichlorofluoromethane	0.4597	0.4668	-1.6	119	0.00
9	T	Diethyl ether	0.2847	0.2788	2.1	121	0.00
10	T	Isoprene	0.3745	0.3624	3.2	110	0.00
11	T	Acrolein	0.0479	0.0420	12.5	104	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	0.2414	0.2477	-2.6	121	0.00
13	P	Acetone	0.1519	0.1313	13.6	108	0.00
14	C	1,1-Dichloroethene	0.4324	0.4275	1.1	117	0.00
15	T	Tert-Butyl Alcohol	0.0524	0.0439	16.3	104	0.00
16	T	Dimethyl Sulfide	0.3382	0.3203	5.3	110	0.00
17	T	Iodomethane	0.3308	0.2576	22.1	90	0.00
18	P	Methyl acetate	0.3903	0.3307	15.3	103	0.00
19	P	Methylene Chloride	0.2828	0.2727	3.6	115	0.00
20	P	Carbon Disulfide	0.7053	0.6494	7.9	107	0.00
21	T	Acrylonitrile	0.1835	0.1805	1.7	115	0.00
22	P	Methyl Tert Butyl Ether	0.8861	0.8276	6.6	112	0.00
23	P	trans-1,2-Dichloroethene	0.4017	0.3879	3.4	115	0.00
24	T	n-Hexane	0.3786	0.3947	-4.3	124	0.00
25	T	Diisopropyl ether	1.0869	1.0624	2.3	119	0.00
26	T	Vinyl Acetate	0.6796	0.6976	-2.6	125	0.00
27	P	1,1-Dichloroethane	0.5335	0.5307	0.5	116	0.00
28	T	Ethyl-Tert-Butyl ether	0.9933	0.9717	2.2	119	0.00
29	P	2-Butanone	0.2263	0.1930	14.7	105	0.00
30	T	Propionitrile	0.0679	0.0652	4.0	110	0.00
31	T	2,2-Dichloropropane	0.3885	0.4027	-3.6	125	0.00
32	P	cis-1,2-Dichloroethene	0.2863	0.2837	0.9	114	0.00
33	C	Chloroform	0.4762	0.4682	1.7	113	0.00
34	T	1-Bromopropane	0.0538	0.0498	7.5	107	0.00
35	T	Bromochloromethane	0.2052	0.2013	1.9	114	0.00
36	T	Tetrahydrofuran	0.1409	0.1296	8.0	111	0.00
37	S	Dibromofluoromethane	0.2800	0.2800	-0.0	123	0.00
38	P	1,1,1-Trichloroethane	0.4369	0.4102	6.1	109	0.00
39	P	Cyclohexane	0.5486	0.5000	8.9	110	0.00
40	T	1,1-Dichloropropene	0.3303	0.3285	0.5	114	0.00
41	T	Tert-Amyl-Methyl ether	0.8242	0.8002	2.9	118	0.00
42	P	Carbon Tetrachloride	0.3951	0.3914	0.9	114	0.00
43	S	1,2-Dichloroethane-d4	0.3270	0.3320	-1.5	127	0.00
44		Heptane	0.0000	0.0000	0.0	125	0.00
45	P	1,2-Dichloroethane	0.4599	0.4472	2.8	117	0.00
46	P	Benzene	1.0987	1.0182	7.3	112	0.00
47	P	Trichloroethene	0.2919	0.3174	-8.7	126	0.00
48	P	Methylcyclohexane	0.4347	0.4097	5.7	113	0.00
49	C	1,2-Dichloropropane	0.3043	0.2973	2.3	113	0.00
50	T	1,4-Dioxane	0.0050	0.0048	5.3	113	0.00
51	P	Bromodichloromethane	0.3657	0.3612	1.2	113	0.00
52	T	Dibromomethane	0.2002	0.2013	-0.5	114	0.00
53	T	2-Chloroethyl Vinyl Ether	0.2408	0.2006	16.7	102	0.00
54	P	4-Methyl-2-Pentanone	0.1818	0.1559	14.2	105	0.00

(#) = Out of Range
9M982269.D 8260C.M Wed Aug 30 14:10:01 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	0.4079	0.4240	-3.9	114	0.00
56	T	Dimethyl Disulfide	0.2480	0.2287	7.8	112	0.00
57	I	Chlorobenzene-d5	1.0000	1.0000	0.0	124	0.00
58	S	Toluene-d8	1.2309	1.2447	-1.1	125	0.00
59	C	Toluene	1.4486	1.4168	2.2	114	0.00
60	T	Ethyl Methacrylate	0.5084	0.4956	2.5	108	0.00
61	P	trans-1,3-Dichloropropene	0.4859	0.5254	-8.1	113	0.00
62	P	1,1,2-Trichloroethane	0.3557	0.3430	3.6	111	0.00
63	P	2-Hexanone	0.4196	0.3632	13.5	104	0.00
64	T	1,3-Dichloropropane	0.5833	0.5771	1.1	115	0.00
65	P	Tetrachloroethene	0.2934	0.2892	1.5	114	0.00
66	P	Dibromochloromethane	0.4152	0.4205	-1.3	113	0.00
67	P	1,2-Dibromoethane	0.3771	0.3698	1.9	109	0.00
68	T	1-Chlorohexane	0.3966	0.4138	-4.3	113	0.00
69	P	Chlorobenzene	1.0048	1.0003	0.4	115	0.00
70	T	1,1,1,2-Tetrachloroethane	0.3920	0.3809	2.8	110	0.00
71	C	Ethylbenzene	0.5296	0.5284	0.2	113	0.00
72	P	m-,p-Xylene	0.6264	0.6612	-5.6	115	0.00
73	P	o-Xylene	0.6485	0.6465	0.3	113	0.00
74	P	Styrene	0.9899	1.0851	-9.6	114	0.00
75	P	Bromoform	0.3249	0.3040	6.4	105	0.00
76	P	Isopropylbenzene	1.6280	1.6390	-0.7	113	0.00
77	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	128	0.00
78	P	1,1,2,2-Tetrachloroethane	1.0190	0.8325	18.3	94	0.00
79	S	p-Bromofluorobenzene	0.8866	0.8883	-0.2	130	0.00
80	T	1,2,3-Trichloropropane	0.3422	0.3207	6.3	108	0.00
81	T	trans-1,4-Dichloro-2-Butene	0.3777	0.3160	16.3	103	0.00
82	T	n-Propylbenzene	3.4226	3.4686	-1.3	114	0.00
83	T	Bromobenzene	0.8649	0.8365	3.3	115	0.00
84	T	1,3,5-Trimethylbenzene	2.6511	2.6444	0.3	115	0.00
85	T	2-Chlorotoluene	2.2629	2.2108	2.3	116	0.00
86	T	4-Chlorotoluene	2.0116	2.0845	-3.6	115	0.00
87	T	a-Methylstyrene	1.4056	1.4144	-0.6	112	0.00
88	T	tert-Butylbenzene	0.5706	0.5575	2.3	115	0.00
89	T	1,2,4-Trimethylbenzene	2.7487	2.7643	-0.6	115	0.00
90	T	sec-Butylbenzene	3.2269	3.3301	-3.2	116	0.00
91	T	p-Isopropyltoluene	2.6898	2.8334	-5.3	116	0.00
92	P	1,3-Dichlorobenzene	1.5291	1.5533	-1.6	117	0.00
93	P	1,4-Dichlorobenzene	1.5836	1.5772	0.4	119	0.00
94	T	n-Butylbenzene	2.1599	2.3990	-11.1	117	0.00
95	P	1,2-Dichlorobenzene	1.6546	1.6159	2.3	114	0.00
96	P	1,2-Dibromo-3-Chloropropane	0.2656	0.2257	15.0	88	0.00
97	P	1,2,4-Trichlorobenzene	1.0382	1.1608	-11.8	116	0.00
98	T	Hexachlorobutadiene	0.4609	0.5109	-10.8	117	0.00
99	T	Naphthalene	3.5928	3.7652	-4.8	106	0.00
100	T	1,2,3-Trichlorobenzene	1.1342	1.2121	-6.9	112	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M982269.D 8260C.M Wed Aug 30 14:10:01 2017 Page 2

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	50.0000	50.0000	0.0	125	0.00
2	P	Dichlorodifluoromethane	50.0000	56.2909	-12.6	128	0.00
3	P	Chloromethane	50.0000	48.4380	3.1	118	0.00
4	C	Vinyl Chloride	50.0000	49.0602	1.9	111	0.00
5	T	1,3-Butadiene	50.0000	48.4216	3.2	109	0.00
6	P	Bromomethane	50.0000	36.3118	27.4#	94	0.00
7	P	Chloroethane	50.0000	50.3112	-0.6	113	0.00
8	P	Trichlorofluoromethane	50.0000	50.7751	-1.6	119	0.00
9	T	Diethyl ether	100.0000	97.9318	2.1	121	0.00
10	T	Isoprene	50.0000	48.3853	3.2	110	0.00
11	T	Acrolein	50.0000	43.7608	12.5	104	0.00
12	P	1,1,2-Trichloro-1,2,2-Trifl	50.0000	51.3151	-2.6	121	0.00
13	P	Acetone	50.0000	43.2008	13.6	108	0.00
14	C	1,1-Dichloroethene	50.0000	49.4330	1.1	117	0.00
15	T	Tert-Butyl Alcohol	200.0000	167.3148	16.3	104	0.00
16	T	Dimethyl Sulfide	50.0000	47.3490	5.3	110	0.00
17	T	Iodomethane	50.0000	38.9361	22.1	90	0.00
18	P	Methyl acetate	50.0000	42.3628	15.3	103	0.00
19	P	Methylene Chloride	50.0000	48.2126	3.6	115	0.00
20	P	Carbon Disulfide	50.0000	46.0365	7.9	107	0.00
21	T	Acrylonitrile	50.0000	49.1718	1.7	115	0.00
22	P	Methyl Tert Butyl Ether	50.0000	46.6987	6.6	112	0.00
23	P	trans-1,2-Dichloroethene	50.0000	48.2788	3.4	115	0.00
24	T	n-Hexane	50.0000	52.1276	-4.3	124	0.00
25	T	Diisopropyl ether	100.0000	97.7459	2.3	119	0.00
26	T	Vinyl Acetate	50.0000	51.3247	-2.6	125	0.00
27	P	1,1-Dichloroethane	50.0000	49.7371	0.5	116	0.00
28	T	Ethyl-Tert-Butyl ether	100.0000	97.8274	2.2	119	0.00
29	P	2-Butanone	50.0000	42.6503	14.7	105	0.00
30	T	Propionitrile	100.0000	85.5748	14.4	110	0.00
31	T	2,2-Dichloropropane	50.0000	51.8240	-3.6	125	0.00
32	P	cis-1,2-Dichloroethene	50.0000	49.5391	0.9	114	0.00
33	C	Chloroform	50.0000	49.1586	1.7	113	0.00
34	T	1-Bromopropane	50.0000	46.2239	7.6	107	0.00
35	T	Bromochloromethane	50.0000	49.0586	1.9	114	0.00
36	T	Tetrahydrofuran	100.0000	91.9898	8.0	111	0.00
37	S	Dibromofluoromethane	50.0000	50.0139	-0.0	123	0.00
38	P	1,1,1-Trichloroethane	50.0000	46.9444	6.1	109	0.00
39	P	Cyclohexane	50.0000	45.5668	8.9	110	0.00
40	T	1,1-Dichloropropene	50.0000	49.7372	0.5	114	0.00
41	T	Tert-Amyl-Methyl ether	100.0000	97.0925	2.9	118	0.00
42	P	Carbon Tetrachloride	50.0000	49.5330	0.9	114	0.00
43	S	1,2-Dichloroethane-d4	50.0000	50.7609	-1.5	127	0.00
44		Heptane	-1.0000	0.0000	0.0	125	0.00
45	P	1,2-Dichloroethane	50.0000	48.6208	2.8	117	0.00
46	P	Benzene	50.0000	46.3377	7.3	112	0.00
47	P	Trichloroethene	50.0000	54.3730	-8.7	126	0.00
48	P	Methylcyclohexane	50.0000	47.1267	5.7	113	0.00
49	C	1,2-Dichloropropane	50.0000	48.8508	2.3	113	0.00
50	T	1,4-Dioxane	200.0000	175.6793	12.2	113	0.00
51	P	Bromodichloromethane	50.0000	49.3836	1.2	113	0.00
52	T	Dibromomethane	50.0000	50.2723	-0.5	114	0.00
53	T	2-Chloroethyl Vinyl Ether	50.0000	41.6471	16.7	102	0.00
54	P	4-Methyl-2-Pentanone	50.0000	42.8832	14.2	105	0.00

(#) = Out of Range
9M982269.D 8260C.M Wed Aug 30 14:10:02 2017 Page 1

Data File : C:\MSDCHEM\1\DATA\083017\9M982269.D Vial: 1
Acq On : 30 Aug 2017 13:20 Operator: JDS
Sample : WG627828-02 50ug/L CCV 8260C Inst : hpms9
Misc : 1,1 STD83378 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Multiple Level Calibration

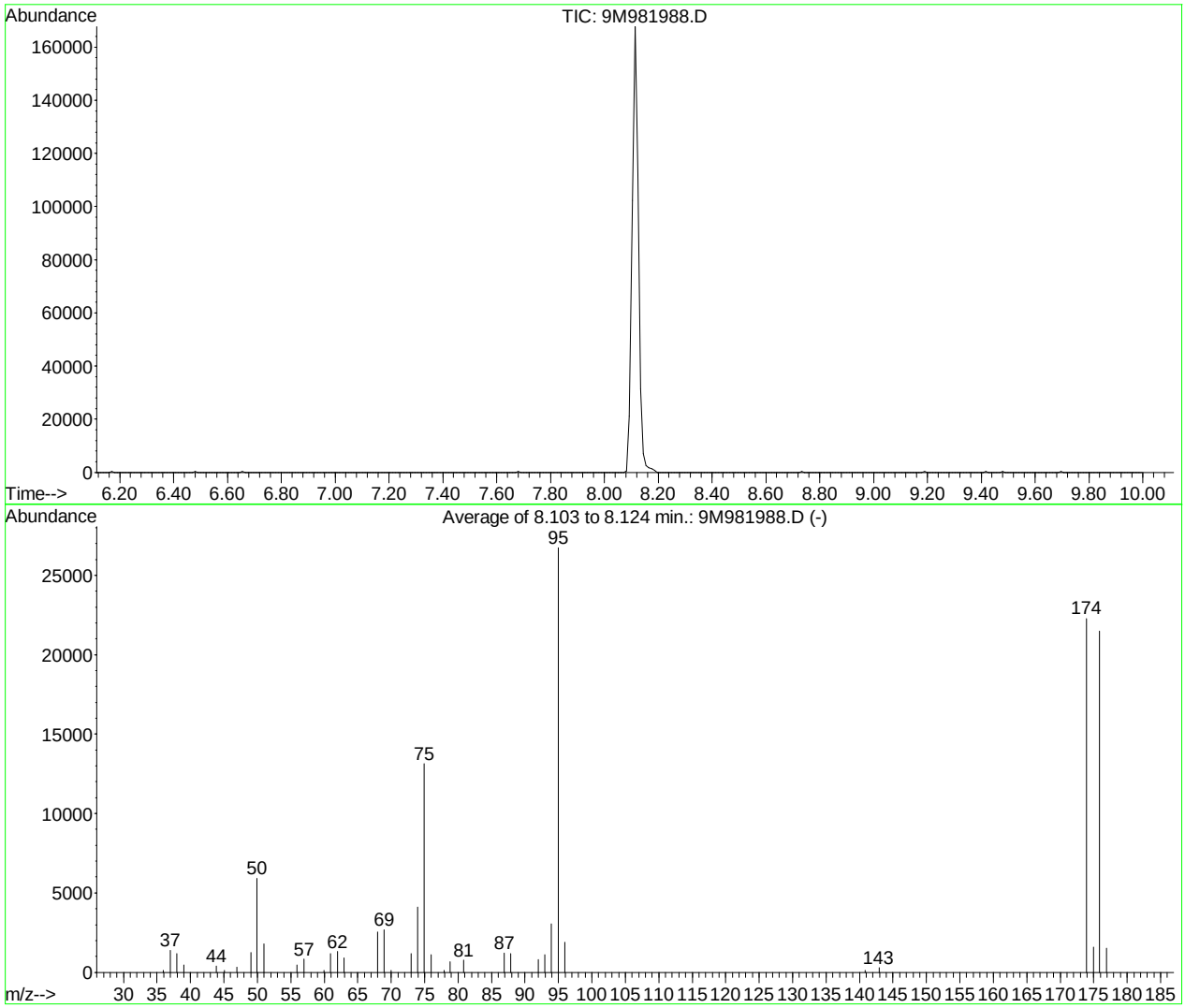
Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
55	P	cis-1,3-Dichloropropene	50.0000	51.9686	-3.9	114	0.00
56	T	Dimethyl Disulfide	50.0000	41.9602	16.1	112	0.00
57	I	Chlorobenzene-d5	50.0000	50.0000	0.0	124	0.00
58	S	Toluene-d8	50.0000	50.5579	-1.1	125	0.00
59	C	Toluene	50.0000	48.9038	2.2	114	0.00
60	T	Ethyl Methacrylate	50.0000	42.2917	15.4	108	0.00
61	P	trans-1,3-Dichloropropene	50.0000	54.0709	-8.1	113	0.00
62	P	1,1,2-Trichloroethane	50.0000	48.2103	3.6	111	0.00
63	P	2-Hexanone	50.0000	39.5705	20.9	104	0.00
64	T	1,3-Dichloropropane	50.0000	49.4714	1.1	115	0.00
65	P	Tetrachloroethene	50.0000	49.2737	1.5	114	0.00
66	P	Dibromochloromethane	50.0000	50.6315	-1.3	113	0.00
67	P	1,2-Dibromoethane	50.0000	49.0310	1.9	109	0.00
68	T	1-Chlorohexane	50.0000	52.1645	-4.3	113	0.00
69	P	Chlorobenzene	50.0000	49.7757	0.4	115	0.00
70	T	1,1,1,2-Tetrachloroethane	50.0000	48.5898	2.8	110	0.00
71	C	Ethylbenzene	50.0000	49.8923	0.2	113	0.00
72	P	m-,p-Xylene	100.0000	105.5544	-5.6	115	0.00
73	P	o-Xylene	50.0000	49.8480	0.3	113	0.00
74	P	Styrene	50.0000	44.9532	10.1	114	0.00
75	P	Bromoform	50.0000	39.2983	21.4	105	0.00
76	P	Isopropylbenzene	50.0000	50.3357	-0.7	113	0.00
77	I	1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	128	0.00
78	P	1,1,2,2-Tetrachloroethane	50.0000	40.8450	18.3	94	0.00
79	S	p-Bromofluorobenzene	50.0000	50.0994	-0.2	130	0.00
80	T	1,2,3-Trichloropropane	50.0000	46.8639	6.3	108	0.00
81	T	trans-1,4-Dichloro-2-Butene	50.0000	41.8363	16.3	103	0.00
82	T	n-Propylbenzene	50.0000	50.6729	-1.3	114	0.00
83	T	Bromobenzene	50.0000	48.3611	3.3	115	0.00
84	T	1,3,5-Trimethylbenzene	50.0000	49.8743	0.3	115	0.00
85	T	2-Chlorotoluene	50.0000	48.8499	2.3	116	0.00
86	T	4-Chlorotoluene	50.0000	51.8115	-3.6	115	0.00
87	T	a-Methylstyrene	50.0000	50.3138	-0.6	112	0.00
88	T	tert-Butylbenzene	50.0000	48.8530	2.3	115	0.00
89	T	1,2,4-Trimethylbenzene	50.0000	50.2832	-0.6	115	0.00
90	T	sec-Butylbenzene	50.0000	51.5976	-3.2	116	0.00
91	T	p-Isopropyltoluene	50.0000	52.6691	-5.3	116	0.00
92	P	1,3-Dichlorobenzene	50.0000	50.7938	-1.6	117	0.00
93	P	1,4-Dichlorobenzene	50.0000	49.7980	0.4	119	0.00
94	T	n-Butylbenzene	50.0000	47.3356	5.3	117	0.00
95	P	1,2-Dichlorobenzene	50.0000	48.8314	2.3	114	0.00
96	P	1,2-Dibromo-3-Chloropropane	50.0000	36.5645	26.9#	88	0.00
97	P	1,2,4-Trichlorobenzene	50.0000	47.2540	5.5	116	0.00
98	T	Hexachlorobutadiene	50.0000	46.7428	6.5	117	0.00
99	T	Naphthalene	50.0000	48.4465	3.1	106	0.00
100	T	1,2,3-Trichlorobenzene	50.0000	53.4346	-6.9	112	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
9M982269.D 8260C.M Wed Aug 30 14:10:02 2017 Page 2

2.1.1.5 Raw QC Data

Data File : C:\MSDCHEM\1\DATA\081417\9M981988.D Vial: 1
Acq On : 14 Aug 2017 8:49 Operator: ADC
Sample : WG625140-01 50ng BFB 8260 Inst : hpms9
Misc : 1,1 STD83010 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081017 HPMS9

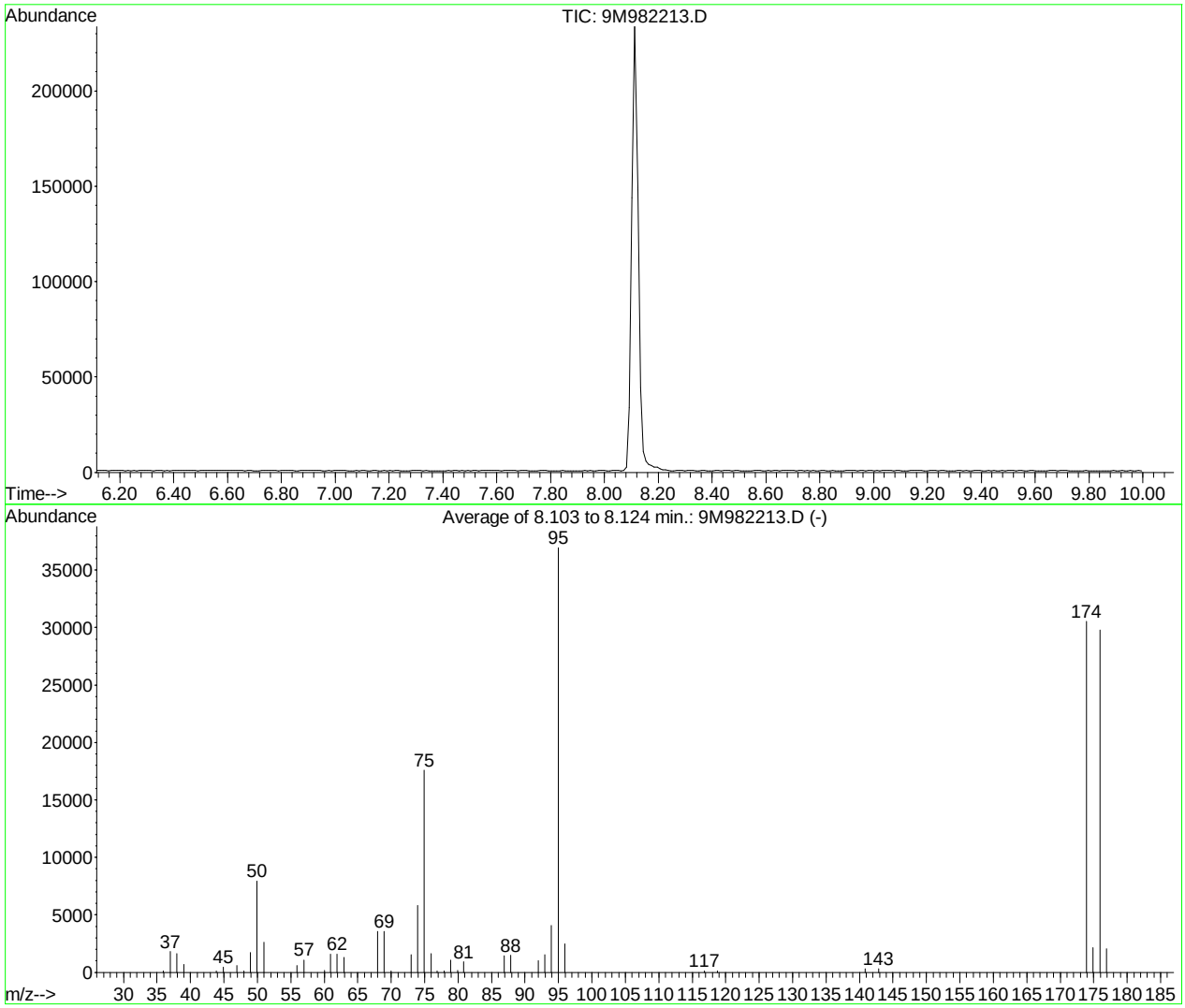


AutoFind: Scans 292, 293, 294; Background Corrected with Scan 287

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.1	5904	PASS
75	95	30	60	49.1	13134	PASS
95	95	100	100	100.0	26746	PASS
96	95	5	9	7.1	1901	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	83.3	22290	PASS
175	174	5	9	7.2	1601	PASS
176	174	95	101	96.5	21505	PASS
177	176	5	9	7.0	1507	PASS

9M981988.D 8260C.M Tue Aug 15 09:52:10 2017

Data File : C:\MSDCHEM\1\DATA\082817\9M982213.D Vial: 1
Acq On : 28 Aug 2017 13:44 Operator: JDS
Sample : WG627474-01 50ng BFB 8260 Inst : hpms9
Misc : 1,1 STD83478 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9

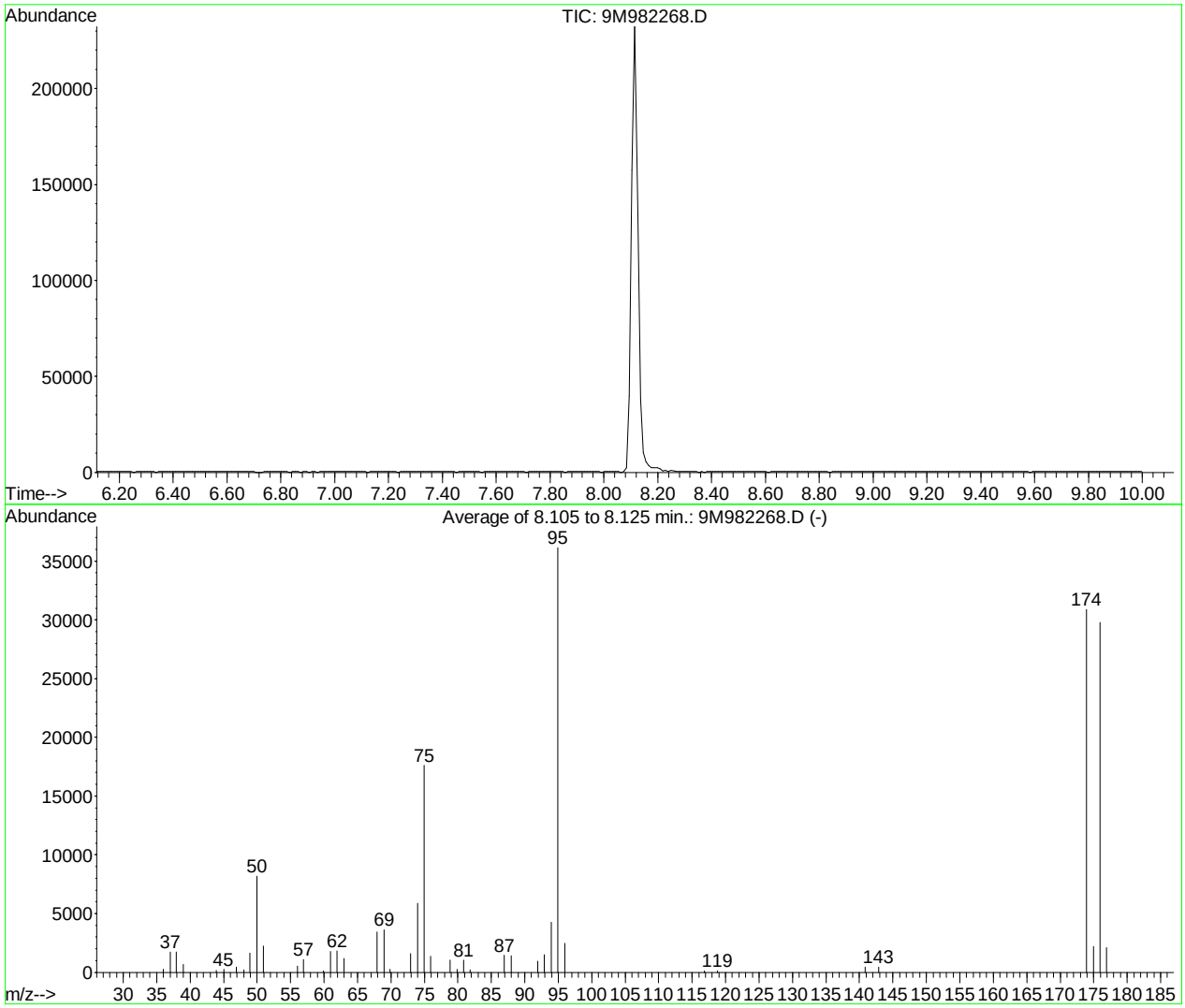


AutoFind: Scans 292, 293, 294; Background Corrected with Scan 287

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.5	7933	PASS
75	95	30	60	47.6	17593	PASS
95	95	100	100	100.0	36952	PASS
96	95	5	9	6.7	2465	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	82.6	30517	PASS
175	174	5	9	7.1	2160	PASS
176	174	95	101	97.5	29765	PASS
177	176	5	9	6.8	2028	PASS

9M982213.D 8260C.M Mon Aug 28 15:05:17 2017

Data File : C:\MSDCHEM\1\DATA\083017\9M982268.D Vial: 1
Acq On : 30 Aug 2017 12:56 Operator: JDS
Sample : WG627828-01 50ng BFB 8260C Inst : hpms9
Misc : 1,1 STD83478 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9



AutoFind: Scans 292, 293, 294; Background Corrected with Scan 287

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.7	8195	PASS
75	95	30	60	48.7	17620	PASS
95	95	100	100	100.0	36149	PASS
96	95	5	9	6.8	2463	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	85.5	30909	PASS
175	174	5	9	7.1	2183	PASS
176	174	95	101	96.3	29760	PASS
177	176	5	9	7.0	2086	PASS

9M982268.D 8260C.M Wed Aug 30 13:27:15 2017

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982216.D Vial: 3
Acq On : 28 Aug 2017 15:08 Operator: JDS
Sample : WG627475-01 BLANK Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 09:33:37 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

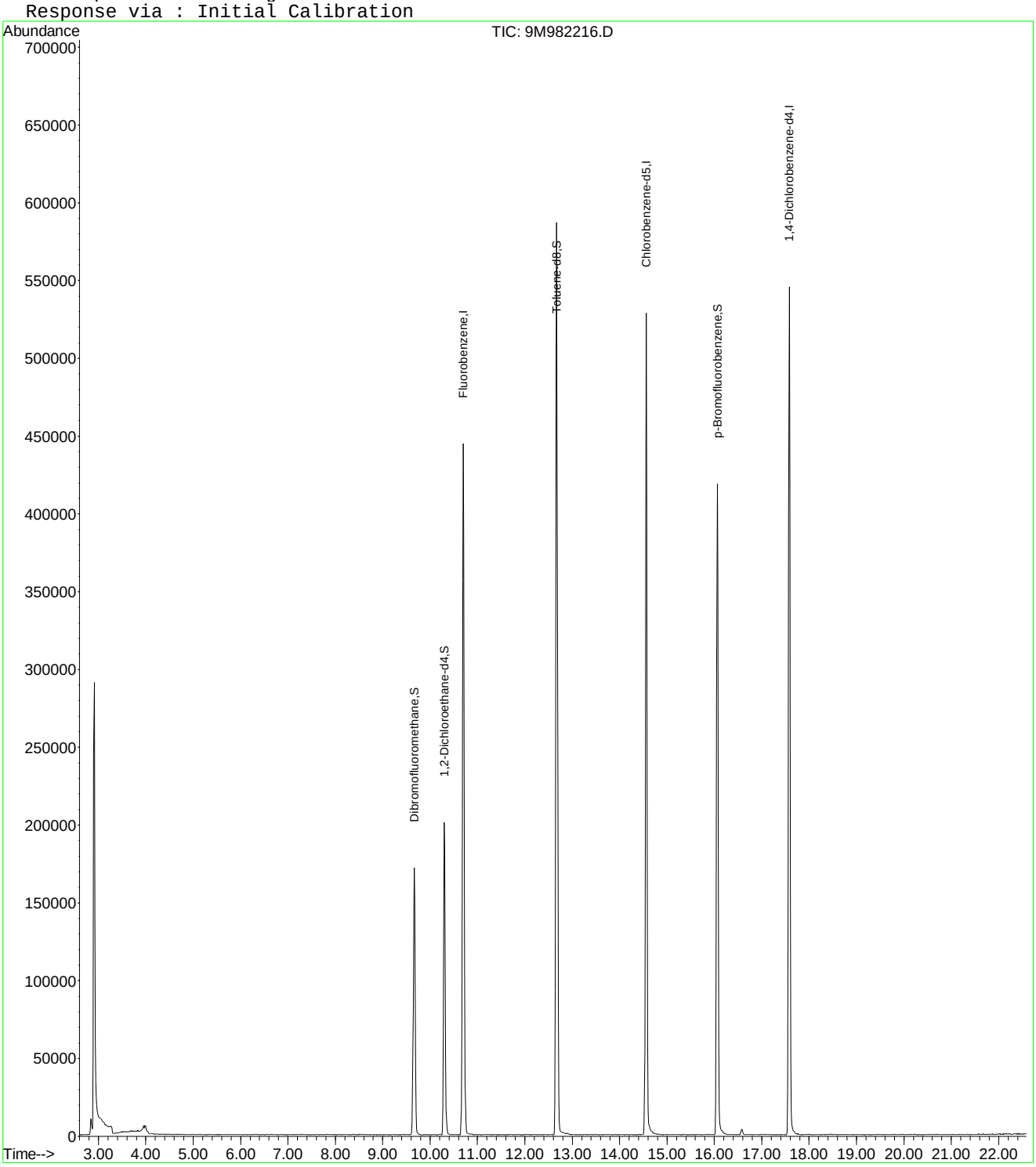
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	555386	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	415459	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	193852	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	156518	50.3322	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 100.66%			
43) 1,2-Dichloroethane-d4	10.30	65	188137	51.7951	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 103.60%			
58) Toluene-d8	12.67	98	542955	53.0849	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 106.16%			
79) p-Bromofluorobenzene	16.06	95	194413	56.5604	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 113.12%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration
9M982216.D 8260C.M Tue Aug 29 09:33:37 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\9M982216.D Vial: 3
Acq On : 28 Aug 2017 15:08 Operator: JDS
Sample : WG627475-01 BLANK Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:33 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\082817\9M982216.D Vial: 3
Acq On : 28 Aug 2017 15:08 Operator: JDS
Sample : WG627475-01 BLANK Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

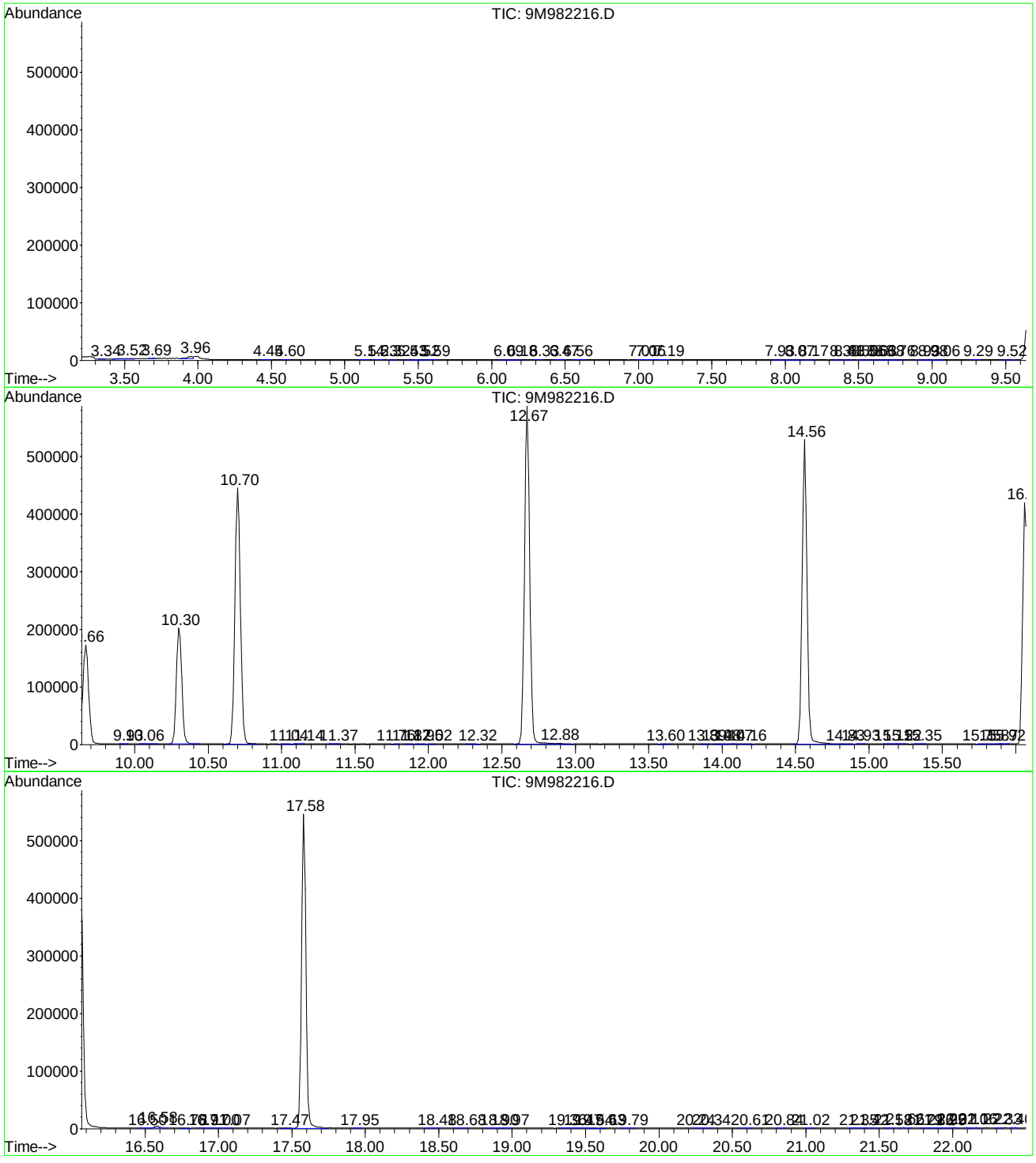
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.344	70	72	74	rBV	353	676	0.05%	0.010%
2	3.523	79	89	93	rVV2	1139	5578	0.39%	0.080%
3	3.692	102	105	107	rVB	672	1277	0.09%	0.018%
4	3.956	123	130	131	rBV2	3598	8963	0.62%	0.128%
5	4.452	175	177	181	rBV	283	720	0.05%	0.010%
6	4.600	188	191	193	rBV	263	614	0.04%	0.009%
7	5.138	238	242	244	rVV	315	768	0.05%	0.011%
8	5.233	248	251	253	rVB	285	531	0.04%	0.008%
9	5.317	257	259	262	rBV	415	835	0.06%	0.012%
10	5.433	268	270	275	rVB	372	848	0.06%	0.012%
11	5.518	275	278	283	rBV	394	884	0.06%	0.013%
12	5.592	283	285	288	rBV	312	728	0.05%	0.010%
13	6.088	329	332	338	rVB	201	837	0.06%	0.012%
14	6.183	338	341	343	rBV	319	627	0.04%	0.009%
15	6.330	351	355	356	rBV	320	634	0.04%	0.009%
16	6.467	364	368	371	rVB	308	568	0.04%	0.008%
17	6.562	376	377	384	rVB	267	663	0.05%	0.009%
18	7.006	417	419	422	rBV	263	638	0.04%	0.009%
19	7.058	422	424	431	rVB	316	890	0.06%	0.013%
20	7.185	431	436	438	rBV	289	572	0.04%	0.008%
21	7.934	505	507	514	rVB	308	997	0.07%	0.014%
22	8.071	514	520	524	rBV	283	1136	0.08%	0.016%
23	8.166	526	529	533	rVV	302	846	0.06%	0.012%
24	8.377	545	549	550	rVV	411	621	0.04%	0.009%
25	8.409	551	552	556	rVV	331	583	0.04%	0.008%
26	8.504	560	561	563	rBV	443	554	0.04%	0.008%
27	8.557	563	566	568	rVV	427	667	0.05%	0.010%
28	8.631	570	573	575	rVV	320	557	0.04%	0.008%
29	8.684	575	578	582	rVV	216	662	0.05%	0.009%
30	8.757	582	585	590	rVV	289	791	0.05%	0.011%
31	8.926	598	601	604	rBV	291	608	0.04%	0.009%
32	8.979	604	606	609	rVB	336	610	0.04%	0.009%
33	9.063	609	614	615	rBV	342	710	0.05%	0.010%
34	9.285	633	635	639	rBV	267	672	0.05%	0.010%
35	9.517	653	657	661	rVB	328	1050	0.07%	0.015%
36	9.665	663	671	686	rVV	171708	475473	33.05%	6.778%
37	9.929	693	696	698	rVB	287	529	0.04%	0.008%
38	10.055	706	708	717	rVB	307	1052	0.07%	0.015%
39	10.298	725	731	744	rVB	200829	514416	35.76%	7.333%
40	10.699	761	769	782	rBV	444463	1181197	82.11%	16.837%
41	11.037	796	801	806	rBV	281	1029	0.07%	0.015%
42	11.142	806	811	812	rBV	278	581	0.04%	0.008%

43	11.374	828	833	835	rBV	293	850	0.06%	0.012%
44	11.765	869	870	873	rBV	352	531	0.04%	0.008%
45	11.870	878	880	883	rVB	277	579	0.04%	0.008%
46	11.955	885	888	891	rVB	268	551	0.04%	0.008%
47	12.018	891	894	896	rBV	427	820	0.06%	0.012%
48	12.324	917	923	925	rVB	317	840	0.06%	0.012%
49	12.672	948	956	974	rBV	586626	1438591	100.00%	20.506%
50	12.884	974	976	985	rVB	979	4111	0.29%	0.059%
51	13.601	1041	1044	1048	rBV	358	1108	0.08%	0.016%
52	13.886	1068	1071	1074	rVV	278	758	0.05%	0.011%
53	13.981	1077	1080	1083	rVV	278	551	0.04%	0.008%
54	14.065	1083	1088	1090	rVV	296	709	0.05%	0.010%
55	14.160	1092	1097	1102	rVB	307	1179	0.08%	0.017%
56	14.561	1128	1135	1159	rVV	528250	1224915	85.15%	17.460%
57	14.825	1159	1160	1167	rVB	558	1576	0.11%	0.022%
58	14.931	1169	1170	1174	rVV	276	563	0.04%	0.008%
59	15.152	1186	1191	1193	rVV	298	888	0.06%	0.013%
60	15.216	1194	1197	1200	rVV	227	562	0.04%	0.008%
61	15.353	1206	1210	1213	rBV	378	709	0.05%	0.010%
62	15.754	1246	1248	1254	rBV	311	880	0.06%	0.013%
63	15.870	1255	1259	1261	rVV	414	807	0.06%	0.012%
64	15.923	1261	1264	1267	rVV	302	589	0.04%	0.008%
65	16.060	1271	1277	1297	rBV	418389	935013	65.00%	13.328%
66	16.503	1316	1319	1322	rBV	303	757	0.05%	0.011%
67	16.577	1322	1326	1332	rVV2	3668	8748	0.61%	0.125%
68	16.778	1342	1345	1348	rVB	289	633	0.04%	0.009%
69	16.915	1353	1358	1361	rVB	205	648	0.05%	0.009%
70	16.999	1361	1366	1368	rBV	345	526	0.04%	0.007%
71	17.073	1370	1373	1375	rBV	327	552	0.04%	0.008%
72	17.474	1406	1411	1414	rVB	273	869	0.06%	0.012%
73	17.580	1414	1421	1437	rBV	545184	1148056	79.80%	16.365%
74	17.949	1453	1456	1459	rBV	327	615	0.04%	0.009%
75	18.477	1499	1506	1509	rVV	430	1289	0.09%	0.018%
76	18.677	1518	1525	1526	rBV	321	1042	0.07%	0.015%
77	18.899	1538	1546	1550	rVB	272	1140	0.08%	0.016%
78	18.973	1550	1553	1556	rBV	305	807	0.06%	0.012%
79	19.363	1586	1590	1597	rBV	230	914	0.06%	0.013%
80	19.468	1597	1600	1605	rBV	366	698	0.05%	0.010%
81	19.542	1605	1607	1611	rVB	418	1083	0.08%	0.015%
82	19.627	1611	1615	1616	rBV	389	771	0.05%	0.011%
83	19.785	1626	1630	1635	rBV	268	672	0.05%	0.010%
84	20.239	1672	1673	1679	rVB	395	669	0.05%	0.010%
85	20.344	1679	1683	1685	rVB	292	586	0.04%	0.008%
86	20.608	1702	1708	1711	rBV	253	755	0.05%	0.011%
87	20.840	1726	1730	1732	rVB	239	602	0.04%	0.009%
88	21.020	1745	1747	1750	rBV	278	531	0.04%	0.008%
89	21.347	1773	1778	1782	rVB	430	1084	0.08%	0.015%
90	21.421	1782	1785	1791	rBV	579	1283	0.09%	0.018%
91	21.579	1796	1800	1802	rBV	575	909	0.06%	0.013%
92	21.663	1805	1808	1813	rVB	601	802	0.06%	0.011%
93	21.790	1819	1820	1824	rBV	373	570	0.04%	0.008%
94	21.864	1824	1827	1832	rVB	573	1153	0.08%	0.016%
95	21.948	1832	1835	1837	rBV	434	558	0.04%	0.008%
96	22.012	1837	1841	1843	rBV2	667	1342	0.09%	0.019%
97	22.096	1847	1849	1850	rVB2	787	545	0.04%	0.008%
98	22.159	1851	1855	1857	rBV2	586	938	0.07%	0.013%
99	22.328	1867	1871	1872	rBV2	493	1014	0.07%	0.014%
100	22.402	1877	1878	1882	rVB	784	1342	0.09%	0.019%

Sum of corrected areas: 7015375

File : C:\MSDCHEM\1\DATA\082817\9M982216.D
Operator : JDS
Acquired : 28 Aug 2017 15:08 using AcqMethod 8260C
Instrument : hpms9
Sample Name: WG627475-01 BLANK
Misc Info : 1,1
Vial Number: 3
Quant File :8260C.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 28 Aug 2017 15:08
Data File: C:\MSDCHEM\1\DATA\082817\9M982216.D
Name: WG627475-01 BLANK
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\083017\9M982271.D Vial: 3
Acq On : 30 Aug 2017 14:21 Operator: JDS
Sample : WG627829-01 BLANK 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 01 13:51:17 2017 Quant Results File: 8260_S.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260_S.M (RTE Integrator)
Title : 8260(B) SOP: OVL MSV01 SOIL 071117 HPMS9
Last Update : Tue Jul 11 17:09:21 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

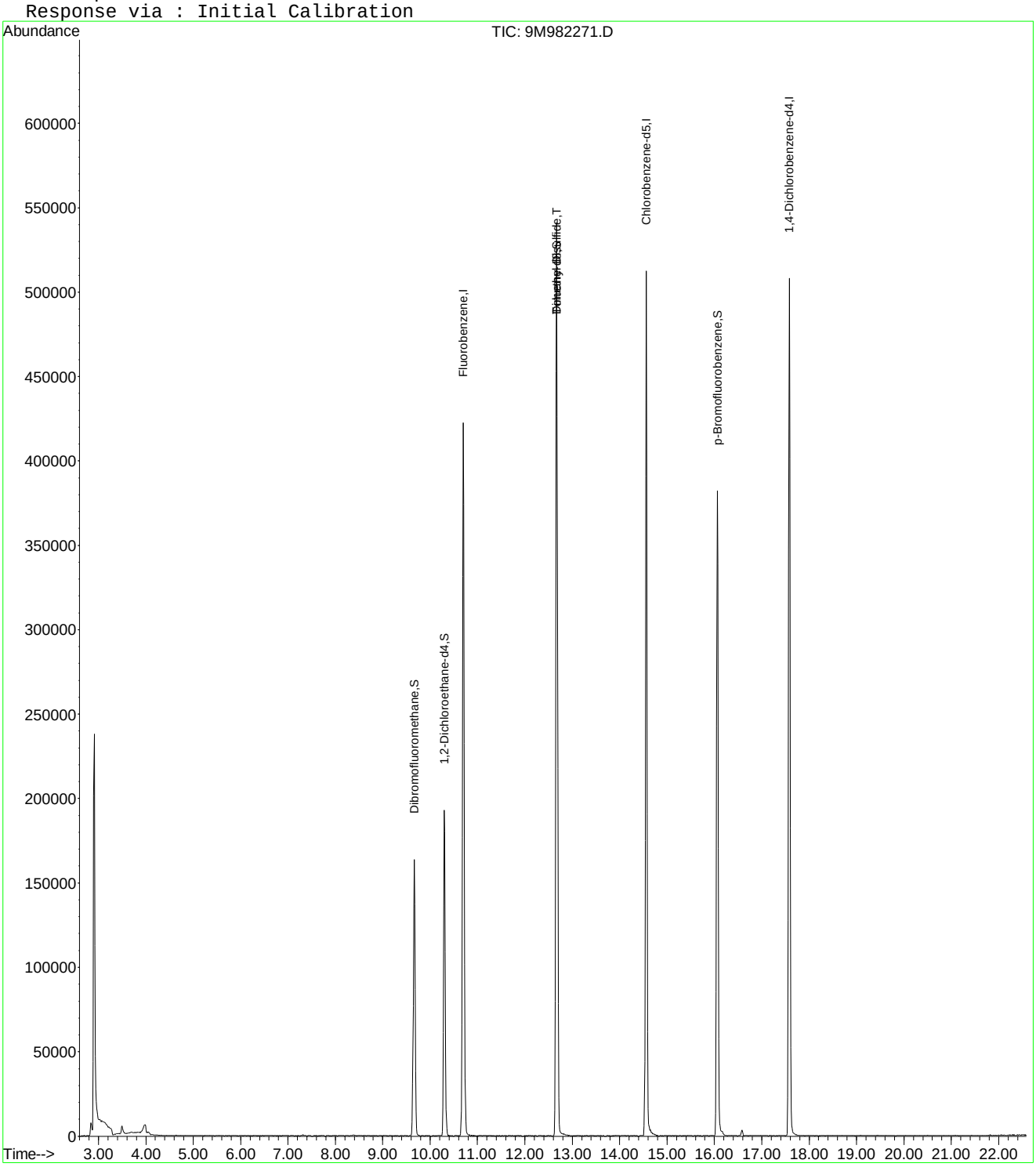
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	523922	50.00	ug/kg	-0.01
57) Chlorobenzene-d5	14.56	117	389935	50.00	ug/kg	-0.01
77) 1,4-Dichlorobenzene-d4	17.58	152	179771	50.00	ug/kg	-0.01
System Monitoring Compounds						
37) Dibromofluoromethane	9.66	111	144493	47.7021	ug/kg	-0.01
Spiked Amount 50.000	Range 80 - 120		Recovery = 95.40%			
43) 1,2-Dichloroethane-d4	10.30	65	177376	52.4658	ug/kg	-0.01
Spiked Amount 50.000	Range 80 - 120		Recovery = 104.94%			
58) Toluene-d8	12.67	98	497296	50.5850	ug/kg	-0.01
Spiked Amount 50.000	Range 81 - 117		Recovery = 101.16%			
79) p-Bromofluorobenzene	16.06	95	176498	45.2187	ug/kg	-0.01
Spiked Amount 50.000	Range 74 - 121		Recovery = 90.44%			
Target Compounds						Qvalue
56) Dimethyl Disulfide	12.67	94	12985	5.3732	ug/kg#	29

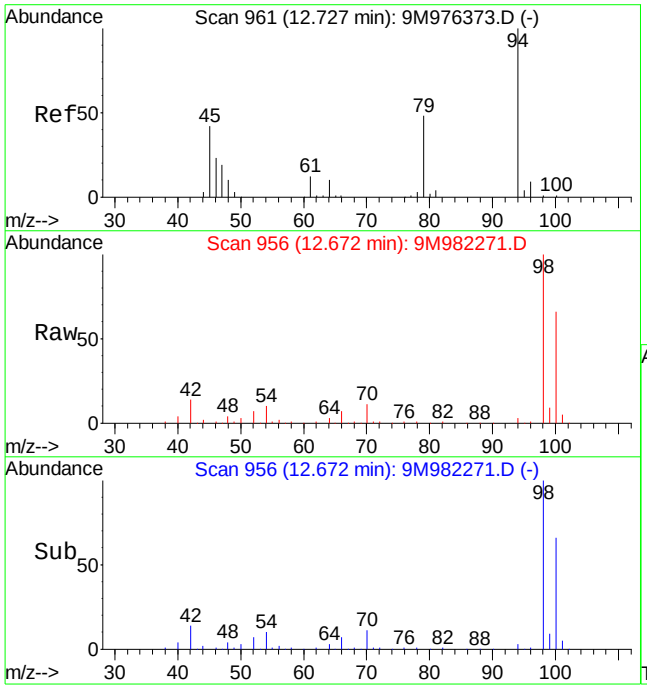
(#) = qualifier out of range (m) = manual integration
9M982271.D 8260_S.M Fri Sep 01 13:51:18 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\083017\9M982271.D Vial: 3
Acq On : 30 Aug 2017 14:21 Operator: JDS
Sample : WG627829-01 BLANK 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Sep 1 13:51 2017 Quant Results File: 8260_S.RES

Method : C:\MSDCHEM\1\METHODS\8260_S.M (RTE Integrator)
Title : 8260(B) SOP: OVL MSV01 SOIL 071117 HPMS9
Last Update : Tue Jul 11 17:09:21 2017
Response via : Initial Calibration

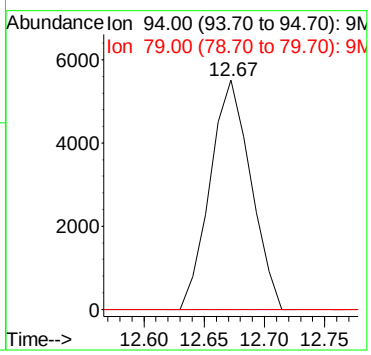




#56
Dimethyl Disulfide
Concen: 5.37 ug/kg
RT: 12.67 min Scan# 956
Delta R.T. 0.05 min
Lab File: 9M982271.D
Acq: 30 Aug 2017 14:21

Tgt Ion: 94 Resp: 12985

Ion	Ratio	Lower	Upper
94	100		
79	0.0	28.9	67.3#



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\083017\9M982271.D Vial: 3
Acq On : 30 Aug 2017 14:21 Operator: JDS
Sample : WG627829-01 BLANK 8260C Inst : hpms9
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

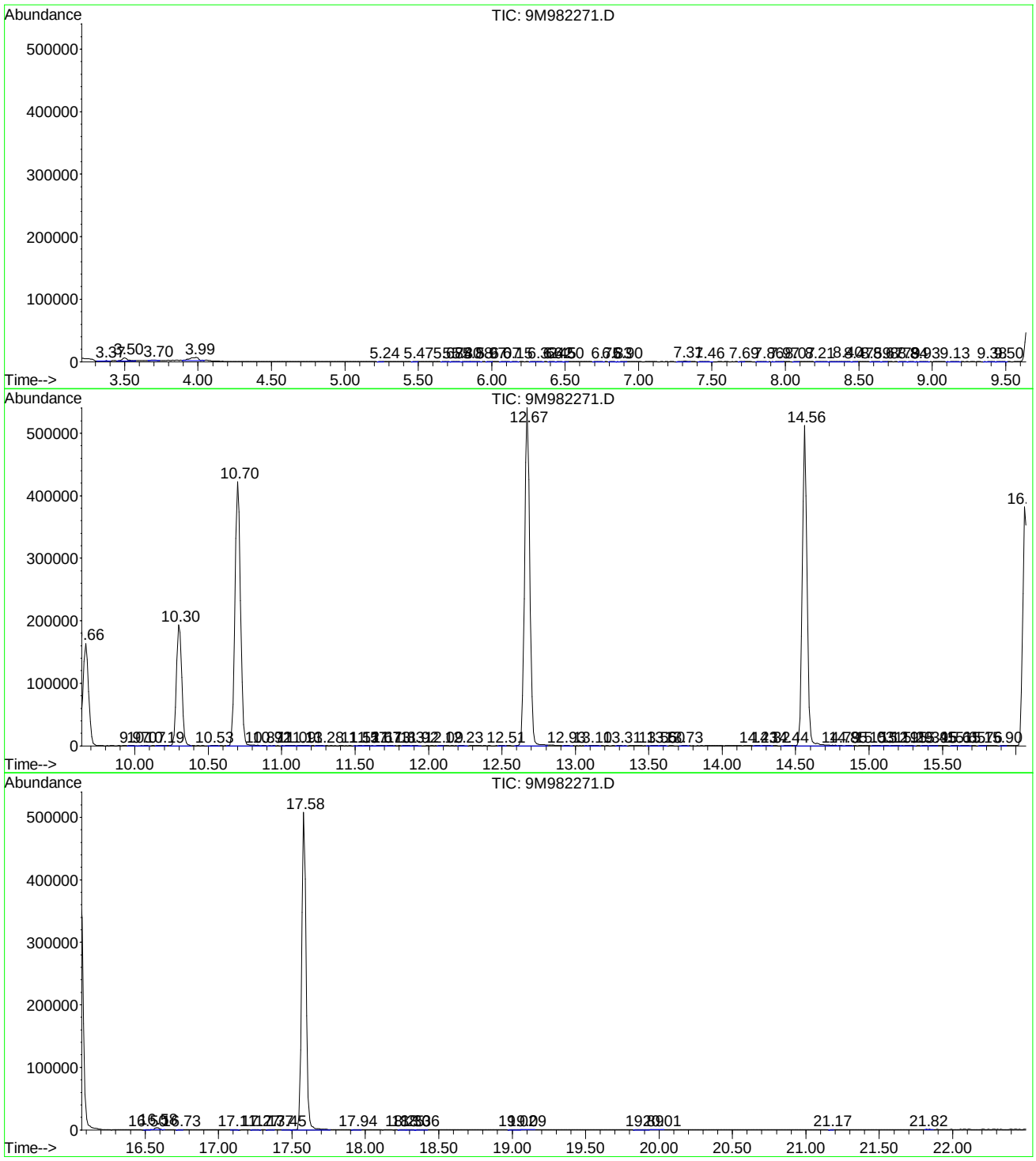
Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.375	69	75	77	rBV	722	2495	0.19%	0.038%
2	3.502	82	87	94	rVV2	4864	12278	0.93%	0.185%
3	3.702	102	106	109	rBV2	788	1914	0.14%	0.029%
4	3.987	124	133	138	rBV4	4847	20660	1.56%	0.312%
5	5.243	250	252	254	rBV	403	919	0.07%	0.014%
6	5.475	272	274	276	rBV	453	1028	0.08%	0.016%
7	5.675	291	293	297	rBB	497	1223	0.09%	0.018%
8	5.739	297	299	304	rBB	400	1376	0.10%	0.021%
9	5.802	304	305	310	rBV	476	1468	0.11%	0.022%
10	5.876	310	312	317	rVB	397	1387	0.10%	0.021%
11	5.971	320	321	324	rBV	444	1009	0.08%	0.015%
12	6.066	329	330	336	rBB	415	1337	0.10%	0.020%
13	6.150	336	338	341	rBB	439	1022	0.08%	0.015%
14	6.319	348	354	357	rBB	439	1918	0.14%	0.029%
15	6.425	360	364	365	rBB	419	955	0.07%	0.014%
16	6.446	365	366	370	rBB	360	848	0.06%	0.013%
17	6.499	370	371	373	rBV	462	794	0.06%	0.012%
18	6.752	389	395	396	rBB	439	1313	0.10%	0.020%
19	6.826	399	402	404	rBB	400	888	0.07%	0.013%
20	6.900	404	409	411	rBV	448	1307	0.10%	0.020%
21	7.311	443	448	452	rBV	891	2718	0.20%	0.041%
22	7.459	457	462	466	rBB	415	1608	0.12%	0.024%
23	7.691	483	484	487	rBV	398	900	0.07%	0.014%
24	7.860	494	500	502	rBB	463	1624	0.12%	0.025%
25	7.965	504	510	512	rBV	406	1551	0.12%	0.023%
26	8.071	518	520	522	rBV	364	869	0.07%	0.013%
27	8.208	532	533	541	rBB	410	1852	0.14%	0.028%
28	8.398	541	551	556	rBB2	767	4120	0.31%	0.062%
29	8.472	556	558	560	rBV	512	1053	0.08%	0.016%
30	8.588	568	569	575	rBB	393	1333	0.10%	0.020%
31	8.672	575	577	579	rBV	371	872	0.07%	0.013%
32	8.789	586	588	592	rBB	373	1100	0.08%	0.017%
33	8.841	592	593	597	rBB	346	844	0.06%	0.013%
34	8.926	597	601	606	rBB	389	1492	0.11%	0.023%
35	9.126	617	620	626	rBB	417	1561	0.12%	0.024%
36	9.379	641	644	649	rBB	453	1447	0.11%	0.022%
37	9.496	649	655	656	rBB	378	1304	0.10%	0.020%
38	9.664	660	671	683	rBB	163877	446410	33.64%	6.740%
39	9.970	698	700	704	rBB	432	917	0.07%	0.014%
40	10.065	705	709	712	rBB	471	981	0.07%	0.015%
41	10.192	716	721	723	rBV	435	1539	0.12%	0.023%
42	10.298	725	731	739	rVB	193274	488962	36.85%	7.383%

43	10.530	750	753	757	rBB	359	1081	0.08%	0.016%
44	10.699	762	769	784	rBB	422794	1125655	84.83%	16.997%
45	10.867	784	785	789	rBB	672	1043	0.08%	0.016%
46	10.920	789	790	793	rBV	620	793	0.06%	0.012%
47	11.089	797	806	807	rBB	420	1747	0.13%	0.026%
48	11.131	807	810	816	rBB	393	1808	0.14%	0.027%
49	11.279	819	824	825	rBB	380	1121	0.08%	0.017%
50	11.522	844	847	850	rBB	353	831	0.06%	0.013%
51	11.574	850	852	857	rBB	366	1068	0.08%	0.016%
52	11.669	858	861	865	rBB	415	1350	0.10%	0.020%
53	11.733	865	867	870	rBB	398	857	0.06%	0.013%
54	11.828	875	876	881	rBB	471	1190	0.09%	0.018%
55	11.923	881	885	887	rBB	353	840	0.06%	0.013%
56	12.092	898	901	902	rBV	366	852	0.06%	0.013%
57	12.229	911	914	917	rBB	406	890	0.07%	0.013%
58	12.514	937	941	942	rBB	396	868	0.07%	0.013%
59	12.672	948	956	969	rBV	541335	1326979	100.00%	20.037%
60	12.925	979	980	985	rBB	721	1181	0.09%	0.018%
61	13.105	993	997	1003	rBB	382	1762	0.13%	0.027%
62	13.305	1013	1016	1020	rBB	418	1247	0.09%	0.019%
63	13.548	1033	1039	1041	rBB	429	1378	0.10%	0.021%
64	13.601	1041	1044	1046	rBB	393	916	0.07%	0.014%
65	13.727	1054	1056	1060	rBB	396	909	0.07%	0.014%
66	14.234	1102	1104	1107	rBB	423	888	0.07%	0.013%
67	14.318	1107	1112	1114	rBB	493	1430	0.11%	0.022%
68	14.445	1120	1124	1126	rBV	426	1092	0.08%	0.016%
69	14.561	1128	1135	1156	rVB	512566	1161729	87.55%	17.541%
70	14.793	1156	1157	1160	rBB	669	828	0.06%	0.013%
71	14.846	1161	1162	1166	rBB	402	867	0.07%	0.013%
72	15.025	1178	1179	1185	rBB	490	1445	0.11%	0.022%
73	15.120	1185	1188	1190	rBB	455	968	0.07%	0.015%
74	15.194	1190	1195	1197	rBB	368	1325	0.10%	0.020%
75	15.289	1197	1204	1206	rBB	400	1644	0.12%	0.025%
76	15.395	1210	1214	1215	rBB	489	944	0.07%	0.014%
77	15.447	1215	1219	1221	rBV	491	1464	0.11%	0.022%
78	15.606	1229	1234	1235	rBB	442	1211	0.09%	0.018%
79	15.648	1235	1238	1242	rBB	412	1402	0.11%	0.021%
80	15.764	1247	1249	1252	rBV	420	1175	0.09%	0.018%
81	15.901	1261	1262	1265	rBV	429	945	0.07%	0.014%
82	16.059	1270	1277	1297	rVB	382449	850476	64.09%	12.842%
83	16.503	1318	1319	1322	rBV	447	979	0.07%	0.015%
84	16.576	1322	1326	1331	rVV	3445	7817	0.59%	0.118%
85	16.735	1339	1341	1343	rBV	365	843	0.06%	0.013%
86	17.115	1374	1377	1379	rVB	443	1038	0.08%	0.016%
87	17.273	1387	1392	1393	rBB	415	1192	0.09%	0.018%
88	17.368	1397	1401	1402	rBV	392	1104	0.08%	0.017%
89	17.452	1407	1409	1413	rVB	458	1162	0.09%	0.018%
90	17.579	1413	1421	1438	rBV	508206	1067087	80.41%	16.112%
91	17.938	1452	1455	1458	rBV	451	1476	0.11%	0.022%
92	18.254	1482	1485	1487	rBV	525	1316	0.10%	0.020%
93	18.297	1487	1489	1493	rVB	493	1288	0.10%	0.019%
94	18.360	1493	1495	1501	rBV	533	2053	0.15%	0.031%
95	19.025	1553	1558	1561	rBV	473	1869	0.14%	0.028%
96	19.088	1561	1564	1570	rVV	349	1019	0.08%	0.015%
97	19.890	1634	1640	1644	rBV	454	2537	0.19%	0.038%
98	20.006	1645	1651	1653	rVV	245	1024	0.08%	0.015%
99	21.167	1760	1761	1763	rBV	456	775	0.06%	0.012%
100	21.821	1822	1823	1827	rVV	541	833	0.06%	0.013%

Sum of corrected areas: 6622807

File : C:\MSDCHEM\1\DATA\083017\9M982271.D
Operator : JDS
Acquired : 30 Aug 2017 14:21 using AcqMethod 8260C
Instrument : hpms9
Sample Name: WG627829-01 BLANK 8260C
Misc Info : 1,1
Vial Number: 3
Quant File :8260C.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: JDS Date Acquired: 30 Aug 2017 14:21
Data File: C:\MSDCHEM\1\DATA\083017\9M982271.D
Name: WG627829-01 BLANK 8260C
Misc: 1,1
Method: C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title: 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Library Searched: C:\DATABASE\NIST02.L

					--Internal Standard---			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\082817\9M982217.D Vial: 4
Acq On : 28 Aug 2017 15:39 Operator: JDS
Sample : WG627475-02 20ug/L LCS 8260 Inst : hpms9
Misc : 1,1 STD83584 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 16:01:50 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	10.70	96	550237	50.00	ug/L	0.00
57) Chlorobenzene-d5	14.56	117	416822	50.00	ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	215958	50.00	ug/L	0.00
System Monitoring Compounds						
37) Dibromofluoromethane	9.67	111	158088	51.3128	ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.62%			
43) 1,2-Dichloroethane-d4	10.30	65	184581	51.2917	ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 102.58%			
58) Toluene-d8	12.67	98	536553	52.2874	ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 104.58%			
79) p-Bromofluorobenzene	16.06	95	204108	53.3026	ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 106.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	3.23	85	84716	21.0371	ug/L	99
3) Chloromethane	3.68	50	111272	20.1434	ug/L	99
4) Vinyl Chloride	3.90	62	67934	17.2999	ug/L	98
5) 1,3-Butadiene	3.94	54	31076	21.4954	ug/L	95
6) Bromomethane	4.78	94	42717	17.6919	ug/L	100
7) Chloroethane	4.93	64	48369	21.1900	ug/L	98
8) Trichlorofluoromethane	5.41	101	98342	19.4399	ug/L	100
9) Diethyl ether	5.94	59	308038	98.3223	ug/L	99
10) Isoprene	5.97	67	86020	20.8723	ug/L	99
11) Acrolein	6.18	56	73879	140.0234	ug/L	99
12) 1,1,2-Trichloro-1,2,2-Trif	6.18	101	56437	21.2465	ug/L	99
13) Acetone	6.29	43	33253	19.8875	ug/L	97
14) 1,1-Dichloroethene	6.49	61	82907	17.4251	ug/L	99
15) Tert-Butyl Alcohol	6.63	59	118444	205.2972	ug/L	98
16) Dimethyl Sulfide	6.75	62	58847	15.8094	ug/L	99
17) Iodomethane	7.01	142	65568	18.0086	ug/L	98
18) Methyl acetate	7.03	43	81072	18.8761	ug/L	99
19) Methylene Chloride	7.27	84	58735	18.8730	ug/L	98
20) Carbon Disulfide	7.31	76	133319	17.1764	ug/L	100
21) Acrylonitrile	7.46	53	41643	20.6191	ug/L	97
22) Methyl Tert Butyl Ether	7.48	73	189953	19.4799	ug/L	98
23) trans-1,2-Dichloroethene	7.71	61	79795	18.0496	ug/L	99
24) n-Hexane	7.79	57	72287	17.3504	ug/L	100
25) Diisopropyl ether	8.14	45	1188297	99.3490	ug/L	100
26) Vinyl Acetate	8.31	43	145643	19.4728	ug/L	99
27) 1,1-Dichloroethane	8.34	63	110093	18.7533	ug/L	99
28) Ethyl-Tert-Butyl ether	8.70	59	1103441	100.9455	ug/L	100
29) 2-Butanone	8.90	43	46449	18.6530	ug/L	98
30) Propionitrile	9.00	54	77476	92.1735	ug/L	99
31) 2,2-Dichloropropane	9.11	77	83888	19.6215	ug/L	99
32) cis-1,2-Dichloroethene	9.17	96	61685	19.5752	ug/L	100
33) Chloroform	9.38	83	105947	20.2156	ug/L	99
34) 1-Bromopropane	9.51	122	14362	24.2538	ug/L	99
35) Bromochloromethane	9.61	130	43370	19.2051	ug/L	99
36) Tetrahydrofuran	9.63	42	152339	98.2190	ug/L	99
38) 1,1,1-Trichloroethane	9.90	97	93252	19.3934	ug/L	99
39) Cyclohexane	9.93	56	111536	18.4737	ug/L	98
40) 1,1-Dichloropropene	10.10	75	70183	19.3097	ug/L	100
41) Tert-Amyl-Methyl ether	10.20	73	923428	101.8159	ug/L	99
42) Carbon Tetrachloride	10.25	117	84696	19.4791	ug/L	100

(#) = qualifier out of range (m) = manual integration
9M982217.D 8260C.M Mon Aug 28 16:01:50 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\082817\9M982217.D Vial: 4
Acq On : 28 Aug 2017 15:39 Operator: JDS
Sample : WG627475-02 20ug/L LCS 8260 Inst : hpms9
Misc : 1,1 STD83584 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 16:01:50 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

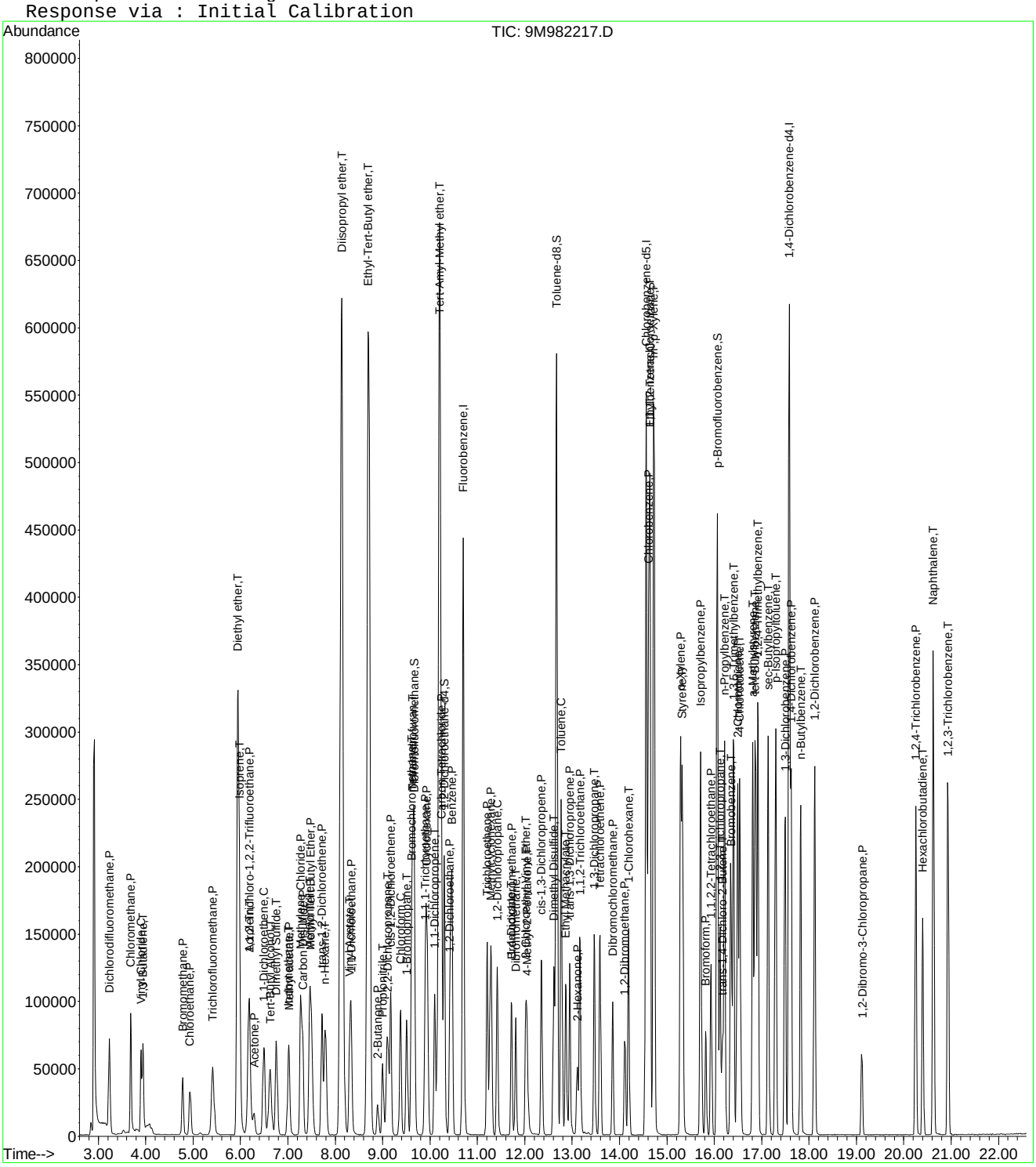
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	98287	19.4199 ug/L		99
46)	Benzene	10.46	78	227851	18.8445 ug/L		100
47)	Trichloroethene	11.21	130	68172	21.2240 ug/L		99
48)	Methylcyclohexane	11.28	83	90155	18.8460 ug/L		100
49)	1,2-Dichloropropane	11.42	63	66644	19.8992 ug/L		100
50)	1,4-Dioxane	11.71	88	11296	186.2084 ug/L		97
51)	Bromodichloromethane	11.72	83	78610	19.5317 ug/L		99
52)	Dibromomethane	11.81	174	44506	20.2052 ug/L		99
53)	2-Chloroethyl Vinyl Ether	12.02	63	48109	18.1563 ug/L		98
54)	4-Methyl-2-Pentanone	12.05	58	36055	18.0210 ug/L		100
55)	cis-1,3-Dichloropropene	12.35	75	96833	21.5710 ug/L		100
56)	Dimethyl Disulfide	12.61	79	47141	17.8567 ug/L		89
59)	Toluene	12.77	91	249421	20.6545 ug/L		99
60)	Ethyl Methacrylate	12.86	69	86348	18.5142 ug/L		99
61)	trans-1,3-Dichloropropene	12.95	75	86459	21.3447 ug/L		99
62)	1,1,2-Trichloroethane	13.17	97	62516	21.0807 ug/L		98
63)	2-Hexanone	13.11	43	58473	17.3902 ug/L	#	78
64)	1,3-Dichloropropane	13.47	76	106971	21.9998 ug/L		100
65)	Tetrachloroethene	13.59	164	49784	20.3503 ug/L		100
66)	Dibromochloromethane	13.86	129	71146	20.5528 ug/L		99
67)	1,2-Dibromoethane	14.11	107	64002	20.3606 ug/L		99
68)	1-Chlorohexane	14.19	91	65583	19.8357 ug/L		97
69)	Chlorobenzene	14.62	112	177589	21.2003 ug/L		98
70)	1,1,1,2-Tetrachloroethane	14.64	131	67611	20.6896 ug/L		99
71)	Ethylbenzene	14.64	106	93384	21.1522 ug/L		98
72)	m-,p-Xylene	14.72	106	230814	44.1979 ug/L		97
73)	o-Xylene	15.29	106	117636	21.7598 ug/L		100
74)	Styrene	15.32	104	187339	19.0639 ug/L		99
75)	Bromoform	15.82	173	50486	16.5374 ug/L		99
76)	Isopropylbenzene	15.71	105	284534	20.9647 ug/L		98
78)	1,1,2,2-Tetrachloroethane	15.93	83	86788	19.7184 ug/L		99
80)	1,2,3-Trichloropropane	16.12	110	33362	22.5728 ug/L	#	31
81)	trans-1,4-Dichloro-2-Buten	16.17	53	25614	15.7007 ug/L	#	1
82)	n-Propylbenzene	16.22	91	325651	22.0292 ug/L		99
83)	Bromobenzene	16.36	156	78642	21.0520 ug/L		95
84)	1,3,5-Trimethylbenzene	16.41	105	250665	21.8915 ug/L		98
85)	2-Chlorotoluene	16.49	91	216449	22.1460 ug/L		90
86)	4-Chlorotoluene	16.54	91	192984	22.2119 ug/L		91
87)	a-Methylstyrene	16.81	118	124189	20.4562 ug/L		96
88)	tert-Butylbenzene	16.86	134	54989	22.3143 ug/L		98
89)	1,2,4-Trimethylbenzene	16.92	105	265329	22.3486 ug/L		99
90)	sec-Butylbenzene	17.14	105	310911	22.3072 ug/L		99
91)	p-Isopropyltoluene	17.30	119	257595	22.1728 ug/L		100
92)	1,3-Dichlorobenzene	17.50	146	142644	21.5987 ug/L		100
93)	1,4-Dichlorobenzene	17.62	146	149181	21.8112 ug/L		100
94)	n-Butylbenzene	17.82	91	200981	18.7446 ug/L		99
95)	1,2-Dichlorobenzene	18.12	146	159629	22.3368 ug/L		99
96)	1,2-Dibromo-3-Chloropropan	19.12	157	24495	19.0227 ug/L		100
97)	1,2,4-Trichlorobenzene	20.25	180	101276	19.4794 ug/L		99
98)	Hexachlorobutadiene	20.40	225	45551	19.6854 ug/L		99
99)	Naphthalene	20.62	128	375941	22.5708 ug/L		100
100)	1,2,3-Trichlorobenzene	20.94	180	112080	22.8797 ug/L		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\082817\9M982217.D Vial: 4
Acq On : 28 Aug 2017 15:39 Operator: JDS
Sample : WG627475-02 20ug/L LCS 8260 Inst : hpms9
Misc : 1,1 STD83584 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 16:01 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\083017\9M982272.D Vial: 4
Acq On : 30 Aug 2017 14:51 Operator: JDS
Sample : WG627829-02 20ug/L LCS 8260C Inst : hpms9
Misc : 1,1 STD83625 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 15:14:28 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	10.70	96	529316	50.00 ug/L	0.00
57) Chlorobenzene-d5	14.56	117	404903	50.00 ug/L	0.00
77) 1,4-Dichlorobenzene-d4	17.58	152	209727	50.00 ug/L	0.00
System Monitoring Compounds					
37) Dibromofluoromethane	9.66	111	152033	51.2979 ug/L	0.00
Spiked Amount 50.000	Range 86 - 118		Recovery = 102.60%		
43) 1,2-Dichloroethane-d4	10.30	65	182289	52.6569 ug/L	0.00
Spiked Amount 50.000	Range 80 - 120		Recovery = 105.32%		
58) Toluene-d8	12.68	98	523181	52.4851 ug/L	0.00
Spiked Amount 50.000	Range 88 - 110		Recovery = 104.98%		
79) p-Bromofluorobenzene	16.06	95	198474	53.3712 ug/L	0.00
Spiked Amount 50.000	Range 86 - 115		Recovery = 106.74%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.23	85	60190	15.5374 ug/L	100
3) Chloromethane	3.68	50	86775	16.3296 ug/L	99
4) Vinyl Chloride	3.90	62	72448	19.1786 ug/L	99
5) 1,3-Butadiene	3.94	54	27287	19.6206 ug/L	97
6) Bromomethane	4.77	94	30640	13.1916 ug/L	99
7) Chloroethane	4.93	64	42911	19.5419 ug/L	98
8) Trichlorofluoromethane	5.41	101	93254	19.1627 ug/L	99
9) Diethyl ether	5.94	59	296409	98.3499 ug/L	99
10) Isoprene	5.96	67	76021	19.1752 ug/L	100
11) Acrolein	6.17	56	62028	122.2087 ug/L	96
12) 1,1,2-Trichloro-1,2,2-Trif	6.19	101	54659	21.3905 ug/L	99
13) Acetone	6.29	43	33519	20.8389 ug/L	98
14) 1,1-Dichloroethene	6.49	61	67838	14.8215 ug/L	97
15) Tert-Butyl Alcohol	6.62	59	117638	211.9593 ug/L	98
16) Dimethyl Sulfide	6.76	62	52653	14.7045 ug/L	97
17) Iodomethane	7.00	142	41677	11.8993 ug/L	98
18) Methyl acetate	7.02	43	78579	19.0188 ug/L	99
19) Methylene Chloride	7.27	84	50537	16.8806 ug/L	99
20) Carbon Disulfide	7.31	76	117259	15.7044 ug/L	99
21) Acrylonitrile	7.45	53	41431	21.3250 ug/L	96
22) Methyl Tert Butyl Ether	7.48	73	184128	19.6289 ug/L	98
23) trans-1,2-Dichloroethene	7.72	61	69863	16.4276 ug/L	100
24) n-Hexane	7.79	57	65014	16.2215 ug/L	99
25) Diisopropyl ether	8.13	45	1155389	100.4157 ug/L	99
26) Vinyl Acetate	8.31	43	135189	18.7895 ug/L	98
27) 1,1-Dichloroethane	8.33	63	100401	17.7783 ug/L	99
28) Ethyl-Tert-Butyl ether	8.70	59	1056358	100.4578 ug/L	100
29) 2-Butanone	8.90	43	49003	20.4565 ug/L	99
30) Propionitrile	9.00	54	78654	97.0802 ug/L	98
31) 2,2-Dichloropropane	9.11	77	73858	17.9583 ug/L	100
32) cis-1,2-Dichloroethene	9.17	96	55393	18.2732 ug/L	97
33) Chloroform	9.37	83	100194	19.8735 ug/L	99
34) 1-Bromopropane	9.51	122	13386	23.4990 ug/L	91
35) Bromochloromethane	9.60	130	40294	18.5483 ug/L	99
36) Tetrahydrofuran	9.64	42	148271	99.3746 ug/L	100
38) 1,1,1-Trichloroethane	9.90	97	85562	18.4974 ug/L	99
39) Cyclohexane	9.93	56	104034	17.9122 ug/L	99
40) 1,1-Dichloropropene	10.10	75	64093	18.3311 ug/L	97
41) Tert-Amyl-Methyl ether	10.20	73	875130	100.3043 ug/L	100
42) Carbon Tetrachloride	10.24	117	75606	18.0758 ug/L	99

(#) = qualifier out of range (m) = manual integration
9M982272.D 8260C.M Wed Aug 30 15:14:28 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\083017\9M982272.D Vial: 4
Acq On : 30 Aug 2017 14:51 Operator: JDS
Sample : WG627829-02 20ug/L LCS 8260C Inst : hpms9
Misc : 1,1 STD83625 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 15:14:28 2017 Quant Results File: 8260C.RES

Quant Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration
DataAcq Meth : 8260C

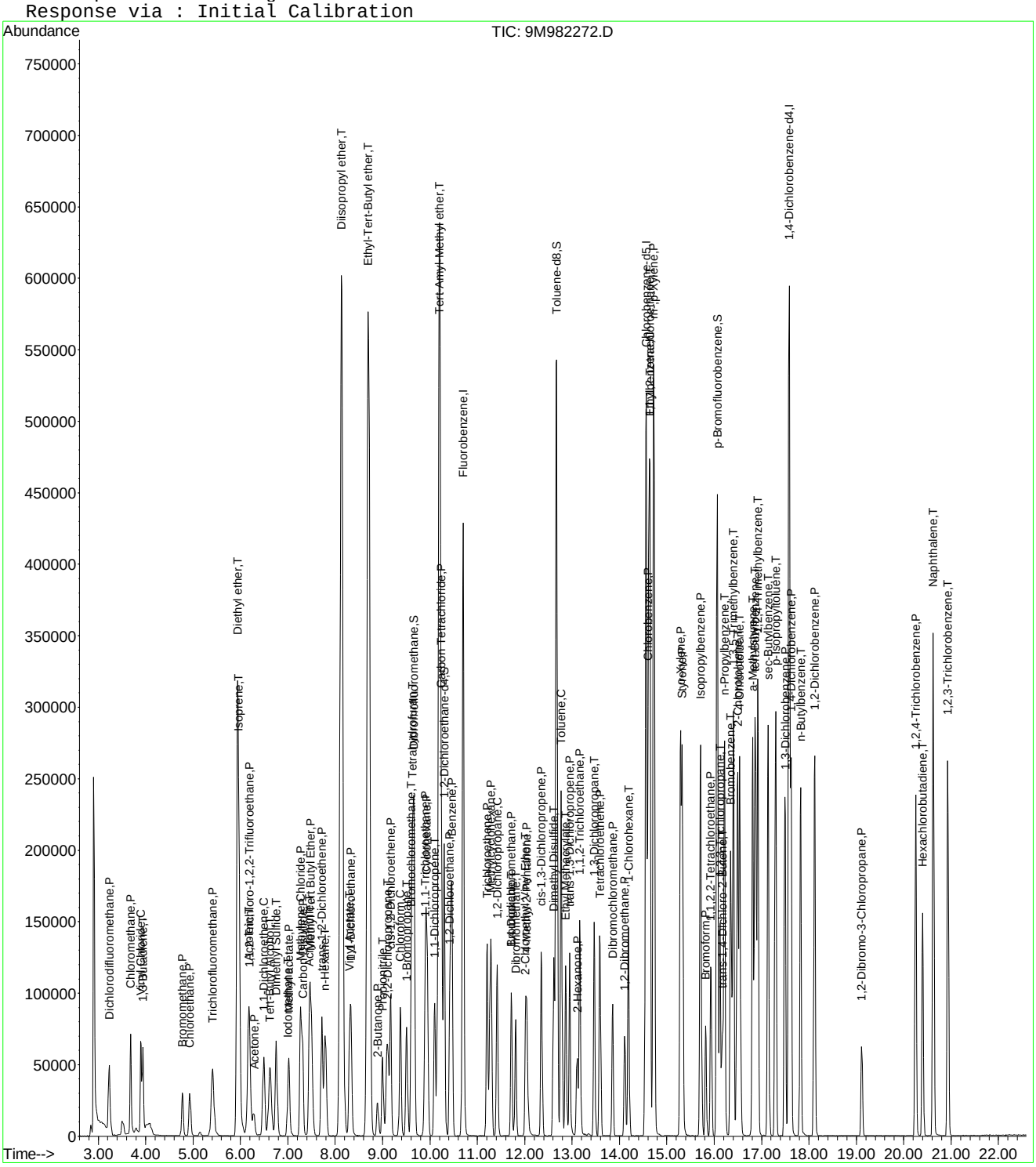
	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
45)	1,2-Dichloroethane	10.42	62	94091	19.3256 ug/L		98
46)	Benzene	10.46	78	206886	17.7869 ug/L		100
47)	Trichloroethene	11.21	130	65229	21.1104 ug/L		98
48)	Methylcyclohexane	11.28	83	84493	18.3605 ug/L		99
49)	1,2-Dichloropropane	11.42	63	64459	20.0075 ug/L		98
50)	1,4-Dioxane	11.72	88	11074	189.1567 ug/L		99
51)	Bromodichloromethane	11.72	83	76824	19.8424 ug/L		99
52)	Dibromomethane	11.81	174	41765	19.7102 ug/L		96
53)	2-Chloroethyl Vinyl Ether	12.01	63	43323	16.9963 ug/L		97
54)	4-Methyl-2-Pentanone	12.04	58	36622	19.0279 ug/L		98
55)	cis-1,3-Dichloropropene	12.35	75	91963	21.2958 ug/L		99
56)	Dimethyl Disulfide	12.61	79	44799	17.6817 ug/L		87
59)	Toluene	12.77	91	235402	20.0674 ug/L		99
60)	Ethyl Methacrylate	12.87	69	84967	18.7358 ug/L		99
61)	trans-1,3-Dichloropropene	12.95	75	82842	21.0538 ug/L		100
62)	1,1,2-Trichloroethane	13.16	97	61639	21.3968 ug/L		99
63)	2-Hexanone	13.11	43	64788	19.3532 ug/L	#	81
64)	1,3-Dichloropropane	13.47	76	104101	22.0398 ug/L		99
65)	Tetrachloroethene	13.59	164	46840	19.7105 ug/L		99
66)	Dibromochloromethane	13.86	129	68244	20.2947 ug/L		98
67)	1,2-Dibromoethane	14.11	107	63087	20.6603 ug/L		98
68)	1-Chlorohexane	14.19	91	63101	19.6468 ug/L		99
69)	Chlorobenzene	14.61	112	173502	21.3221 ug/L		98
70)	1,1,1,2-Tetrachloroethane	14.64	131	65780	20.7218 ug/L		98
71)	Ethylbenzene	14.64	106	90933	21.2033 ug/L		99
72)	m-,p-Xylene	14.72	106	221797	43.7214 ug/L		96
73)	o-Xylene	15.29	106	113474	21.6078 ug/L		98
74)	Styrene	15.32	104	180650	18.9299 ug/L		98
75)	Bromoform	15.82	173	50498	16.9849 ug/L		99
76)	Isopropylbenzene	15.71	105	273642	20.7557 ug/L		100
78)	1,1,2,2-Tetrachloroethane	15.93	83	82990	19.4157 ug/L		99
80)	1,2,3-Trichloropropane	16.13	110	34182	23.8147 ug/L		85
81)	trans-1,4-Dichloro-2-Buten	16.17	53	24661	15.5656 ug/L		73
82)	n-Propylbenzene	16.22	91	318442	22.1815 ug/L		100
83)	Bromobenzene	16.35	156	75657	20.8546 ug/L		92
84)	1,3,5-Trimethylbenzene	16.40	105	243068	21.8587 ug/L		99
85)	2-Chlorotoluene	16.50	91	215076	22.6593 ug/L		92
86)	4-Chlorotoluene	16.54	91	183801	21.7835 ug/L		90
87)	a-Methylstyrene	16.81	118	122463	20.7712 ug/L		96
88)	tert-Butylbenzene	16.86	134	54393	22.7282 ug/L		97
89)	1,2,4-Trimethylbenzene	16.92	105	260784	22.6184 ug/L		99
90)	sec-Butylbenzene	17.14	105	303926	22.4539 ug/L		99
91)	p-Isopropyltoluene	17.30	119	253800	22.4952 ug/L		100
92)	1,3-Dichlorobenzene	17.50	146	139833	21.8022 ug/L		100
93)	1,4-Dichlorobenzene	17.62	146	148069	22.2918 ug/L		98
94)	n-Butylbenzene	17.83	91	200337	19.2232 ug/L		98
95)	1,2-Dichlorobenzene	18.12	146	156167	22.5016 ug/L		98
96)	1,2-Dibromo-3-Chloropropan	19.11	157	24583	19.6149 ug/L		99
97)	1,2,4-Trichlorobenzene	20.25	180	98223	19.4543 ug/L		99
98)	Hexachlorobutadiene	20.40	225	43833	19.5118 ug/L		100
99)	Naphthalene	20.62	128	366990	22.6863 ug/L		99
100)	1,2,3-Trichlorobenzene	20.93	180	110258	23.1765 ug/L		100

(#) = qualifier out of range (m) = manual integration
9M982272.D 8260C.M Wed Aug 30 15:14:29 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDchem\1\data\083017\9M982272.D Vial: 4
Acq On : 30 Aug 2017 14:51 Operator: JDS
Sample : WG627829-02 20ug/L LCS 8260C Inst : hpms9
Misc : 1,1 STD83625 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 15:14 2017 Quant Results File: 8260C.RES

Method : C:\MSDCHEM\1\METHODS\8260C.M (RTE Integrator)
Title : 8260C SOP: OVL MSV01-C WATER 081417 HPMS9
Last Update : Mon Aug 14 14:47:27 2017
Response via : Initial Calibration



2.2 Semivolatiles Data

2.2.1 Semivolatiles GC/MS Data (8270)

2.2.1.1 Summary Data

Login Number: L17081305
Department: Semivolatiles
Analyst: Sarah Bogolin

METHOD

Preparation 3510C

Analysis SW-846 8270C

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: The percent difference was out of range for the following analytes: Benzoic Acid. Please see the applicable QC report for a detailed presentation of the failures.

Continuing Calibration and Tune: Recoveries out of range were observed for the following analyte: Benzoic Acid. Please see the applicable QC report for a detailed presentation of the failure.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: Recoveries out of range were observed for the following analytes: 1,4-Dioxane failed low in the LCS/LCSD, 2,4-Dinitrophenol and Benzoic Acid exceeded % RPD criteria only, Dimethylphthalate and Isophorone failed high in the LCSD but were acceptable in the LCS and non-detect in the associated samples. Please see the applicable QC report for a detailed presentation of the failures.

Sample #	Analyte	Date	Result	Lower	Upper	Type

WG627291-02	1,4-Dioxane	2017-08-29 11:25:00	43.0	50	150	Recovery
WG627291-03	1,4-Dioxane	2017-08-29 11:57:00	47.0	50	150	Recovery
WG627291-03	2,4-Dinitrophenol	2017-08-29 11:57:00	52.3		30	RPD
WG627291-03	Benzoic Acid	2017-08-29 11:57:00	49.8		30	RPD
WG627291-03	Dimethylphthalate	2017-08-29 11:57:00	114	25	112	Recovery
WG627291-03	Isophorone	2017-08-29 11:57:00	116	30	110	Recovery

Matrix Spikes: There were no MS/MSD results associated with this sample delivery group, due to insufficient volume of sample. The laboratory included an LCS and LCS duplicate in the preparation batch in lieu of the NELAC prescribed MS/MSD. Microbac recommends site specific MS/MSD samples to avoid possible data qualification.

SAMPLES

Samples: All acceptance criteria were met. The extracts were library searched using the NIST library and the top twenty TICs found were reported. Requested acid compounds listed as TICs in the Waterloo QAPP may not have been detected due to unknown extraction efficiency and chromatographic performance.

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data

contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128920
Approved By: Mary Schilling

Certificate of Analysis

Sample #:	L17081305-14	**PrePrep Method:**	N/A	**Instrument:**	HPMS12
Client ID:	MW09R-082317	**Prep Method:**	3510C	**Prep Date:**	08/28/2017 11:00
Matrix:	Water	**Analytical Method:**	8270D	**Cal Date:**	08/03/2017 13:41
Workgroup #:	WG627524	**Analyst:**	SCB	**Run Date:**	08/29/2017 14:08
Collect Date:	08/23/2017 14:40	**Dilution:**	1	**File ID:**	12M64129
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1'-Biphenyl	92-52-4		U	22.0	2.75
1,3,5-Trinitrobenzene	99-35-4		U	5.49	2.75
1,3-Dinitrobenzene	99-65-0		U	5.49	2.75
1,4-Dioxane	123-91-1		U	11.0	5.49
2,4,5-Trichlorophenol	95-95-4		U	5.49	2.75
2,4,6-Trichlorophenol	88-06-2		U	5.49	2.75
2,4-Dichlorophenol	120-83-2		U	5.49	2.75
2,4-Dimethylphenol	105-67-9		U	5.49	2.75
2,4-Dinitrophenol	51-28-5		U	27.5	13.7
2,4-Dinitrotoluene	121-14-2		U	5.49	2.75
2,6-Dinitrotoluene	606-20-2		U	5.49	2.75
2-Chloronaphthalene	91-58-7		U	5.49	2.75
2-Chlorophenol	95-57-8		U	5.49	2.75
2-Methylnaphthalene	91-57-6		U	5.49	2.75
2-Methylphenol	95-48-7		U	5.49	2.75
2-Nitroaniline	88-74-4		U	27.5	13.7
2-Nitrophenol	88-75-5		U	5.49	2.75
3-Nitroaniline	99-09-2		U	27.5	13.7
3,3'-Dichlorobenzidine	91-94-1		U	5.49	2.75
3-,4-Methylphenol	65794-96-9		U	5.49	2.75
4-Bromophenyl-phenylether	101-55-3		U	5.49	2.75
4-Chloroaniline	106-47-8		U	5.49	2.75
4-Nitrophenol	100-02-7		U	27.5	13.7
Acenaphthene	83-32-9		U	5.49	2.75
Acenaphthylene	208-96-8		U	5.49	2.75
Anthracene	120-12-7		U	5.49	2.75
Benzo(a)anthracene	56-55-3		U	5.49	2.75
Benzo(a)pyrene	50-32-8		U	5.49	2.75
Benzo(b)fluoranthene	205-99-2		U	5.49	2.75
Benzo(g,h,i)Perylene	191-24-2		U	5.49	2.75
Benzo(k)fluoranthene	207-08-9		U	5.49	2.75
Benzoic acid	65-85-0		U	22.0	11.0
Benzyl alcohol	100-51-6		U	5.49	2.75

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Bis(2-Chloroethyl)ether	111-44-4		U	5.49	2.75
Bis(2-Chloroethoxy)Methane	111-91-1		U	5.49	2.75
bis(2-Ethylhexyl)phthalate	117-81-7		U	5.49	2.75
Butylbenzylphthalate	85-68-7		U	5.49	2.75
Carbazole	86-74-8		U	22.0	2.75
Chrysene	218-01-9		U	5.49	2.75
Di-N-Butylphthalate	84-74-2		U	5.49	2.75
Di-n-octylphthalate	117-84-0		U	5.49	2.75
Dibenzo(a,h)Anthracene	53-70-3		U	5.49	2.75
Dibenzofuran	132-64-9		U	5.49	2.75
Diethylphthalate	84-66-2		U	5.49	2.75
Dimethylphthalate	131-11-3		U	5.49	2.75
Fluoranthene	206-44-0		U	5.49	2.75
Fluorene	86-73-7		U	5.49	2.75
Hexachlorobenzene	118-74-1		U	5.49	2.75
Hexachlorobutadiene	87-68-3		U	5.49	2.75
Hexachlorocyclopentadiene	77-47-4		U	5.49	2.75
Hexachloroethane	67-72-1		U	5.49	2.75
Indeno(1,2,3-cd)pyrene	193-39-5		U	5.49	2.75
Isophorone	78-59-1		U	5.49	2.75
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	5.49	2.75
Naphthalene	91-20-3		U	5.49	2.75
Nitrobenzene	98-95-3		U	5.49	2.75
Pentachlorophenol	87-86-5		U	27.5	13.7
Phenanthrene	85-01-8		U	5.49	2.75
Phenol	108-95-2		U	5.49	2.75
Pyrene	129-00-0		U	5.49	2.75

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	113	10	123	
2-Fluorobiphenyl	91.7	43	116	
2-Fluorophenol	49.0	21	100	
Nitrobenzene-d5	85.9	35	114	
p-Terphenyl-d14	96.7	33	141	
Phenol-d5	36.7	10	94	

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** HPMS12
Client ID: MW09R-082317 **Prep Method:** 3510C **Prep Date:** 08/28/2017 11:00
Matrix: Water **Analytical Method:** 8270D **Cal Date:** 08/03/2017 13:41
Workgroup #: WG627524 **Analyst:** SCB **Run Date:** 08/29/2017 14:08
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** 12M64129
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
UNKNOWN		9.45		0.000	0.000
1,4-Oxathiane		46.0		0.000	0.000
[1,4,5]Oxadithiepane		619		0.000	0.000
UNKNOWN2		24.0		0.000	0.000
UNKNOWN3		18.1		0.000	0.000
n-Hexadecanoic acid		6.22		0.000	0.000
Eicosane		6.07		0.000	0.000
Eicosane		10.9		0.000	0.000
Triacontane		15.9		0.000	0.000
Eicosane		16.9		0.000	0.000
Eicosane		13.0		0.000	0.000
Eicosane		6.86		0.000	0.000

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** HPMS12
Client ID: DUP-GW-082317-2 **Prep Method:** 3510C **Prep Date:** 08/28/2017 11:00
Matrix: Water **Analytical Method:** 8270D **Cal Date:** 08/03/2017 13:41
Workgroup #: WG627524 **Analyst:** SCB **Run Date:** 08/29/2017 14:40
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** 12M64130
Sample Tag: 01 **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
1,1'-Biphenyl	92-52-4		U	22.2	2.78
1,3,5-Trinitrobenzene	99-35-4		U	5.56	2.78
1,3-Dinitrobenzene	99-65-0		U	5.56	2.78
1,4-Dioxane	123-91-1		U	11.1	5.56
2,4,5-Trichlorophenol	95-95-4		U	5.56	2.78
2,4,6-Trichlorophenol	88-06-2		U	5.56	2.78
2,4-Dichlorophenol	120-83-2		U	5.56	2.78
2,4-Dimethylphenol	105-67-9		U	5.56	2.78
2,4-Dinitrophenol	51-28-5		U	27.8	13.9
2,4-Dinitrotoluene	121-14-2		U	5.56	2.78
2,6-Dinitrotoluene	606-20-2		U	5.56	2.78
2-Chloronaphthalene	91-58-7		U	5.56	2.78

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
2-Chlorophenol	95-57-8		U	5.56	2.78
2-Methylnaphthalene	91-57-6		U	5.56	2.78
2-Methylphenol	95-48-7		U	5.56	2.78
2-Nitroaniline	88-74-4		U	27.8	13.9
2-Nitrophenol	88-75-5		U	5.56	2.78
3-Nitroaniline	99-09-2		U	27.8	13.9
3,3'-Dichlorobenzidine	91-94-1		U	5.56	2.78
3-,4-Methylphenol	65794-96-9		U	5.56	2.78
4-Bromophenyl-phenylether	101-55-3		U	5.56	2.78
4-Chloroaniline	106-47-8		U	5.56	2.78
4-Nitrophenol	100-02-7		U	27.8	13.9
Acenaphthene	83-32-9		U	5.56	2.78
Acenaphthylene	208-96-8		U	5.56	2.78
Anthracene	120-12-7		U	5.56	2.78
Benzo(a)anthracene	56-55-3		U	5.56	2.78
Benzo(a)pyrene	50-32-8		U	5.56	2.78
Benzo(b)fluoranthene	205-99-2		U	5.56	2.78
Benzo(g,h,i)Perylene	191-24-2		U	5.56	2.78
Benzo(k)fluoranthene	207-08-9		U	5.56	2.78
Benzoic acid	65-85-0		U	22.2	11.1
Benzyl alcohol	100-51-6		U	5.56	2.78
Bis(2-Chloroethyl)ether	111-44-4		U	5.56	2.78
Bis(2-Chloroethoxy)Methane	111-91-1		U	5.56	2.78
bis(2-Ethylhexyl)phthalate	117-81-7		U	5.56	2.78
Butylbenzylphthalate	85-68-7		U	5.56	2.78
Carbazole	86-74-8		U	22.2	2.78
Chrysene	218-01-9		U	5.56	2.78
Di-N-Butylphthalate	84-74-2		U	5.56	2.78
Di-n-octylphthalate	117-84-0		U	5.56	2.78
Dibenzo(a,h)Anthracene	53-70-3		U	5.56	2.78
Dibenzofuran	132-64-9		U	5.56	2.78
Diethylphthalate	84-66-2		U	5.56	2.78
Dimethylphthalate	131-11-3		U	5.56	2.78
Fluoranthene	206-44-0		U	5.56	2.78
Fluorene	86-73-7		U	5.56	2.78
Hexachlorobenzene	118-74-1		U	5.56	2.78
Hexachlorobutadiene	87-68-3		U	5.56	2.78
Hexachlorocyclopentadiene	77-47-4		U	5.56	2.78
Hexachloroethane	67-72-1		U	5.56	2.78

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Indeno(1,2,3-cd)pyrene	193-39-5		U	5.56	2.78
Isophorone	78-59-1		U	5.56	2.78
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	5.56	2.78
Naphthalene	91-20-3		U	5.56	2.78
Nitrobenzene	98-95-3		U	5.56	2.78
Pentachlorophenol	87-86-5		U	27.8	13.9
Phenanthrene	85-01-8		U	5.56	2.78
Phenol	108-95-2		U	5.56	2.78
Pyrene	129-00-0		U	5.56	2.78

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	122	10	123	
2-Fluorobiphenyl	101	43	116	
2-Fluorophenol	51.4	21	100	
Nitrobenzene-d5	95.5	35	114	
p-Terphenyl-d14	93.9	33	141	
Phenol-d5	39.5	10	94	

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16
Client ID: DUP-GW-082317-2
Matrix: Water
Workgroup #: WG627524
Collect Date: 08/23/2017 09:30
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 8270D
Analyst: SCB
Dilution: 1
Units: ug/L

Instrument: HPMS12
Prep Date: 08/28/2017 11:00
Cal Date: 08/03/2017 13:41
Run Date: 08/29/2017 14:40
File ID: 12M64130

Analyte	CAS #	Result	Qual	RL	MDL
1,4-Oxathiane		54.3		0.000	0.000
[1,4,5]Oxadithiepane		755		0.000	0.000
UNKNOWN		31.0		0.000	0.000
UNKNOWN2		22.0		0.000	0.000
n-Hexadecanoic acid		13.4		0.000	0.000
Octadecanoic acid		6.19		0.000	0.000
Triacontane		8.65		0.000	0.000
Eicosane		15.6		0.000	0.000
Eicosane		23.3		0.000	0.000
Hexadecane, 2,6,10,14-tetramethyl-		24.7		0.000	0.000
Triacontane		19.1		0.000	0.000
Tetratriacontane		9.86		0.000	0.000

Certificate of Analysis

Sample #:	L17081305-19	**PrePrep Method:**	N/A	**Instrument:**	HPMS12
Client ID:	MW19-082317	**Prep Method:**	3510C	**Prep Date:**	08/28/2017 11:00
Matrix:	Water	**Analytical Method:**	8270D	**Cal Date:**	08/03/2017 13:41
Workgroup #:	WG627524	**Analyst:**	SCB	**Run Date:**	08/29/2017 15:12
Collect Date:	08/23/2017 15:35	**Dilution:**	1	**File ID:**	12M64131
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
n-Hexadecanoic acid		5.90		0.000	0.000
Tetratriacontane		5.19		0.000	0.000
Eicosane		7.19		0.000	0.000
Eicosane		8.55		0.000	0.000
Eicosane		6.98		0.000	0.000
Tetratriacontane		4.35		0.000	0.000

Sample #:	L17081305-19	**PrePrep Method:**	N/A	**Instrument:**	HPMS12
Client ID:	MW19-082317	**Prep Method:**	3510C	**Prep Date:**	08/28/2017 11:00
Matrix:	Water	**Analytical Method:**	8270D	**Cal Date:**	08/03/2017 13:41
Workgroup #:	WG627524	**Analyst:**	SCB	**Run Date:**	08/29/2017 15:12
Collect Date:	08/23/2017 15:35	**Dilution:**	1	**File ID:**	12M64131
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1'-Biphenyl	92-52-4		U	20.0	2.50
1,3,5-Trinitrobenzene	99-35-4		U	5.00	2.50
1,3-Dinitrobenzene	99-65-0		U	5.00	2.50
1,4-Dioxane	123-91-1		U	10.0	5.00
2,4,5-Trichlorophenol	95-95-4		U	5.00	2.50
2,4,6-Trichlorophenol	88-06-2		U	5.00	2.50
2,4-Dichlorophenol	120-83-2		U	5.00	2.50
2,4-Dimethylphenol	105-67-9		U	5.00	2.50
2,4-Dinitrophenol	51-28-5		U	25.0	12.5
2,4-Dinitrotoluene	121-14-2		U	5.00	2.50
2,6-Dinitrotoluene	606-20-2		U	5.00	2.50
2-Chloronaphthalene	91-58-7		U	5.00	2.50
2-Chlorophenol	95-57-8		U	5.00	2.50
2-Methylnaphthalene	91-57-6		U	5.00	2.50
2-Methylphenol	95-48-7		U	5.00	2.50
2-Nitroaniline	88-74-4		U	25.0	12.5
2-Nitrophenol	88-75-5		U	5.00	2.50
3-Nitroaniline	99-09-2		U	25.0	12.5

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
3,3'-Dichlorobenzidine	91-94-1		U	5.00	2.50
3-,4-Methylphenol	65794-96-9		U	5.00	2.50
4-Bromophenyl-phenylether	101-55-3		U	5.00	2.50
4-Chloroaniline	106-47-8		U	5.00	2.50
4-Nitrophenol	100-02-7		U	25.0	12.5
Acenaphthene	83-32-9		U	5.00	2.50
Acenaphthylene	208-96-8		U	5.00	2.50
Anthracene	120-12-7		U	5.00	2.50
Benzo(a)anthracene	56-55-3		U	5.00	2.50
Benzo(a)pyrene	50-32-8		U	5.00	2.50
Benzo(b)fluoranthene	205-99-2		U	5.00	2.50
Benzo(g,h,i)Perylene	191-24-2		U	5.00	2.50
Benzo(k)fluoranthene	207-08-9		U	5.00	2.50
Benzoic acid	65-85-0		U	20.0	10.0
Benzyl alcohol	100-51-6		U	5.00	2.50
Bis(2-Chloroethyl)ether	111-44-4		U	5.00	2.50
Bis(2-Chloroethoxy)Methane	111-91-1		U	5.00	2.50
bis(2-Ethylhexyl)phthalate	117-81-7		U	5.00	2.50
Butylbenzylphthalate	85-68-7		U	5.00	2.50
Carbazole	86-74-8		U	20.0	2.50
Chrysene	218-01-9		U	5.00	2.50
Di-N-Butylphthalate	84-74-2		U	5.00	2.50
Di-n-octylphthalate	117-84-0		U	5.00	2.50
Dibenzo(a,h)Anthracene	53-70-3		U	5.00	2.50
Dibenzofuran	132-64-9		U	5.00	2.50
Diethylphthalate	84-66-2		U	5.00	2.50
Dimethylphthalate	131-11-3		U	5.00	2.50
Fluoranthene	206-44-0		U	5.00	2.50
Fluorene	86-73-7		U	5.00	2.50
Hexachlorobenzene	118-74-1		U	5.00	2.50
Hexachlorobutadiene	87-68-3		U	5.00	2.50
Hexachlorocyclopentadiene	77-47-4		U	5.00	2.50
Hexachloroethane	67-72-1		U	5.00	2.50
Indeno(1,2,3-cd)pyrene	193-39-5		U	5.00	2.50
Isophorone	78-59-1		U	5.00	2.50
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	5.00	2.50
Naphthalene	91-20-3		U	5.00	2.50
Nitrobenzene	98-95-3		U	5.00	2.50
Pentachlorophenol	87-86-5		U	25.0	12.5

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Phenanthrene	85-01-8		U	5.00	2.50
Phenol	108-95-2		U	5.00	2.50
Pyrene	129-00-0		U	5.00	2.50

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	102	10	123	
2-Fluorobiphenyl	75.7	43	116	
2-Fluorophenol	42.4	21	100	
Nitrobenzene-d5	75.6	35	114	
p-Terphenyl-d14	86.8	33	141	
Phenol-d5	29.9	10	94	

U	Not detected at or above adjusted sample detection limit.

2.2.1.2 QC Summary Data

Example 8270 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured:	1261197
Cis = Concentration of the specific internal standard (ug/mL)	40
Ais = Area of the characteristic ion of the specific internal standard	608044
Cx = Concentration of the compound in the standard being measured (ug/mL)	50
RF = Calculated Response Factor	**1.65935**

2.0 Calculating the concentration (C) of a compound in water using the data from the prep log and quantitation report: *

Cx = [(Ax) (Cis) (Vf) (D)] / [(Ais) (RF) (Vi)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured	367250
Cis = Concentration of the specific internal standard (ug/mL)	40
Vf = Final volume of sample extract from prep log (mL)	1
D = Dilution factor for sample as a multiplier (10x = 10)	1
Ais = Area of the characteristic ion of the specific internal standard	511641
RF = Average RF from the ICAL	1.65935
Vi = Initial volume of sample extracted from prep log (mL)	1021
Cx = Concentration of the compound in the sample being measured (ug/mL)	0.016947
Cx = Concentration of the compound in the sample being measured (ug/L)	**16.947**

3.0 Calculating the concentration (C) of a compound in soil using the data from the prep log and quantitation report: *

Cx = [(Ax) (Cis) (Vf) (D)] / [(Ais) (RF) (Wi)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured	367250
Cis = Concentration of the specific internal standard (ug/mL)	40
Vf = Final volume of sample extract from prep log (mL)	1
D = Dilution factor for sample as a multiplier (10x = 10)	1
Ais = Area of the characteristic ion of the specific internal standard	511641
RF = Average RF from the ICAL	1.65935
Wi = Initial weight of sample extracted (g) from prep log	30
Cx = Concentration of the compound in the sample being measured (ug/g)	0.576763
Cx = Concentration of the compound in the sample being measured (ug/kg)	**576.7627**

Dry weight correction:

Percent solids (PCT_S)	50
Cd = (Cx) (100)/PCT_S	**1153.525** ug/kg

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve plot

b = intercept from curve plot

Step 2: Calculate y from Quantitation Report

y = 16790/784838 = 0.02139

Step 3: Solve for x

x = (y - b)/m = [(0.02139 -(- 0.0435)]/ 0.0783 = 0.829

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.829) = 20.72 ug/L

Example Spreadsheet Calculation:

Slope from curve, m:	0.0783	
Intercept from curve, b:	-0.0435	
Area of analyte, Ax:	16790	
Area of Internal Standard , Ais:	784484	
Concentration of IS, Cis	25.00	ug/L
Response Ratio (y) :	0.021403	
Amount Ratio:	0.828897	
Concentration (Cx):	20.72241	ug/L

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**0.0259**	
Value of B from plot:	**0.0596**	
Value of C from plot:	**-0.0165**	
Area of analyte from quantitation report:	**203233**	
Area of IS from quantiation report:	**1425653**	
Response ratio, y:	**0.142554**	
C - y:	**-0.15905**	
Root 1 - Computed amount ratio , X1:	**-3.88278**	
Root 2 - Computed amount ratio , X2:	**1.581623**	use this solution
Concentration of IS, Cis:	**40.00**	
Concentration of analyte, Cx:	**63.26**	ug/L

Microbac Laboratories Inc.
Sample Extract Log

Workgroup: WG627291
Analyst: JDH
Spike Analyst: JDH
Method: 3510C
Run Date: 08/28/2017 11:00
SOP: EXB08 Revision 16
Spike Witness: JLD
Surr Solution: STD82960

METHYLENE CHLORIDE Lot #: COA19844
Na2SO4, Anhydrous, Granular Lot #: COA19759
1:1 H2SO4 Lot #: RGT40290
10N NaOH Lot #: RGT40456

	SAMPLE #	Type	Reference	pH	Prod	Init Amnt	Surr Amnt	Spike Amnt	Spike Sol	Final Vol	Color
1	L17081305-14	SAMP		<2>12	27-SPE-DIO	910 mL	.5 mL			1 mL	Transparent
2	L17081305-16	SAMP		<2>12	27-SPE-DIO	900 mL	.5 mL			1 mL	Transparent
3	L17081305-19	SAMP		<2>12	27-SPE-DIO	1000 mL	.5 mL			1 mL	Transparent
4	L17081366-17	SAMP		<2>12	27-SPE-DIO	1000 mL	.5 mL			1 mL	Transparent
5	L17081376-01	SAMP		<2>12	625-SPE	1000 mL	.5 mL			1 mL	Colored
6	WG627291-01	BLANK		<2>12	625-SPE	1000 mL	.5 mL			1 mL	Transparent
7	WG627291-02	LCS		<2>12	625-SPE	1000 mL	.5 mL	1 mL	STD82681	1 mL	Colored
8	WG627291-03	LCS2		<2>12	625-SPE	1000 mL	.5 mL	1 mL	STD82681	1 mL	Colored

Due to insufficient sample volume, this preparation batch failed to include the method prescribed MS and MSD.
pH 0-3 Lot#230515
pH 10-12 Lot#213515
TV4P5,6

Analyst: Justin Hesson

Reviewer: Jessica DeLong

EXTRACT - Modified 10/22/2008
PDF ID: 5451788
Report generated: 08/28/2017 15:30

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS12 Dataset: 071417
Analyst1: SCB Analyst2: NA
Method: 8270C/D SOP: MSS01 Rev: 28
Method: OVAP SOP: MSS01 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:
Eluent ID#:

Column 1 ID: RXI-5MS Column 2 ID: NA
Workgroups: WG621882, WG621894
Internal STD: COA19796 Surrogate STD: NA Calibration STD
CCV STD: STD81744, 81291 LCS STD: MS/MSD STD:

Comments: p-phenylenediamine for 625 only, not for 8270

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	12M63379	RINSE W/IS	1	1		07/14/17 13:48
2	12M63380	RINSE W/IS	1	1		07/14/17 14:21
3	12M63381	RINSE W/IS	1	1		07/14/17 14:54
4	12M63382	RINSE W/IS	1	1		07/14/17 15:34
5	12M63383	WG621882-01 50PPM DFTPP STD	1	1	STD80383	07/14/17 16:06
6	12M63384	WG621882-02 50PPM 8270 STD	1	1	STD81744	07/14/17 16:30
7	12M63385	WG621882-03 1PPM 8270 STD	1	1	STD81744	07/14/17 17:03
8	12M63386	WG621882-04 3PPM 8270 STD	1	1	STD81744	07/14/17 17:36
9	12M63387	WG621882-05 10PPM 8270 STD	1	1	STD81744	07/14/17 18:09
10	12M63388	WG621882-06 15PPM 8270 STD	1	1	STD81744	07/14/17 18:42
11	12M63389	WG621882-07 25PPM 8270 STD	1	1	STD81744	07/14/17 19:15
12	12M63390	WG621882-08 80PPM 8270 STD	1	1	STD81744	07/14/17 19:48
13	12M63391	WG621882-09 100PPM 8270 STD	1	1	STD81744	07/14/17 20:21
14	12M63392	WG621882-10 120PPM 8270 STD	1	1	STD81744	07/14/17 20:54
15	12M63393	WG621882-11 50PPM 8270 ALT SRC	1	1	STD81294	07/14/17 21:27
16	12M63394	WG621882-12 50PPM MP,A9,BENZ ALT SRC	1	1	STD82728	07/14/17 22:00
17	12M63395	WG621882-13 50PPM 1,4-DIOX ALT SRC	1	1	STD81996	07/14/17 22:33
18	12M63396	WG621894-01 50PPM TCL/A-TERP STD	1	1	STD81291	07/14/17 23:06
19	12M63397	WG621894-02 3PPM TCL/A-TERP STD	1	1	STD81291	07/14/17 23:39
20	12M63398	WG621894-03 10PPM TCL/A-TERP STD	1	1	STD81291	07/15/17 00:12
21	12M63399	WG621894-04 25PPM TCL/A-TERP STD	1	1	STD81291	07/15/17 00:45
22	12M63400	WG621894-05 80PPM TCL/A-TERP STD	1	1	STD81291	07/15/17 01:18
23	12M63401	WG621894-06 100PPM TCL/A-TERP STD	1	1	STD81291	07/15/17 01:51
24	12M63402	WG621894-07 120PPM TCL/A-TERP STD	1	1	STD81291	07/15/17 02:23
25	12M63403	WG621894-08 50PPM TCL/A-TERP ALT SRC	1	1	STD81289	07/15/17 02:56
26	12M63404	BAKE OUT	1	1		07/15/17 03:29
27	12M63405	BAKE OUT	1	1		07/15/17 04:01

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 Approved: 17-JUL-17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS12 Dataset: 080317
Analyst1: MES Analyst2: NA
Method: 8270C/D SOP: MSS01 Rev: 28
Method: OVAP SOP: MSS01 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:
Eluent ID#:

Column 1 ID: RXI-5MS Column 2 ID: NA

Workgroups: WG624321

Internal STD: COA19796 Surrogate STD: NA Calibration STD
CCV STD: STD81744,STD81126 LCS STD: STD81294,STD81996,ST MS/MSD STD:

Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	12M63784	WG624321-01 50PPM DFTPP STD	1	1	STD80383	08/03/17 09:00
2	12M63785	WG624321-02 50PPM 8270 STD	1	1	STD81744	08/03/17 09:18
3	12M63786	WG624321-03 1 PPM 8270 STD	1	1	STD81744	08/03/17 09:51
4	12M63787	WG624321-04 3 PPM 8270 STD	1	1	STD81744	08/03/17 10:24
5	12M63788	WG624321-05 10 PPM 8270 STD	1	1	STD81744	08/03/17 10:57
6	12M63789	WG624321-06 15 PPM 8270 STD	1	1	STD81744	08/03/17 11:29
7	12M63790	WG624321-07 25 PPM 8270 STD	1	1	STD81744	08/03/17 12:02
8	12M63791	WG624321-08 80 PPM 8270 STD	1	1	STD81744	08/03/17 12:35
9	12M63792	WG624321-09 100 PPM 8270 STD	1	1	STD81744	08/03/17 13:08
10	12M63793	WG624321-10 120 PPM 8270 STD	1	1	STD81744	08/03/17 13:41
11	12M63794	WG624321-11 50PPM 8270 ALT SOURCE	1	1	STD81294	08/03/17 14:13
12	12M63795	WG624321-12 50PPM 1,4-DIOXANE ALT SOURC	1	1	STD81996	08/03/17 14:58
13	12M63796	WG624321-11 50PPM MM ALT SOURCE	1	1	STD81294	08/03/17 15:28
14	12M63797	WG624321-13 50PPM APPIX/MP/BENZIDINE ALT	1	1	STD82728	08/03/17 16:00
15	12M63798	500PPM KEPONE STD	1	1	STD81126	08/03/17 16:30
16	12M63799	WG623878-01 BLANK 8/1	1	1		08/03/17 17:03
17	12M63800	WG623878-02 LCS 8/1	1	1		08/03/17 17:36
18	12M63801	WG623878-03 LCSDUP 8/1	1	1		08/03/17 18:08
19	12M63802	L17071382-01	1	1		08/03/17 18:41
20	12M63803	L17071382-06	1	1		08/03/17 19:14
21	12M63804	L17071382-11	1	1		08/03/17 19:47
22	12M63805	L17071382-16	1	1		08/03/17 20:20
23	12M63806	L17071382-56	1	1		08/03/17 20:53
24	12M63807	L17071382-61	1	1		08/03/17 21:26
25	12M63808	BAKEOUT	1	1		08/03/17 21:59
26	12M63809	BAKEOUT	1	1		08/03/17 22:31
27	12M63810	BAKEOUT	1	1		08/03/17 23:04

Comments

Seq.	Rerun	Dil.	Reason	Analytes
11				
	WG624321-11 50PPM 8270 ALT SOURCE DNR-remix and rerun.			
24	X	1	Missed Tune	

Page: 1 Approved: 07-AUG-17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS12 Dataset: 080317

Analyst1: MES Analyst2: NA

Method: 8270C/D SOP: MSS01 Rev: 28

Method: OVAP SOP: MSS01 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:

Eluent ID#:

Column 1 ID: RXI-5MS Column 2 ID: NA

Workgroups: WG624321

Internal STD: COA19796 Surrogate STD: NA

CCV STD: STD81744,STD81126 LCS STD: STD81294,STD81996,ST

Comments

Seq.	Rerun	Dil.	Reason	Analytes

L17071382-61

Page: 2 Approved: 07-AUG-17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS12 Dataset: 082917
Analyst1: SCB Analyst2: NA
Method: 8270C/D SOP: MSS01 Rev: 28
Method: OVAP SOP: MSS01 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:
Eluent ID#:

Column 1 ID: RXI-5MS Column 2 ID: NA
Workgroups: WG627524, WG627708, WG627581
Internal STD: COA19896 Surrogate STD: NA Calibration STD
CCV STD: STD81744 LCS STD: MS/MSD STD:

Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	12M64120	WG627594-01 50PPM DFTPP STD	1	1	STD83235	08/29/17 09:29
2	12M64121	WG627594-02 50PPM 8270 STD	1	1	STD81744	08/29/17 09:47
3	12M64122	WG627620-01 50PPM TCL/A-TERP STD	1	1	STD81291	08/29/17 10:20
4	12M64123	WG627291-01 BLANK 8/28	1	1		08/29/17 10:52
5	12M64124	WG627291-02 LCS 8/28	1	1		08/29/17 11:25
6	12M64125	WG627291-03 LCS2 8/28	1	1		08/29/17 11:57
7	12M64126	WG627294-01 BLANK 8/28	11	1		08/29/17 12:30
8	12M64127	WG627294-02 LCS 8/28	11	1		08/29/17 13:03
9	12M64128	WG627294-03 LCS2 8/28	11	1		08/29/17 13:35
10	12M64129	L17081305-14	1	1		08/29/17 14:08
11	12M64130	L17081305-16	1	1		08/29/17 14:40
12	12M64131	L17081305-19	1	1		08/29/17 15:12
13	12M64132	L17081366-17	1	1		08/29/17 15:43
14	12M64133	L17081164-02 10X	11	10		08/29/17 16:16
15	12M64134	L17081376-01	2	1		08/29/17 16:48
16	12M64135	BAKE OUT	1	1		08/29/17 17:21
17	12M64136	WG627674-01 BLANK 8/29	7	1	SOIL	08/29/17 17:53
18	12M64137	WG627674-02 LCS 8/29	7	1	SOIL	08/29/17 18:26
19	12M64138	WG627674-03 LCS2 8/29	7	1	SOIL	08/29/17 18:58
20	12M64139	L17081486-01 5X	7	5	SOIL	08/29/17 19:30
21	12M64140	BAKE OUT	1	1		08/29/17 20:02
22	12M64141	BAKE OUT	1	1		08/29/17 20:35
23	12M64142	BAKE OUT	1	1		08/29/17 21:07

Comments

Seq.	Rerun	Dil.	Reason	Analytes
5				
	WG627291-02 LCS 8/28 has one low %REC for samples L17081305-14, -16, -19 and L17081366-17			
6				
	WG627291-03 LCS2 8/28 has one low and two high %REC for samples L17081305-14, -16, -19 and L17081366-17, the high outliers are non-detect in the samples			
14				
	L17081164-02 10X ran at a dilution due to sample matrix			

Page: 1 Approved: 30-AUG-17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS12 Dataset: 082917

Analyst1: SCB Analyst2: NA

Method: 8270C/D SOP: MSS01 Rev: 28

Method: OVAP SOP: MSS01 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:

Eluent ID#:

Workgroups: Column 1 ID: RXI-5MS Column 2 ID: NA

WG627524, WG627708, WG627581

Internal STD: COA19896 Surrogate STD: NA

CCV STD: STD81744 LCS STD:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
20				
	L17081486-01 5X ran at a dilution due to a dark, viscous sample matix			

Page: 2 Approved: 30-AUG-17

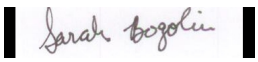
Microbac Laboratories Inc.

Data Checklist

Date: 14-JUL-2017
Analyst: SCB
Analyst: NA
Method: 8270
Instrument: HPMS12
Curve Workgroup: NA
Runlog ID: 83397
Analytical Workgroups: WG621882, WG621894

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	X
Endrin/DDT breakdown (8081/MS)	X
Pentachlorophenol/benzidine tailing (MS)	X
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	X
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	X
Continuing calibration blank (CCB) (IC)	NA
Special standards	X
Blanks	NA
TCL hits	NA
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	NA
Recoveries	NA
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	NA
TCL hits	NA
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	SCB
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MES

Primary Reviewer:
17-JUL-2017



Secondary Reviewer:
17-JUL-2017

CHECKLIST1 - Modified 03/05/2008
Generated: JUL-17-2017 12:05:22

Microbac Laboratories Inc.

Data Checklist

Date: 03-AUG-2017
Analyst: MES
Analyst: NA
Method: 8270/625
Instrument: HPMS12
Curve Workgroup: NA
Runlog ID: 83764
Analytical Workgroups: L17071382

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	X
Endrin/DDT breakdown (8081/MS)	X
Pentachlorophenol/benzidine tailing (MS)	X
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	X
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	NA
% D/% Drift	NA
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	NA
Special standards	X
Blanks	X
TCL hits	X
Surrogate recoveries	X
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	X
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	X
Surrogate recoveries	X
Internal standard areas (MS)	X
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	MES
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	ECL

Primary Reviewer:
04-AUG-2017

Secondary Reviewer:
07-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-07-2017 16:36:24

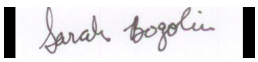
Microbac Laboratories Inc.

Data Checklist

Date: 29-AUG-2017
Analyst: SCB
Analyst: NA
Method: 8270
Instrument: HPMS12
Curve Workgroup: NA
Runlog ID: 84285
Analytical Workgroups: L17081305, L17081366, L17081164, L17081376, L17081486

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	X
Endrin/DDT breakdown (8081/MS)	X
Pentachlorophenol/benzidine tailing (MS)	X
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	X
Continuing calibration blank (CCB) (IC)	NA
Special standards	X
Blanks	X
TCL hits	X
Surrogate recoveries	X
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	X
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	X
Surrogate recoveries	X
Internal standard areas (MS)	X
Library searches (MS)	X
Calculations & correct factors	X
Compounds above calibration range	X
Reruns	NA
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	SCB
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MES

Primary Reviewer:
30-AUG-2017



Secondary Reviewer:
30-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-30-2017 15:11:07

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8270D **AAB#:** WG627524

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
MW09R-082317	14	08/23/17					08/28/2017	4.8	7		08/29/17	1.1	40	
DUP-GW-082317-2	16	08/23/17					08/28/2017	5.1	7		08/29/17	1.2	40	
MW19-082317	19	08/23/17					08/28/2017	4.8	7		08/29/17	1.2	40	

*** = SEE PROJECT QAPP REQUIREMENTS**

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5455286
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L17081305
Instrument Id: HPMS12
Workgroup (AAB#): WG627524

Method: 8270
CAL ID: HPMS12-03-AUG-17
Matrix: Water

Sample Number	Dilution	Tag	1	2	3	4	5	6
L17081305-14	1.00	01	113	91.7	49.0	85.9	96.7	36.7
L17081305-16	1.00	01	122	101	51.4	95.5	93.9	39.5
L17081305-19	1.00	01	102	75.7	42.4	75.6	86.8	29.9
WG627291-01	1.00	01	94.6	66.7	40.9	58.5	115	28.3
WG627291-02	1.00	01	115	96.8	56.9	90.3	126	39.8
WG627291-03	1.00	01	122	101	64.0	100	124	43.5

Surrogates	Surrogate Limits		
1 - 2,4,6-Tribromophenol	10	-	123
2 - 2-Fluorobiphenyl	43	-	116
3 - 2-Fluorophenol	21	-	100
4 - Nitrobenzene-d5	35	-	114
5 - p-Terphenyl-d14	33	-	141
6 - Phenol-d5	10	-	94

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5455296
Report generated: 09/01/2017 08:44

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627524
Blank File ID: 12M64123
Blank Sample ID: WG627291-01
Prep Date: 08/28/17 11:00
Instrument ID: HPMS12
Analyzed Date: 08/29/17 10:52
Method: 8270D
Analyst: SCB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627291-02	12M64124	08/29/17 11:25	01
LCS2	WG627291-03	12M64125	08/29/17 11:57	01
MW09R-082317	L17081305-14	12M64129	08/29/17 14:08	01
DUP-GW-082317-2	L17081305-16	12M64130	08/29/17 14:40	01
MW19-082317	L17081305-19	12M64131	08/29/17 15:12	01

Report Name: BLANK_SUMMARY
PDF File ID: 5455287
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L17081305 Prep Date:08/28/17 11:00 Sample ID:WG627291-01
Instrument ID:HPMS12 Run Date:08/29/17 10:52 Prep Method:3510C
File ID:12M64123 Analyst:SCB Method:8270D
Workgroup (AAB#):WG627524 Matrix:Water Units:ug/L
Contract #: Cal ID:HPMS12-03-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
1,1'-Biphenyl	2.50	20.0	2.50	1	U
1,3,5-Trinitrobenzene	2.50	5.00	2.50	1	U
1,3-Dinitrobenzene	2.50	5.00	2.50	1	U
1,4-Dioxane	5.00	10.0	5.00	1	U
2,4,5-Trichlorophenol	2.50	5.00	2.50	1	U
2,4,6-Trichlorophenol	2.50	5.00	2.50	1	U
2,4-Dichlorophenol	2.50	5.00	2.50	1	U
2,4-Dimethylphenol	2.50	5.00	2.50	1	U
2,4-Dinitrophenol	12.5	25.0	12.5	1	U
2,4-Dinitrotoluene	2.50	5.00	2.50	1	U
2,6-Dinitrotoluene	2.50	5.00	2.50	1	U
2-Chloronaphthalene	2.50	5.00	2.50	1	U
2-Chlorophenol	2.50	5.00	2.50	1	U
2-Methylnaphthalene	2.50	5.00	2.50	1	U
2-Methylphenol	2.50	5.00	2.50	1	U
2-Nitroaniline	12.5	25.0	12.5	1	U
2-Nitrophenol	2.50	5.00	2.50	1	U
3-Nitroaniline	12.5	25.0	12.5	1	U
3,3'-Dichlorobenzidine	2.50	5.00	2.50	1	U
3-,4-Methylphenol	2.50	5.00	2.50	1	U
4-Bromophenyl-phenylether	2.50	5.00	2.50	1	U
4-Chloroaniline	2.50	5.00	2.50	1	U
4-Nitrophenol	12.5	25.0	12.5	1	U
Acenaphthene	2.50	5.00	2.50	1	U
Acenaphthylene	2.50	5.00	2.50	1	U
Anthracene	2.50	5.00	2.50	1	U
Benzo(a)anthracene	2.50	5.00	2.50	1	U
Benzo(a)pyrene	2.50	5.00	2.50	1	U
Benzo(b)fluoranthene	2.50	5.00	2.50	1	U
Benzo(g,h,i)Perylene	2.50	5.00	2.50	1	U
Benzo(k)fluoranthene	2.50	5.00	2.50	1	U
Benzoic acid	10.0	20.0	10.0	1	U
Benzyl alcohol	2.50	5.00	2.50	1	U
Bis(2-Chloroethyl)ether	2.50	5.00	2.50	1	U
Bis(2-Chloroethoxy)Methane	2.50	5.00	2.50	1	U
bis(2-Ethylhexyl)phthalate	2.50	5.00	2.50	1	U
Butylbenzylphthalate	2.50	5.00	2.50	1	U
Carbazole	2.50	20.0	2.50	1	U
Chrysene	2.50	5.00	2.50	1	U
Di-N-Butylphthalate	2.50	5.00	2.50	1	U
Di-n-octylphthalate	2.50	5.00	2.50	1	U
Dibenzo(a,h)Anthracene	2.50	5.00	2.50	1	U

Report Name:BLANK
PDF ID: 5455288
01-SEP-2017 08:43

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L17081305 Prep Date:08/28/17 11:00 Sample ID:WG627291-01
Instrument ID:HPMS12 Run Date:08/29/17 10:52 Prep Method:3510C
File ID:12M64123 Analyst:SCB Method:8270D
Workgroup (AAB#):WG627524 Matrix:Water Units:ug/L
Contract #: Cal ID:HPMS12-03-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Dibenzofuran	2.50	5.00	2.50	1	U
Diethylphthalate	2.50	5.00	2.50	1	U
Dimethylphthalate	2.50	5.00	2.50	1	U
Fluoranthene	2.50	5.00	2.50	1	U
Fluorene	2.50	5.00	2.50	1	U
Hexachlorobenzene	2.50	5.00	2.50	1	U
Hexachlorobutadiene	2.50	5.00	2.50	1	U
Hexachlorocyclopentadiene	2.50	5.00	2.50	1	U
Hexachloroethane	2.50	5.00	2.50	1	U
Indeno(1,2,3-cd)pyrene	2.50	5.00	2.50	1	U
Isophorone	2.50	5.00	2.50	1	U
Diphenylamine/n-Nitrosodiphenylamine	2.50	5.00	2.50	1	U
Naphthalene	2.50	5.00	2.50	1	U
Nitrobenzene	2.50	5.00	2.50	1	U
Pentachlorophenol	12.5	25.0	12.5	1	U
Phenanthrene	2.50	5.00	2.50	1	U
Phenol	2.50	5.00	2.50	1	U
Pyrene	2.50	5.00	2.50	1	U

Surrogates	% Recovery	Surrogate Limits			Qualifier
2,4,6-Tribromophenol	94.6	10	-	123	PASS
2-Fluorobiphenyl	66.7	43	-	116	PASS
2-Fluorophenol	40.9	21	-	100	PASS
Nitrobenzene-d5	58.5	35	-	114	PASS
p-Terphenyl-d14	115	33	-	141	PASS
Phenol-d5	28.3	10	-	94	PASS

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5455288
01-SEP-2017 08:43

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number:L17081305 Analyst:SCB Prep Method:3510C
Instrument ID:HPMS12 Matrix:Water Method:8270D
Workgroup (AAB#):WG627524 Units:ug/L
QC Key:WATERLOO Lot #:STD82681

Sample ID:WG627291-02 LCS File ID:12M64124 Run Date:08/29/2017 11:25
Sample ID:WG627291-03 LCS2 File ID:12M64125 Run Date:08/29/2017 11:57

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,1'-Biphenyl	50.0	44.0	87.9	50.0	46.8	93.5	6.12	40 - 140	30	
1,3-Dinitrobenzene	50.0	46.8	93.5	50.0	50.1	100	6.82	30 - 130	30	
1,4-Dioxane	50.0	21.3	42.5	50.0	23.4	46.9	9.76	50 - 150	30	*
2,4,5-Trichlorophenol	50.0	47.8	95.7	50.0	50.5	101	5.33	35 - 120	30	
2,4,6-Trichlorophenol	50.0	46.5	93.0	50.0	49.0	98.0	5.30	30 - 120	30	
2,4-Dichlorophenol	50.0	45.0	90.1	50.0	48.3	96.6	6.94	20 - 110	30	
2,4-Dimethylphenol	50.0	44.0	87.9	50.0	49.2	98.5	11.4	20 - 120	30	
2,4-Dinitrophenol	50.0	50.3	101	50.0	29.4	58.9	52.3	20 - 140	30	#
2,4-Dinitrotoluene	50.0	49.6	99.2	50.0	55.3	111	10.9	50 - 139	30	
2,6-Dinitrotoluene	50.0	48.8	97.5	50.0	52.3	105	6.97	50 - 120	30	
2-Chloronaphthalene	50.0	44.6	89.1	50.0	47.3	94.7	6.03	25 - 120	30	
2-Chlorophenol	50.0	37.0	73.9	50.0	40.2	80.5	8.47	25 - 110	30	
2-Methylnaphthalene	50.0	35.5	71.1	50.0	37.1	74.3	4.40	25 - 120	30	
2-Methylphenol	50.0	38.6	77.3	50.0	43.4	86.8	11.6	20 - 110	30	
2-Nitroaniline	50.0	49.0	98.0	50.0	55.4	111	12.2	45 - 115	30	
2-Nitrophenol	50.0	41.8	83.6	50.0	43.6	87.1	4.12	20 - 115	30	
3,3'-Dichlorobenzidine	50.0	53.2	106	50.0	62.1	124	15.5	30 - 140	30	
3-,4-Methylphenol	50.0	40.7	81.3	50.0	45.4	90.7	10.9	20 - 110	30	
3-Nitroaniline	50.0	45.9	91.8	50.0	49.7	99.5	8.03	40 - 120	30	
4-Bromophenyl-phenylether	50.0	47.3	94.7	50.0	51.8	104	8.96	40 - 115	30	
4-Chloroaniline	50.0	44.2	88.4	50.0	51.9	104	16.1	25 - 120	30	
4-Nitrophenol	50.0	27.3	54.6	50.0	29.4	58.9	7.46	10 - 132	30	
Acenaphthene	50.0	46.8	93.6	50.0	48.7	97.4	4.05	30 - 120	30	
Acenaphthylene	50.0	43.5	86.9	50.0	46.8	93.7	7.50	30 - 120	30	
Anthracene	50.0	46.2	92.4	50.0	50.2	100	8.38	55 - 130	30	
Benzoic acid	50.0	19.7	39.4	50.0	11.8	23.7	49.8	10 - 100	30	#
Benzo(a)anthracene	50.0	52.3	105	50.0	55.4	111	5.78	60 - 130	30	
Benzo(a)pyrene	50.0	51.5	103	50.0	55.7	111	8.00	55 - 135	30	
Benzo(b)fluoranthene	50.0	53.4	107	50.0	57.8	116	7.83	45 - 125	30	
Benzo(g,h,i)Perylene	50.0	53.2	106	50.0	56.7	113	6.40	45 - 140	30	
Benzo(k)fluoranthene	50.0	51.5	103	50.0	56.2	112	8.61	55 - 140	30	
Benzyl alcohol	50.0	40.8	81.6	50.0	45.1	90.2	10.0	20 - 110	30	
Bis(2-Chloroethoxy)Methane	50.0	31.4	62.8	50.0	34.7	69.4	9.91	20 - 105	30	
Bis(2-Chloroethyl)ether	50.0	37.3	74.5	50.0	44.5	88.9	17.6	25 - 110	30	
bis(2-Ethylhexyl)phthalate	50.0	56.2	112	50.0	56.3	113	0.182	50 - 150	30	
Butylbenzylphthalate	50.0	50.8	102	50.0	52.0	104	2.42	55 - 150	30	
Carbazole	50.0	50.5	101	50.0	54.1	108	6.90	50 - 130	30	
Chrysene	50.0	55.4	111	50.0	59.0	118	6.30	55 - 130	30	
Di-N-Butylphthalate	50.0	52.8	106	50.0	55.1	110	4.29	55 - 118	30	
Di-n-octylphthalate	50.0	50.4	101	50.0	52.7	105	4.53	40 - 146	30	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5455289
Report generated: 09/01/2017 08:43

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number:L17081305 Analyst:SCB Prep Method:3510C
Instrument ID:HPMS12 Matrix:Water Method:8270D
Workgroup (AAB#):WG627524 Units:ug/L
QC Key:WATERLOO Lot #:STD82681

Sample ID:WG627291-02 LCS File ID:12M64124 Run Date:08/29/2017 11:25
Sample ID:WG627291-03 LCS2 File ID:12M64125 Run Date:08/29/2017 11:57

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Dibenzofuran	50.0	45.0	90.0	50.0	49.1	98.2	8.72	35 - 115	30	
Dibenzo(a,h)Anthracene	50.0	54.0	108	50.0	58.3	117	7.56	45 - 125	30	
Diethylphthalate	50.0	50.5	101	50.0	54.6	109	7.83	45 - 120	30	
Dimethylphthalate	50.0	52.4	105	50.0	57.2	114	8.73	25 - 112	30	*
Fluoranthene	50.0	48.5	97.0	50.0	52.9	106	8.71	50 - 137	30	
Fluorene	50.0	48.4	96.7	50.0	51.4	103	6.04	40 - 120	30	
Hexachlorobenzene	50.0	49.8	99.6	50.0	56.3	113	12.2	50 - 130	30	
Hexachlorobutadiene	50.0	27.5	55.1	50.0	28.1	56.1	1.86	24 - 105	30	
Hexachlorocyclopentadiene	50.0	24.5	49.0	50.0	25.6	51.1	4.25	20 - 143	30	
Hexachloroethane	50.0	20.9	41.8	50.0	22.6	45.3	7.81	25 - 95	30	
Indeno(1,2,3-cd)pyrene	50.0	55.3	111	50.0	59.7	119	7.63	50 - 135	30	
Isophorone	50.0	51.6	103	50.0	58.0	116	11.7	30 - 110	30	*
Diphenylamine/n-Nitrosodiphenylamine	100	97.0	97.0	100	107	107	10.1	40 - 110	30	
Naphthalene	50.0	34.2	68.4	50.0	35.6	71.1	3.88	25 - 110	30	
Nitrobenzene	50.0	42.5	85.0	50.0	47.5	95.1	11.2	30 - 110	30	
Pentachlorophenol	50.0	54.6	109	50.0	48.1	96.2	12.8	40 - 140	30	
Phenanthrene	50.0	48.0	95.9	50.0	51.6	103	7.34	55 - 120	30	
Phenol	50.0	19.3	38.7	50.0	21.9	43.9	12.5	10 - 120	30	
Pyrene	50.0	50.0	99.9	50.0	52.8	106	5.59	55 - 130	30	
1,3,5-Trinitrobenzene	50.0	36.4	72.7	50.0	35.8	71.7	1.48	10 - 120	30	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
2,4,6-Tribromophenol	115	122	10 - 123	PASS
2-Fluorobiphenyl	96.8	101	43 - 116	PASS
2-Fluorophenol	56.9	64.0	21 - 100	PASS
Nitrobenzene-d5	90.3	100	35 - 114	PASS
p-Terphenyl-d14	126	124	33 - 141	PASS
Phenol-d5	39.8	43.5	10 - 94	PASS

* EXCEEDS %REC LIMIT

EXCEEDS RPD LIMIT

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5455289
Report generated: 09/01/2017 08:43

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L17081305
Instrument: HPMS12
Analyst: SCB
Workgroup: WG621882

Tune ID: WG621882-01
Run Date: 07/14/2017
Run Time: 16:06
File ID: 12M63383
Cal ID: HPMS12-14-JUL-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	37.3	33025	PASS
68.0	69.0	0	2.00	0	0	PASS
69.0	198	0	100	44.8	39589	PASS
70.0	69.0	0	2.00	0.384	152	PASS
127	198	40.0	60.0	53.6	47445	PASS
197	198	0	1.00	0	0	PASS
198	198	100	100	100	88442	PASS
199	198	5.00	9.00	6.83	6044	PASS
275	198	10.0	30.0	26.7	23635	PASS
365	198	1.00	100	3.62	3201	PASS
441	443	0.0100	100	74.5	10879	PASS
442	198	40.0	100	84.7	74920	PASS
443	442	17.0	23.0	19.5	14603	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG621894-01	STD-CCV	01	07/14/2017 23:06	
WG621894-02	STD	01	07/14/2017 23:39	
WG621894-03	STD	01	07/15/2017 00:12	
WG621894-04	STD	01	07/15/2017 00:45	
WG621894-05	STD	01	07/15/2017 01:18	
WG621894-06	STD	01	07/15/2017 01:51	
WG621894-07	STD	01	07/15/2017 02:23	
WG621894-08	SSCV	01	07/15/2017 02:56	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5455293
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L17081305
Instrument: HPMS12
Analyst: MES
Workgroup: WG624321

Tune ID: WG624321-01
Run Date: 08/03/2017
Run Time: 09:00
File ID: 12M63784
Cal ID: HPMS12 - 03-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	41.7	34533	PASS
68.0	69.0	0	2.00	0	0	PASS
69.0	198	0	100	50.4	41696	PASS
70.0	69.0	0	2.00	0.525	219	PASS
127	198	40.0	60.0	56.8	47008	PASS
197	198	0	1.00	0	0	PASS
198	198	100	100	100	82792	PASS
199	198	5.00	9.00	6.83	5652	PASS
275	198	10.0	30.0	24.4	20210	PASS
365	198	1.00	100	2.72	2252	PASS
441	443	0.0100	100	72.7	8540	PASS
442	198	40.0	100	71.3	59042	PASS
443	442	17.0	23.0	19.9	11743	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG624321-02	STD-CCV	01	08/03/2017 09:18	
WG624321-03	STD	01	08/03/2017 09:51	
WG624321-04	STD	01	08/03/2017 10:24	
WG624321-05	STD	01	08/03/2017 10:57	
WG624321-06	STD	01	08/03/2017 11:29	
WG624321-07	STD	01	08/03/2017 12:02	
WG624321-08	STD	01	08/03/2017 12:35	
WG624321-09	STD	01	08/03/2017 13:08	
WG624321-10	STD	01	08/03/2017 13:41	
WG624321-12	SSCV	01	08/03/2017 14:58	
WG624321-11	SSCV	01	08/03/2017 15:28	
WG624321-13	SSCV	01	08/03/2017 16:00	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5455293
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L17081305
Instrument: HPMS12
Analyst: SCB
Workgroup: WG627594

Tune ID: WG627594-01
Run Date: 08/29/2017
Run Time: 09:29
File ID: 12M64120
Cal ID: HPMS12 - 03-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	44.0	34301	PASS
68.0	69.0	0	2.00	0	0	PASS
69.0	198	0	100	52.5	40898	PASS
70.0	69.0	0	2.00	0.709	290	PASS
127	198	40.0	60.0	55.9	43610	PASS
197	198	0	1.00	0	0	PASS
198	198	100	100	100	77960	PASS
199	198	5.00	9.00	6.91	5385	PASS
275	198	10.0	30.0	25.5	19902	PASS
365	198	1.00	100	2.83	2204	PASS
441	443	0.0100	100	74.0	6514	PASS
442	198	40.0	100	53.5	41683	PASS
443	442	17.0	23.0	21.1	8803	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG627594-02	CCV	01	08/29/2017 09:47	
WG627620-01	CCV	01	08/29/2017 10:20	
WG627291-01	BLANK	01	08/29/2017 10:52	
WG627291-01	BLANK	01	08/29/2017 10:52	
WG627291-02	LCS	01	08/29/2017 11:25	
WG627291-03	LCS2	01	08/29/2017 11:57	
L17081305-14	MW09R-082317	01	08/29/2017 14:08	
L17081305-16	DUP-GW-082317-2	01	08/29/2017 14:40	
L17081305-19	MW19-082317	01	08/29/2017 15:12	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5455293
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L17081305
Analytical Method: 8270D
ICAL Workgroup: WG621894

Instrument ID: HPMS12
Initial Calibration Date: 15-JUL-17 02:23
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
1,1'-Biphenyl		1.619	9.27		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5455290
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L17081305
Analytical Method: 8270D
ICAL Workgroup: WG624321
Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
2,4,6-Trichlorophenol	CCC	0.4172	8.82		
2,4-Dichlorophenol	CCC	0.2839	8.67		
2-Nitrophenol	CCC	0.1875	7.10		
Acenaphthene	CCC	1.283	9.50		
Benzo[a]pyrene	CCC	1.102	9.30		
Di-n-Octyl Phthalate	CCC	1.493	7.91		
Fluoranthene	CCC	1.219	8.24		
Hexachlorobutadiene	CCC	0.1901	3.79		
Pentachlorophenol	CCC	0.1314	19.0		1.00000
Phenol	CCC	1.583	4.24		
2,4-Dinitrophenol	SPCC	0.1923	34.6		1.00000
4-Nitrophenol	SPCC	0.3196	4.78		
Hexachlorocyclopentadiene	SPCC	0.2834	23.5		1.00000
n-Nitrosodipropylamine	SPCC	0.9885	3.86		
1,3-Dinitrobenzene		0.2517	8.64		
1,4-Dioxane		0.5234	8.84		
2,4,5-Trichlorophenol		0.4363	8.18		
2,4-Dimethylphenol		0.3123	6.63		
2,4-Dinitrotoluene		0.4723	10.3		
2,6-Dinitrotoluene		0.3437	6.86		
2-Chloronaphthalene		1.271	6.04		
2-Chlorophenol		1.330	4.89		
2-Methylnaphthalene		0.7212	7.99		
2-Methylphenol		1.137	5.45		
2-Nitroaniline		0.4106	2.47		
3,3'-Dichlorobenzidine		0.4066	7.01		
3-Nitroaniline		0.3526	6.01		
4-Bromophenyl Phenyl Ether		0.2097	9.62		
4-Chloroaniline		0.1468	5.86		
Acenaphthylene		2.010	7.40		
Anthracene		1.149	7.22		
Benzo[a]anthracene		1.184	6.72		
Benzo[b]fluoranthene		1.333	9.26		
Benzo[ghi]perylene		0.9589	10.2		
Benzo[k]fluoranthene		1.119	7.86		
Benzoic Acid		0.1555	51.9		0.99700
Benzyl Alcohol		0.8471	6.79		
Butyl Benzyl Phthalate		0.6277	4.25		
Carbazole		0.9903	8.57		
Chrysene		1.074	7.47		
Di-n-Butyl Phthalate		1.311	5.49		
Dibenz[ah]anthracene		1.030	14.1		
Dibenzofuran		1.807	6.31		
Diethylphthalate		1.524	2.87		
Dimethylphthalate		1.479	4.73		

INT_CAL - Modified 03/06/2008
PDF File ID: 5455290
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L17081305
Analytical Method: 8270D
ICAL Workgroup: WG624321
Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Fluorene		1.534	8.70		
Hexachlorobenzene		0.2178	8.58		
Hexachloroethane		0.6222	4.03		
Indeno[1,2,3-cd]pyrene		1.208	12.1		
Isophorone		0.6860	3.02		
Naphthalene		1.062	5.21		
Nitrobenzene		0.3953	2.12		
Phenanthrene		1.104	6.44		
Pyrene		1.251	6.96		
Sym-Trinitrobenzene		0.2383	15.6	1.00000	
bis(2-Chloroethoxy)methane		0.5399	3.66		
bis(2-Chloroethyl)ether		0.9310	2.94		
bis(2-Ethylhexyl)phthalate		0.8057	8.93		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5455290
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D
Instrument ID: HPMS12
Initial Calibration Date: 15-JUL-17 02:23
Column ID: F

Analyte	WG621894-01			WG621894-02			WG621894-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1'-Biphenyl	50.0	857851.000	1.648	3.00	36040.0000	1.348	10.0	135309.000	1.544

INT_CAL - Modified 03/06/2008
PDF File ID: 5455290
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D
Instrument ID: HPMS12
Initial Calibration Date: 15-JUL-17 02:23
Column ID: F

Analyte	WG621894-04			WG621894-05			WG621894-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1'-Biphenyl	25.0	350812.000	1.554	80.0	1231389.00	1.716	100	1642731.00	1.756

INT_CAL - Modified 03/06/2008
PDF File ID: 5455290
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D

Instrument ID: HPMS12
Initial Calibration Date: 15-JUL-17 02:23
Column ID: F

Analyte	WG621894-07		
	CONC	RESP	RF
1,1'-Biphenyl	120	1846850.00	1.770

INT_CAL - Modified 03/06/2008
PDF File ID: 5455290
Report generated 09/01/2017 08:43

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D

Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte	WG624321-02			WG624321-03			WG624321-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
2,4,6-Trichlorophenol	50.0	143362.000	0.4249	NA	NA	NA	3.00	7106.00000	0.3620
2,4-Dichlorophenol	50.0	185798.000	0.2957	NA	NA	NA	3.00	9188.00000	0.2485
2-Nitrophenol	50.0	120740.000	0.1921	NA	NA	NA	3.00	6334.00000	0.1713
Acenaphthene	50.0	450451.000	1.335	NA	NA	NA	3.00	21850.0000	1.113
Benzo[a]pyrene	50.0	706002.000	1.132	NA	NA	NA	3.00	33109.0000	0.9498
Di-n-Octyl Phthalate	50.0	988911.000	1.586	NA	NA	NA	3.00	44091.0000	1.265
Fluoranthene	50.0	836164.000	1.261	NA	NA	NA	3.00	40884.0000	1.077
Hexachlorobutadiene	50.0	115415.000	0.1837	NA	NA	NA	3.00	6950.00000	0.1880
Pentachlorophenol	50.0	91214.0000	0.1376	NA	NA	NA	NA	NA	NA
Phenol	50.0	274165.000	1.654	NA	NA	NA	3.00	14334.0000	1.486
2,4-Dinitrophenol	50.0	71697.0000	0.2125	NA	NA	NA	NA	NA	NA
4-Nitrophenol	50.0	114976.000	0.3408	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50.0	104360.000	0.3093	NA	NA	NA	3.00	2935.00000	0.1495
n-Nitrosodipropylamine	50.0	173365.000	1.046	NA	NA	NA	3.00	9633.00000	0.9984
1,3-Dinitrobenzene	50.0	87699.0000	0.2599	NA	NA	NA	3.00	4204.00000	0.2141
1,4-Dioxane	50.0	95861.0000	0.5782	NA	NA	NA	3.00	4188.00000	0.4341
2,4,5-Trichlorophenol	50.0	147452.000	0.4370	NA	NA	NA	3.00	7658.00000	0.3901
2,4-Dimethylphenol	50.0	204813.000	0.3259	NA	NA	NA	3.00	10270.0000	0.2777
2,4-Dinitrotoluene	50.0	164431.000	0.4873	NA	NA	NA	3.00	7615.00000	0.3879
2,6-Dinitrotoluene	50.0	118527.000	0.3513	NA	NA	NA	3.00	5860.00000	0.2985
2-Chloronaphthalene	50.0	432364.000	1.281	NA	NA	NA	3.00	23264.0000	1.185
2-Chlorophenol	50.0	226794.000	1.368	NA	NA	NA	3.00	11995.0000	1.243
2-Methylnaphthalene	50.0	465425.000	0.7407	NA	NA	NA	3.00	23619.0000	0.6388
2-Methylphenol	50.0	197075.000	1.189	NA	NA	NA	3.00	9985.00000	1.035
2-Nitroaniline	50.0	144557.000	0.4284	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	50.0	278281.000	0.4183	NA	NA	NA	3.00	13554.0000	0.3617
3-Nitroaniline	50.0	122315.000	0.3625	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	50.0	140966.000	0.2126	NA	NA	NA	3.00	6944.00000	0.1829
4-Chloroaniline	50.0	98301.0000	0.1564	NA	NA	NA	3.00	4835.00000	0.1308
Acenaphthylene	50.0	696228.000	2.063	NA	NA	NA	3.00	35404.0000	1.803
Anthracene	50.0	786414.000	1.186	NA	NA	NA	3.00	40202.0000	1.059
Benzo[a]anthracene	50.0	809384.000	1.217	NA	NA	NA	3.00	40820.0000	1.089
Benzo[b]fluoranthene	50.0	827461.000	1.327	NA	NA	NA	3.00	41814.0000	1.200
Benzo[ghi]perylene	50.0	635912.000	1.020	NA	NA	NA	3.00	26929.0000	0.7725
Benzo[k]fluoranthene	50.0	683287.000	1.096	NA	NA	NA	3.00	34997.0000	1.004
Benzoic Acid	50.0	92829.0000	0.1477	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	50.0	147176.000	0.8876	NA	NA	NA	3.00	7277.00000	0.7542
Butyl Benzyl Phthalate	50.0	439238.000	0.6603	NA	NA	NA	3.00	21823.0000	0.5824
Carbazole	50.0	685230.000	1.033	NA	NA	NA	3.00	33531.0000	0.8832
Chrysene	50.0	728585.000	1.095	NA	NA	NA	3.00	36733.0000	0.9803
Di-n-Butyl Phthalate	50.0	912081.000	1.376	NA	NA	NA	3.00	45580.0000	1.201
Dibenz[ah]anthracene	50.0	683858.000	1.097	NA	NA	NA	3.00	27231.0000	0.7812

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Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D

Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte	WG624321-02			WG624321-03			WG624321-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Dibenzofuran	50.0	615103.000	1.823	NA	NA	NA	3.00	33190.0000	1.691
Diethylphthalate	50.0	522449.000	1.548	NA	NA	NA	3.00	28759.0000	1.465
Dimethylphthalate	50.0	500833.000	1.484	NA	NA	NA	3.00	26896.0000	1.370
Fluorene	50.0	537376.000	1.593	NA	NA	NA	3.00	25928.0000	1.321
Hexachlorobenzene	50.0	144458.000	0.2179	NA	NA	NA	3.00	7540.00000	0.1986
Hexachloroethane	50.0	106041.000	0.6395	NA	NA	NA	3.00	5656.00000	0.5862
Indeno[1,2,3-cd]pyrene	50.0	796452.000	1.277	NA	NA	NA	3.00	33233.0000	0.9534
Isophorone	50.0	452788.000	0.7206	NA	NA	NA	3.00	24521.0000	0.6632
Naphthalene	50.0	679118.000	1.081	NA	NA	NA	3.00	37572.0000	1.016
Nitrobenzene	50.0	254658.000	0.4053	NA	NA	NA	3.00	14824.0000	0.4009
Phenanthrene	50.0	747434.000	1.127	NA	NA	NA	3.00	39545.0000	1.042
Pyrene	50.0	861752.000	1.296	NA	NA	NA	3.00	42259.0000	1.128
Sym-Trinitrobenzene	50.0	175200.000	0.2642	NA	NA	NA	3.00	5937.00000	0.1564
bis(2-Chloroethoxy)methane	50.0	358779.000	0.5710	NA	NA	NA	3.00	19033.0000	0.5147
bis(2-Chloroethyl)ether	50.0	162035.000	0.9773	NA	NA	NA	3.00	8721.00000	0.9039
bis(2-Ethylhexyl)phthalate	50.0	580634.000	0.8729	1.00	8339.00000	0.6797	3.00	26984.0000	0.7201

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INITIAL CALIBRATION DATA

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Analytical Method: 8270D
Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte	WG624321-05			WG624321-06			WG624321-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
2,4,6-Trichlorophenol	10.0	24942.0000	0.3759	15.0	39627.0000	0.4097	25.0	65340.0000	0.4033
2,4-Dichlorophenol	10.0	32496.0000	0.2564	15.0	49007.0000	0.2686	25.0	83977.0000	0.2777
2-Nitrophenol	10.0	21094.0000	0.1664	15.0	33472.0000	0.1834	25.0	56431.0000	0.1866
Acenaphthene	10.0	76074.0000	1.147	15.0	116647.000	1.206	25.0	201889.000	1.246
Benzo[a]pyrene	10.0	120278.000	0.9993	15.0	184441.000	1.041	25.0	321504.000	1.077
Di-n-Octyl Phthalate	10.0	166658.000	1.385	15.0	257918.000	1.455	25.0	450729.000	1.509
Fluoranthene	10.0	144887.000	1.100	15.0	222326.000	1.163	25.0	382018.000	1.196
Hexachlorobutadiene	10.0	22667.0000	0.1788	15.0	34509.0000	0.1891	25.0	57361.0000	0.1897
Pentachlorophenol	10.0	12346.0000	0.09370	15.0	20576.0000	0.1076	25.0	38379.0000	0.1201
Phenol	10.0	50320.0000	1.492	15.0	75803.0000	1.546	25.0	126901.000	1.604
2,4-Dinitrophenol	10.0	6281.00000	0.09470	15.0	12208.0000	0.1262	25.0	25403.0000	0.1568
4-Nitrophenol	10.0	19664.0000	0.2964	15.0	29343.0000	0.3033	25.0	52970.0000	0.3269
Hexachlorocyclopentadiene	10.0	15349.0000	0.2313	15.0	25858.0000	0.2673	25.0	47267.0000	0.2917
n-Nitrosodipropylamine	10.0	32730.0000	0.9707	15.0	49607.0000	1.012	25.0	81207.0000	1.026
1,3-Dinitrobenzene	10.0	15336.0000	0.2311	15.0	23201.0000	0.2399	25.0	40979.0000	0.2529
1,4-Dioxane	10.0	16774.0000	0.4975	15.0	24661.0000	0.5029	25.0	40699.0000	0.5144
2,4,5-Trichlorophenol	10.0	26581.0000	0.4006	15.0	40246.0000	0.4161	25.0	68652.0000	0.4237
2,4-Dimethylphenol	10.0	36775.0000	0.2901	15.0	56143.0000	0.3077	25.0	92342.0000	0.3054
2,4-Dinitrotoluene	10.0	28735.0000	0.4331	15.0	43591.0000	0.4506	25.0	75016.0000	0.4630
2,6-Dinitrotoluene	10.0	22035.0000	0.3321	15.0	32109.0000	0.3319	25.0	55193.0000	0.3406
2-Chloronaphthalene	10.0	78479.0000	1.183	15.0	119334.000	1.234	25.0	198280.000	1.224
2-Chlorophenol	10.0	41658.0000	1.235	15.0	63932.0000	1.304	25.0	105067.000	1.328
2-Methylnaphthalene	10.0	83107.0000	0.6557	15.0	125995.000	0.6905	25.0	213585.000	0.7064
2-Methylphenol	10.0	36290.0000	1.076	15.0	53599.0000	1.093	25.0	90392.0000	1.142
2-Nitroaniline	10.0	26193.0000	0.3948	15.0	39922.0000	0.4127	25.0	66562.0000	0.4108
3,3'-Dichlorobenzidine	10.0	48154.0000	0.3701	15.0	75253.0000	0.3971	25.0	131621.000	0.4103
3-Nitroaniline	10.0	21227.0000	0.3199	15.0	32030.0000	0.3311	25.0	56152.0000	0.3466
4-Bromophenyl Phenyl Ether	10.0	24786.0000	0.1881	15.0	37714.0000	0.1972	25.0	65494.0000	0.2050
4-Chloroaniline	10.0	17682.0000	0.1395	15.0	28345.0000	0.1553	25.0	46240.0000	0.1529
Acenaphthylene	10.0	122252.000	1.843	15.0	187076.000	1.934	25.0	316294.000	1.952
Anthracene	10.0	136818.000	1.038	15.0	208660.000	1.091	25.0	357363.000	1.119
Benzo[a]anthracene	10.0	140851.000	1.083	15.0	214524.000	1.132	25.0	370948.000	1.156
Benzo[b]fluoranthene	10.0	143249.000	1.190	15.0	217959.000	1.230	25.0	392919.000	1.316
Benzo[ghi]perylene	10.0	105513.000	0.8766	15.0	164207.000	0.9265	25.0	285468.000	0.9559
Benzo[k]fluoranthene	10.0	124540.000	1.035	15.0	192193.000	1.084	25.0	323520.000	1.083
Benzoic Acid	10.0	5734.00000	0.04520	15.0	13981.0000	0.07660	25.0	35220.0000	0.1165
Benzyl Alcohol	10.0	26096.0000	0.7739	15.0	40276.0000	0.8214	25.0	68050.0000	0.8600
Butyl Benzyl Phthalate	10.0	78452.0000	0.6030	15.0	117224.000	0.6185	25.0	205889.000	0.6418
Carbazole	10.0	116254.000	0.8824	15.0	178792.000	0.9351	25.0	309150.000	0.9678
Chrysene	10.0	126579.000	0.9728	15.0	193906.000	1.023	25.0	336236.000	1.048
Di-n-Butyl Phthalate	10.0	160503.000	1.218	15.0	243872.000	1.276	25.0	420683.000	1.317
Dibenz[ah]anthracene	10.0	107894.000	0.8964	15.0	169641.000	0.9571	25.0	303148.000	1.015

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INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D
Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte	WG624321-05			WG624321-06			WG624321-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Dibenzofuran	10.0	110919.000	1.672	15.0	167457.000	1.731	25.0	283516.000	1.750
Diethylphthalate	10.0	97099.0000	1.463	15.0	145730.000	1.507	25.0	244914.000	1.512
Dimethylphthalate	10.0	93063.0000	1.403	15.0	140820.000	1.456	25.0	237766.000	1.468
Fluorene	10.0	92662.0000	1.397	15.0	141214.000	1.460	25.0	244912.000	1.512
Hexachlorobenzene	10.0	26254.0000	0.1993	15.0	39198.0000	0.2050	25.0	65837.0000	0.2061
Hexachloroethane	10.0	19853.0000	0.5888	15.0	29642.0000	0.6045	25.0	51006.0000	0.6446
Indeno[1,2,3-cd]pyrene	10.0	129211.000	1.074	15.0	201995.000	1.140	25.0	355359.000	1.190
Isophorone	10.0	82831.0000	0.6535	15.0	125651.000	0.6886	25.0	210355.000	0.6957
Naphthalene	10.0	123398.000	0.9736	15.0	188456.000	1.033	25.0	315192.000	1.042
Nitrobenzene	10.0	48730.0000	0.3845	15.0	73203.0000	0.4012	25.0	121949.000	0.4033
Phenanthrene	10.0	133409.000	1.013	15.0	200128.000	1.047	25.0	341207.000	1.068
Pyrene	10.0	150104.000	1.154	15.0	226877.000	1.197	25.0	392433.000	1.223
Sym-Trinitrobenzene	10.0	28147.0000	0.2136	15.0	45475.0000	0.2378	25.0	81015.0000	0.2536
bis(2-Chloroethoxy)methane	10.0	64797.0000	0.5112	15.0	97594.0000	0.5349	25.0	164694.000	0.5447
bis(2-Chloroethyl)ether	10.0	30688.0000	0.9101	15.0	46577.0000	0.9499	25.0	75738.0000	0.9572
bis(2-Ethylhexyl)phthalate	10.0	97614.0000	0.7502	15.0	154290.000	0.8141	25.0	264664.000	0.8250

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INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D

Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte	WG624321-08			WG624321-09			WG624321-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
2,4,6-Trichlorophenol	80.0	233221.000	0.4395	100	307049.000	0.4576	120	371944.000	0.4649
2,4-Dichlorophenol	80.0	298122.000	0.3027	100	381144.000	0.3086	120	470852.000	0.3131
2-Nitrophenol	80.0	192421.000	0.1954	100	249412.000	0.2019	120	304533.000	0.2025
Acenaphthene	80.0	736001.000	1.387	100	948706.000	1.414	120	1135339.00	1.419
Benzo[a]pyrene	80.0	1184971.00	1.171	100	1525044.00	1.218	120	1889093.00	1.230
Di-n-Octyl Phthalate	80.0	1588303.00	1.569	100	2002193.00	1.598	120	2418483.00	1.575
Fluoranthene	80.0	1373799.00	1.287	100	1756636.00	1.332	120	2133959.00	1.335
Hexachlorobutadiene	80.0	189889.000	0.1928	100	248272.000	0.2010	120	297796.000	0.1980
Pentachlorophenol	80.0	154762.000	0.1450	100	205896.000	0.1561	120	255209.000	0.1596
Phenol	80.0	416281.000	1.601	100	535436.000	1.646	120	646442.000	1.635
2,4-Dinitrophenol	80.0	126383.000	0.2382	100	170019.000	0.2534	120	211589.000	0.2645
4-Nitrophenol	80.0	174395.000	0.3287	100	216670.000	0.3229	120	254402.000	0.3180
Hexachlorocyclopentadiene	80.0	176615.000	0.3329	100	229066.000	0.3414	120	275259.000	0.3441
n-Nitrosodipropylamine	80.0	250291.000	0.9626	100	312128.000	0.9596	120	368997.000	0.9335
1,3-Dinitrobenzene	80.0	142084.000	0.2678	100	181728.000	0.2708	120	221705.000	0.2771
1,4-Dioxane	80.0	141291.000	0.5434	100	182600.000	0.5614	120	219380.000	0.5550
2,4,5-Trichlorophenol	80.0	241798.000	0.4557	100	321114.000	0.4785	120	391150.000	0.4889
2,4-Dimethylphenol	80.0	319871.000	0.3248	100	412040.000	0.3336	120	501537.000	0.3335
2,4-Dinitrotoluene	80.0	266953.000	0.5031	100	347832.000	0.5184	120	428141.000	0.5352
2,6-Dinitrotoluene	80.0	189731.000	0.3576	100	244214.000	0.3639	120	299118.000	0.3739
2-Chloronaphthalene	80.0	698700.000	1.317	100	913688.000	1.362	120	1104447.00	1.381
2-Chlorophenol	80.0	354351.000	1.363	100	457587.000	1.407	120	550916.000	1.394
2-Methylnaphthalene	80.0	748466.000	0.7601	100	972575.000	0.7875	120	1187531.00	0.7897
2-Methylphenol	80.0	303953.000	1.169	100	390919.000	1.202	120	470883.000	1.191
2-Nitroaniline	80.0	219696.000	0.4141	100	273517.000	0.4076	120	324591.000	0.4057
3,3'-Dichlorobenzidine	80.0	456724.000	0.4200	100	590051.000	0.4387	120	724680.000	0.4365
3-Nitroaniline	80.0	190533.000	0.3591	100	249145.000	0.3713	120	302266.000	0.3778
4-Bromophenyl Phenyl Ether	80.0	235008.000	0.2202	100	308599.000	0.2340	120	380006.000	0.2377
4-Chloroaniline	80.0	144666.000	0.1469	100	182232.000	0.1475	120	217884.000	0.1449
Acenaphthylene	80.0	1127859.00	2.126	100	1443464.00	2.151	120	1765239.00	2.207
Anthracene	80.0	1284765.00	1.204	100	1646526.00	1.248	120	1992241.00	1.246
Benzo[a]anthracene	80.0	1345971.00	1.238	100	1725881.00	1.283	120	2112698.00	1.272
Benzo[b]fluoranthene	80.0	1450579.00	1.433	100	1878686.00	1.500	120	2261901.00	1.473
Benzo[ghi]perylene	80.0	1036703.00	1.024	100	1313171.00	1.048	120	1608025.00	1.047
Benzo[k]fluoranthene	80.0	1194591.00	1.180	100	1527748.00	1.220	120	1917662.00	1.249
Benzoic Acid	80.0	213353.000	0.2167	100	294992.000	0.2388	120	371653.000	0.2471
Benzyl Alcohol	80.0	228348.000	0.8782	100	293984.000	0.9039	120	354665.000	0.8972
Butyl Benzyl Phthalate	80.0	704392.000	0.6477	100	873713.000	0.6496	120	1026870.00	0.6185
Carbazole	80.0	1117866.00	1.047	100	1435053.00	1.088	120	1735866.00	1.086
Chrysene	80.0	1226809.00	1.128	100	1582651.00	1.177	120	1939193.00	1.168
Di-n-Butyl Phthalate	80.0	1443127.00	1.352	100	1824819.00	1.383	120	2185028.00	1.367
Dibenz[ah]anthracene	80.0	1144648.00	1.131	100	1478809.00	1.181	120	1821329.00	1.186

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INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D

Instrument ID: HPMS12
Initial Calibration Date: 03-AUG-17 13:41
Column ID: F

Analyte	WG624321-08			WG624321-09			WG624321-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Dibenzofuran	80.0	1004223.00	1.893	100	1290423.00	1.923	120	1582379.00	1.978
Diethylphthalate	80.0	824061.000	1.553	100	1052518.00	1.569	120	1257685.00	1.572
Dimethylphthalate	80.0	809883.000	1.526	100	1044551.00	1.557	120	1252629.00	1.566
Fluorene	80.0	876167.000	1.651	100	1116917.00	1.665	120	1340305.00	1.675
Hexachlorobenzene	80.0	244656.000	0.2292	100	317630.000	0.2408	120	392652.000	0.2456
Hexachloroethane	80.0	164882.000	0.6341	100	210355.000	0.6467	120	250408.000	0.6335
Indeno[1,2,3-cd]pyrene	80.0	1324916.00	1.309	100	1704851.00	1.361	120	2089990.00	1.361
Isophorone	80.0	676136.000	0.6866	100	860450.000	0.6967	120	1027349.00	0.6832
Naphthalene	80.0	1079380.00	1.096	100	1398291.00	1.132	120	1690525.00	1.124
Nitrobenzene	80.0	381673.000	0.3876	100	485640.000	0.3932	120	580807.000	0.3862
Phenanthrene	80.0	1228478.00	1.151	100	1562504.00	1.185	120	1919512.00	1.201
Pyrene	80.0	1422928.00	1.308	100	1825441.00	1.357	120	2227242.00	1.341
Sym-Trinitrobenzene	80.0	273650.000	0.2564	100	347629.000	0.2635	120	417417.000	0.2611
bis(2-Chloroethoxy)methane	80.0	540595.000	0.5490	100	683354.000	0.5533	120	812727.000	0.5405
bis(2-Chloroethyl)ether	80.0	235911.000	0.9073	100	302382.000	0.9297	120	360745.000	0.9126
bis(2-Ethylhexyl)phthalate	80.0	932962.000	0.8579	100	1178977.00	0.8766	120	1419936.00	0.8552

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Calibration Table Report
Method: TCL.M
Title: OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Calibration: Mon Jul 17 10:36:52 2017
Curve: WG621894
Calibration Files

Compound	3 12M63397.D	10 12M63398.D	25 12M63399.D	50 12M63396.D	80 12M63400.D	100 12M63401.D	120 12M63402.D	Avg	%RSD
1,4-Dichlorobenzene-d4	ISTD								
Benzaldehyde	0.852	0.983	0.983	1.011	1.055	1.060	1.079	1.003	7.652
Naphthalene-d8	ISTD								
Alpha-Terpineol	0.213	0.239	0.236	0.241	0.243	0.243	0.248	0.238	4.848
Caprolactam	0.090	0.109	0.111	0.114	0.117	0.117	0.121	0.111	9.083
Acenaphthene-d10	ISTD								
1,1'-Biphenyl	1.348	1.544	1.554	1.648	1.716	1.756	1.770	1.619	9.265
Phenanthrene-d10	ISTD								
Atrazine	0.181	0.216	0.223	0.235	0.244	0.249	0.255	0.229	10.982

Mon Jul 17 10:38:37 2017

Calibration Table Report
Method: MEGAMIX.M
Title: OVD MSS01 8270/625 ICAL 08/3/17
Last Calibration: Fri Aug 04 07:07:19 2017
Curve:WG624321
Calibration Files

Compound	3 12M63787.D	10 12M63788.D	15 12M63789.D	25 12M63790.D	50 12M63785.D	80 12M63791.D	100 12M63792.D	120 12M63793.D	1 12M63786.D	Avg	%RSD	Linear	Quadratic
1,4-Dichlorobenzene-d4	ISTD												
1,4-Dioxane	0.434	0.497	0.503	0.514	0.578	0.543	0.561	0.555		0.523	8.844		
n-Nitrosodimethylamine	0.636	0.676	0.712	0.743	0.775	0.739	0.763	0.756		0.725	6.559		
Pyridine	1.158	1.259	1.335	1.367	1.429	1.333	1.364	1.356		1.325	6.207		
2-Picoline	1.345	1.346	1.433	1.470	1.503	1.432	1.482	1.453		1.433	4.114		
n-Nitrosomethylethylamine	0.538	0.532	0.566	0.595	0.622	0.577	0.595	0.593		0.577	5.315		
Methyl Methanesulfonate	0.916	0.886	0.907	0.953	0.967	0.918	0.936	0.915		0.925	2.812		
2-Fluorophenol	1.127	1.134	1.204	1.232	1.280	1.227	1.279	1.262		1.218	4.953		
n-Nitrosodiethylamine	0.555	0.565	0.587	0.626	0.644	0.621	0.644	0.635		0.610	5.847		
Ethyl Methanesulfonate	0.912	0.903	0.956	1.001	1.025	0.964	0.990	0.974		0.966	4.353		
Aniline	0.755	0.765	0.808	0.845	0.867	0.810	0.825	0.809		0.811	4.593		
Phenol-d5	1.456	1.424	1.523	1.572	1.629	1.600	1.629	1.628		1.557	5.226		
Phenol	1.486	1.492	1.546	1.604	1.654	1.601	1.646	1.635		1.583	4.241		
bis(2-Chloroethyl)ether	0.904	0.910	0.950	0.957	0.977	0.907	0.930	0.913		0.931	2.943		
Pentachloroethane	0.505	0.520	0.506	0.540	0.534	0.531	0.550	0.540		0.528	3.118		
2-Chlorophenol	1.243	1.235	1.304	1.328	1.368	1.363	1.407	1.394		1.330	4.892		
1,3-Dichlorobenzene	1.399	1.346	1.388	1.471	1.477	1.483	1.550	1.537		1.456	4.964		
1,4-Dichlorobenzene	1.427	1.373	1.452	1.468	1.484	1.515	1.559	1.567		1.481	4.451		
Benzyl Alcohol	0.754	0.774	0.821	0.860	0.888	0.878	0.904	0.897		0.847	6.790		
1,2-Dichlorobenzene	1.296	1.274	1.341	1.397	1.443	1.465	1.526	1.519		1.408	6.898		
2-Methylphenol	1.035	1.076	1.093	1.142	1.189	1.169	1.202	1.191		1.137	5.453		
bis(2-Chloroisopropyl)ether	1.152	1.091	1.129	1.141	1.185	1.103	1.115	1.102		1.127	2.762		
3-,4-Methylphenol	1.354	1.332	1.387	1.451	1.496	1.457	1.526	1.499		1.438	5.000		
n-Nitrosopyrrolidine	0.551	0.571	0.592	0.616	0.659	0.649	0.662	0.637		0.617	6.778		
n-Nitrosodipropylamine	0.998	0.971	1.012	1.026	1.046	0.963	0.960	0.933		0.989	3.856		
Acetophenone	1.956	1.851	1.902	1.978	2.031	1.959	1.984	1.927		1.949	2.827		
n-Nitrosomorpholine	0.791	0.766	0.791	0.804	0.797	0.739	0.735	0.702		0.766	4.773		
o-Toluidine	2.055	2.012	2.075	2.146	2.221	2.148	2.215	2.168		2.130	3.559		
Hexachloroethane	0.586	0.589	0.604	0.645	0.640	0.634	0.647	0.633		0.622	4.030		
Naphthalene-d8	ISTD												
Nitrobenzene-d5	0.381	0.389	0.405	0.406	0.416	0.398	0.402	0.396		0.399	2.723		
Nitrobenzene	0.401	0.384	0.401	0.403	0.405	0.388	0.393	0.386		0.395	2.123		
n-Nitrosopiperidine	0.164	0.160	0.165	0.166	0.178	0.175	0.180	0.179		0.171	4.628		
Isophorone	0.663	0.654	0.689	0.696	0.721	0.687	0.697	0.683		0.686	3.016		
2-Nitrophenol	0.171	0.166	0.183	0.187	0.192	0.195	0.202	0.203		0.187	7.104		
2,4-Dimethylphenol	0.278	0.290	0.308	0.305	0.326	0.325	0.334	0.334		0.312	6.629		
0,0,0-Triethyl Phosphorothioate	0.165	0.167	0.177	0.180	0.185	0.194	0.200	0.198		0.183	7.318		
bis(2-Chloroethoxy)methane	0.515	0.511	0.535	0.545	0.571	0.549	0.553	0.540		0.540	3.658		
Benzoic Acid		0.045	0.077	0.116	0.148	0.217	0.239	0.247		0.156	51.869		0.997
2,4-Dichlorophenol	0.248	0.256	0.269	0.278	0.296	0.303	0.309	0.313		0.284	8.670		
a,a-Dimethylphenethylamine	0.554	0.612	0.661	0.679	0.718	0.693	0.709	0.703		0.666	8.495		
1,2,4-Trichlorobenzene	0.311	0.3	0.322	0.322	0.327	0.338	0.354	0.353		0.32834	5.75818		
Naphthalene	1.016	0.974	1.033	1.042	1.081	1.096	1.132	1.124		1.06227	5.21269		
4-Chloroaniline	0.131	0.14	0.155	0.153	0.156	0.147	0.148	0.145		0.14679	5.86089		
2,6-Dichlorophenol	0.246	0.241	0.251	0.26	0.265	0.27	0.278	0.278		0.26125	5.40404		
Hexachloropropene	0.22	0.226	0.239	0.245	0.243	0.253	0.259	0.258		0.24307	5.89328		
Hexachlorobutadiene	0.188	0.179	0.189	0.19	0.184	0.193	0.201	0.198		0.19015	3.78951		
n-Nitrosodi-n-Butylamine	0.306	0.31	0.328	0.331	0.346	0.334	0.336	0.275		0.32104	7.12234		
p-Phenylenediamine		0.227	0.247	0.264	0.247	0.236	0.232	0.223		0.23932	5.9242		
4-Chloro-3-Methylphenol	0.326	0.334	0.35	0.358	0.373	0.362	0.368	0.363		0.35423	4.6635		
Safrole	0.248	0.249	0.261	0.27	0.28	0.288	0.298	0.298		0.27382	7.43586		
2-Methylnaphthalene	0.639	0.656	0.691	0.706	0.741	0.76	0.787	0.79		0.72116	7.98682		
1-Methylnaphthalene	0.607	0.59	0.632	0.643	0.676	0.694	0.719	0.715		0.65961	7.43146		
Acenaphthene-d10	ISTD												
1,2,4,5-Tetrachlorobenzene	0.583	0.569	0.604	0.618	0.64	0.673	0.696	0.708		0.63639	8.1409		
Hexachlorocyclopentadiene	0.15	0.231	0.267	0.292	0.309	0.333	0.341	0.344		0.28343	23.5263		1.000
2,4,6-Trichlorophenol	0.362	0.376	0.41	0.403	0.425	0.44	0.458	0.465		0.41722	8.81701		
2,4,5-Trichlorophenol	0.39	0.401	0.416	0.424	0.437	0.456	0.479	0.489		0.43633	8.176		
2-Fluorobiphenyl	1.32	1.286	1.337	1.348	1.389	1.441	1.48	1.508		1.38873	5.76593		
Isosafrole	0.465	0.467	0.493	0.501	0.507	0.523	0.535	0.545		0.50466	5.79725		
2-Chloronaphthalene	1.185	1.183	1.234	1.224	1.281	1.317	1.362	1.381		1.27071	6.03856		
1-Chloronaphthalene	1.137	1.119	1.16	1.196	1.236	1.286	1.301	1.324		1.21965	6.4382		
2-Nitroaniline		0.395	0.413	0.411	0.428	0.414	0.408	0.406		0.41059	2.47073		
1,4-Naphthoquinone	0.327	0.38	0.402	0.398	0.358	0.32	0.294	0.283		0.34549	13.3187		
Dimethylphthalate	1.37	1.403	1.456	1.467	1.484	1.526	1.557	1.566		1.47862	4.72789		
1,3-Dinitrobenzene	0.214	0.231	0.24	0.253	0.26	0.268	0.271	0.277		0.25171	8.64344		
2,6-Dinitrotoluene	0.298	0.332	0.332	0.341	0.351	0.358	0.364	0.374		0.34374	6.86411		
Acenaphthylene	1.803	1.843	1.934	1.952	2.063	2.126	2.151	2.206		2.00985	7.3946		
3-Nitroaniline		0.32	0.331	0.347	0.363	0.359	0.371	0.378		0.35262	6.00611		
2,4-Dinitrophenol		0.095	0.126	0.157	0.212	0.238	0.253	0.264		0.19231	34.6328		1.000
Acenaphthene	1.113	1.147	1.206	1.246	1.335	1.387	1.414	1.419		1.28332	9.49923		
4-Nitrophenol		0.296	0.303	0.327	0.341	0.329	0.323	0.318		0.31957	4.78173		
2,4-Dinitrotoluene	0.388	0.433	0.451	0.463	0.487	0.503	0.518	0.535		0.47232	10.269		
Pentachlorobenzene	0.462	0.472	0.487	0.501	0.502	0.541	0.56	0.581		0.5133	8.34677		
Dibenzofuran	1.691	1.672	1.731	1.75	1.823	1.893	1.923	1.978		1.8075	6.31277		
2,3,4,6-Tetrachlorophenol	0.293	0.326	0.341	0.36	0.387	0.423	0.434	0.441		0.37567	14.4786		
1-Naphthylamine	1.121	1.154	1.194	1.228	1.303	1.352	1.375	1.403		1.2663	8.40991		
2-Naphthylamine	1.228	1.13	1.144	1.211	1.333	1.429	1.456	1.459		1.29885	10.6456		
Diethylphthalate	1.465	1.463	1.507	1.512	1.548	1.553	1.569	1.572		1.52357	2.86636		
Thionazin	0.229	0.228	0.244	0.244	0.264	0.258	0.262	0.263		0.24911	5.89687		

Fluorene	1.321	1.397	1.46	1.512	1.593	1.651	1.665	1.675		1.53406	8.6963		
4-Chlorophenyl Phenyl Ether	0.7	0.696	0.726	0.744	0.758	0.803	0.814	0.84		0.76017	7.06974		
4-Nitroaniline		0.343	0.368	0.38	0.408	0.414	0.414	0.419		0.39248	7.45493		
5-Nitro-o-Toluidine	0.363	0.384	0.416	0.439	0.465	0.49	0.494	0.5		0.44363	11.774		
1,2-Diphenylhydrazine	1.525	1.549	1.599	1.601	1.637	1.577	1.552	1.539		1.57213	2.41328		
2,4,6-Tribromophenol	0.167	0.188	0.193	0.202	0.212	0.231	0.241	0.251		0.21068	13.5748		
Phenanthrene-d10	ISTD												
4,6-Dinitro-2-Methylphenol		0.101	0.12	0.131	0.153	0.158	0.169	0.174		0.14349	18.8742	0.998	
Diphenylamine/n-Nitrosodiphenylar	0.603	0.61	0.63	0.652	0.687	0.698	0.736	0.734		0.66873	7.89807		
Sulfotepp	0.114	0.117	0.121	0.126	0.133	0.141	0.151	0.152		0.13195	11.3261		
Sym-Trinitrobenzene	0.156	0.214	0.238	0.254	0.264	0.256	0.264	0.261		0.23833	15.6245	1.000	
Diallate	0.267	0.274	0.286	0.287	0.301	0.283	0.285	0.279		0.28282	3.56706		
Phenacetin	0.36	0.401	0.419	0.429	0.446	0.432	0.439	0.428		0.41926	6.58857		
Phorate	0.431	0.434	0.463	0.462	0.478	0.442	0.442	0.433		0.44814	3.86058		
4-Bromophenyl Phenyl Ether	0.183	0.188	0.197	0.205	0.213	0.22	0.234	0.238		0.20971	9.61861		
Hexachlorobenzene	0.199	0.199	0.205	0.206	0.218	0.229	0.241	0.246		0.2178	8.57662		
Dimethoate	0.271	0.287	0.292	0.293	0.289	0.248	0.234	0.22		0.26669	10.8624		
4-Aminobiphenyl	0.708	0.698	0.749	0.777	0.825	0.84	0.858	0.86		0.78929	8.32435		
Pentachlorophenol		0.094	0.108	0.12	0.138	0.145	0.156	0.16		0.13139	19.0062		1.000
Pronamide	0.306	0.32	0.334	0.345	0.356	0.357	0.372	0.365		0.34439	6.65559		
Pentachloronitrobenzene	0.087	0.091	0.097	0.105	0.102	0.103	0.108	0.107		0.10001	7.53889		
Disulfoton	0.34	0.344	0.357	0.367	0.388	0.366	0.371	0.364		0.36202	4.20943		
Phenanthrene	1.042	1.013	1.047	1.068	1.127	1.151	1.185	1.2		1.10402	6.43755		
Anthracene	1.059	1.038	1.091	1.119	1.186	1.204	1.248	1.246		1.14891	7.2217		
Carbazole	0.883	0.882	0.935	0.968	1.033	1.047	1.088	1.086		0.99034	8.56765		
Parathion Methyl	0.212	0.243	0.25	0.266	0.263	0.242	0.229	0.223		0.24107	7.80365		
Di-n-Butyl Phthalate	1.201	1.218	1.275	1.317	1.376	1.352	1.383	1.367		1.31109	5.49021		
Parathion Ethyl	0.128	0.151	0.159	0.169	0.179	0.17	0.173	0.169		0.16238	10.0045		
4-Nitroquinoline 1-Oxide	0.015	0.044	0.056	0.074	0.085	0.093	0.096	0.098		0.07002	42.111		0.999
Methapyrilene	0.394	0.426	0.456	0.441	0.365	0.301	0.261	0.238		0.36032	23.3582		0.998
Isodrin	0.119	0.117	0.123	0.126	0.129	0.13	0.134	0.133		0.12638	5.03183		
Fluoranthene	1.077	1.1	1.163	1.196	1.261	1.287	1.332	1.335		1.21871	8.23986		
Chrysene-d12	ISTD												
Benzidine		0.416	0.459	0.499	0.549	0.543	0.519	0.507		0.49892	9.48278		
Pyrene	1.128	1.154	1.197	1.223	1.295	1.308	1.357	1.341		1.25055	6.96262		
Aramite	0.068	0.073	0.077	0.079	0.083	0.078	0.079	0.075		0.07654	5.81569		
p-Terphenyl-d14	0.782	0.777	0.814	0.834	0.882	0.912	0.953	0.935		0.86112	7.97685		
p-(Dimethylamino)azobenzene	0.194	0.22	0.238	0.243	0.257	0.264	0.274	0.273		0.24538	11.271		
Chlorobenzilate	0.308	0.312	0.335	0.339	0.351	0.355	0.37	0.37		0.34265	6.95398		
Famphur					0.079					0.07891	0		
Butyl Benzyl Phthalate	0.582	0.603	0.619	0.642	0.66	0.648	0.65	0.618		0.62772	4.24879		
3,3'-Dimethylbenzidine	0.903	0.945	1.09	1.146	1.156	1.161	1.148	1.108		1.08205	9.35731		
2-Acetylaminofluorene	0.388	0.455	0.5	0.535	0.579	0.576	0.6	0.584		0.52704	14.1511		
bis(2-Ethylhexyl)phthalate	0.72	0.75	0.814	0.825	0.873	0.858	0.877	0.855	0.68	0.80575	8.93068		
3,3'-Dichlorobenzidine	0.362	0.37	0.397	0.41	0.418	0.42	0.439	0.436		0.40658	7.01312		
Benzo[a]anthracene	1.089	1.083	1.132	1.156	1.217	1.238	1.283	1.272		1.18378	6.7233		
Chrysene	0.98	0.973	1.023	1.048	1.095	1.128	1.177	1.168		1.07405	7.46673		
Perylene-d12	ISTD												
Di-n-Octyl Phthalate	1.265	1.385	1.455	1.509	1.586	1.569	1.598	1.575		1.49277	7.91423		
7,12-Dimethylbenz[a]anthracene	0.54	0.54	0.568	0.59	0.632	0.664	0.682	0.682		0.61222	9.89647		
Benzo[b]fluoranthene	1.2	1.19	1.23	1.316	1.327	1.433	1.5	1.473		1.33348	9.25564		
Benzo[k]fluoranthene	1.004	1.035	1.084	1.083	1.096	1.18	1.22	1.249		1.11883	7.8548		
Benzo[a]pyrene	0.95	0.999	1.041	1.077	1.132	1.171	1.218	1.23		1.10209	9.29818		
3-Methylcholanthrene	0.487	0.51	0.544	0.567	0.598	0.614	0.629	0.631		0.57241	9.58766		
Indeno[1,2,3-cd]pyrene	0.953	1.073	1.14	1.19	1.277	1.309	1.361	1.361		1.20807	12.1054		
Dibenz[ah]anthracene	0.781	0.896	0.957	1.015	1.097	1.131	1.181	1.186		1.03048	14.0582		
Benzo[ghi]perylene	0.773	0.877	0.926	0.956	1.02	1.024	1.048	1.047		0.95886	10.1504		

Fri Aug 04 08:41:54 2017

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 07/15/2017 Sample ID: WG621894-08
Instrument ID: HPMS12 Run Time: 02:56 Method: 8270D
File ID: 12M63403 Analyst: SCB QC Key: WATERLOO
ICal Workgroup: WG621894 Cal ID: HPMS12 - 15-JUL-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,1'-Biphenyl		50000	51500	ug/L	1.67	3.00	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455292
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/03/2017 Sample ID: WG624321-12
Instrument ID: HPMS12 Run Time: 14:58 Method: 8270D
File ID: 12M63795 Analyst: MES QC Key: WATERLOO
ICal Workgroup: WG624321 Cal ID: HPMS12 - 03-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,4-Dioxane		50000	55000	ug/L	0.576	10.0	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455292
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/03/2017 Sample ID: WG624321-11
Instrument ID: HPMS12 Run Time: 15:28 Method: 8270D
File ID: 12M63796 Analyst: MES QC Key: WATERLOO
ICal Workgroup: WG624321 Cal ID: HPMS12 - 03-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
2,4,6-Trichlorophenol	CCC	50000	51200	ug/L	0.427	2.40	25	
2,4-Dichlorophenol	CCC	50000	51400	ug/L	0.292	2.80	25	
2-Nitrophenol	CCC	50000	52800	ug/L	0.198	5.50	25	
Acenaphthene	CCC	50000	53400	ug/L	1.37	6.70	25	
Benzo[a]pyrene	CCC	50000	50000	ug/L	1.10	0	25	
Di-n-Octyl Phthalate	CCC	50000	52200	ug/L	1.56	4.30	25	
Fluoranthene	CCC	50000	50400	ug/L	1.23	0.800	25	
Hexachlorobutadiene	CCC	50000	57500	ug/L	0.219	15.1	25	
Diphenylamine/n-Nitrosodiphenylamine	CCC	50000	52400	ug/L	0.700	4.70	25	
Pentachlorophenol	CCC	50000	62100	ug/L	0.175	24.2	25	
Phenol	CCC	50000	50700	ug/L	1.61	1.40	25	
n-Nitrosodipropylamine	SPCC	50000	49700	ug/L	0.983	0.600	25	
2,4-Dinitrophenol	SPCC	50000	54500	ug/L	0.233	9.00	25	
4-Nitrophenol	SPCC	50000	51500	ug/L	0.329	3.10	25	
Hexachlorocyclopentadiene	SPCC	50000	54200	ug/L	0.340	8.40	25	
1,3-Dinitrobenzene		50000	47900	ug/L	0.241	4.20	25	
2,4,5-Trichlorophenol		50000	47800	ug/L	0.417	4.40	25	
2,4-Dimethylphenol		50000	54500	ug/L	0.341	9.10	25	
2,4-Dinitrotoluene		50000	50200	ug/L	0.475	0.500	25	
2,6-Dinitrotoluene		50000	50100	ug/L	0.344	0.100	25	
2-Chloronaphthalene		50000	57900	ug/L	1.47	15.8	25	
2-Chlorophenol		50000	52000	ug/L	1.38	4.10	25	
2-Methylnaphthalene		50000	49600	ug/L	0.715	0.800	25	
2-Methylphenol		50000	50600	ug/L	1.15	1.10	25	
2-Nitroaniline		50000	51700	ug/L	0.424	3.40	25	
3-Nitroaniline		50000	50300	ug/L	0.355	0.500	25	
3-,4-Methylphenol		50000	52000	ug/L	1.49	3.90	25	
4-Bromophenyl Phenyl Ether		50000	52400	ug/L	0.220	4.90	25	
4-Chloroaniline		50000	51400	ug/L	0.151	2.70	25	
Acenaphthylene		50000	50400	ug/L	2.03	0.900	25	
Anthracene		50000	50000	ug/L	1.15	0	25	
Benzo[a]anthracene		50000	49600	ug/L	1.17	0.900	25	
Benzo[b]fluoranthene		50000	51400	ug/L	1.37	2.80	25	
Benzo[ghi]perylene		50000	50800	ug/L	0.975	1.70	25	
Benzo[k]fluoranthene		50000	50300	ug/L	1.13	0.700	25	
Benzoic Acid		50000	64200	ug/L	0.237	28.4	25	*
Benzyl Alcohol		50000	52900	ug/L	0.896	5.70	25	
bis(2-Chloroethyl)ether		50000	51400	ug/L	0.957	2.70	25	
bis(2-Chloroethoxy)methane		50000	54700	ug/L	0.591	9.40	25	
bis(2-Ethylhexyl)phthalate		50000	52400	ug/L	0.844	4.70	25	
Butyl Benzyl Phthalate		50000	51400	ug/L	0.645	2.80	25	
Carbazole		50000	52900	ug/L	1.05	5.80	25	

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455292
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/03/2017 Sample ID: WG624321-11
Instrument ID: HPMS12 Run Time: 15:28 Method: 8270D
File ID: 12M63796 Analyst: MES QC Key: WATERLOO
ICal Workgroup: WG624321 Cal ID: HPMS12 - 03-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chrysene		50000	51900	ug/L	1.12	3.90	25	
Di-n-Butyl Phthalate		50000	53900	ug/L	1.41	7.80	25	
Dibenz[ah]anthracene		50000	51000	ug/L	1.05	2.10	25	
Dibenzofuran		50000	50400	ug/L	1.82	0.900	25	
Diethylphthalate		50000	52300	ug/L	1.59	4.60	25	
Dimethylphthalate		50000	51800	ug/L	1.53	3.60	25	
Fluorene		50000	50900	ug/L	1.56	1.70	25	
Hexachlorobenzene		50000	51700	ug/L	0.225	3.50	25	
Hexachloroethane		50000	50100	ug/L	0.624	0.200	25	
Indeno[1,2,3-cd]pyrene		50000	50300	ug/L	1.21	0.500	25	
Isophorone		50000	52400	ug/L	0.719	4.80	25	
Naphthalene		50000	51200	ug/L	1.09	2.30	25	
Nitrobenzene		50000	52500	ug/L	0.415	5.00	25	
Phenanthrene		50000	50500	ug/L	1.12	1.10	25	
Pyrene		50000	50200	ug/L	1.26	0.500	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455292
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/03/2017 Sample ID: WG624321-13
Instrument ID: HPMS12 Run Time: 16:00 Method: 8270D
File ID: 12M63797 Analyst: MES QC Key: WATERLOO
ICal Workgroup: WG624321 Cal ID: HPMS12 - 03-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
3,3'-Dichlorobenzidine		50000	57100	ug/L	0.464	14.2	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5455292
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627594-02

Instrument ID: HPMS12 Run Time: 09:47 Method: 8270D

File ID: 12M64121 Analyst: SCB QC Key: WATERLOO

Workgroup (AAB#): WG627524 Cal ID: HPMS12 - 03-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,4-Dichlorobenzene	CCC	50000	51400	ug/L	1.52	2.74	20	
4-Chloro-3-Methylphenol	CCC	50000	52600	ug/L	0.372	5.14	20	
2,4,6-Trichlorophenol	CCC	50000	50900	ug/L	0.425	1.87	20	
2,4-Dichlorophenol	CCC	50000	52700	ug/L	0.299	5.44	20	
2-Nitrophenol	CCC	50000	51100	ug/L	0.192	2.27	20	
Acenaphthene	CCC	50000	53800	ug/L	1.38	7.52	20	
Benzo[a]pyrene	CCC	50000	54000	ug/L	1.19	7.98	20	
Di-n-Octyl Phthalate	CCC	50000	48500	ug/L	1.45	3.07	20	
Fluoranthene	CCC	50000	50900	ug/L	1.24	1.84	20	
Hexachlorobutadiene	CCC	50000	54900	ug/L	0.209	9.79	20	
Diphenylamine/n-Nitrosodiphenylamine	CCC	50000	51200	ug/L	0.685	2.49	20	
Pentachlorophenol	CCC	50000	48900	ug/L	0.133	2.20	20	
Phenol	CCC	50000	55500	ug/L	1.76	11.0	20	
n-Nitrosodipropylamine	SPCC	50000	57400	ug/L	1.14	14.9	20	
2,4-Dinitrophenol	SPCC	50000	52200	ug/L	0.220	4.39	20	
4-Nitrophenol	SPCC	50000	54900	ug/L	0.351	9.85	20	
Hexachlorocyclopentadiene	SPCC	50000	51100	ug/L	0.318	2.18	20	
Sym-Trinitrobenzene		50000	53900	ug/L	0.279	7.81	20	
1,3-Dinitrobenzene		50000	49300	ug/L	0.248	1.42	20	
1,4-Dioxane		50000	49000	ug/L	0.513	1.93	20	
2,4,5-Trichlorophenol		50000	50400	ug/L	0.440	0.737	20	
2,4-Dimethylphenol		50000	49700	ug/L	0.310	0.686	20	
2,4-Dinitrotoluene		50000	49800	ug/L	0.470	0.407	20	
2,6-Dinitrotoluene		50000	50000	ug/L	0.344	0.0562	20	
2-Chloronaphthalene		50000	50800	ug/L	1.29	1.59	20	
2-Chlorophenol		50000	48900	ug/L	1.30	2.21	20	
2-Methylnaphthalene		50000	51700	ug/L	0.746	3.47	20	
2-Methylphenol		50000	54300	ug/L	1.24	8.68	20	
2-Nitroaniline		50000	51600	ug/L	0.423	3.11	20	
3-Nitroaniline		50000	49200	ug/L	0.347	1.61	20	
3,3'-Dichlorobenzidine		50000	55400	ug/L	0.451	10.8	20	
3-,4-Methylphenol		50000	52100	ug/L	1.50	4.28	20	
4-Bromophenyl Phenyl Ether		50000	51500	ug/L	0.216	3.04	20	
4-Chloroaniline		50000	55700	ug/L	0.164	11.3	20	
Acenaphthylene		50000	52300	ug/L	2.10	4.57	20	
Anthracene		50000	51100	ug/L	1.17	2.20	20	
Benzo[a]anthracene		50000	52800	ug/L	1.25	5.51	20	
Benzo[b]fluoranthene		50000	53400	ug/L	1.42	6.76	20	
Benzo[ghi]perylene		50000	57500	ug/L	1.10	15.1	20	
Benzo[k]fluoranthene		50000	54700	ug/L	1.22	9.33	20	
Benzoic Acid		50000	32100	ug/L	0.0851	35.9	20	*
Benzyl Alcohol		50000	54600	ug/L	0.926	9.27	20	

CCV - Modified 03/05/2008

PDF File ID: 5455294

Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627594-02
Instrument ID: HPMS12 Run Time: 09:47 Method: 8270D
File ID: 12M64121 Analyst: SCB QC Key: WATERLOO
Workgroup (AAB#): WG627524 Cal ID: HPMS12 - 03-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
bis(2-Chloroethyl)ether		50000	55900	ug/L	1.04	11.9	20	
bis(2-Chloroethoxy)methane		50000	54800	ug/L	0.591	9.53	20	
bis(2-Ethylhexyl)phthalate		50000	50800	ug/L	0.819	1.60	20	
Butyl Benzyl Phthalate		50000	49900	ug/L	0.627	0.125	20	
Carbazole		50000	51700	ug/L	1.02	3.37	20	
Chrysene		50000	53300	ug/L	1.14	6.50	20	
Di-n-Butyl Phthalate		50000	52000	ug/L	1.36	4.02	20	
Dibenz[ah]anthracene		50000	55300	ug/L	1.14	10.6	20	
Dibenzofuran		50000	49400	ug/L	1.79	1.11	20	
Diethylphthalate		50000	50100	ug/L	1.53	0.261	20	
Dimethylphthalate		50000	50300	ug/L	1.49	0.569	20	
Fluorene		50000	53500	ug/L	1.64	7.00	20	
Hexachlorobenzene		50000	50400	ug/L	0.220	0.848	20	
Hexachloroethane		50000	53200	ug/L	0.662	6.38	20	
Indeno[1,2,3-cd]pyrene		50000	58100	ug/L	1.40	16.2	20	
Isophorone		50000	53800	ug/L	0.738	7.61	20	
Naphthalene		50000	49300	ug/L	1.05	1.47	20	
Nitrobenzene		50000	54700	ug/L	0.432	9.35	20	
Phenanthrene		50000	51200	ug/L	1.13	2.33	20	
Pyrene		50000	51300	ug/L	1.28	2.55	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5455294
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627620-01
Instrument ID: HPMS12 Run Time: 10:20 Method: 8270D
File ID: 12M64122 Analyst: SCB QC Key: WATERLOO
Workgroup (AAB#): WG627524 Cal ID: HPMS12 - 15-JUL-17
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1'-Biphenyl		50000	50600	ug/L	1.64	1.22	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5455294
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L17081305
Instrument ID: HPMS12
Workgroup (AAB#): WG627524

CCV Number: WG627594-02
CAL ID: HPMS12-03-AUG-17
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3	IS-4	IS-5	IS-6
WG627594-02	NA	NA	140196	307412	602811	554616	584828	599106
Upper Limit	NA	NA	280392	614824	1205622	1109232	1169656	1198212
Lower Limit	NA	NA	70098	153706	301406	277308	292414	299553
L17081305-14	1.00	01	108853	232379	450537	407832	437317	460697
L17081305-16	1.00	01	108849	234601	460119	397694	446417	470793
L17081305-19	1.00	01	116659	245020	420869	450522	394230	443917
WG627291-01	1.00	01	119921	244750	480285	449564	469558	481544
WG627291-02	1.00	01	120438	254221	491117	460416	488466	509325
WG627291-03	1.00	01	115841	249347	499030	448895	486700	494827

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Acenaphthene-d10
IS-3 - Chrysene-d12
IS-4 - Naphthalene-D8
IS-5 - Perylene-d12
IS-6 - Phenanthrene-d10

Underline = Response outside limits

INTERNAL_STD - Modified 03/06/2008
PDF File ID: 5455295
Report generated 09/01/2017 08:44

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L17081305 CCV Number: WG627594-02

Instrument ID: HPMS12 CAL ID: HPMS12-03-AUG-17

Workgroup (AAB#): WG627524 Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3	IS-4	IS-5	IS-6
WG627594-02	NA	NA	7.83	10.94	16.24	9.13	19.09	12.55
Upper Limit	NA	NA	8.33	11.44	16.74	9.63	19.59	13.05
Lower Limit	NA	NA	7.33	10.44	15.74	8.63	18.59	12.05
L17081305-14	1.00	01	7.828	10.932	16.237	9.127	19.085	12.546
L17081305-16	1.00	01	7.828	10.932	16.237	9.127	19.085	12.546
L17081305-19	1.00	01	7.829	10.932	16.237	9.121	19.085	12.546
WG627291-01	1.00	01	7.829	10.932	16.237	9.121	19.085	12.546
WG627291-02	1.00	01	7.828	10.932	16.242	9.121	19.09	12.551
WG627291-03	1.00	01	7.829	10.932	16.243	9.121	19.09	12.551

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Acenaphthene-d10
IS-3 - Chrysene-d12
IS-4 - Naphthalene-D8
IS-5 - Perylene-d12
IS-6 - Phenanthrene-d10

Underline = Response outside limits

INTERNAL_STD_RT - Modified 03/06/2008
PDF File ID: 5455297
Report generated 09/01/2017 08:45

2.2.1.3 Sample Data

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 08:59:14 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

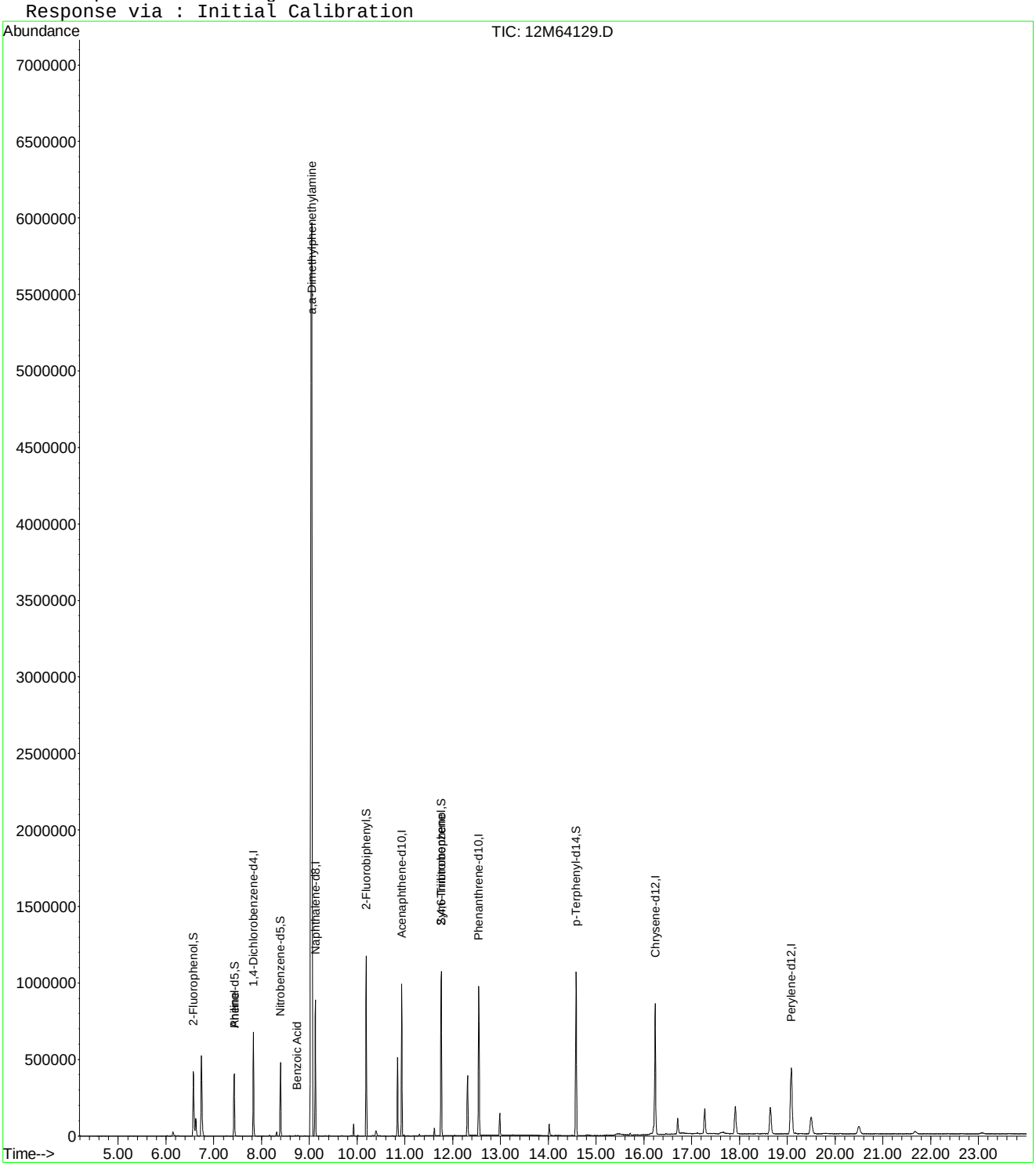
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.828	152	108853	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.127	136	407832	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.932	164	232379	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.546	188	460697	40.0000	ug/ml	-0.011
113) Chrysene-d12	16.237	240	450537	40.0000	ug/ml	-0.011
128) Perylene-d12	19.085	264	437317	40.0000	ug/ml	-0.016
System Monitoring Compounds						
8) 2-Fluorophenol	6.573	112	162509	49.0203095	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 49.02%			
12) Phenol-d5	7.428	99	155515	36.6923566	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 36.69%			
31) Nitrobenzene-d5	8.395	82	174874	42.9680872	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 85.94%			
59) 2-Fluorobiphenyl	10.190	172	369957	45.8559778	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 91.71%			
86) 2,4,6-Tribromophenol	11.760	330	138908	113.4905893	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 113.49%			
117) p-Terphenyl-d14	14.581	244	469076	48.3627205	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 96.73%			
Target Compounds						Qvalue
11) Aniline	7.43	66	10512	4.7650	ug/ml#	1
39) Benzoic Acid	8.74	105	643	7.7576	ug/ml#	51
41) a,a-Dimethylphenethylamine	9.05	58	255042	37.5603	ug/ml#	82
91) Sym-Trinitrobenzene	11.75	75	1001	1.6919	ug/ml#	1

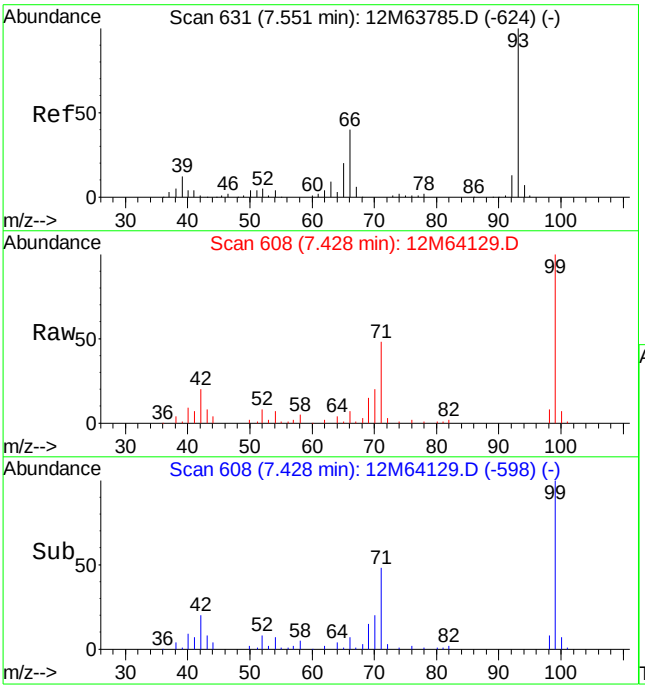
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 8:59 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration

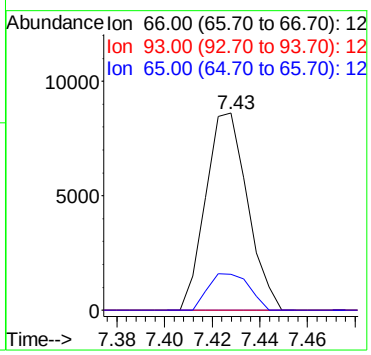


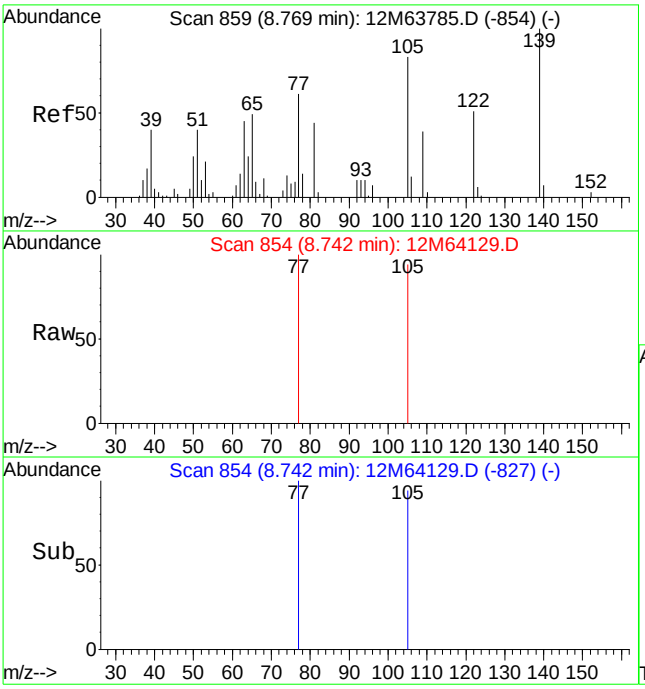


#11
Aniline
Concen: 4.7650 ug/ml
RT: 7.43 min Scan# 608
Delta R.T. -0.10 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion: 66 Resp: 10512

Ion	Ratio	Lower	Upper
66	100		
93	0.0	231.9	541.1#
65	18.3	48.5	113.1#

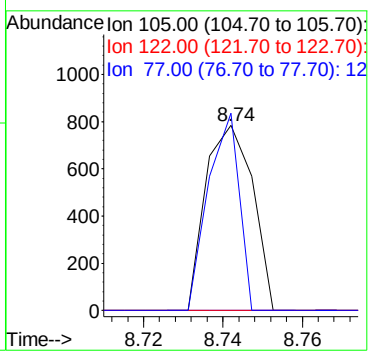


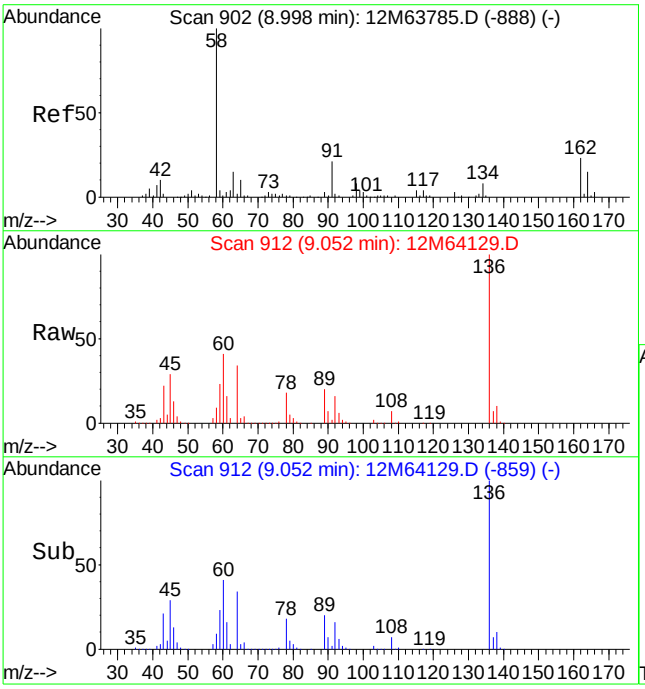


#39
Benzoic Acid
Concen: 7.7576 ug/ml
RT: 8.74 min Scan# 854
Delta R.T. -0.01 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion:105 Resp: 643

Ion	Ratio	Lower	Upper
105	100		
122	0.0	32.5	75.9#
77	70.0	32.3	75.3

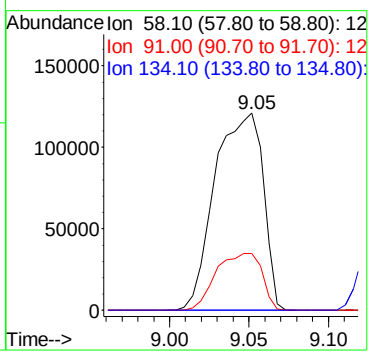


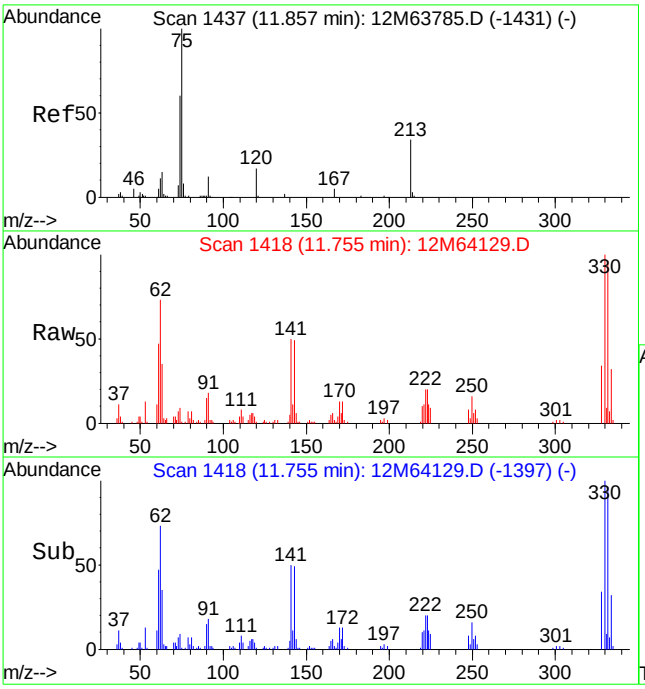


#41
a,a-Dimethylphenethylamine
Concen: 37.5603 ug/ml
RT: 9.05 min Scan# 912
Delta R.T. 0.09 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion: 58 Resp: 255042

Ion	Ratio	Lower	Upper
58	100		
91	27.4	16.0	24.0#
134	0.0	6.2	9.2#

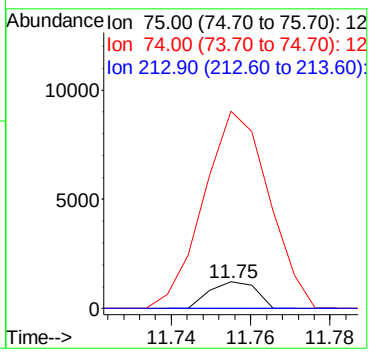




#91
Sym-Trinitrobenzene
Concen: 1.6919 ug/ml
RT: 11.75 min Scan# 1418
Delta R.T. -0.09 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion: 75 Resp: 1001

Ion	Ratio	Lower	Upper
75	100		
74	1034.0	49.0	73.6#
213	0.0	30.2	45.2#



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54:26 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.828	152	108853	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.127	136	407832	40.0000	ug/mL	-0.032
6) Acenaphthene-d10	10.932	164	232379	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.546	188	460697	40.0000	ug/mL	-0.048

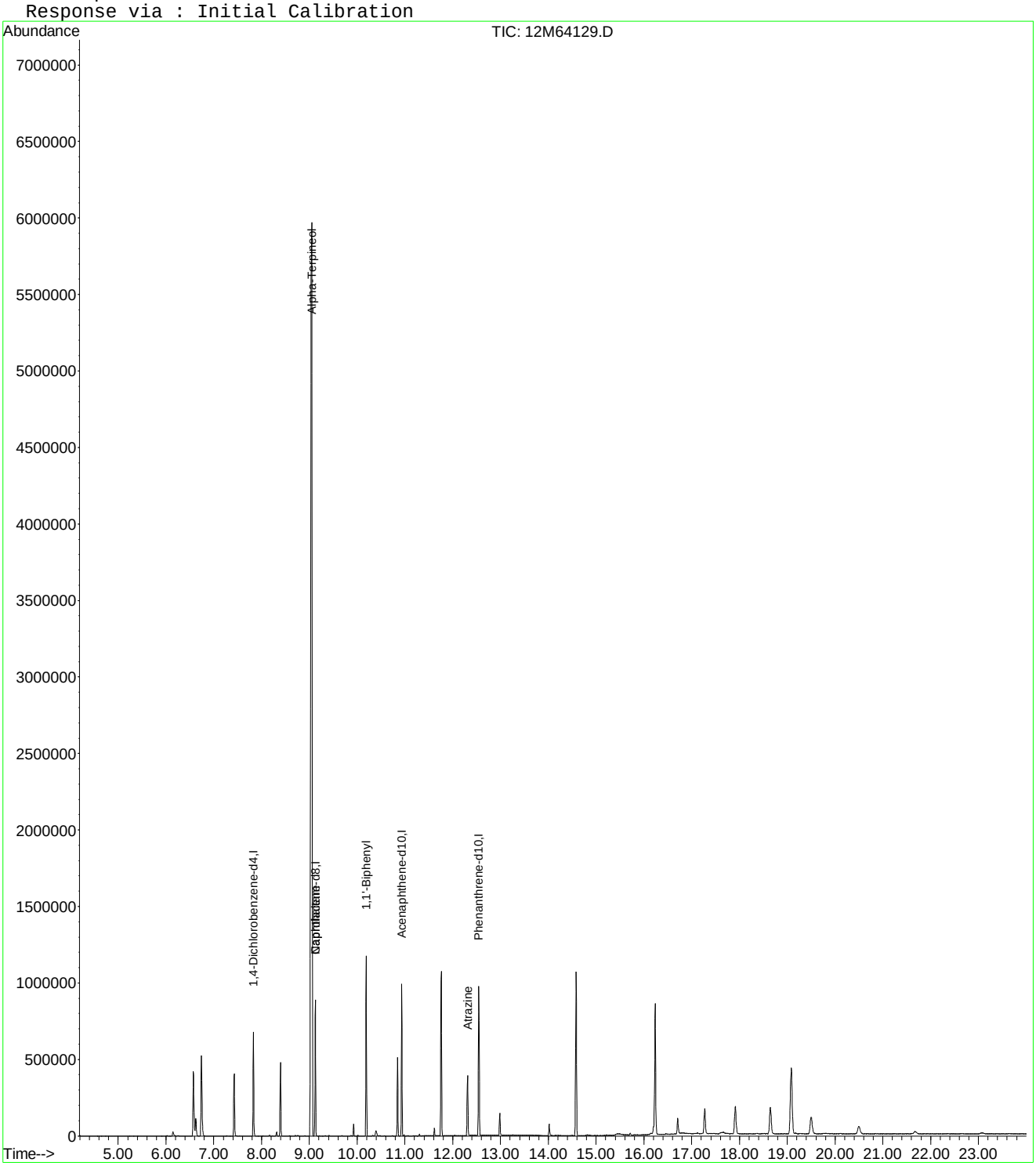
Target Compounds						Qvalue
4) Alpha-Terpineol	9.05	59	686750	283.4345	ug/L #	28
5) Caprolactam	9.13	55	174	0.1531	ug/L #	1
7) 1,1'-Biphenyl	10.19	154	630	0.0670	ug/L #	1
9) Atrazine	12.31	200	67773	25.7134	ug/L #	32

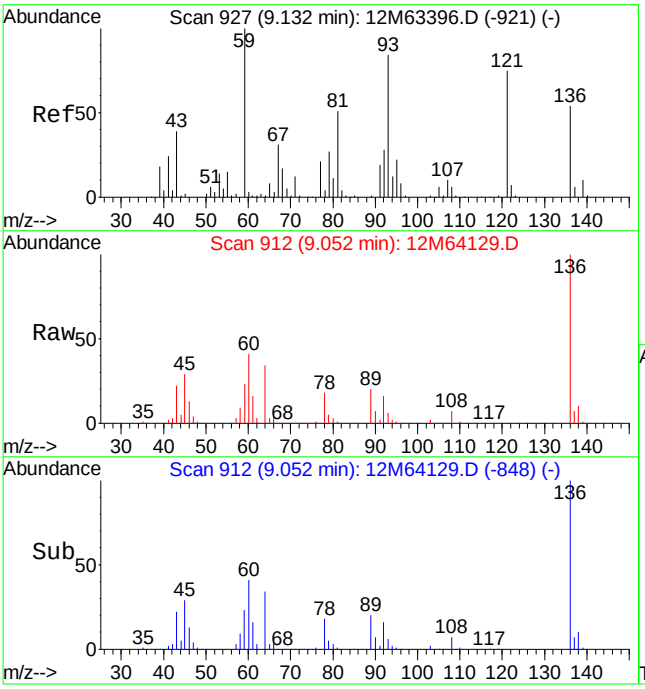
(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64129.D TCL.M Wed Aug 30 11:54:26 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration

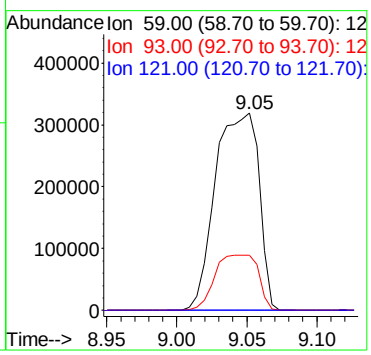


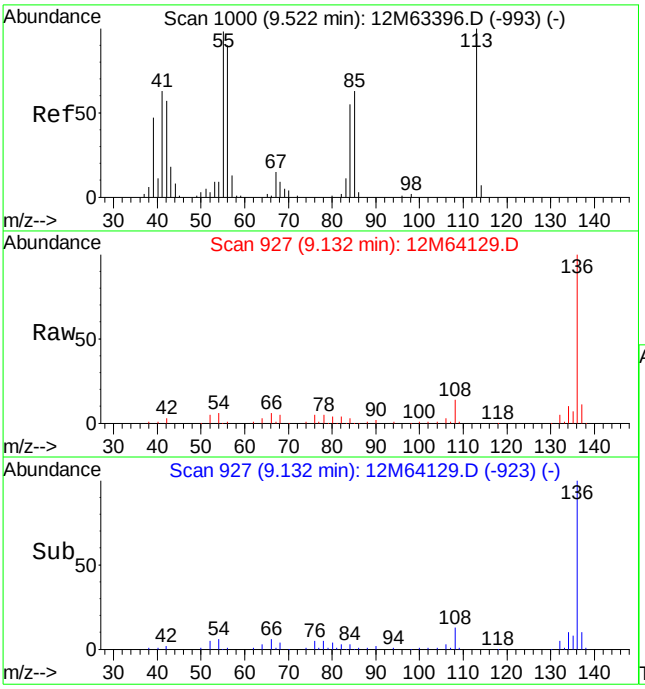


#4
Alpha-Terpineol
Concen: 283.4345 ug/L
RT: 9.05 min Scan# 912
Delta R.T. -0.06 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion: 59 Resp: 686750

Ion	Ratio	Lower	Upper
59	100		
93	27.7	49.0	114.4#
121	0.0	42.5	99.1#

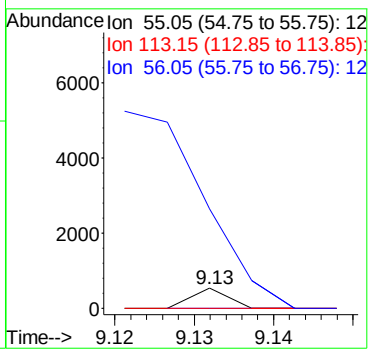


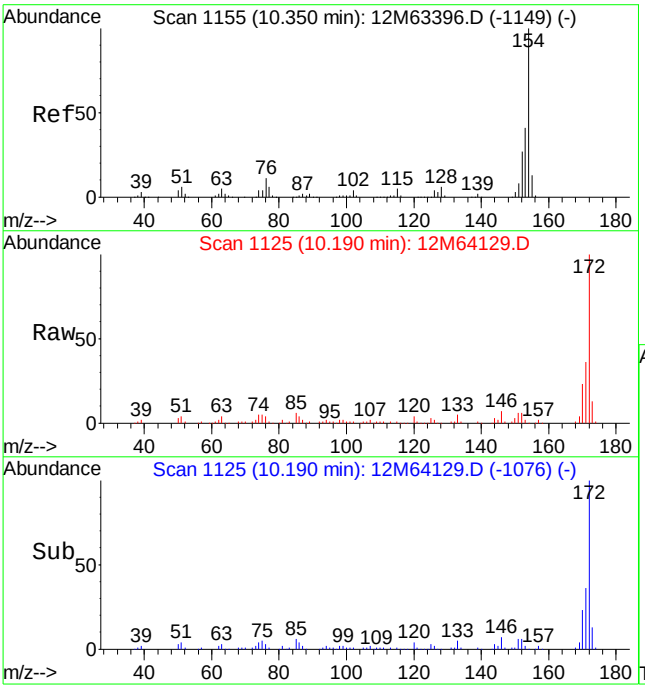


#5
Caprolactam
Concen: 0.1531 ug/L
RT: 9.13 min Scan# 927
Delta R.T. -0.38 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion: 55 Resp: 174

Ion	Ratio	Lower	Upper
55	100		
113	0.0	80.9	121.3#
56	0.0	74.5	111.7#

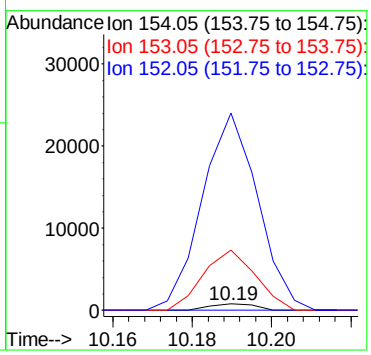


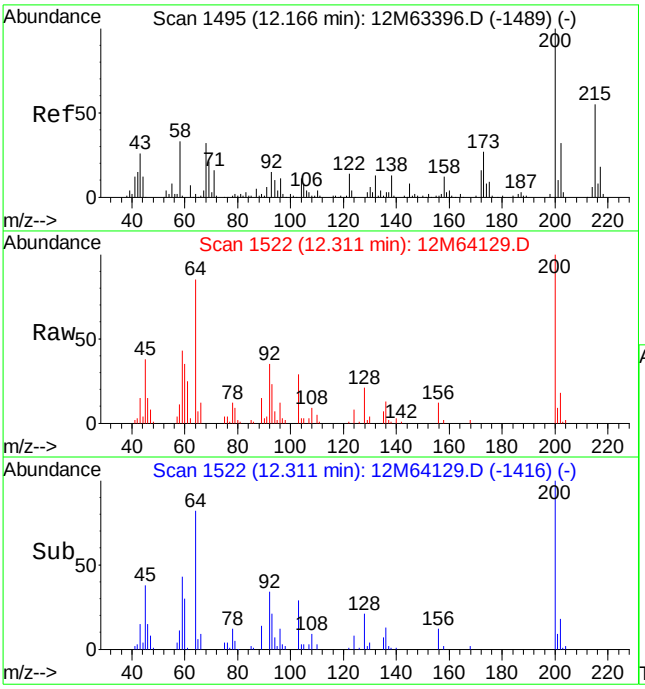


#7
1,1'-Biphenyl
Concen: 0.0670 ug/L
RT: 10.19 min Scan# 1125
Delta R.T. -0.14 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion:154 Resp: 630

Ion	Ratio	Lower	Upper
154	100		
153	1075.1	32.8	49.2#
152	3727.5	21.4	32.2#

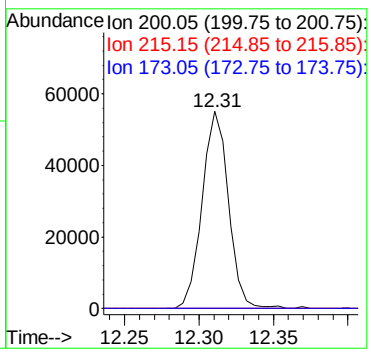




#9
Atrazine
Concen: 25.7134 ug/L
RT: 12.31 min Scan# 1522
Delta R.T. 0.17 min
Lab File: 12M64129.D
Acq: 29 Aug 2017 2:08 pm

Tgt Ion:200 Resp: 67773

Ion	Ratio	Lower	Upper
200	100		
215	0.0	44.2	66.2#
173	0.0	21.2	31.8#



LSC Area Percent Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

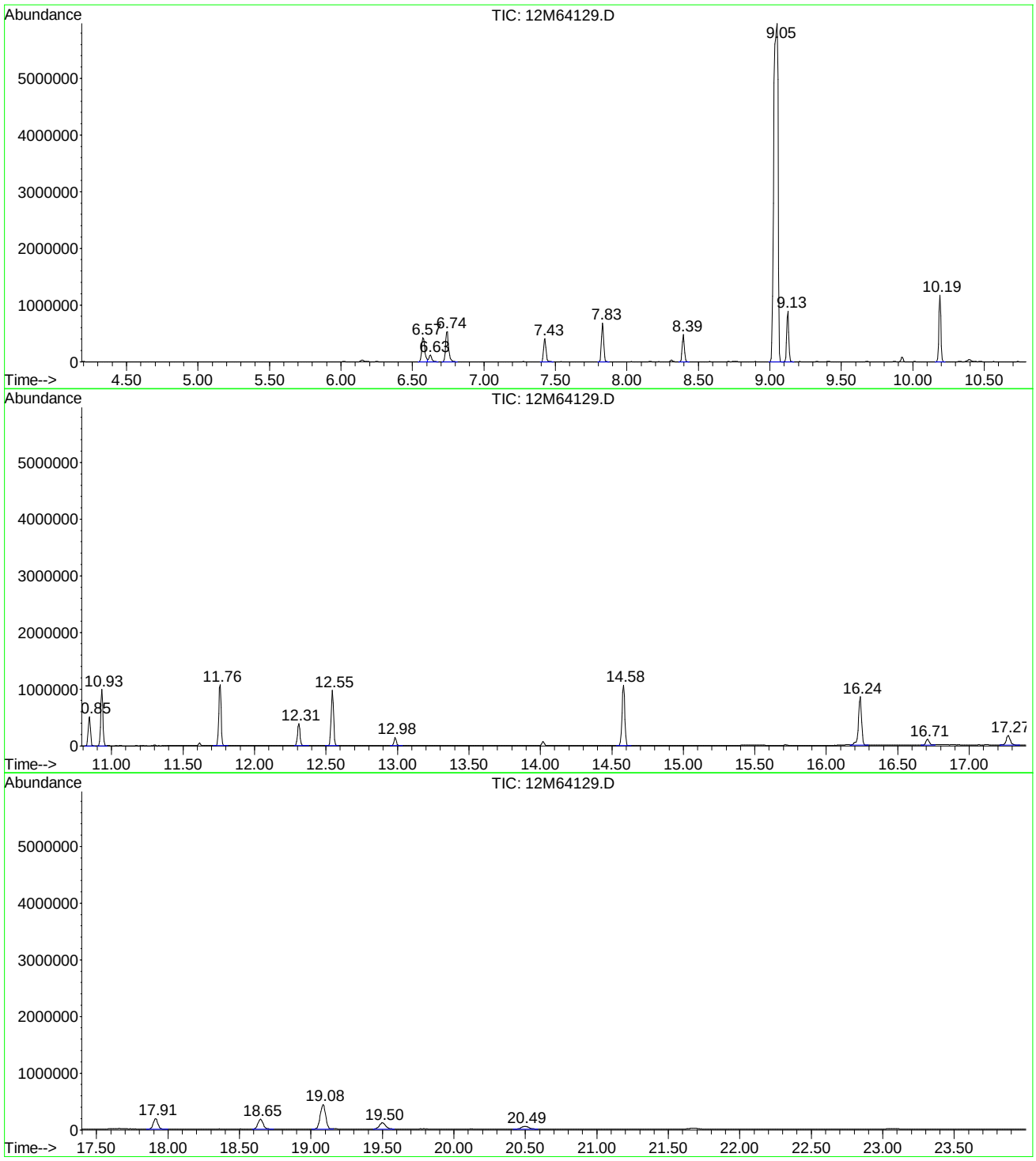
If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	6.573	442	448	454	rBV	423152	624554	4.97%	2.206%
2	6.626	454	458	467	rVB	115708	160430	1.28%	0.567%
3	6.744	473	480	492	rBB	524978	781801	6.22%	2.762%
4	7.428	602	608	618	rBB	407083	477420	3.80%	1.687%
5	7.828	677	683	691	rBB	679301	746418	5.94%	2.637%
6	8.395	783	789	796	rBB	481789	503257	4.00%	1.778%
7	9.052	901	912	918	rBB2	5971715	12568787	100.00%	44.400%
8	9.127	919	926	933	rBB	889811	892824	7.10%	3.154%
9	10.190	1119	1125	1131	rBB	1176498	1136910	9.05%	4.016%
10	10.847	1242	1248	1254	rBB	514195	572366	4.55%	2.022%
11	10.932	1258	1264	1270	rBB	994177	1047472	8.33%	3.700%
12	11.760	1410	1419	1428	rBV	1076586	1231866	9.80%	4.352%
13	12.311	1516	1522	1534	rBV	392524	478660	3.81%	1.691%
14	12.546	1557	1566	1573	rBV	977252	1164996	9.27%	4.115%
15	12.984	1642	1648	1657	rBV	147245	164977	1.31%	0.583%
16	14.581	1938	1947	1956	rBV	1071536	1426495	11.35%	5.039%
17	16.237	2244	2257	2267	rVB	856059	1311984	10.44%	4.635%
18	16.707	2337	2345	2355	rBV	104406	181144	1.44%	0.640%
19	17.273	2440	2451	2465	rVB	166330	325363	2.59%	1.149%
20	17.915	2559	2571	2586	rVB	181888	413701	3.29%	1.461%
21	18.646	2698	2708	2724	rBV2	173113	439039	3.49%	1.551%
22	19.085	2776	2790	2803	rBV2	432404	1142324	9.09%	4.035%
23	19.501	2856	2868	2882	rBV2	109980	336729	2.68%	1.190%
24	20.495	3039	3054	3070	rVB3	48890	178354	1.42%	0.630%

Sum of corrected areas: 28307871

File : I:\MSDCHEM\1\DATA\082917\12M64129.D
Operator : scb
Acquired : 29 Aug 2017 2:08 pm using AcqMethod BNARUN
Instrument : MSD12
Sample Name: L17081305-14
Misc Info : 1,1
Vial Number: 10
Quant File :MEGAMIX.RES (RTE Integrator)



Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

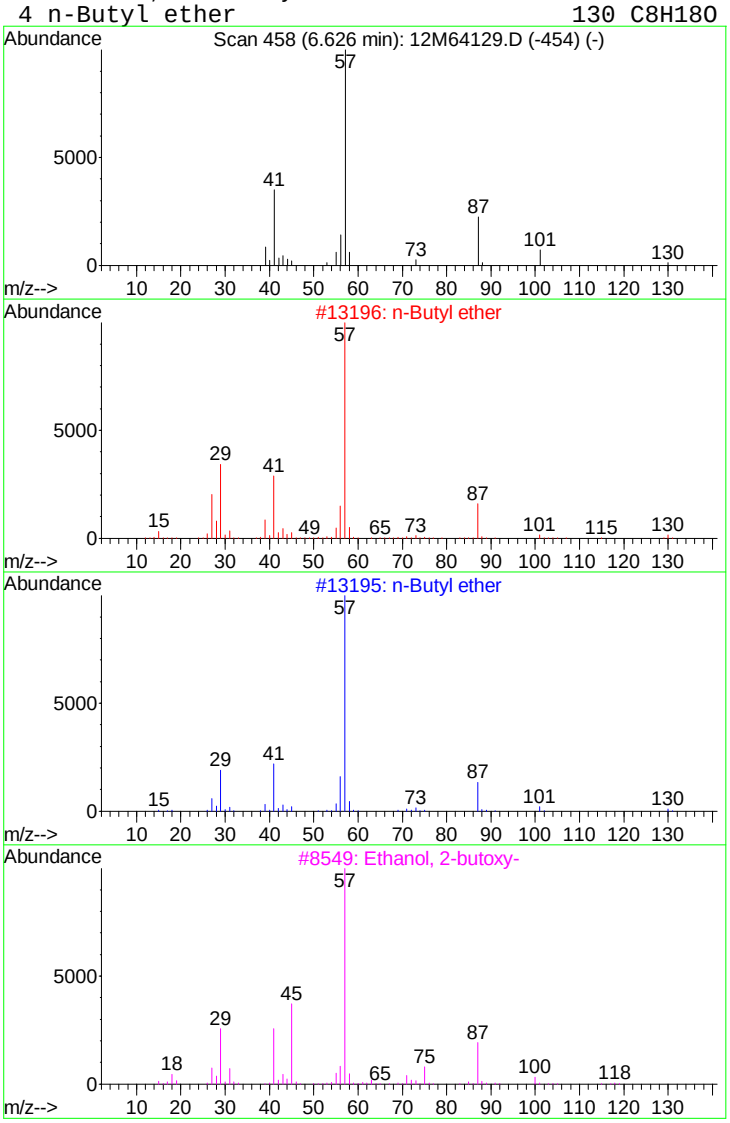
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

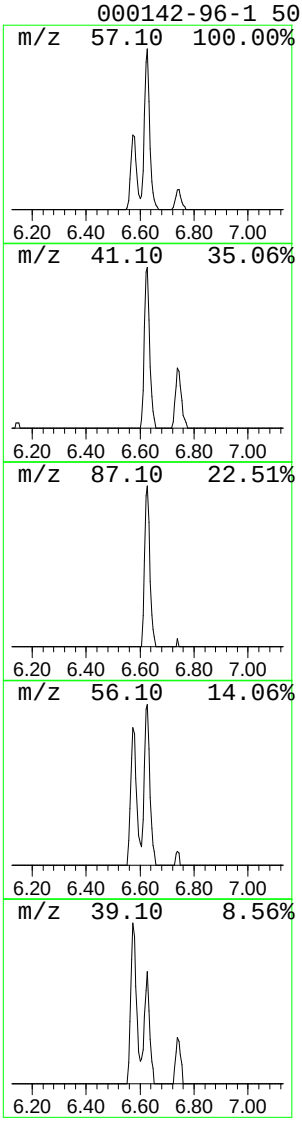
****

Peak Number 1 n-Butyl ether Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.63	8.60 ug/ml	160430	1,4-Dichlorobenzene-d4	7.83

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Butyl ether	130	C8H18O	000142-96-1	64
2	n-Butyl ether	130	C8H18O	000142-96-1	64
3	Ethanol, 2-butoxy-	118	C6H14O2	000111-76-2	56
4	n-Butyl ether	130	C8H18O	000142-96-1	50





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

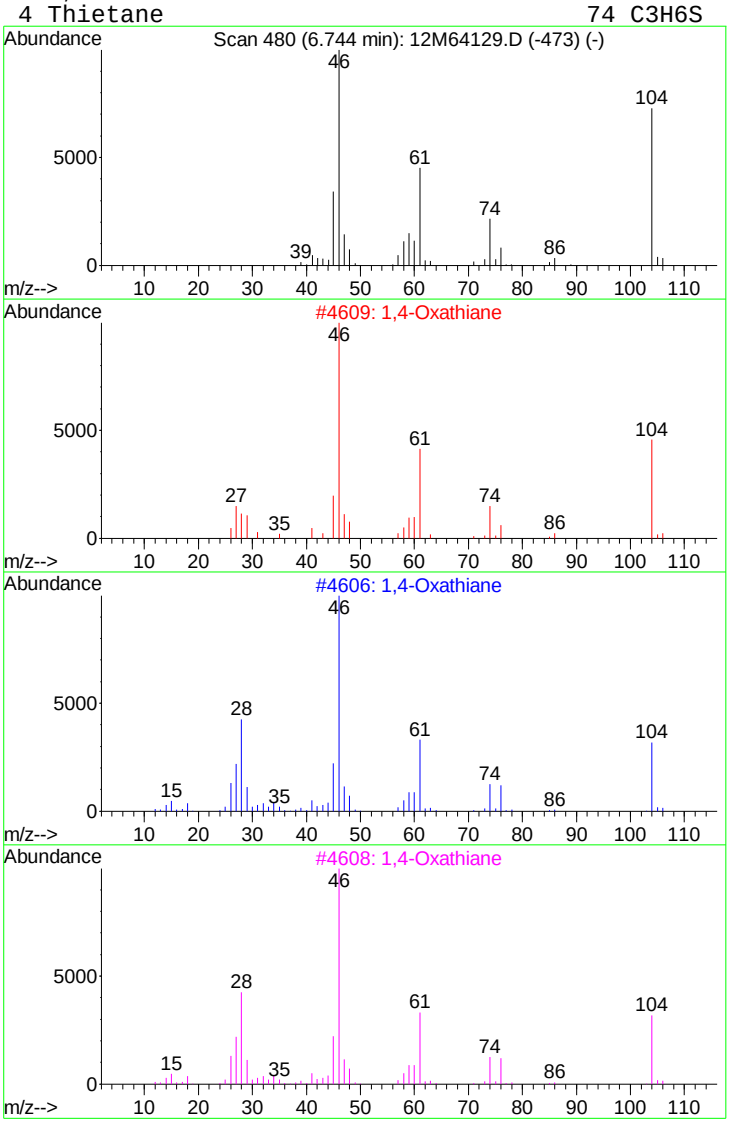
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

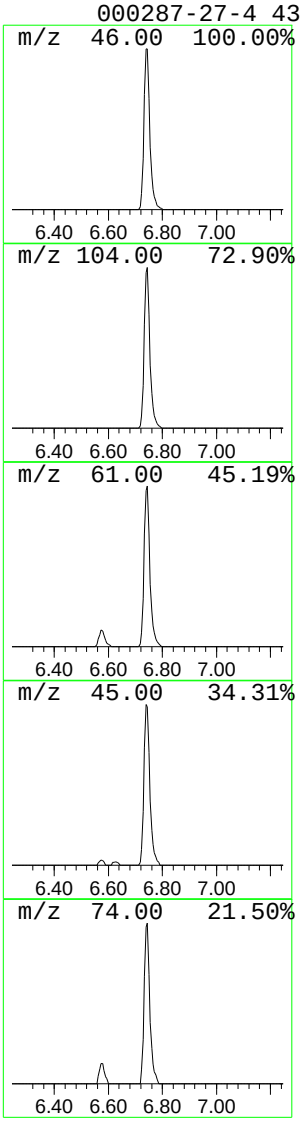
****

Peak Number 2 1,4-Oxathiane Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.74	41.90 ug/ml	781801	1,4-Dichlorobenzene-d4	7.83

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
2	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
3	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
4	Thietane	74	C3H6S	000287-27-4	43





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

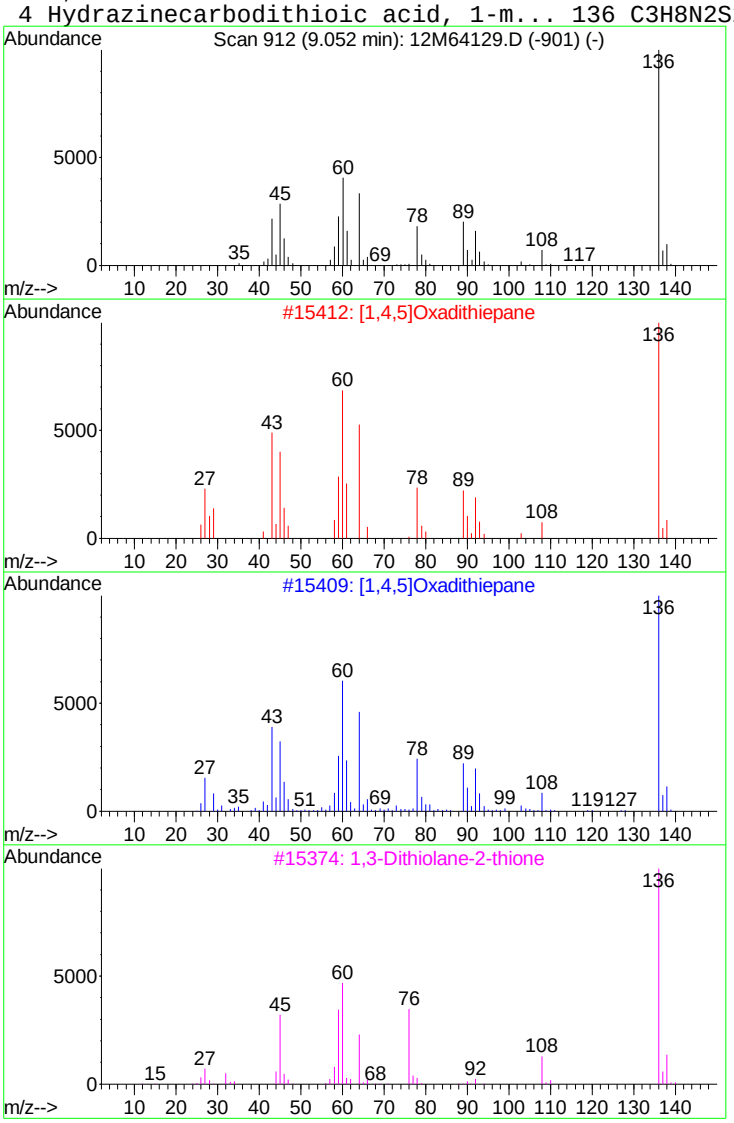
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

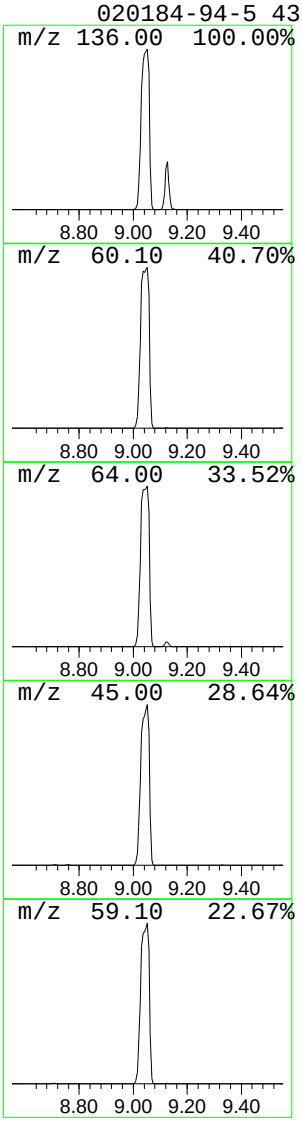
****

Peak Number 3 [1,4,5]Oxadithiepane Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
9.05	563.10 ug/ml	12568800	Naphthalene-d8	9.13

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	95
2	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	94
3	1,3-Dithiolane-2-thione	136	C3H4S3	000822-38-8	50
4	Hydrazinecarbodithioic acid, 1-m...	136	C3H8N2S2	020184-94-5	43





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

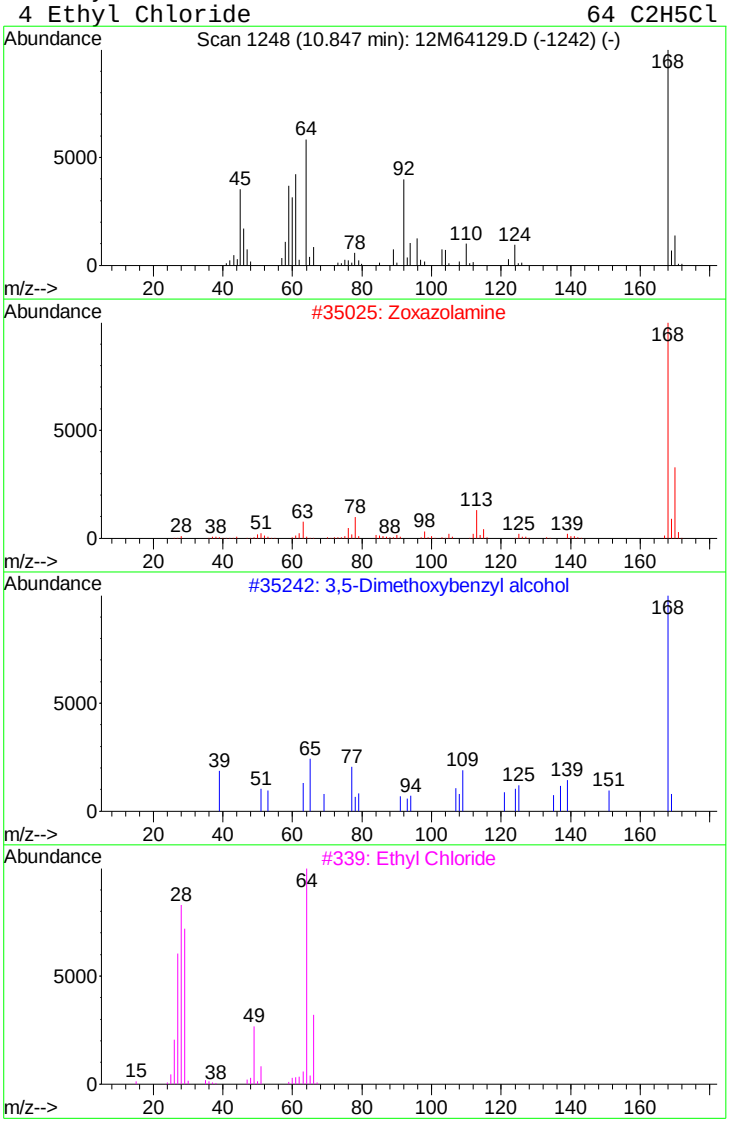
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

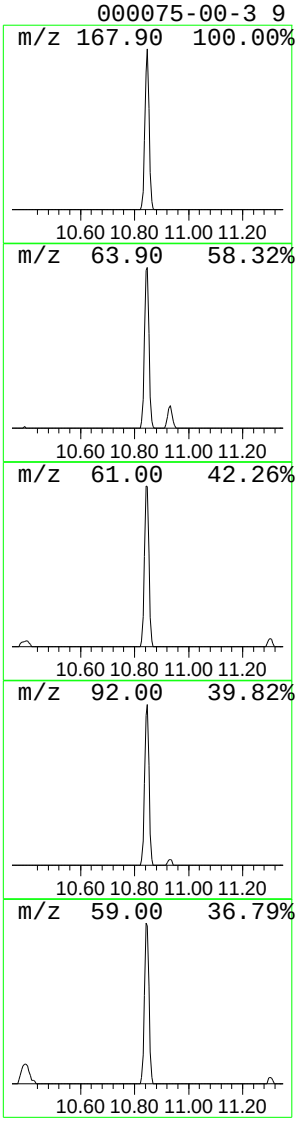
****

Peak Number 4 Zoxazolamine Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
10.85	21.86 ug/ml	572366	Acenaphthene-d10	10.93

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Zoxazolamine	168	C7H5ClN2O	000061-80-3	9
2	3,5-Dimethoxybenzyl alcohol	168	C9H12O3	000705-76-0	9
3	Ethyl Chloride	64	C2H5Cl	000075-00-3	9
4	Ethyl Chloride	64	C2H5Cl	000075-00-3	9





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

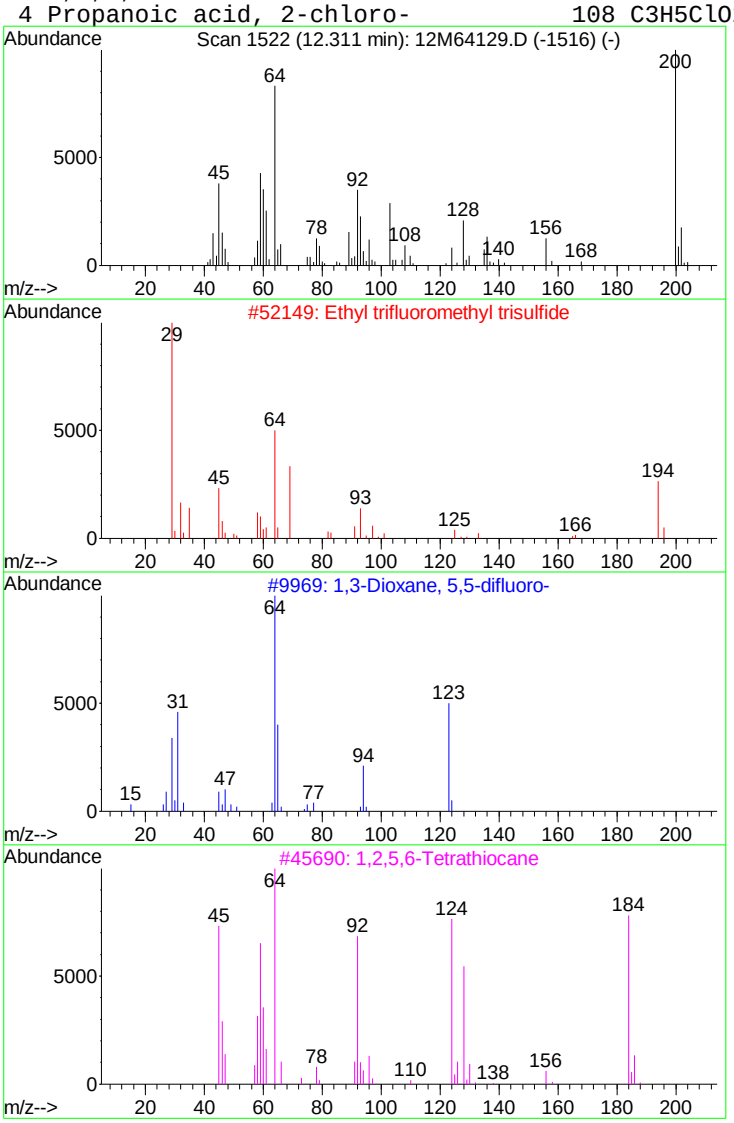
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

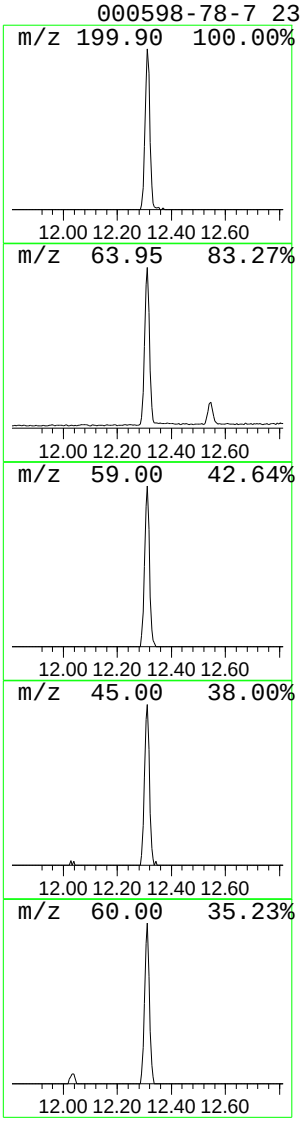
****

Peak Number 5 Ethyl trifluoromethyl trisu... Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.31	16.43 ug/ml	478660	Phenanthrene-d10	12.55

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Ethyl trifluoromethyl trisulfide	194	C3H5F3S3	055882-01-4	28
2	1,3-Dioxane, 5,5-difluoro-	124	C4H6F2O2	036301-44-7	25
3	1,2,5,6-Tetrathiocane	184	C4H8S4	001940-01-8	25
4	Propanoic acid, 2-chloro-	108	C3H5ClO2	000598-78-7	23





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

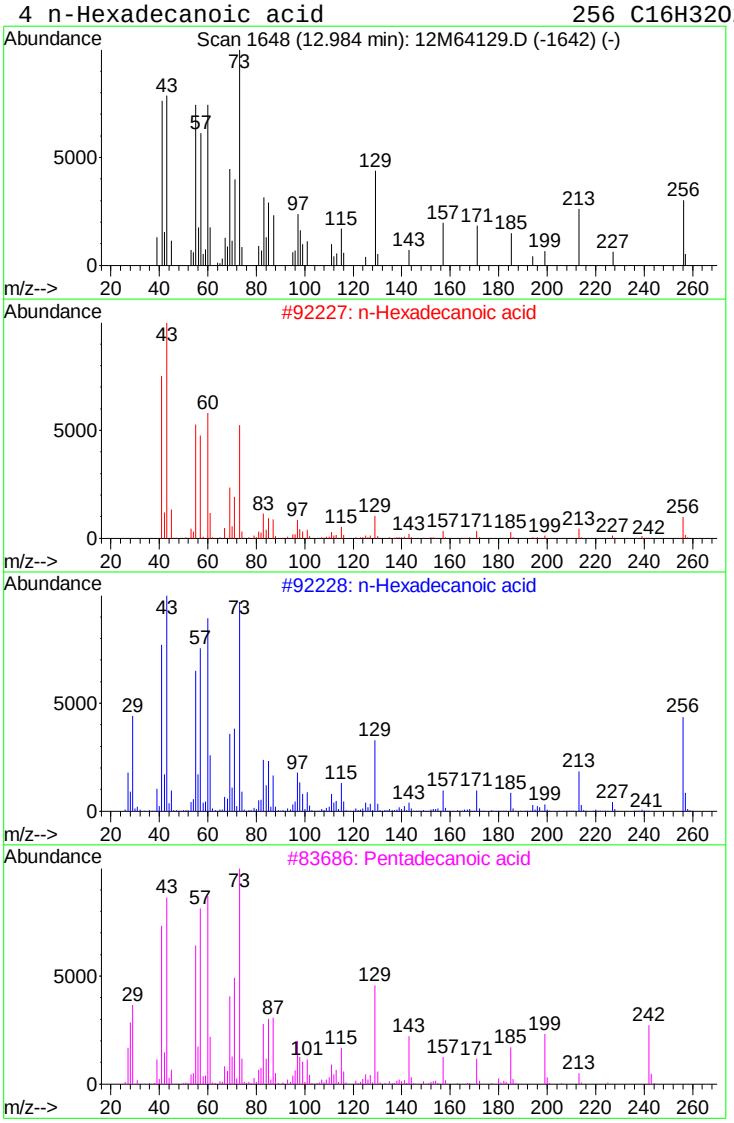
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

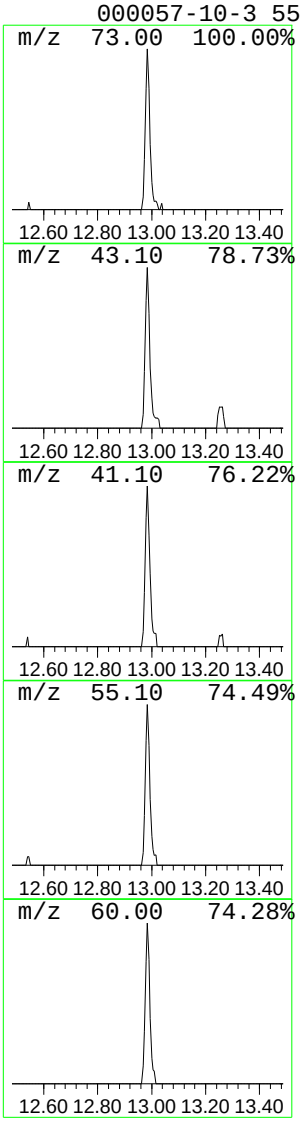
****

Peak Number 6 n-Hexadecanoic acid Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.98	5.66 ug/ml	164977	Phenanthrene-d10	12.55

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	96
2	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	95
3	Pentadecanoic acid	242	C15H30O2	001002-84-2	72
4	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	55





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

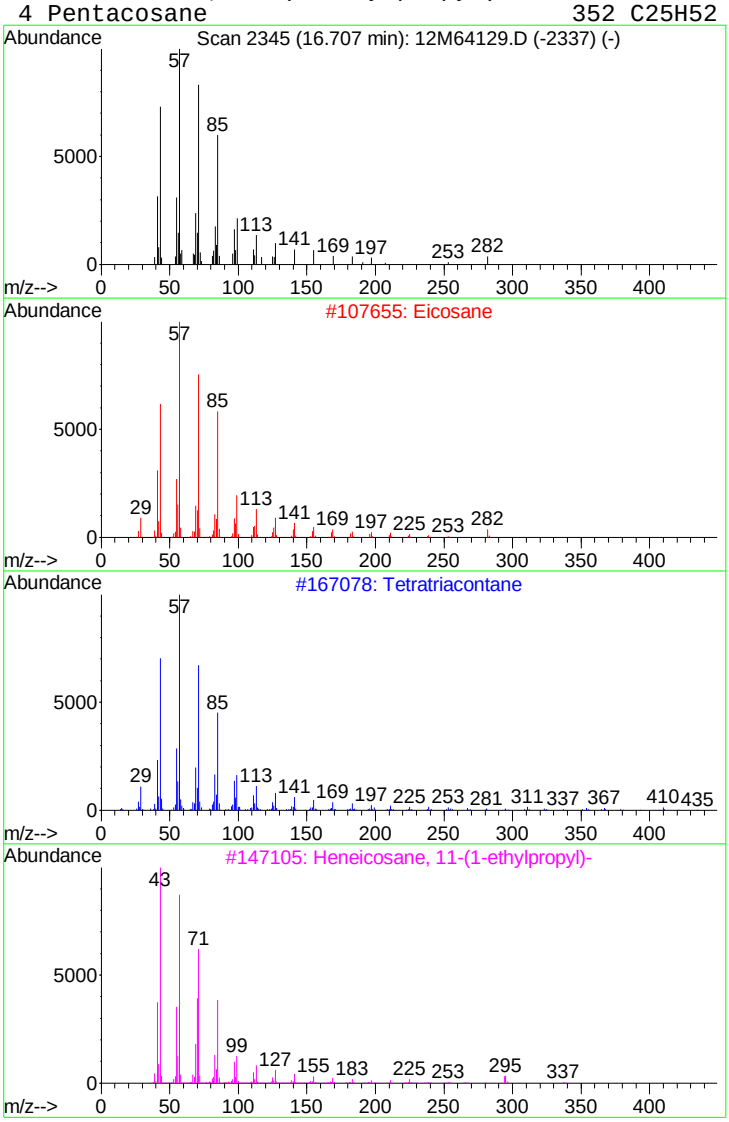
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

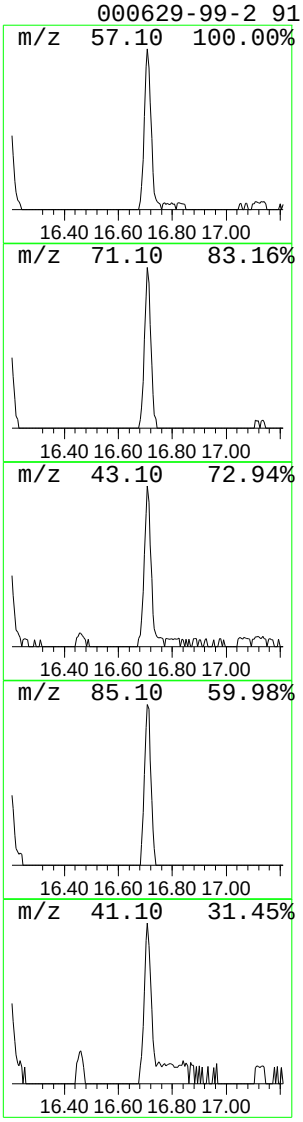
****

Peak Number 7 Eicosane Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.71	5.52 ug/ml	181144	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	98
2	Tetratriacontane	479	C34H70	014167-59-0	91
3	Heneicosane, 11-(1-ethylpropyl)-	366	C26H54	055282-11-6	91
4	Pentacosane	352	C25H52	000629-99-2	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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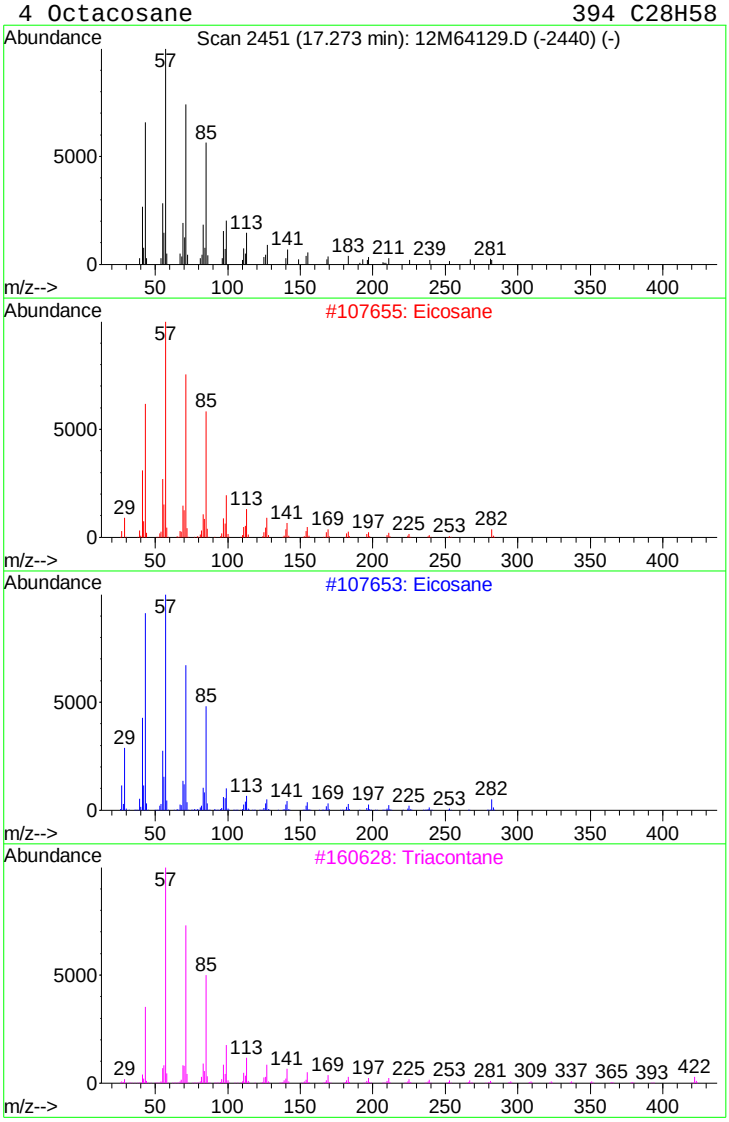
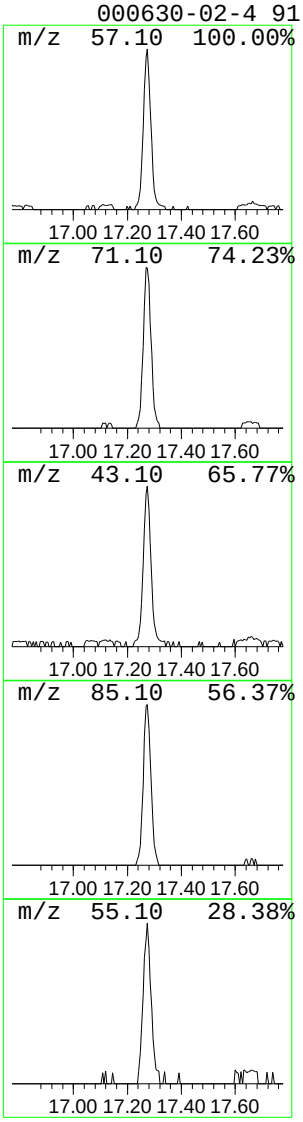
Peak Number 8 Eicosane Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.27	9.92 ug/ml	325363	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	96
2	Eicosane	282	C20H42	000112-95-8	95
3	Triacontane	422	C30H62	000638-68-6	91
4	Octacosane	394	C28H58	000630-02-4	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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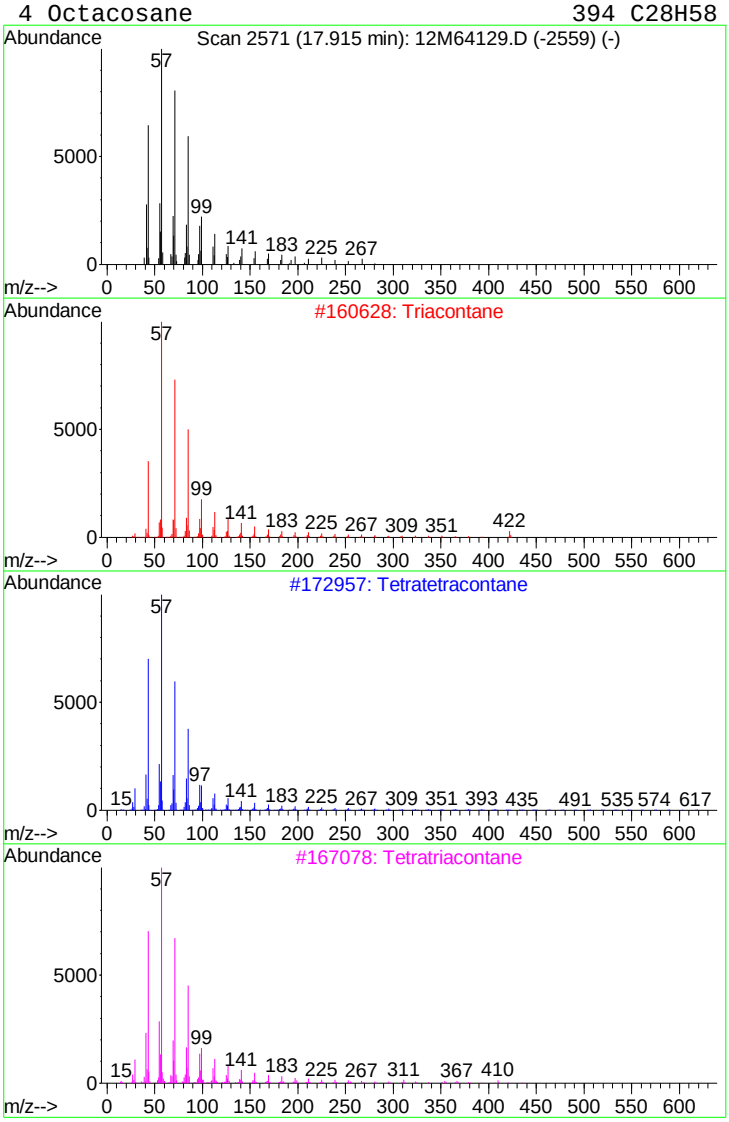
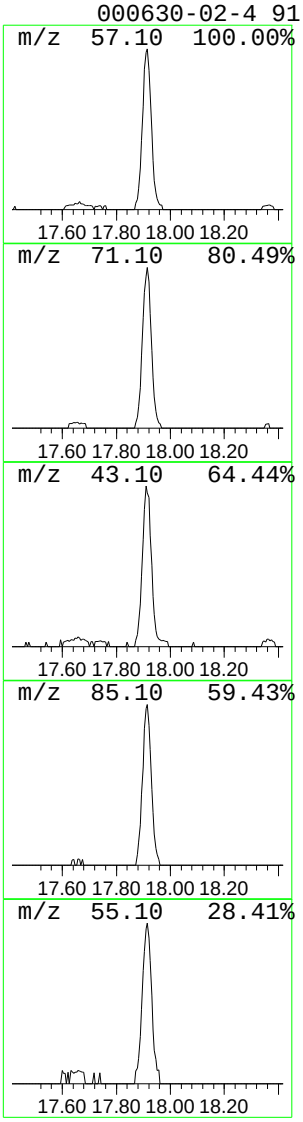
Peak Number 9 Triacontane Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.91	14.49 ug/ml	413701	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Triacontane	422	C30H62	000638-68-6	91
2	Tetratetracontane	619	C44H90	007098-22-8	91
3	Tetratriacontane	479	C34H70	014167-59-0	91
4	Octacosane	394	C28H58	000630-02-4	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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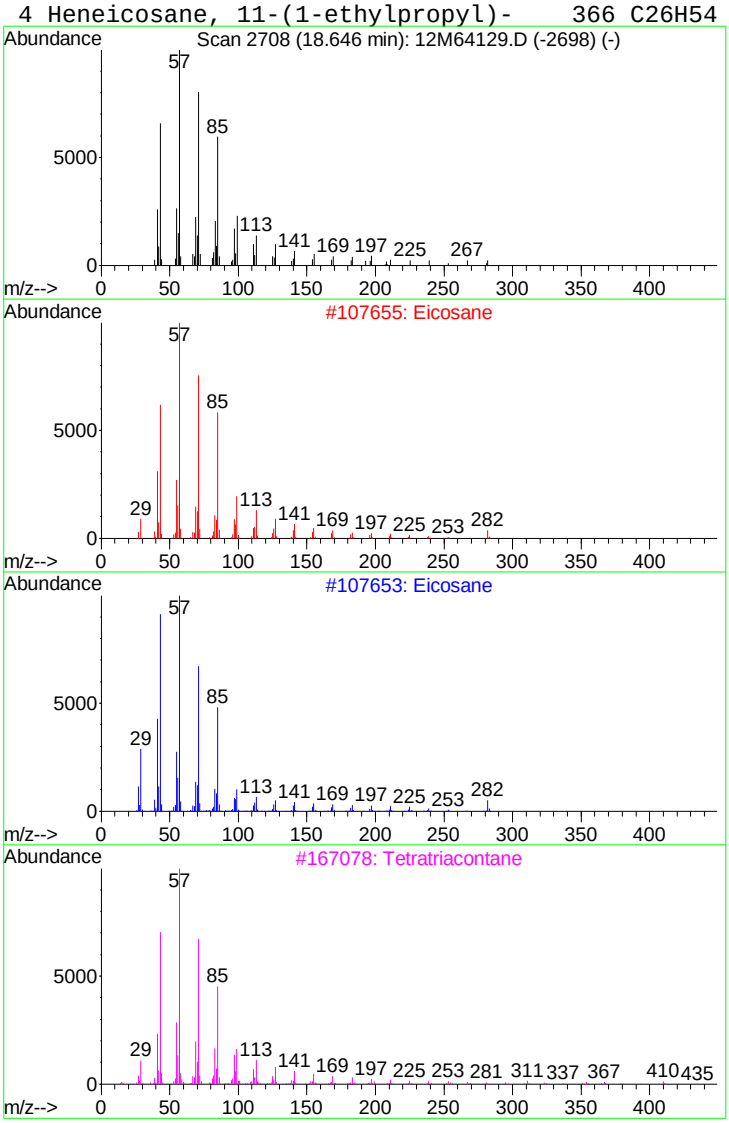
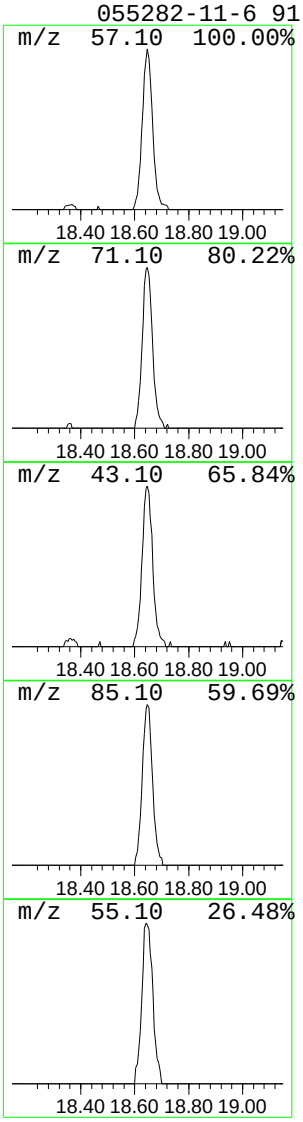
Peak Number 10 Eicosane Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.65	15.37 ug/ml	439039	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	96
2	Eicosane	282	C20H42	000112-95-8	94
3	Tetratriacontane	479	C34H70	014167-59-0	91
4	Heneicosane, 11-(1-ethylpropyl)-	366	C26H54	055282-11-6	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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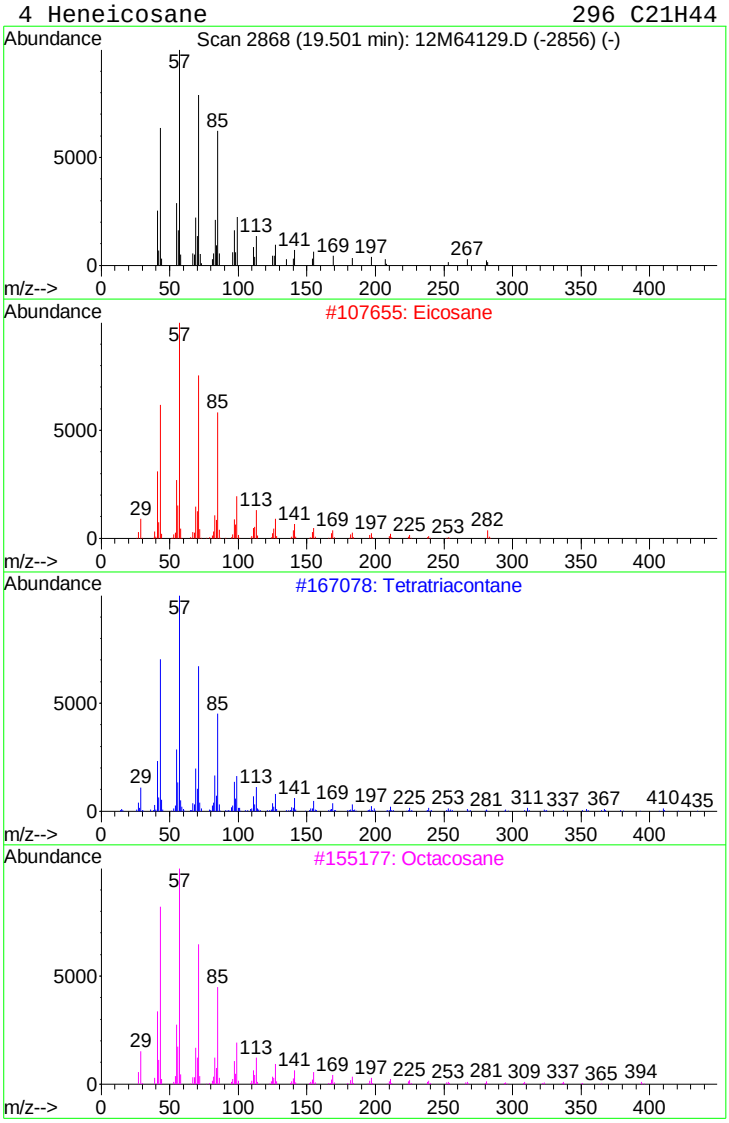
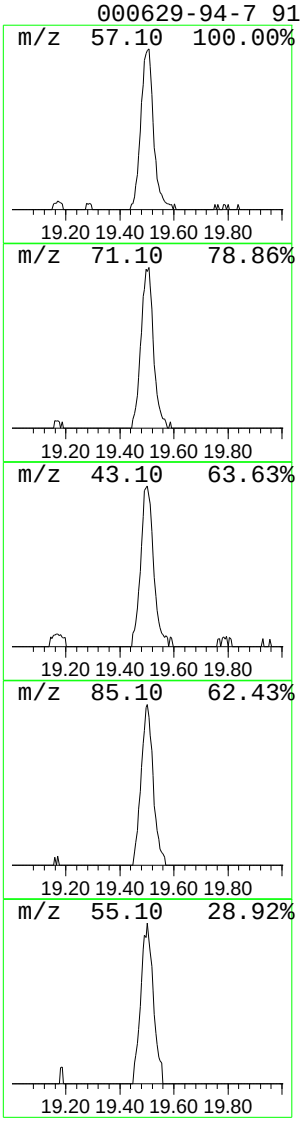
Peak Number 11 Eicosane Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.50	11.79 ug/ml	336729	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	93
2	Tetratriacontane	479	C34H70	014167-59-0	91
3	Octacosane	394	C28H58	000630-02-4	91
4	Heneicosane	296	C21H44	000629-94-7	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64129.D Vial: 10
Acq On : 29 Aug 2017 2:08 pm Operator: scb
Sample : L17081305-14 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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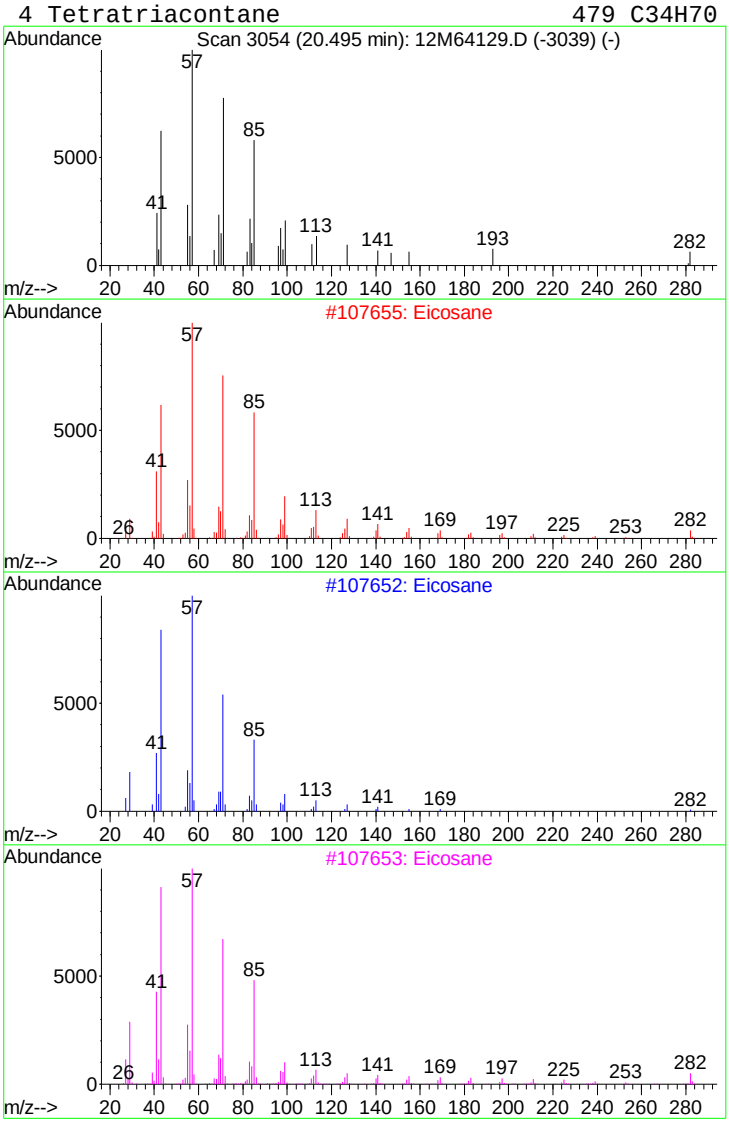
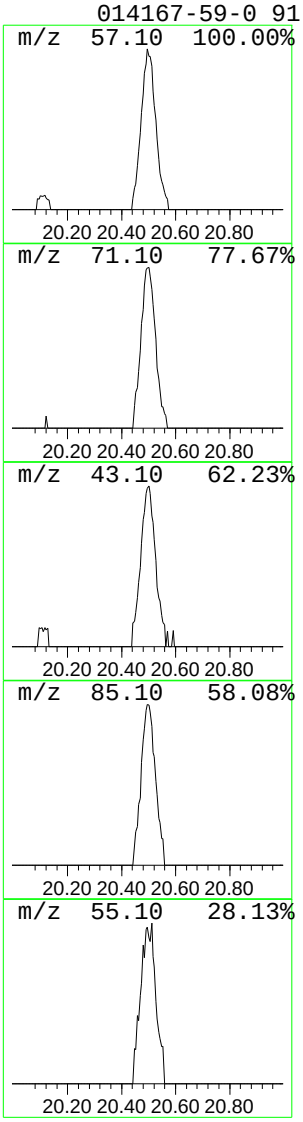
Peak Number 12 Eicosane Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.49	6.25 ug/ml	178354	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	95
2	Eicosane	282	C20H42	000112-95-8	94
3	Eicosane	282	C20H42	000112-95-8	93
4	Tetratriacontane	479	C34H70	014167-59-0	91





Tentatively Identified Compound (LSC) summary

Operator ID: scb Date Acquired: 29 Aug 2017 2:08 pm
Data File: I:\MSDCHEM\1\DATA\082917\12M64129.D
Name: L17081305-14
Misc: 1,1
Method: I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title: OVD MSS01 8270/625 ICAL 08/3/17
Library Searched: I:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
n-Butyl ether	6.63	8.6	ug/ml	160430	1	7.83	746418	40.0
1,4-Oxathiane	6.74	41.9	ug/ml	781801	1	7.83	746418	40.0
[1,4,5]Oxadithiepane	9.05	563.1	ug/ml	12568800	2	9.13	892824	40.0
Zoxazolamine	10.85	21.9	ug/ml	572366	3	10.93	1047470	40.0
Ethyl trifluorome...	12.31	16.4	ug/ml	478660	4	12.55	1165000	40.0
n-Hexadecanoic acid	12.98	5.7	ug/ml	164977	4	12.55	1165000	40.0
Eicosane	16.71	5.5	ug/ml	181144	5	16.24	1311980	40.0
Eicosane	17.27	9.9	ug/ml	325363	5	16.24	1311980	40.0
Triacontane	17.91	14.5	ug/ml	413701	6	19.08	1142320	40.0
Eicosane	18.65	15.4	ug/ml	439039	6	19.08	1142320	40.0
Eicosane	19.50	11.8	ug/ml	336729	6	19.08	1142320	40.0
Eicosane	20.49	6.2	ug/ml	178354	6	19.08	1142320	40.0

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 08:59:20 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

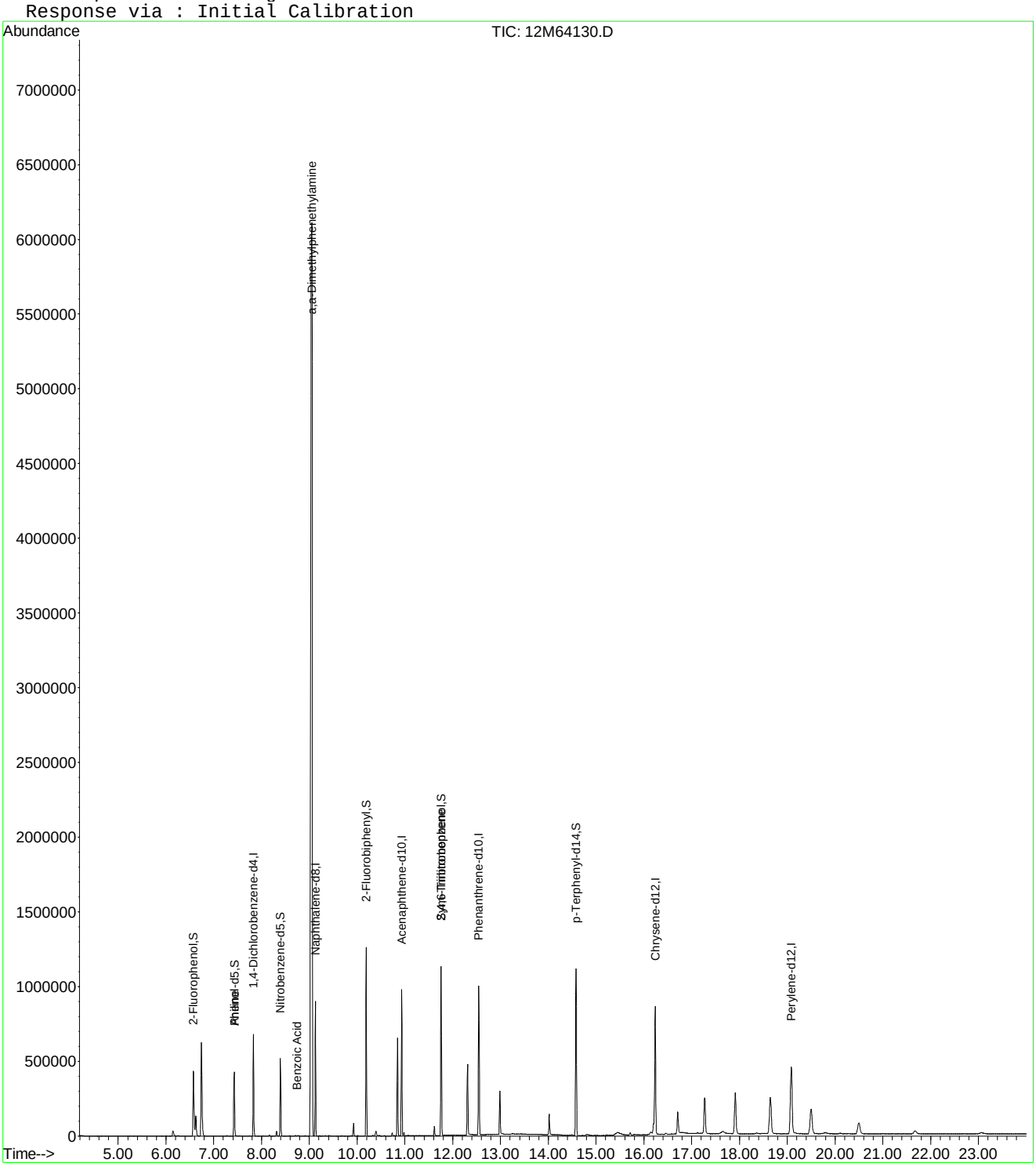
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.828	152	108849	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.127	136	397694	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.932	164	234601	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.546	188	470793	40.0000	ug/ml	-0.011
113) Chrysene-d12	16.237	240	460119	40.0000	ug/ml	-0.011
128) Perylene-d12	19.085	264	446417	40.0000	ug/ml	-0.016
System Monitoring Compounds						
8) 2-Fluorophenol	6.578	112	170520	51.4386917	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 51.44%			
12) Phenol-d5	7.428	99	167283	39.4703601	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 39.47%			
31) Nitrobenzene-d5	8.395	82	189566	47.7654070	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 95.53%			
59) 2-Fluorobiphenyl	10.190	172	409430	50.2679750	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 100.54%			
86) 2,4,6-Tribromophenol	11.760	330	150496	121.7936285	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 121.79%			
117) p-Terphenyl-d14	14.581	244	465173	46.9615372	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 93.92%			
Target Compounds						Qvalue
11) Aniline	7.43	66	11032	5.0009	ug/ml#	1
39) Benzoic Acid	8.74	105	692	7.8026	ug/ml	93
41) a,a-Dimethylphenethylamine	9.06	58	307771	46.4812	ug/ml#	82
91) Sym-Trinitrobenzene	11.76	75	1143	1.7304	ug/ml#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64130.D MEGAMIX.M Wed Aug 30 08:59:22 2017 Page 1

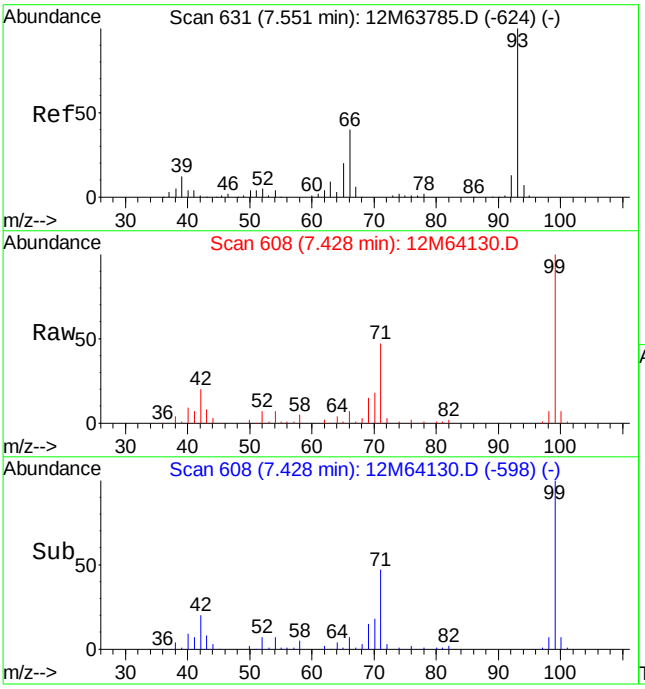
Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 8:59 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration



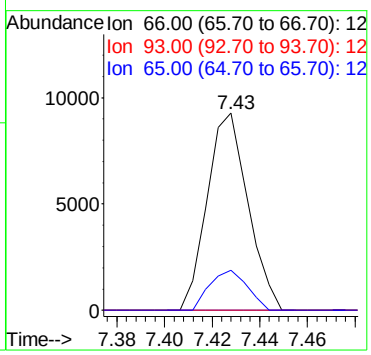
12M64130.D MEGAMIX.M Wed Aug 30 08:59:22 2017 Page 2

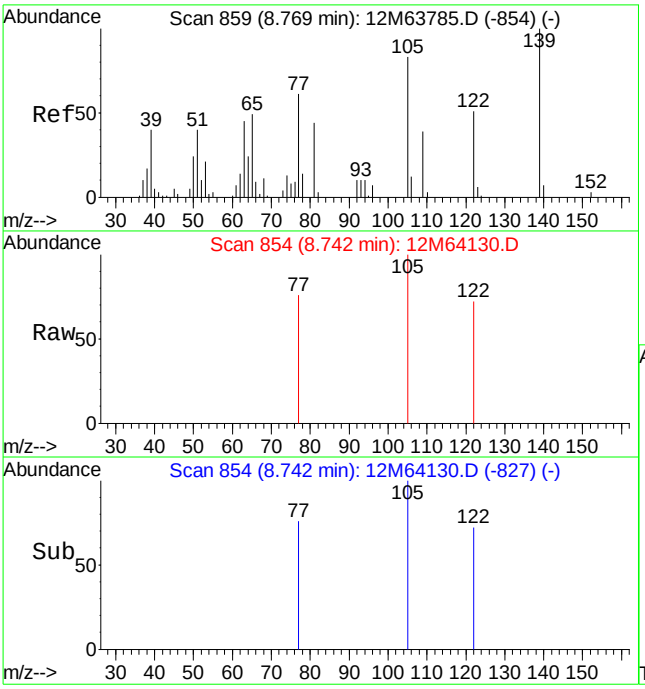


#11
Aniline
Concen: 5.0009 ug/ml
RT: 7.43 min Scan# 608
Delta R.T. -0.10 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion: 66 Resp: 11032

Ion	Ratio	Lower	Upper
66	100		
93	0.0	231.9	541.1#
65	18.7	48.5	113.1#

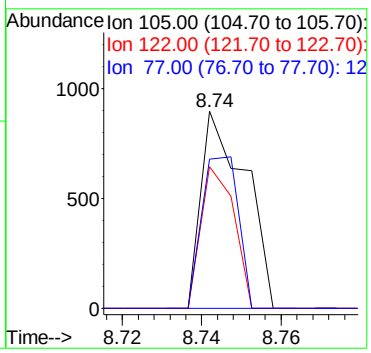


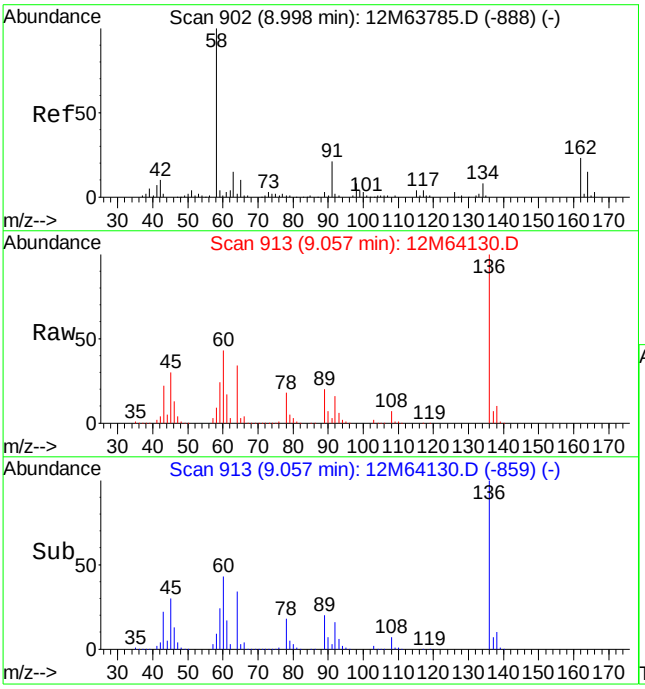


#39
Benzoic Acid
Concen: 7.8026 ug/ml
RT: 8.74 min Scan# 854
Delta R.T. -0.01 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion:105 Resp: 692

Ion	Ratio	Lower	Upper
105	100		
122	53.6	32.5	75.9
77	63.4	32.3	75.3

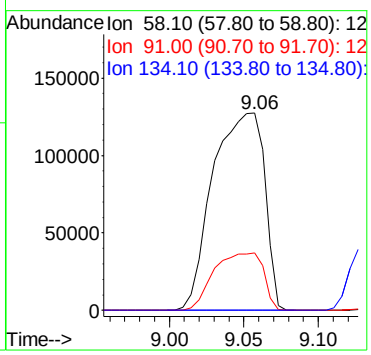


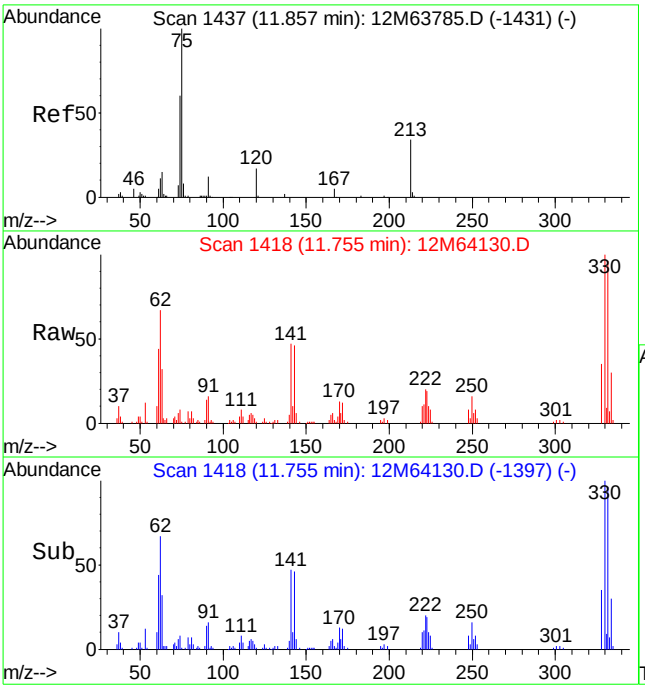


#41
a,a-Dimethylphenethylamine
Concen: 46.4812 ug/ml
RT: 9.06 min Scan# 913
Delta R.T. 0.09 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion: 58 Resp: 307771

Ion	Ratio	Lower	Upper
58	100		
91	27.6	16.0	24.0#
134	0.0	6.2	9.2#

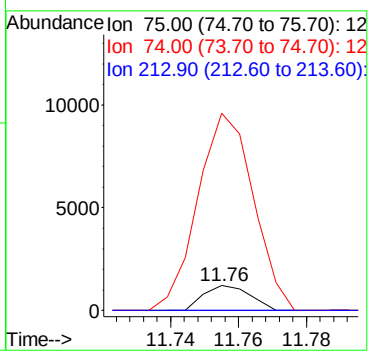




#91
Sym-Trinitrobenzene
Concen: 1.7304 ug/ml
RT: 11.76 min Scan# 1418
Delta R.T. -0.09 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion: 75 Resp: 1143

Ion	Ratio	Lower	Upper
75	100		
74	954.6	49.0	73.6#
213	0.0	30.2	45.2#



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54:27 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.828	152	108849	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.127	136	397694	40.0000	ug/mL	-0.032
6) Acenaphthene-d10	10.932	164	234601	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.546	188	470793	40.0000	ug/mL	-0.048

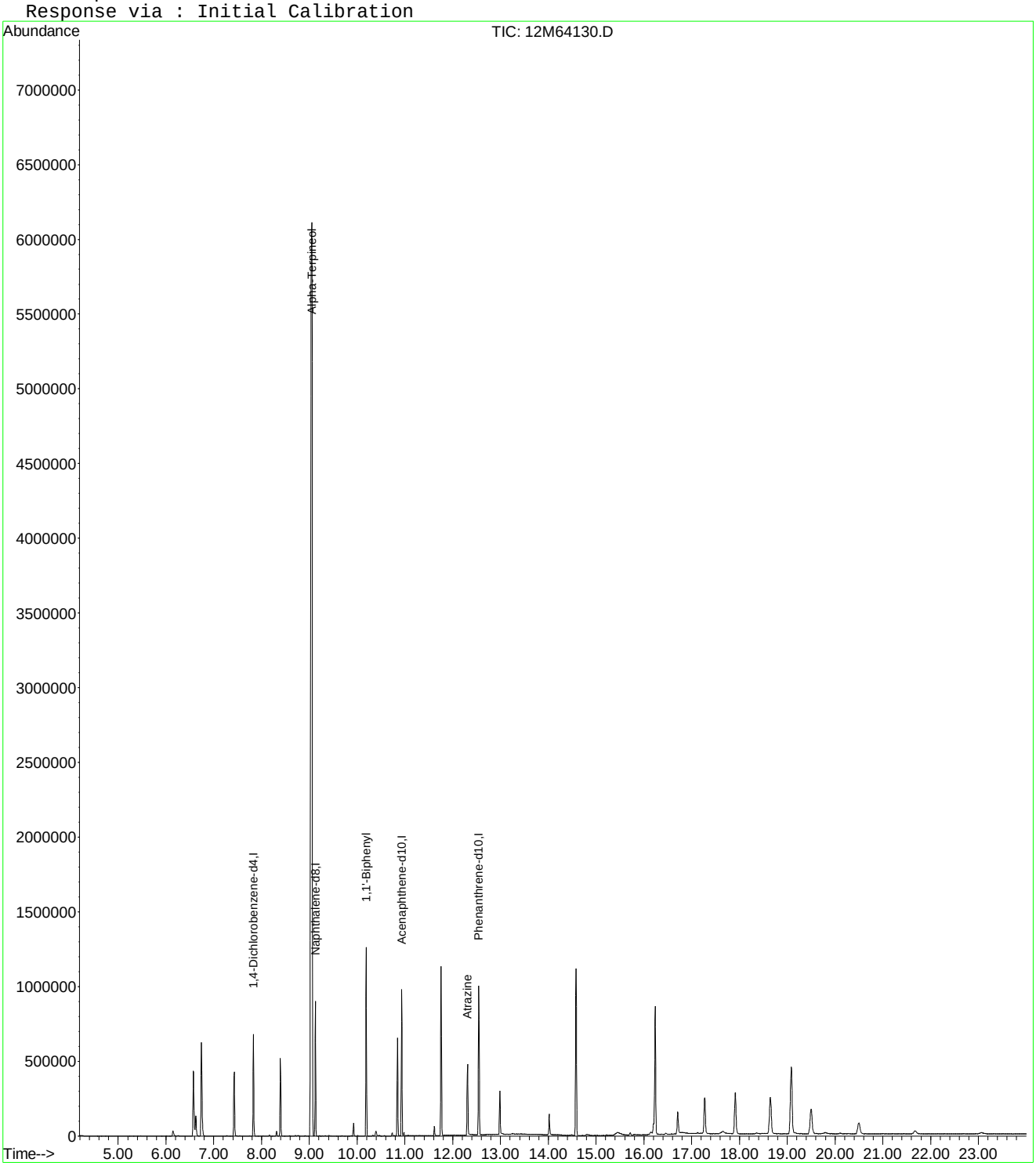
Target Compounds						Qvalue
4) Alpha-Terpineol	9.05	59	821220	347.5728	ug/L #	27
7) 1,1'-Biphenyl	10.19	154	607	0.0639	ug/L #	1
9) Atrazine	12.31	200	82434	30.6051	ug/L #	32

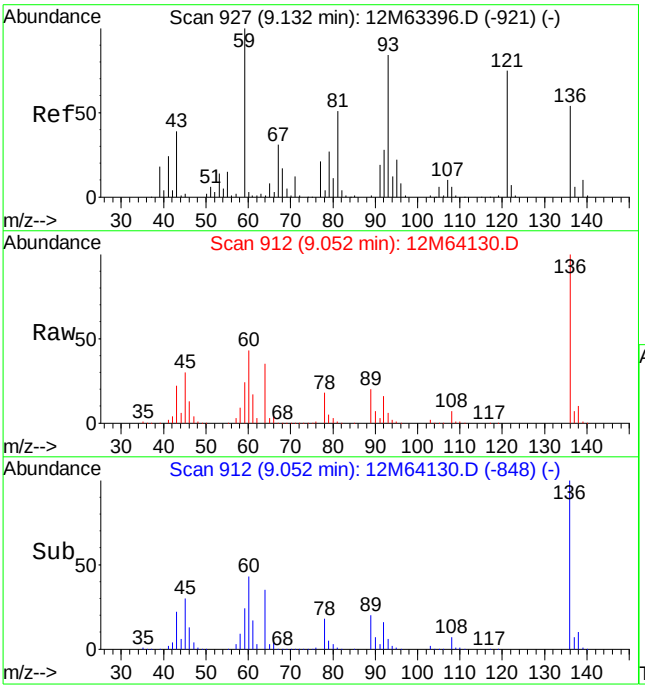
(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64130.D TCL.M Wed Aug 30 11:54:28 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration

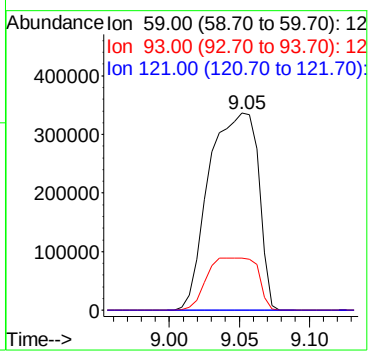


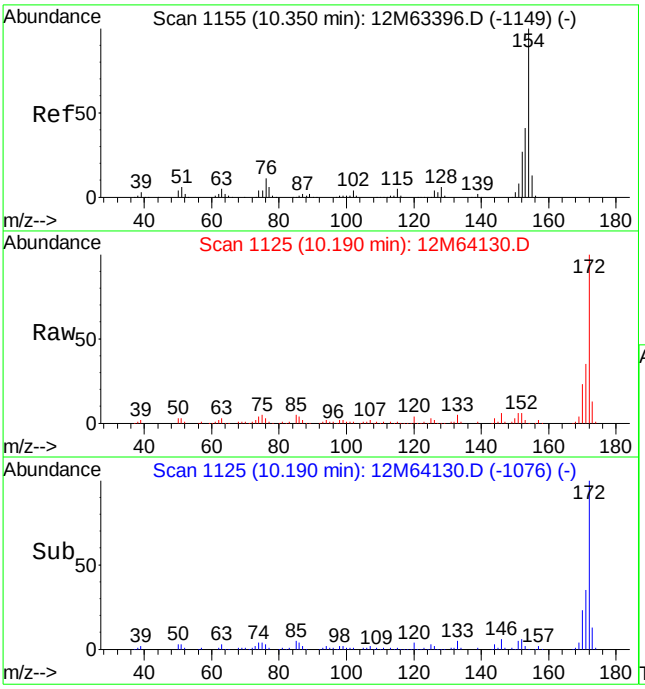


#4
Alpha-Terpineol
Concen: 347.5728 ug/L
RT: 9.05 min Scan# 912
Delta R.T. -0.06 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion: 59 Resp: 821220

Ion	Ratio	Lower	Upper
59	100		
93	27.0	49.0	114.4#
121	0.0	42.5	99.1#

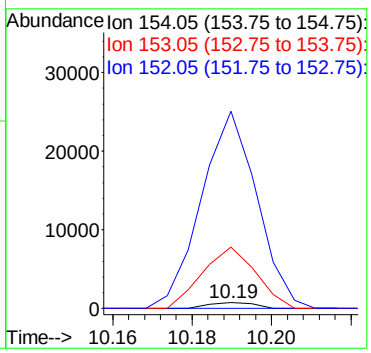


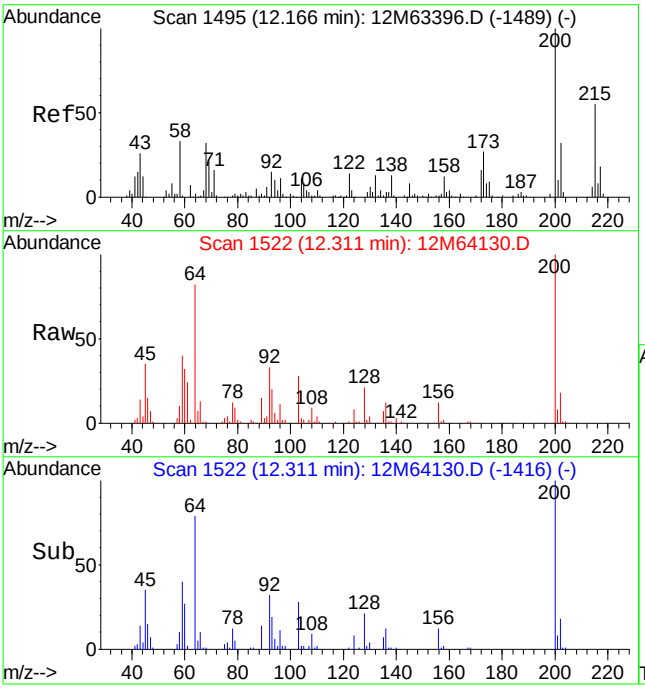


#7
1,1'-Biphenyl
Concen: 0.0639 ug/L
RT: 10.19 min Scan# 1125
Delta R.T. -0.14 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion:154 Resp: 607

Ion	Ratio	Lower	Upper
154	100		
153	1205.3	32.8	49.2#
152	4038.1	21.4	32.2#

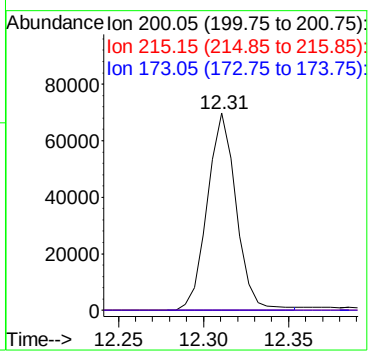




#9
Atrazine
Concen: 30.6051 ug/L
RT: 12.31 min Scan# 1522
Delta R.T. 0.17 min
Lab File: 12M64130.D
Acq: 29 Aug 2017 2:40 pm

Tgt Ion:200 Resp: 82434

Ion	Ratio	Lower	Upper
200	100		
215	0.0	44.2	66.2#
173	0.0	21.2	31.8#



LSC Area Percent Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

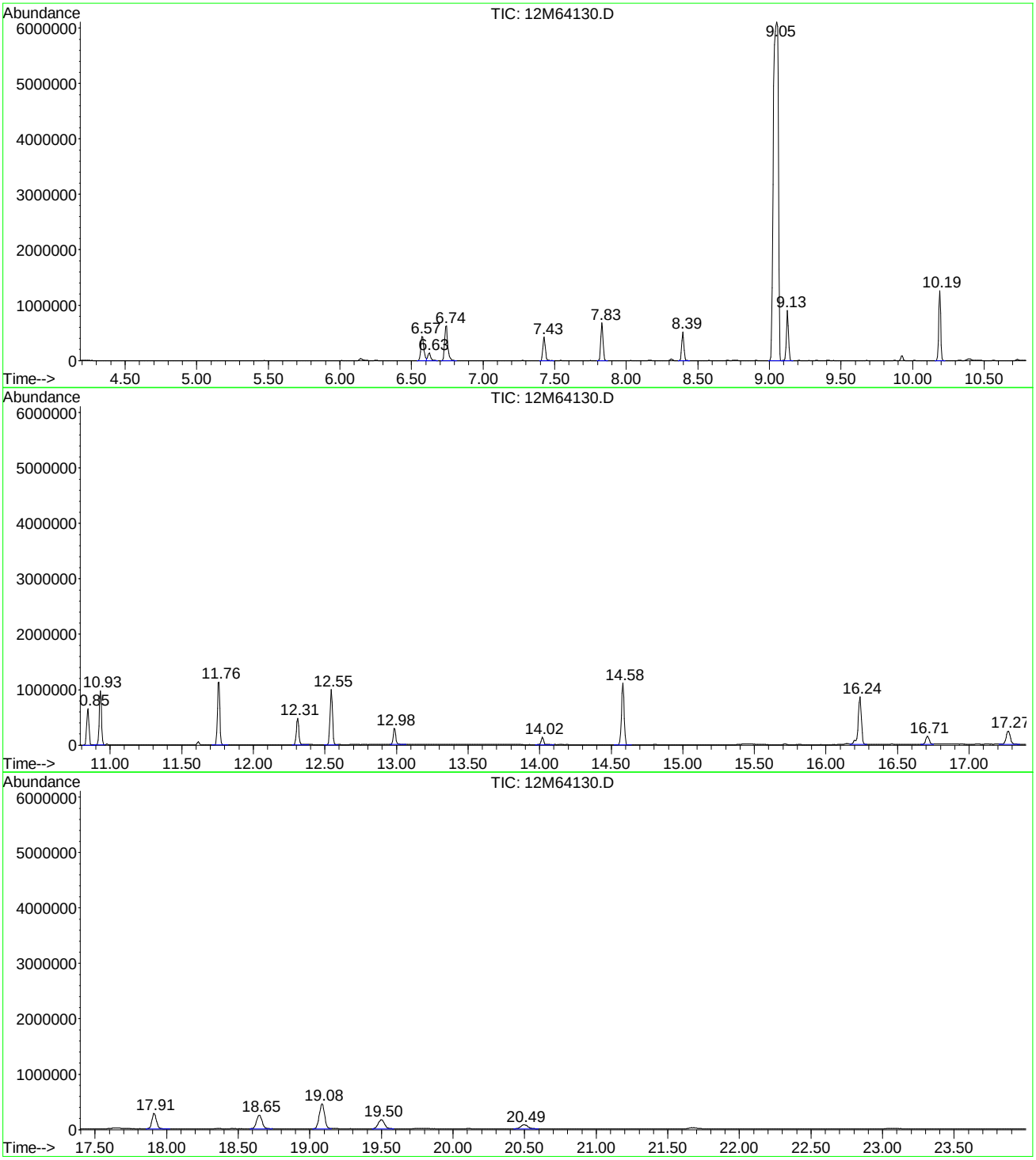
If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	6.573	442	448	454	rBV	434418	659842	4.41%	2.008%
2	6.626	454	458	468	rVB	134851	185811	1.24%	0.566%
3	6.744	473	480	492	rBB	627369	915522	6.12%	2.787%
4	7.428	602	608	620	rBB	428282	510843	3.42%	1.555%
5	7.828	677	683	690	rBB	681354	748946	5.01%	2.280%
6	8.395	783	789	797	rBB	518830	546275	3.65%	1.663%
7	9.052	901	912	919	rBB2	6114282	14950751	100.00%	45.505%
8	9.127	919	926	932	rBB	903214	880506	5.89%	2.680%
9	10.190	1119	1125	1131	rBB	1261636	1218739	8.15%	3.709%
10	10.847	1241	1248	1256	rBV	657707	741529	4.96%	2.257%
11	10.932	1256	1264	1269	rBV	979056	1064325	7.12%	3.239%
12	11.760	1410	1419	1430	rBV	1134002	1323003	8.85%	4.027%
13	12.311	1515	1522	1536	rBV	477003	592098	3.96%	1.802%
14	12.546	1557	1566	1574	rBV	998348	1198154	8.01%	3.647%
15	12.984	1643	1648	1663	rBV	292594	361667	2.42%	1.101%
16	14.020	1833	1842	1856	rBV	140484	166922	1.12%	0.508%
17	14.581	1936	1947	1957	rVB	1120115	1427434	9.55%	4.345%
18	16.237	2244	2257	2265	rVB	858698	1379393	9.23%	4.198%
19	16.707	2337	2345	2353	rBV	149344	268484	1.80%	0.817%
20	17.274	2439	2451	2465	rVB	241036	484279	3.24%	1.474%
21	17.909	2560	2570	2590	rVB	277214	619435	4.14%	1.885%
22	18.646	2696	2708	2724	rBV2	242116	657974	4.40%	2.003%
23	19.085	2778	2790	2802	rBV2	450069	1182053	7.91%	3.598%
24	19.501	2856	2868	2883	rBV2	165291	508732	3.40%	1.548%
25	20.495	3041	3054	3072	rVB3	74108	262256	1.75%	0.798%

Sum of corrected areas: 32854973

File : I:\MSDCHEM\1\DATA\082917\12M64130.D
Operator : scb
Acquired : 29 Aug 2017 2:40 pm using AcqMethod BNARUN
Instrument : MSD12
Sample Name: L17081305-16
Misc Info : 1,1
Vial Number: 11
Quant File :MEGAMIX.RES (RTE Integrator)



Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

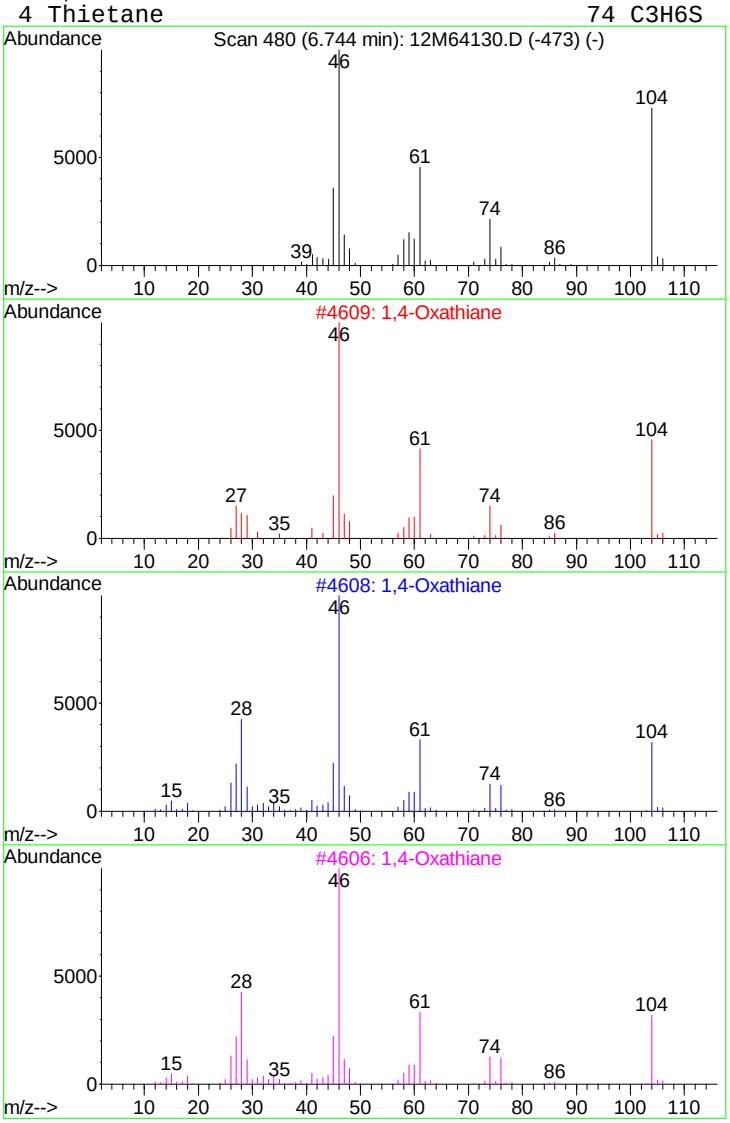
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

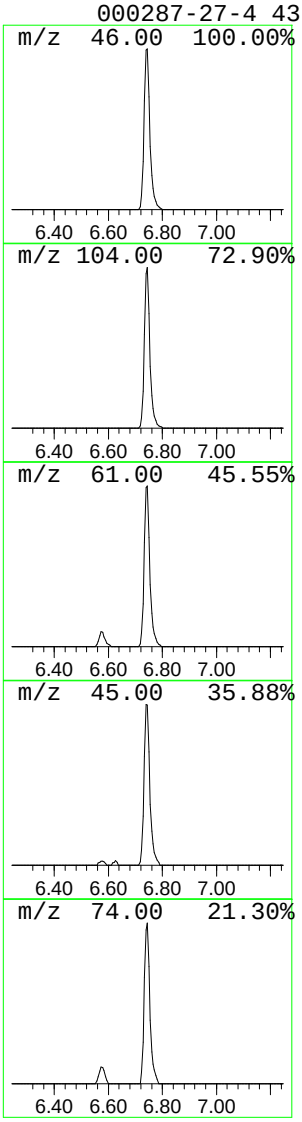
****

Peak Number 1 1,4-Oxathiane Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.74	48.90 ug/ml	915522	1,4-Dichlorobenzene-d4	7.83

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
2	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
3	1,4-Oxathiane	104	C4H8OS	015980-15-1	91
4	Thietane	74	C3H6S	000287-27-4	43





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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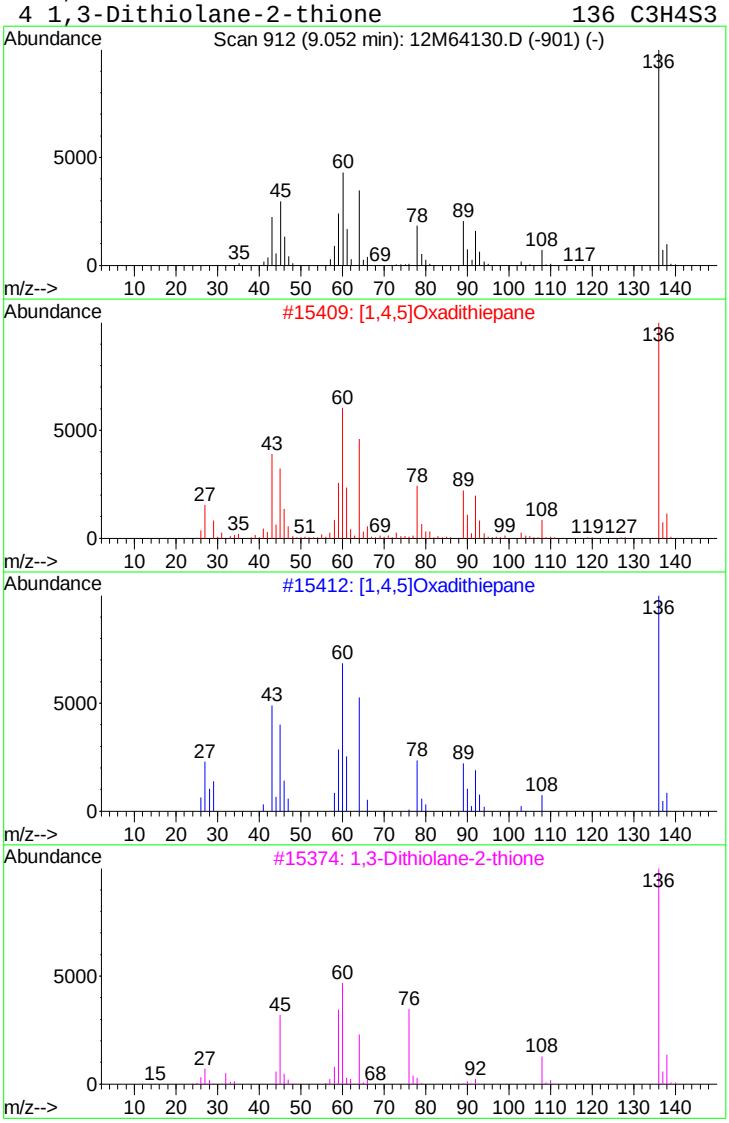
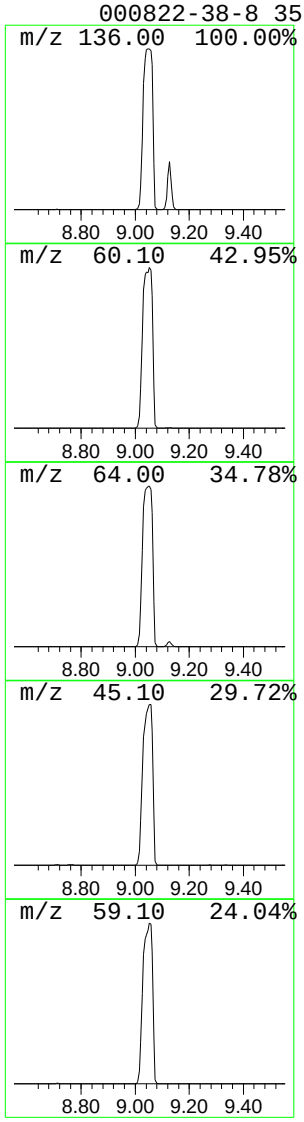
Peak Number 2 [1,4,5]Oxadithiepane Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
9.05	679.19 ug/ml	14950800	Naphthalene-d8	9.13

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	94
2	[1,4,5]Oxadithiepane	136	C4H8OS2	003886-40-6	94
3	1,3-Dithiolane-2-thione	136	C3H4S3	000822-38-8	50
4	1,3-Dithiolane-2-thione	136	C3H4S3	000822-38-8	35





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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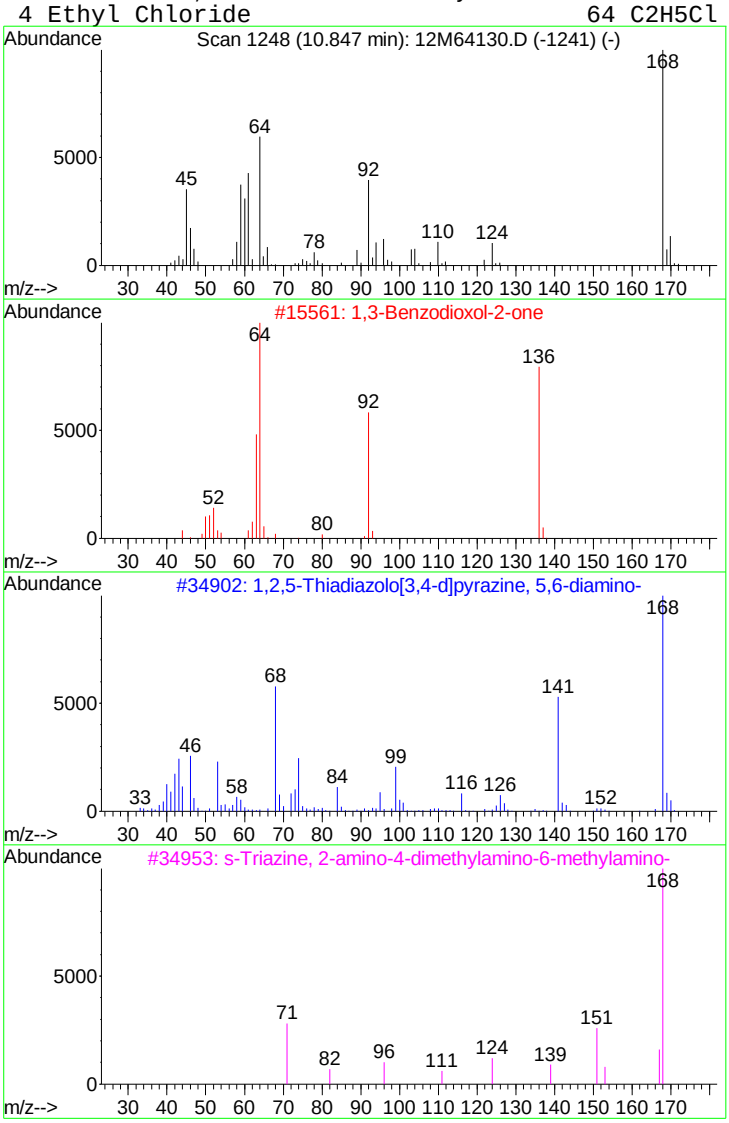
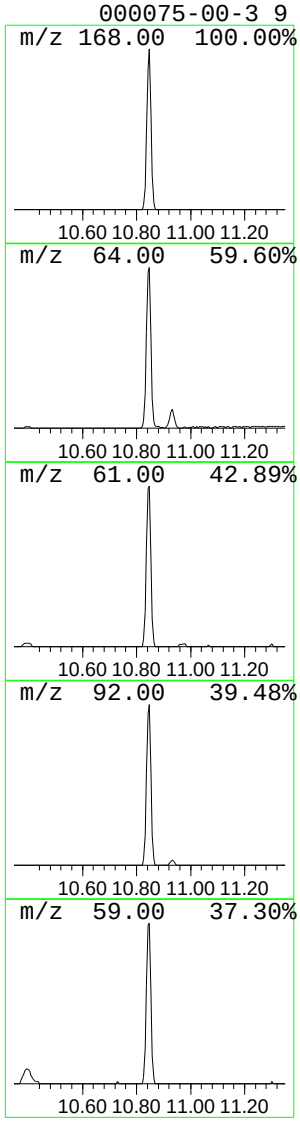
Peak Number 3 1,3-Benzodioxol-2-one Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
10.85	27.87 ug/ml	741529	Acenaphthene-d10	10.93

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1,3-Benzodioxol-2-one	136	C7H4O3	002171-74-6	23
2	1,2,5-Thiadiazolo[3,4-d]pyrazine...	168	C4H4N6S	113035-18-0	10
3	s-Triazine, 2-amino-4-dimethylam...	168	C6H12N6	016268-82-9	9
4	Ethyl Chloride	64	C2H5Cl	000075-00-3	9





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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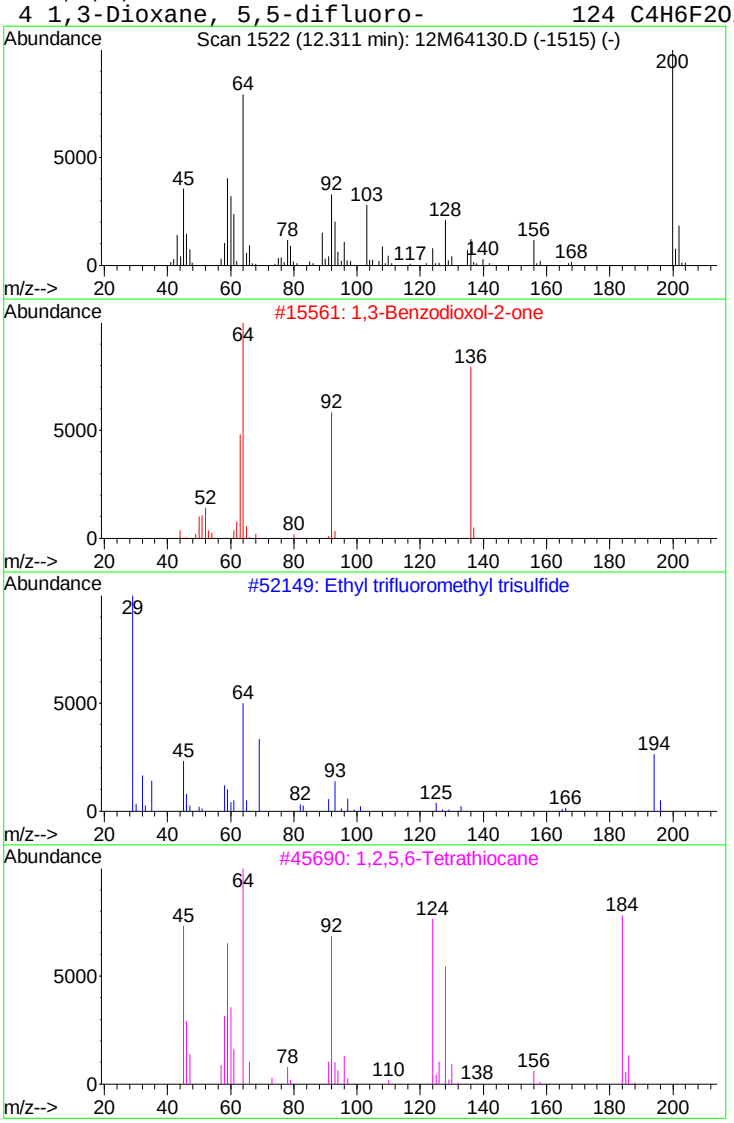
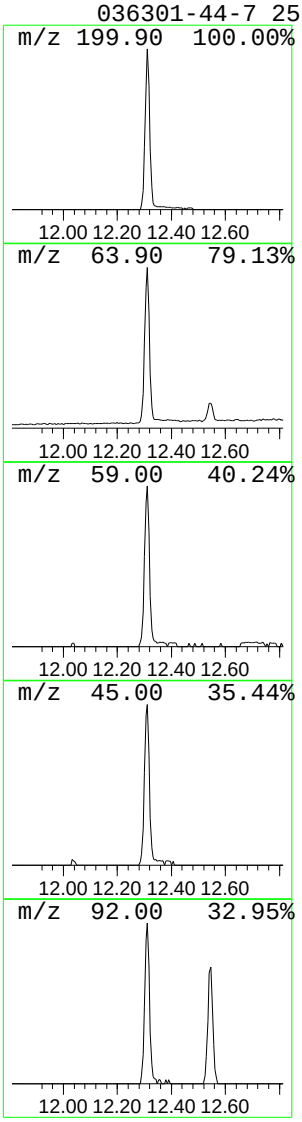
Peak Number 4 1,3-Benzodioxol-2-one Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.31	19.77 ug/ml	592098	Phenanthrene-d10	12.55

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1,3-Benzodioxol-2-one	136	C7H4O3	002171-74-6	38
2	Ethyl trifluoromethyl trisulfide	194	C3H5F3S3	055882-01-4	28
3	1,2,5,6-Tetrathiocane	184	C4H8S4	001940-01-8	25
4	1,3-Dioxane, 5,5-difluoro-	124	C4H6F2O2	036301-44-7	25





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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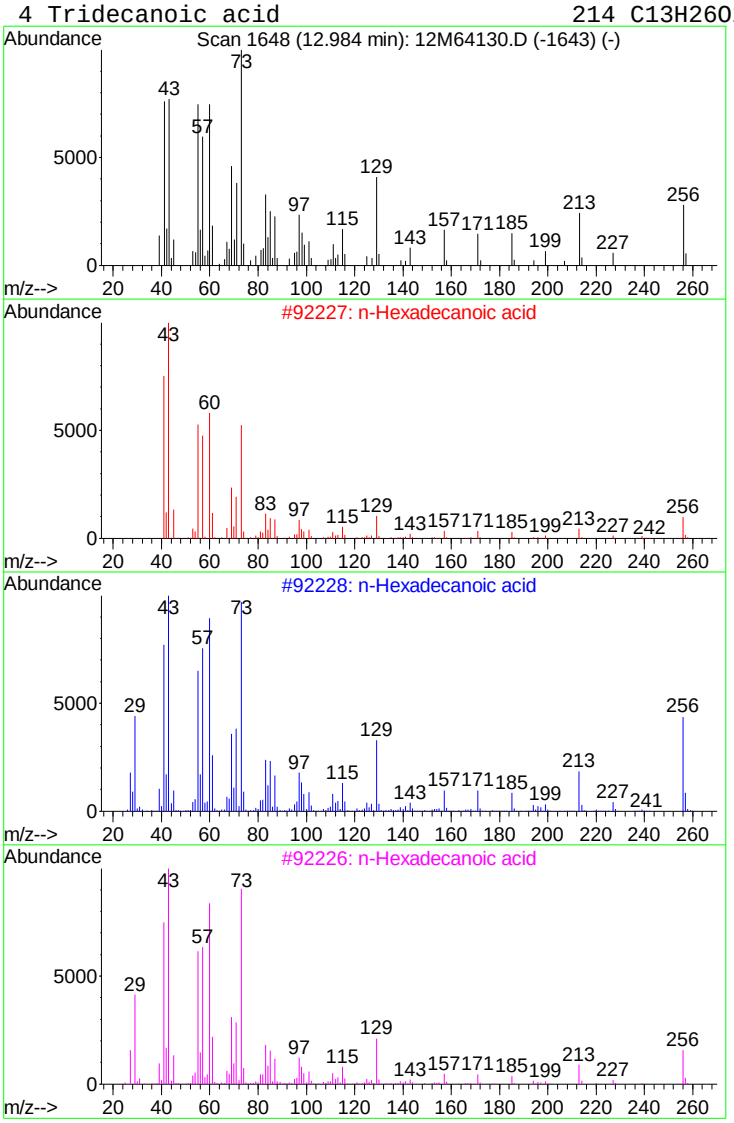
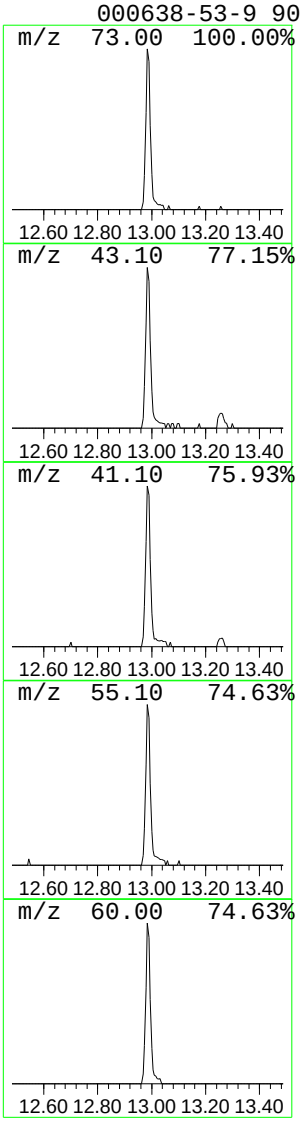
Peak Number 5 n-Hexadecanoic acid Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.98	12.07 ug/ml	361667	Phenanthrene-d10	12.55

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	97
2	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	96
3	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	93
4	Tridecanoic acid	214	C13H26O2	000638-53-9	90





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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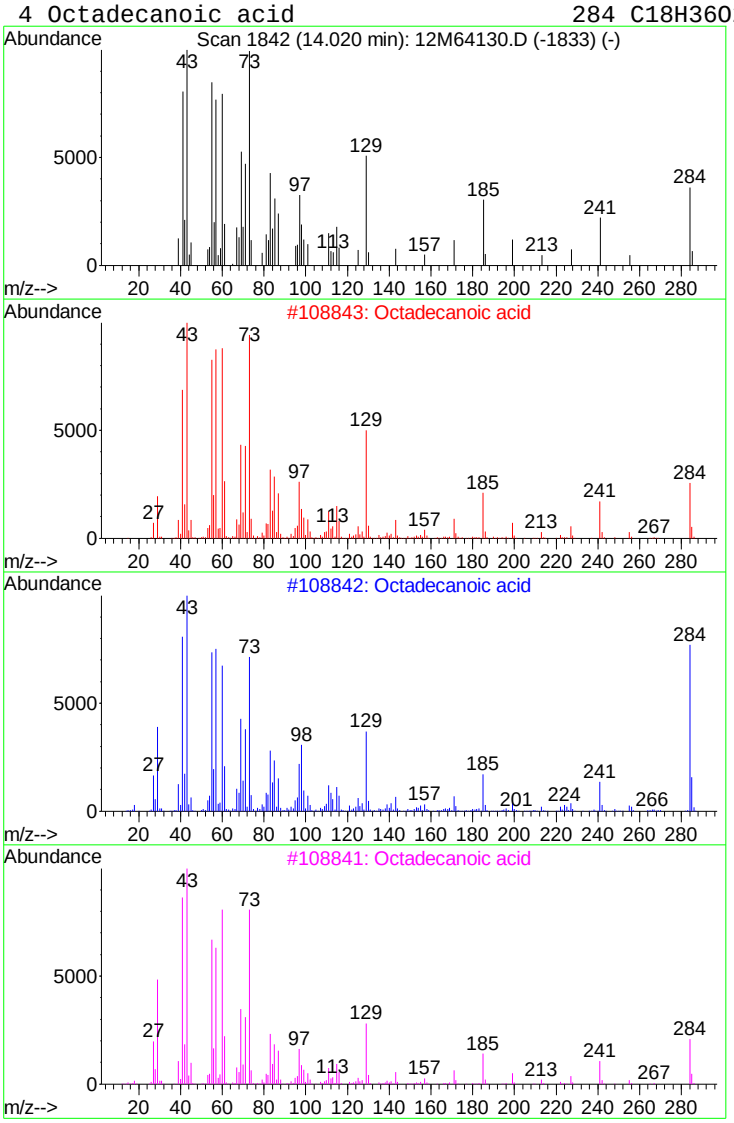
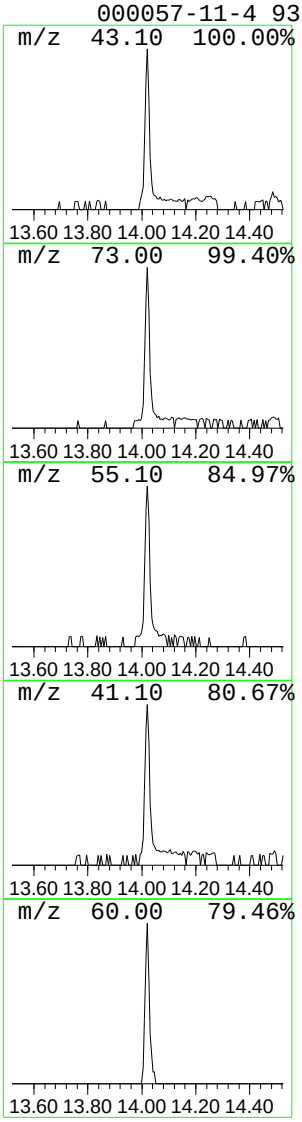
Peak Number 6 Octadecanoic acid Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
14.02	5.57 ug/ml	166922	Phenanthrene-d10	12.55

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Octadecanoic acid	284	C18H36O2	000057-11-4	98
2	Octadecanoic acid	284	C18H36O2	000057-11-4	95
3	Octadecanoic acid	284	C18H36O2	000057-11-4	94
4	Octadecanoic acid	284	C18H36O2	000057-11-4	93





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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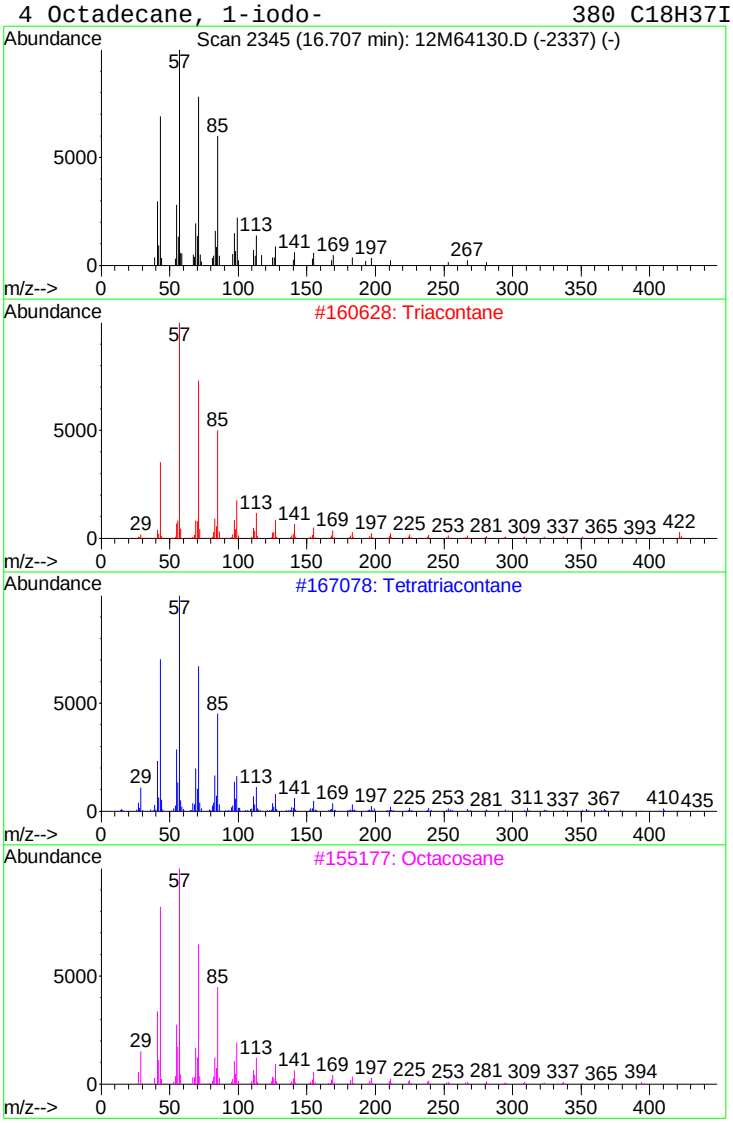
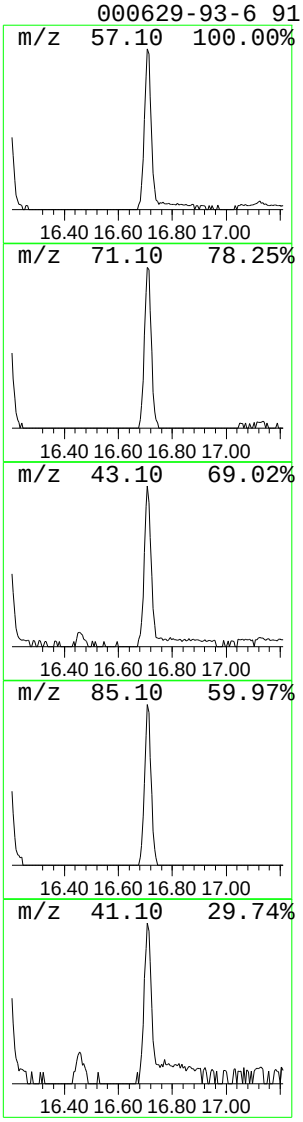
Peak Number 7 Triacontane Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.71	7.79 ug/ml	268484	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Triacontane	422	C30H62	000638-68-6	91
2	Tetratriacontane	479	C34H70	014167-59-0	91
3	Octacosane	394	C28H58	000630-02-4	91
4	Octadecane, 1-iodo-	380	C18H37I	000629-93-6	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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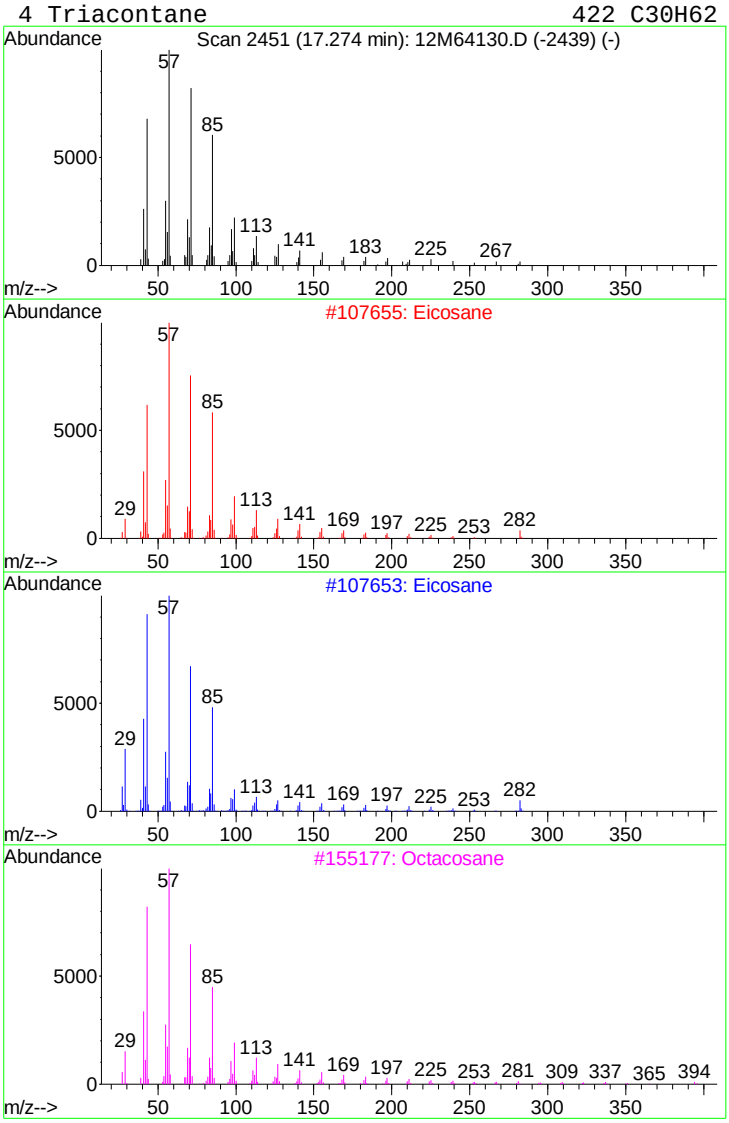
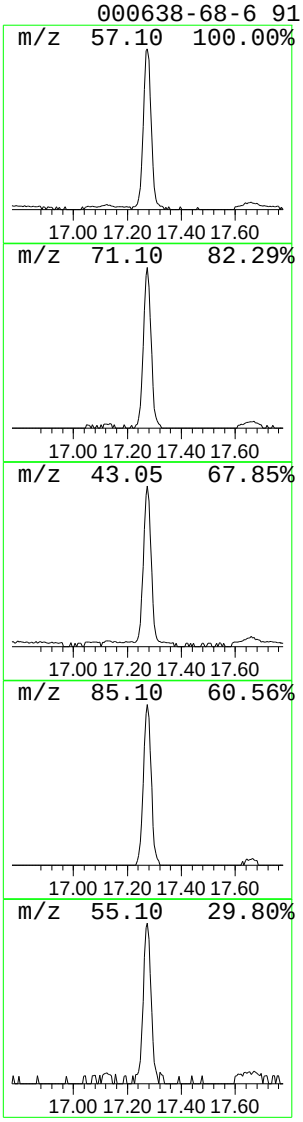
Peak Number 8 Eicosane Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.27	14.04 ug/ml	484279	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	98
2	Eicosane	282	C20H42	000112-95-8	95
3	Octacosane	394	C28H58	000630-02-4	91
4	Triacontane	422	C30H62	000638-68-6	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

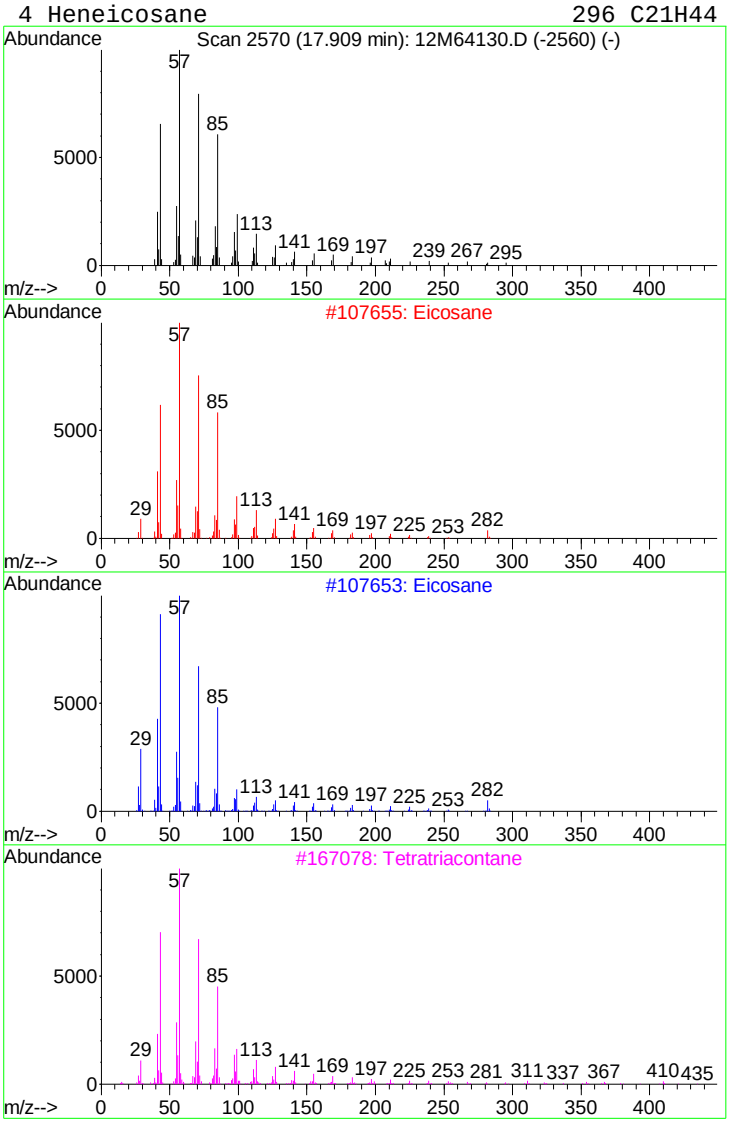
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

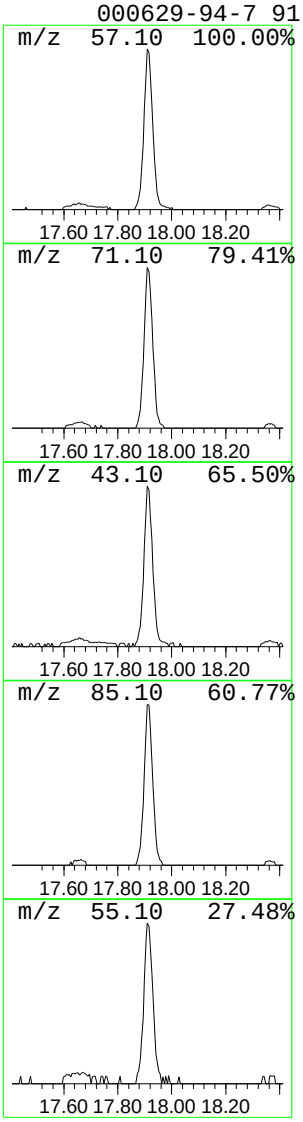
****

Peak Number 9 Eicosane Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.91	20.96 ug/ml	619435	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	96
2	Eicosane	282	C20H42	000112-95-8	94
3	Tetratriacontane	479	C34H70	014167-59-0	91
4	Heneicosane	296	C21H44	000629-94-7	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

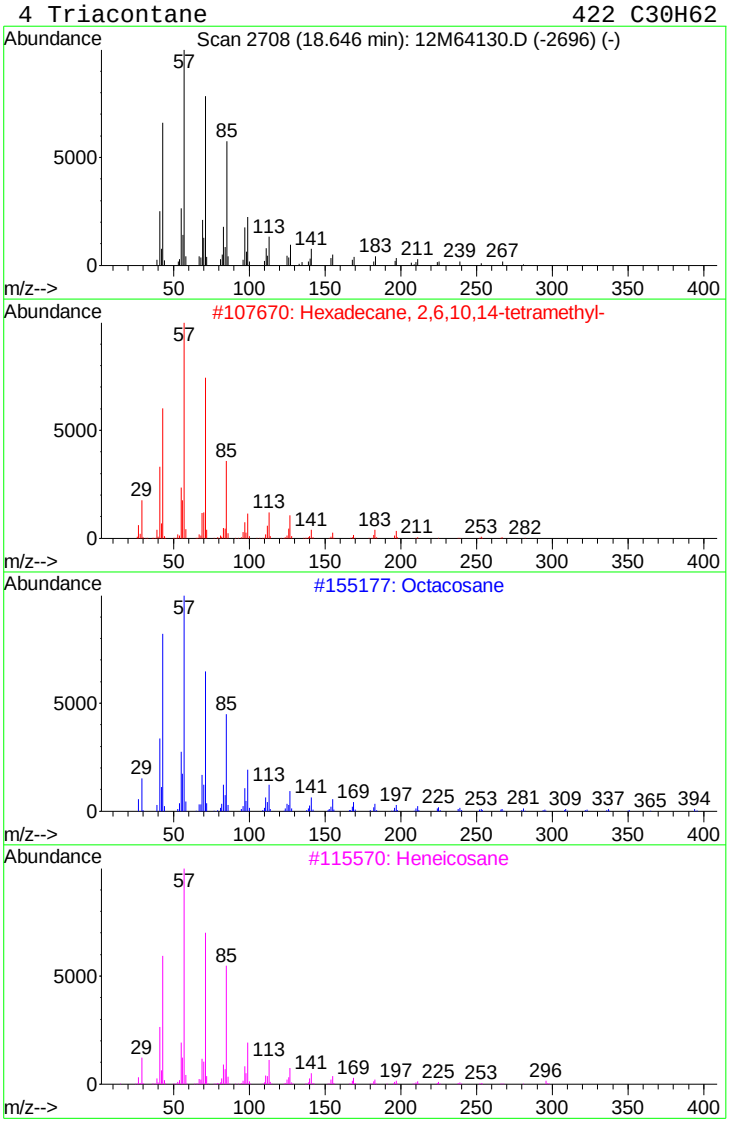
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

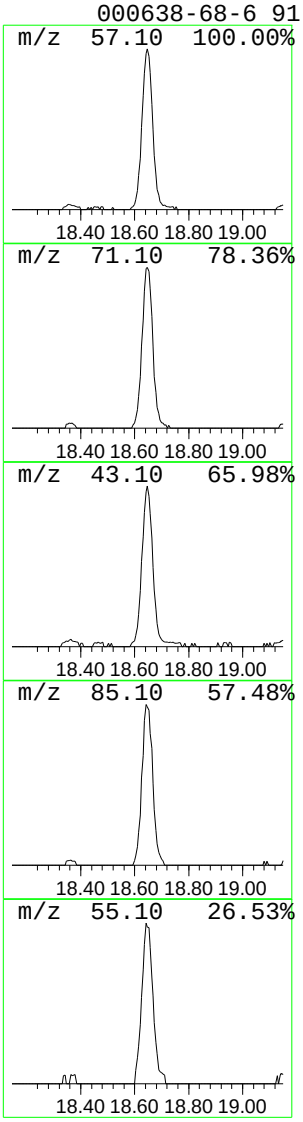
****

Peak Number 10 Hexadecane, 2,6,10,14-tetra... Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.65	22.27 ug/ml	657974	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexadecane, 2,6,10,14-tetramethyl-	282	C20H42	000638-36-8	93
2	Octacosane	394	C28H58	000630-02-4	91
3	Heneicosane	296	C21H44	000629-94-7	91
4	Triacontane	422	C30H62	000638-68-6	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

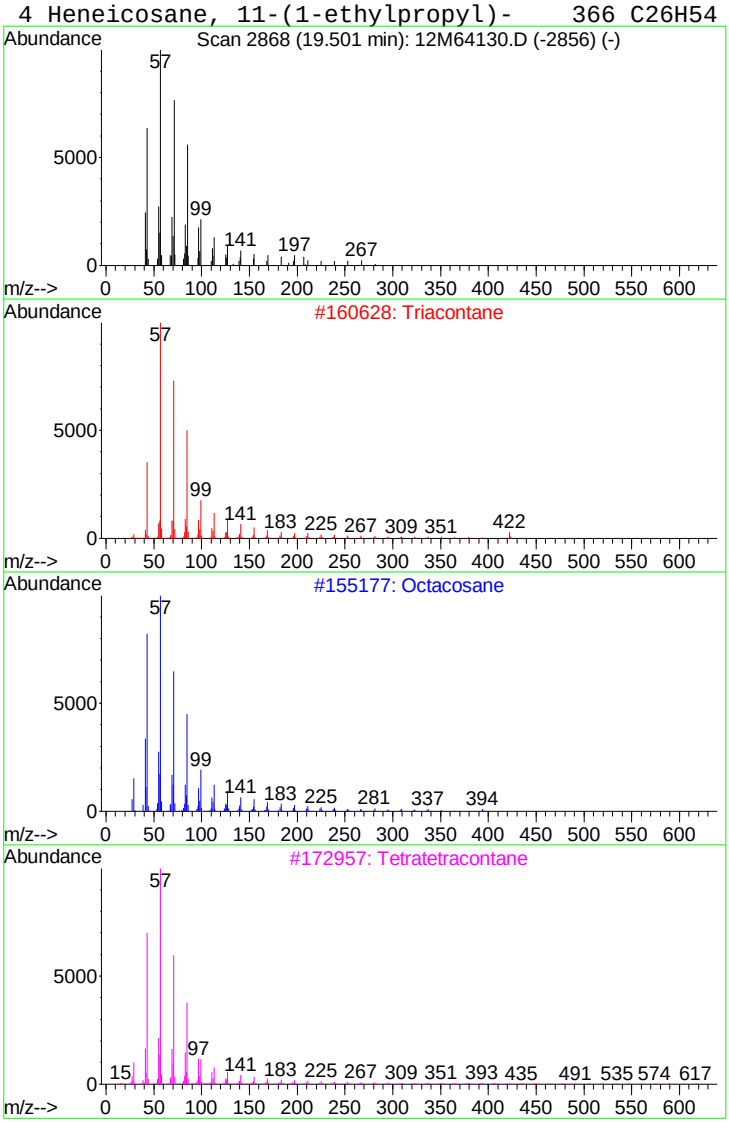
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

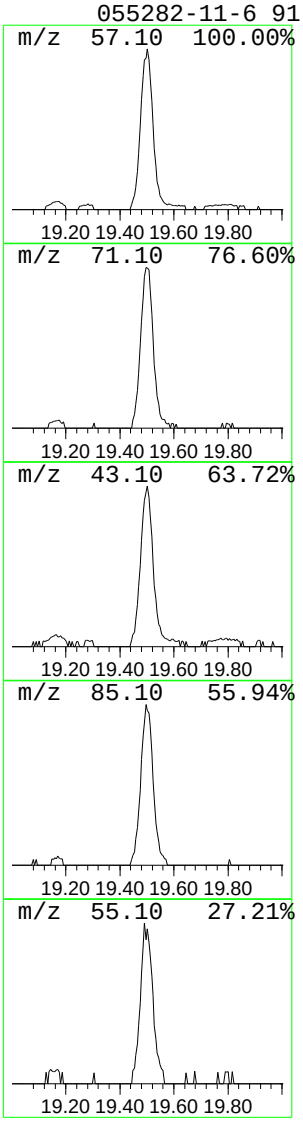
****

Peak Number 11 Triacontane Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.50	17.22 ug/ml	508732	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Triacontane	422	C30H62	000638-68-6	91
2	Octacosane	394	C28H58	000630-02-4	91
3	Tetratetracontane	619	C44H90	007098-22-8	91
4	Heneicosane, 11-(1-ethylpropyl)-	366	C26H54	055282-11-6	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64130.D Vial: 11
Acq On : 29 Aug 2017 2:40 pm Operator: scb
Sample : L17081305-16 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

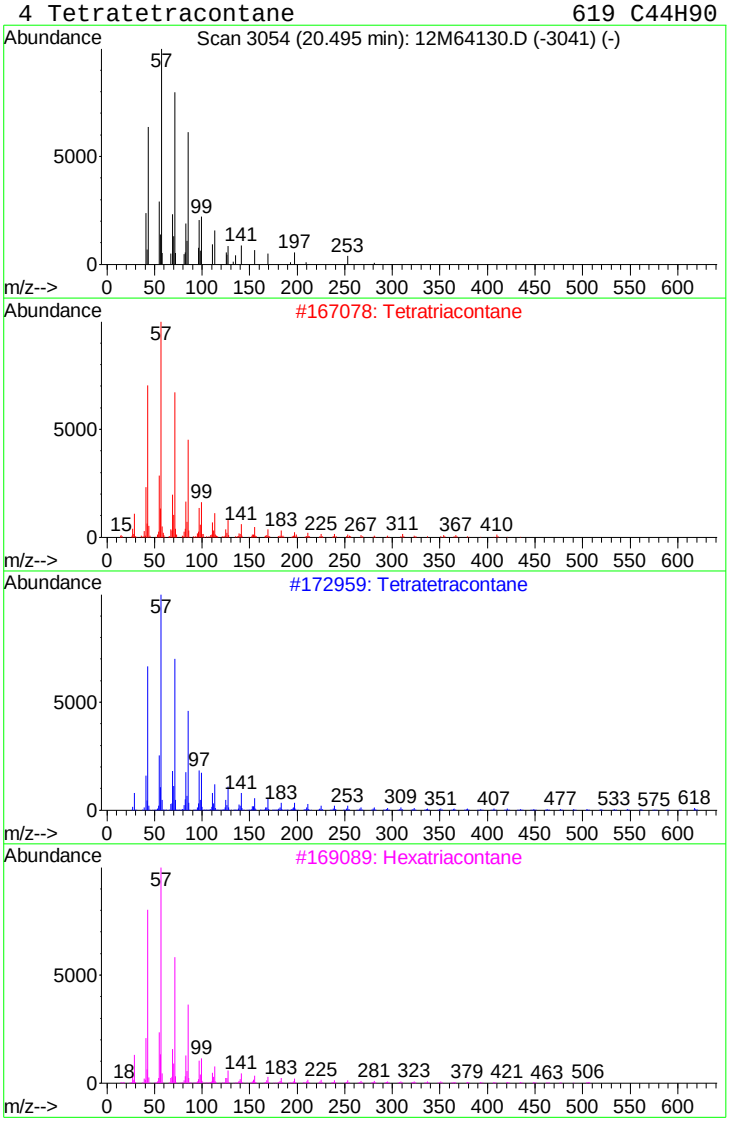
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

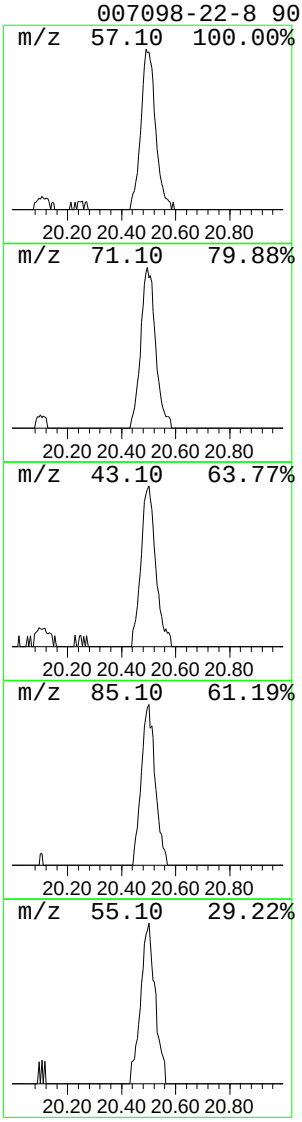
****

Peak Number 12 Tetratriacontane Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.49	8.87 ug/ml	262256	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetratriacontane	479	C34H70	014167-59-0	90
2	Tetratetracontane	619	C44H90	007098-22-8	90
3	Hexatriacontane	507	C36H74	000630-06-8	90
4	Tetratetracontane	619	C44H90	007098-22-8	90





Tentatively Identified Compound (LSC) summary

Operator ID: scb Date Acquired: 29 Aug 2017 2:40 pm
Data File: I:\MSDCHEM\1\DATA\082917\12M64130.D
Name: L17081305-16
Misc: 1,1
Method: I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title: OVD MSS01 8270/625 ICAL 08/3/17
Library Searched: I:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
1,4-Oxathiane	6.74	48.9	ug/ml	915522	1	7.83	748946	40.0
[1,4,5]Oxadithiepane	9.05	679.2	ug/ml	14950800	2	9.13	880506	40.0
1,3-Benzodioxol-2...	10.85	27.9	ug/ml	741529	3	10.93	1064330	40.0
1,3-Benzodioxol-2...	12.31	19.8	ug/ml	592098	4	12.55	1198150	40.0
n-Hexadecanoic acid	12.98	12.1	ug/ml	361667	4	12.55	1198150	40.0
Octadecanoic acid	14.02	5.6	ug/ml	166922	4	12.55	1198150	40.0
Triacontane	16.71	7.8	ug/ml	268484	5	16.24	1379390	40.0
Eicosane	17.27	14.0	ug/ml	484279	5	16.24	1379390	40.0
Eicosane	17.91	21.0	ug/ml	619435	6	19.08	1182050	40.0
Hexadecane, 2,6,1...	18.65	22.3	ug/ml	657974	6	19.08	1182050	40.0
Triacontane	19.50	17.2	ug/ml	508732	6	19.08	1182050	40.0
Tetratriacontane	20.49	8.9	ug/ml	262256	6	19.08	1182050	40.0

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 08:59:24 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

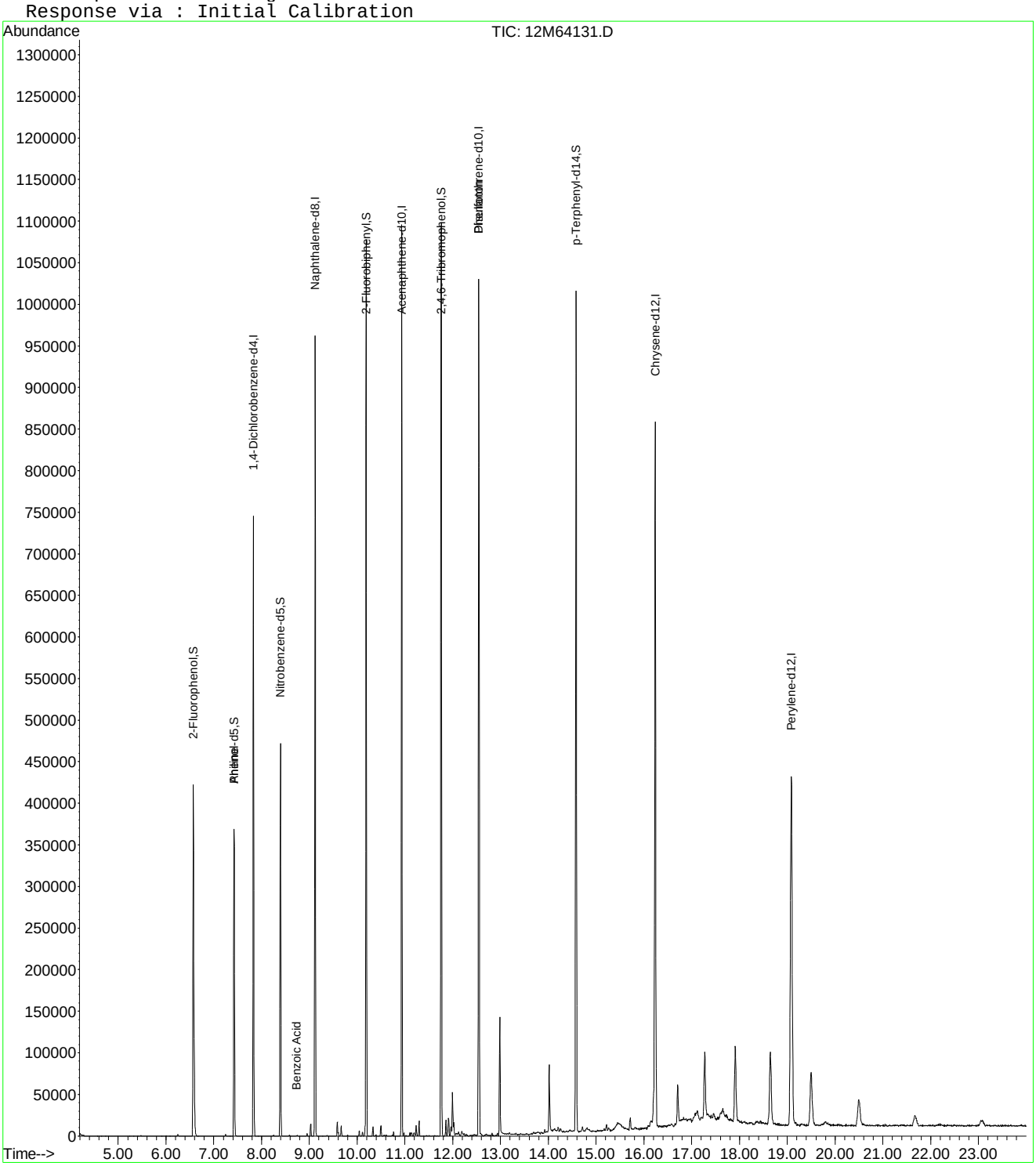
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	116659	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.121	136	450522	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.932	164	245020	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.546	188	443917	40.0000	ug/ml	-0.011
113) Chrysene-d12	16.237	240	420869	40.0000	ug/ml	-0.011
128) Perylene-d12	19.085	264	394230	40.0000	ug/ml	-0.016
System Monitoring Compounds						
8) 2-Fluorophenol	6.573	112	150487	42.3564710	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 42.36%			
12) Phenol-d5	7.423	99	135844	29.9065238	ug/ml	-0.01
Spiked Amount 100.000	Range 10 - 94		Recovery = 29.91%			
31) Nitrobenzene-d5	8.395	82	170000	37.8124653	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 75.63%			
59) 2-Fluorobiphenyl	10.190	172	322188	37.8747185	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 75.75%			
86) 2,4,6-Tribromophenol	11.760	330	131219	101.6774532	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 101.68%			
117) p-Terphenyl-d14	14.581	244	393402	43.4197779	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 86.84%			
Target Compounds						Qvalue
11) Aniline	7.42	66	9499	4.0177	ug/ml#	1
39) Benzoic Acid	8.73	105	173	7.4275	ug/ml#	25
102) Disulfoton	12.55	88	8091	2.0139	ug/ml#	46

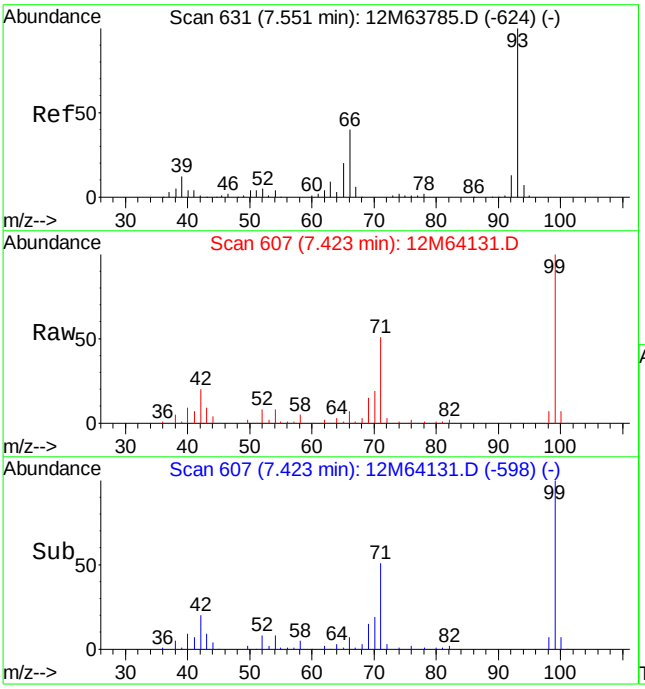
(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64131.D MEGAMIX.M Wed Aug 30 08:59:26 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 8:59 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration

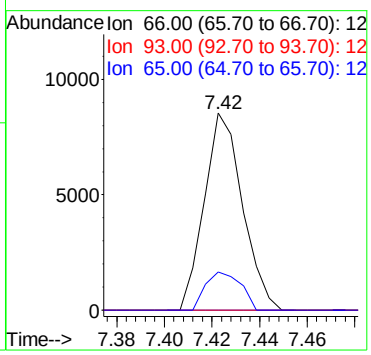


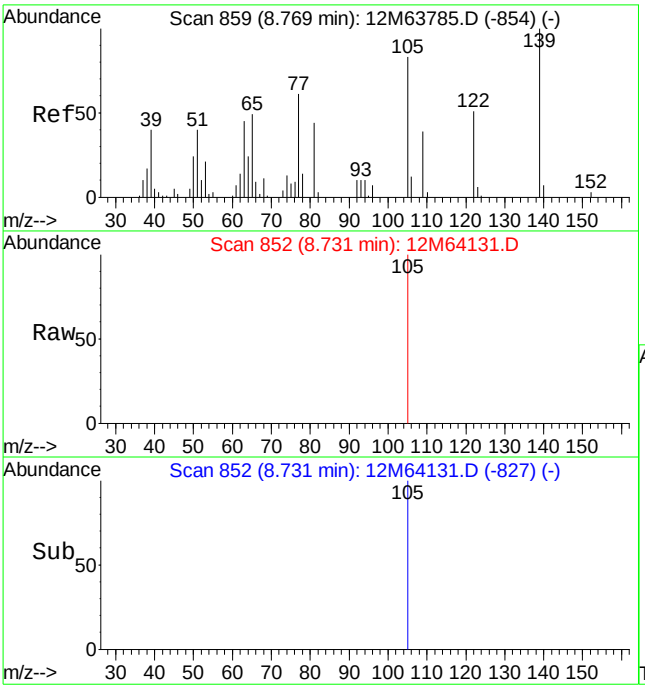


#11
Aniline
Concen: 4.0177 ug/ml
RT: 7.42 min Scan# 607
Delta R.T. -0.10 min
Lab File: 12M64131.D
Acq: 29 Aug 2017 3:12 pm

Tgt Ion: 66 Resp: 9499

Ion	Ratio	Lower	Upper
66	100		
93	0.0	231.9	541.1#
65	18.0	48.5	113.1#

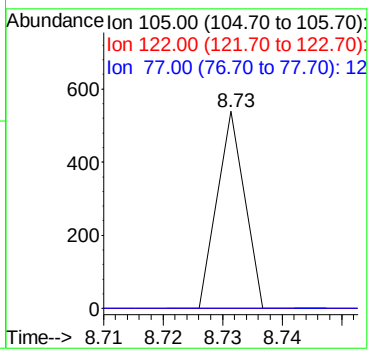


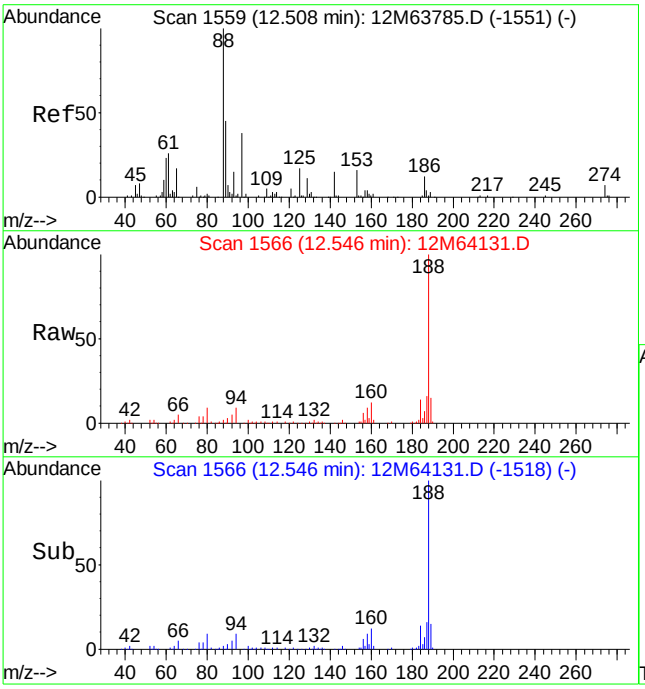


#39
Benzoic Acid
Concen: 7.4275 ug/ml
RT: 8.73 min Scan# 852
Delta R.T. -0.02 min
Lab File: 12M64131.D
Acq: 29 Aug 2017 3:12 pm

Tgt Ion:105 Resp: 173

Ion	Ratio	Lower	Upper
105	100		
122	0.0	32.5	75.9#
77	0.0	32.3	75.3#

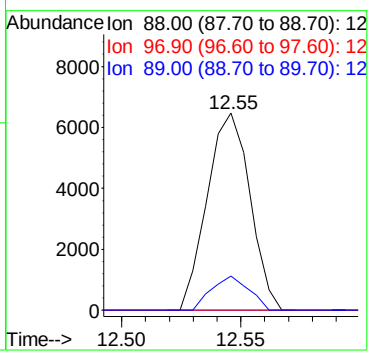




#102
Disulfoton
Concen: 2.0139 ug/ml
RT: 12.55 min Scan# 1566
Delta R.T. 0.06 min
Lab File: 12M64131.D
Acq: 29 Aug 2017 3:12 pm

Tgt Ion: 88 Resp: 8091

Ion	Ratio	Lower	Upper
88	100		
97	0.0	31.4	47.2#
89	15.2	35.3	52.9#



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54:29 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	116659	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.121	136	450522	40.0000	ug/mL	-0.037
6) Acenaphthene-d10	10.932	164	245020	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.546	188	443917	40.0000	ug/mL	-0.048

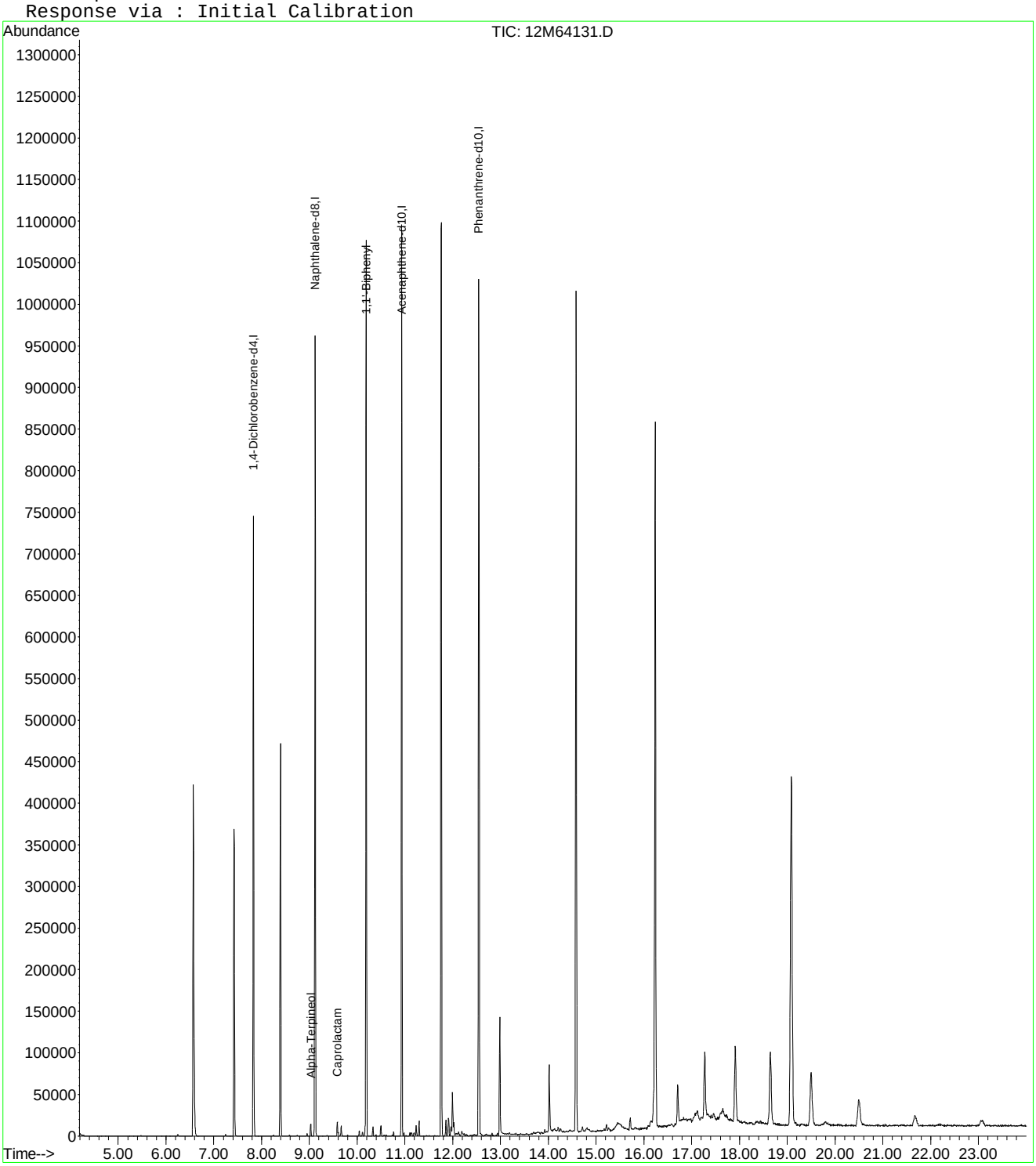
Target Compounds						Qvalue
4) Alpha-Terpineol	9.03	59	1362	0.5089	ug/L #	11
5) Caprolactam	9.58	55	3070	2.4458	ug/L #	46
7) 1,1'-Biphenyl	10.19	154	436	0.0440	ug/L #	1

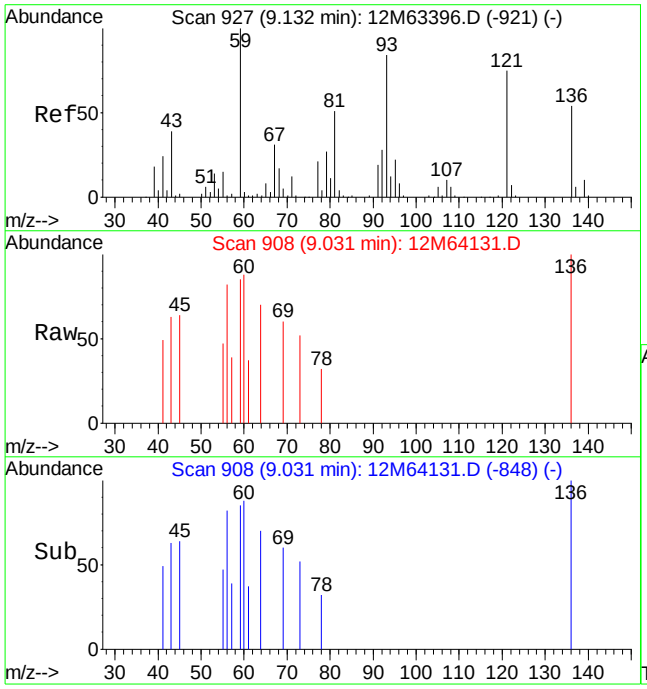
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration

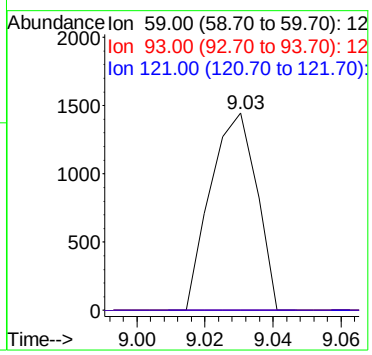


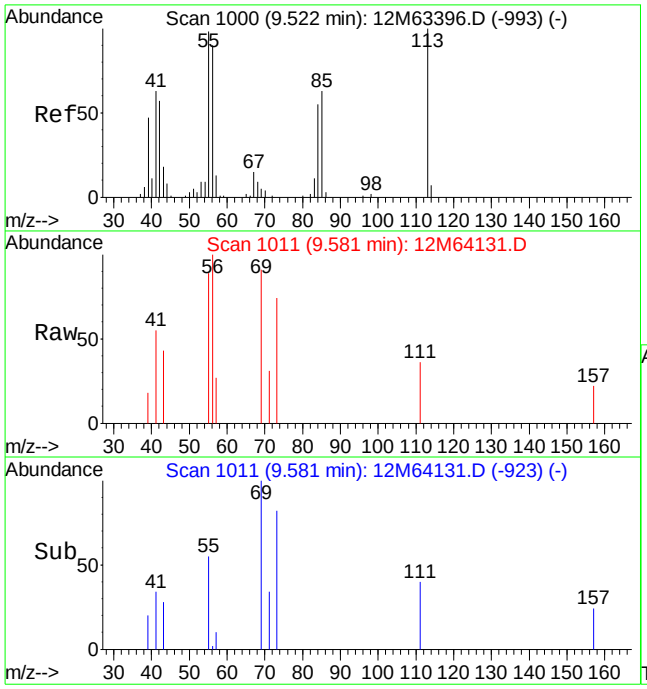


#4
Alpha-Terpineol
Concen: 0.5089 ug/L
RT: 9.03 min Scan# 908
Delta R.T. -0.08 min
Lab File: 12M64131.D
Acq: 29 Aug 2017 3:12 pm

Tgt Ion: 59 Resp: 1362

Ion	Ratio	Lower	Upper
59	100		
93	0.0	49.0	114.4#
121	0.0	42.5	99.1#

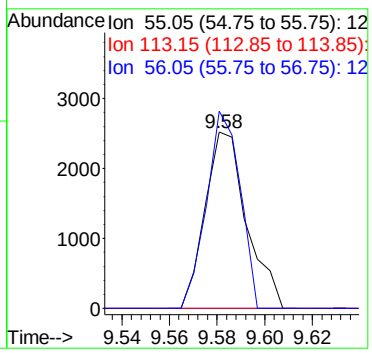


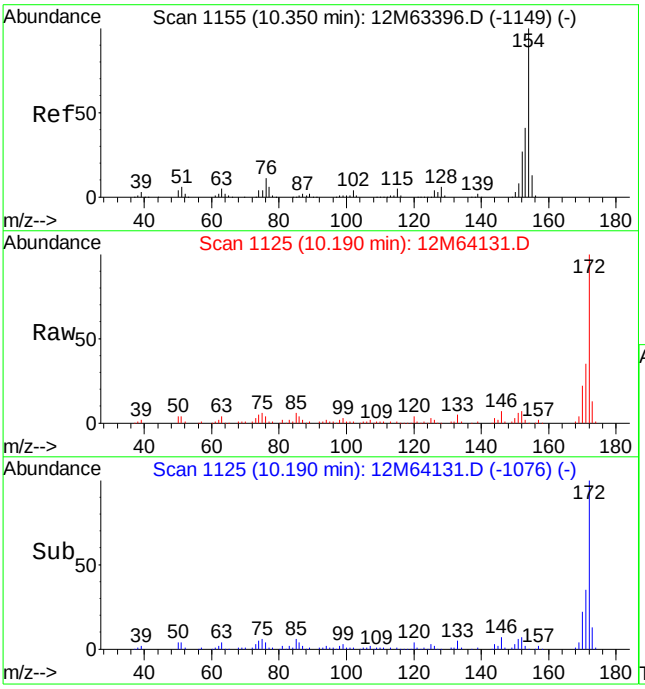


#5
Caprolactam
Concen: 2.4458 ug/L
RT: 9.58 min Scan# 1011
Delta R.T. 0.07 min
Lab File: 12M64131.D
Acq: 29 Aug 2017 3:12 pm

Tgt Ion: 55 Resp: 3070

Ion	Ratio	Lower	Upper
55	100		
113	0.0	80.9	121.3#
56	90.7	74.5	111.7

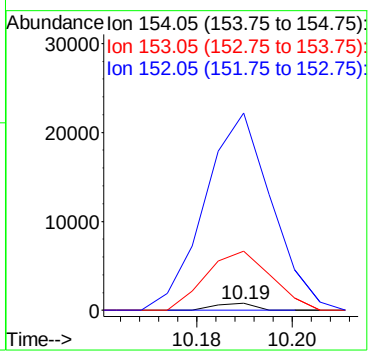




#7
1,1'-Biphenyl
Concen: 0.0440 ug/L
RT: 10.19 min Scan# 1125
Delta R.T. -0.14 min
Lab File: 12M64131.D
Acq: 29 Aug 2017 3:12 pm

Tgt Ion:154 Resp: 436

Ion	Ratio	Lower	Upper
154	100		
153	1455.7	32.8	49.2#
152	4978.4	21.4	32.2#



LSC Area Percent Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

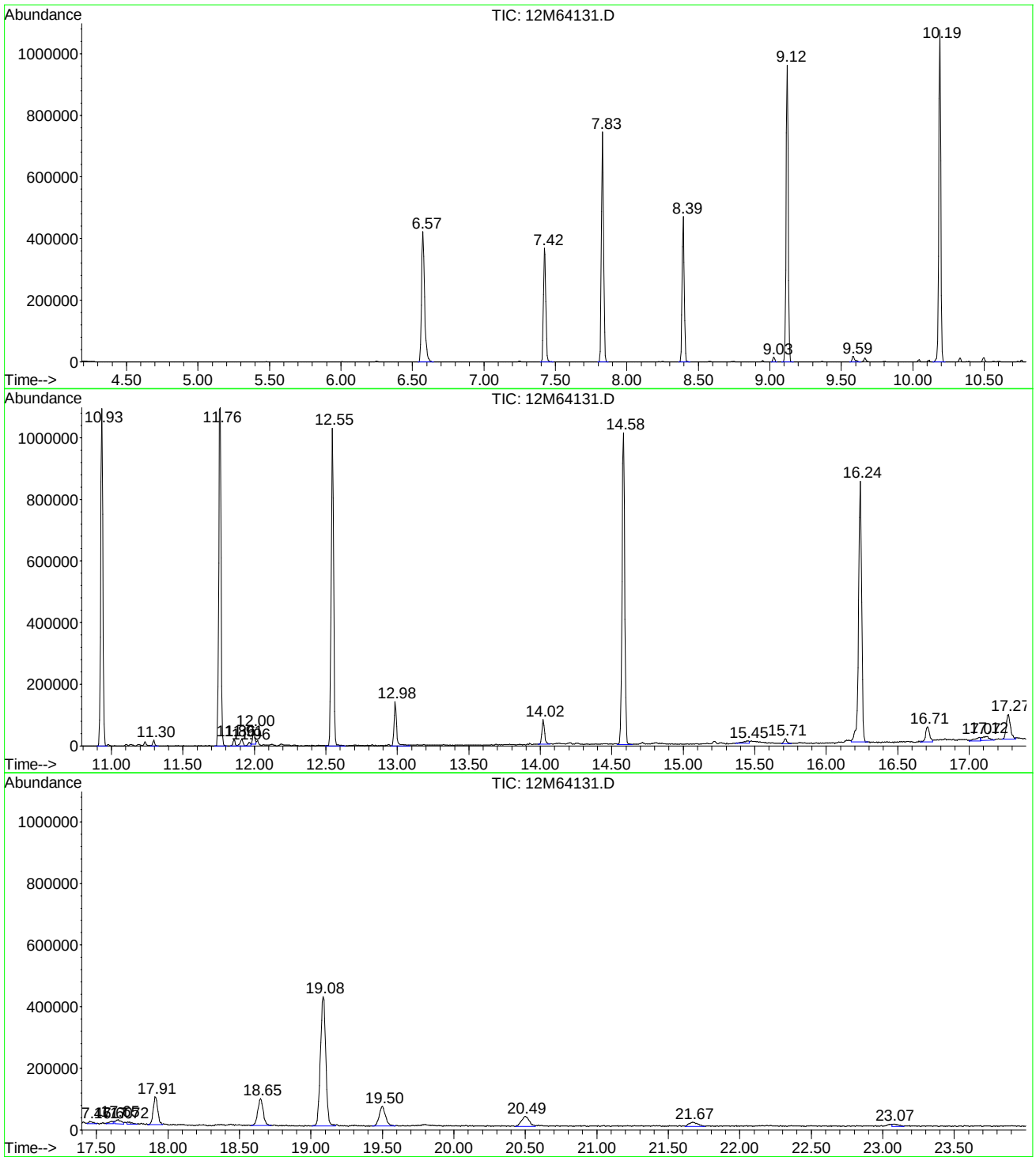
If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	6.573	442	448	461	rBB	422213	590156	44.96%	4.425%
2	7.423	602	607	618	rBB	369210	419590	31.97%	3.146%
3	7.829	677	683	690	rBB	745309	794682	60.55%	5.958%
4	8.395	783	789	797	rBB	471862	487545	37.15%	3.656%
5	9.031	904	908	911	rBB	14706	13457	1.03%	0.101%
6	9.121	918	925	932	rBB	962514	992767	75.64%	7.444%
7	9.586	1007	1012	1020	rBB2	16694	20919	1.59%	0.157%
8	10.190	1116	1125	1131	rBB	1077329	1048640	79.89%	7.862%
9	10.932	1258	1264	1270	rBB	1095513	1136277	86.57%	8.520%
10	11.296	1328	1332	1337	rVB	18115	15594	1.19%	0.117%
11	11.760	1412	1419	1427	rBB	1098522	1236775	94.23%	9.273%
12	11.857	1432	1437	1441	rBB	19435	19450	1.48%	0.146%
13	11.910	1441	1447	1452	rBB2	21798	28712	2.19%	0.215%
14	11.963	1452	1457	1459	rBV	10970	13444	1.02%	0.101%
15	11.995	1459	1463	1466	rBV	46863	45470	3.46%	0.341%
16	12.546	1557	1566	1582	rBB	1030596	1209167	92.13%	9.066%
17	12.984	1643	1648	1667	rBV	142941	178463	13.60%	1.338%
18	14.020	1836	1842	1851	rBV2	81257	104612	7.97%	0.784%
19	14.581	1939	1947	1958	rVB	1012028	1312524	100.00%	9.841%
20	15.447	2094	2109	2112	rBV6	8449	26517	2.02%	0.199%
21	15.714	2154	2159	2167	rBV2	16110	27110	2.07%	0.203%
22	16.237	2245	2257	2266	rVB	846281	1291311	98.38%	9.682%
23	16.707	2336	2345	2352	rBV	48950	94469	7.20%	0.708%
24	17.071	2400	2413	2415	rBV4	11399	29881	2.28%	0.224%
25	17.124	2415	2423	2432	rVB9	11798	39108	2.98%	0.293%
26	17.274	2443	2451	2461	rBV	80299	167602	12.77%	1.257%
27	17.455	2481	2485	2493	rVB7	7206	15740	1.20%	0.118%
28	17.605	2506	2513	2515	rBV2	7995	15436	1.18%	0.116%
29	17.653	2517	2522	2529	rVV8	13939	35844	2.73%	0.269%
30	17.717	2533	2534	2546	rVB6	7279	15638	1.19%	0.117%
31	17.909	2561	2570	2580	rBV	91163	197011	15.01%	1.477%
32	18.647	2696	2708	2721	rBV2	87690	234234	17.85%	1.756%
33	19.085	2776	2790	2806	rBV3	420057	1095413	83.46%	8.213%
34	19.501	2855	2868	2884	rVB2	63832	191081	14.56%	1.433%
35	20.495	3042	3054	3068	rBV6	32148	119122	9.08%	0.893%
36	21.670	3264	3274	3289	rVB7	12929	53522	4.08%	0.401%
37	23.070	3535	3536	3550	rVB7	7418	20012	1.52%	0.150%

Sum of corrected areas: 13337295

File : I:\MSDCHEM\1\DATA\082917\12M64131.D
Operator : scb
Acquired : 29 Aug 2017 3:12 pm using AcqMethod BNARUN
Instrument : MSD12
Sample Name: L17081305-19
Misc Info : 1,1
Vial Number: 12
Quant File :MEGAMIX.RES (RTE Integrator)



Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

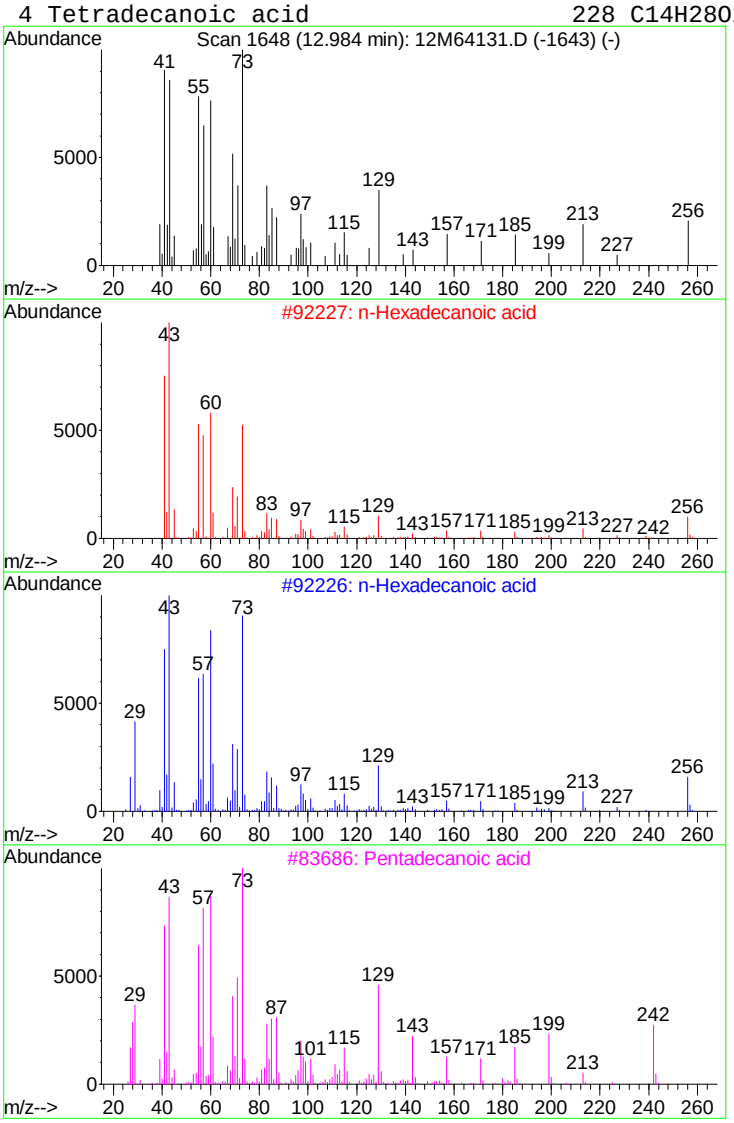
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

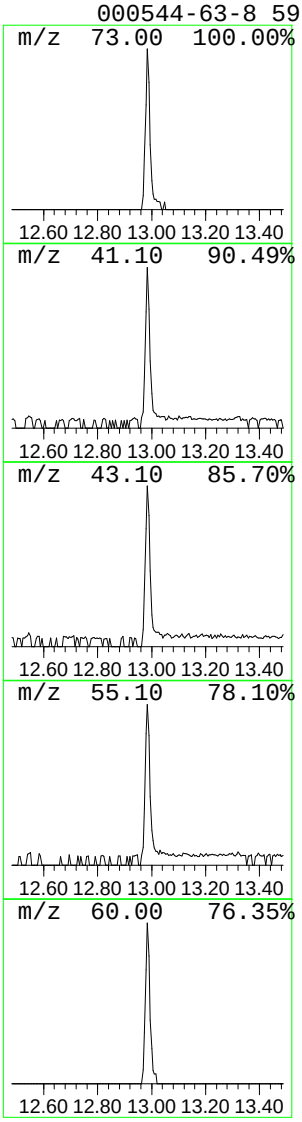
****

Peak Number 1 n-Hexadecanoic acid Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.98	5.90 ug/ml	178463	Phenanthrene-d10	12.55

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	98
2	n-Hexadecanoic acid	256	C16H32O2	000057-10-3	90
3	Pentadecanoic acid	242	C15H30O2	001002-84-2	74
4	Tetradecanoic acid	228	C14H28O2	000544-63-8	59





Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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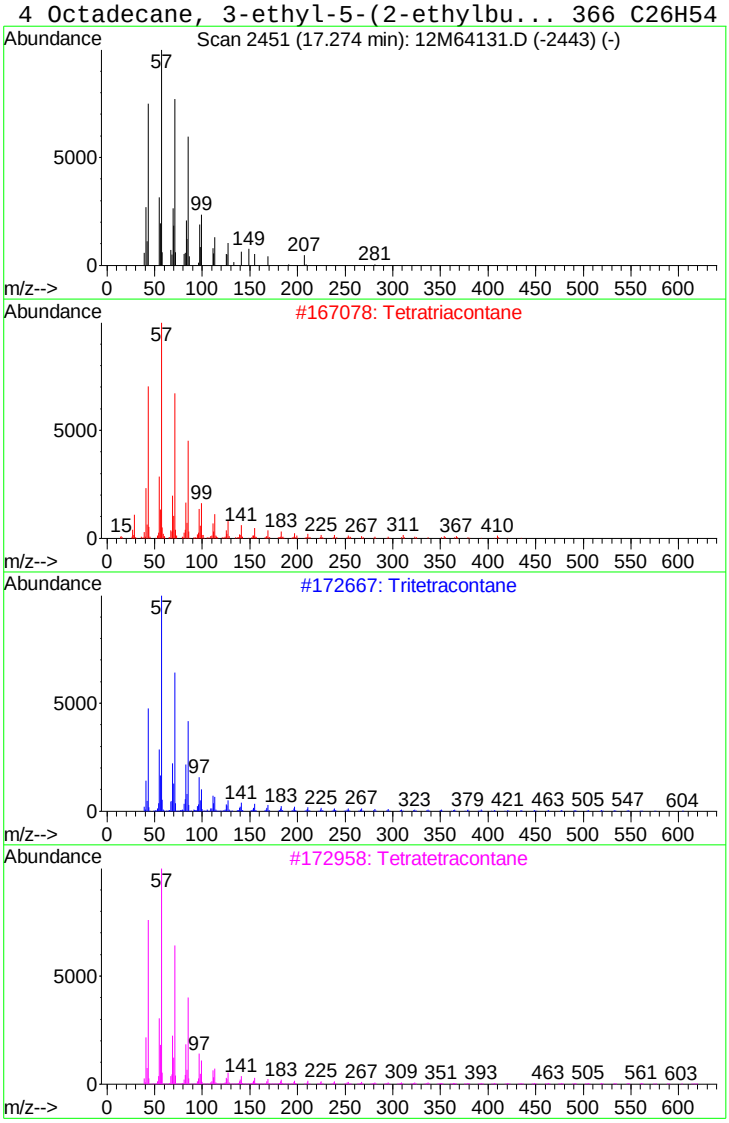
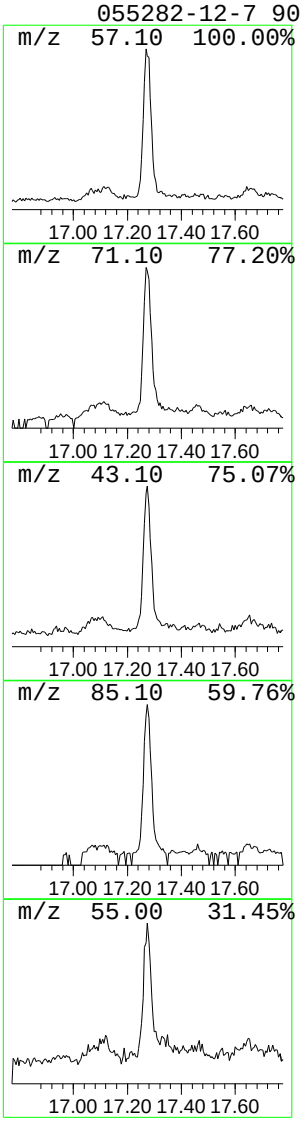
Peak Number 2 Tetratriacontane Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.27	5.19 ug/ml	167602	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetratriacontane	479	C34H70	014167-59-0	91
2	Tritetracontane	605	C43H88	007098-21-7	91
3	Tetratetracontane	619	C44H90	007098-22-8	90
4	Octadecane, 3-ethyl-5-(2-ethylbu...	366	C26H54	055282-12-7	90





Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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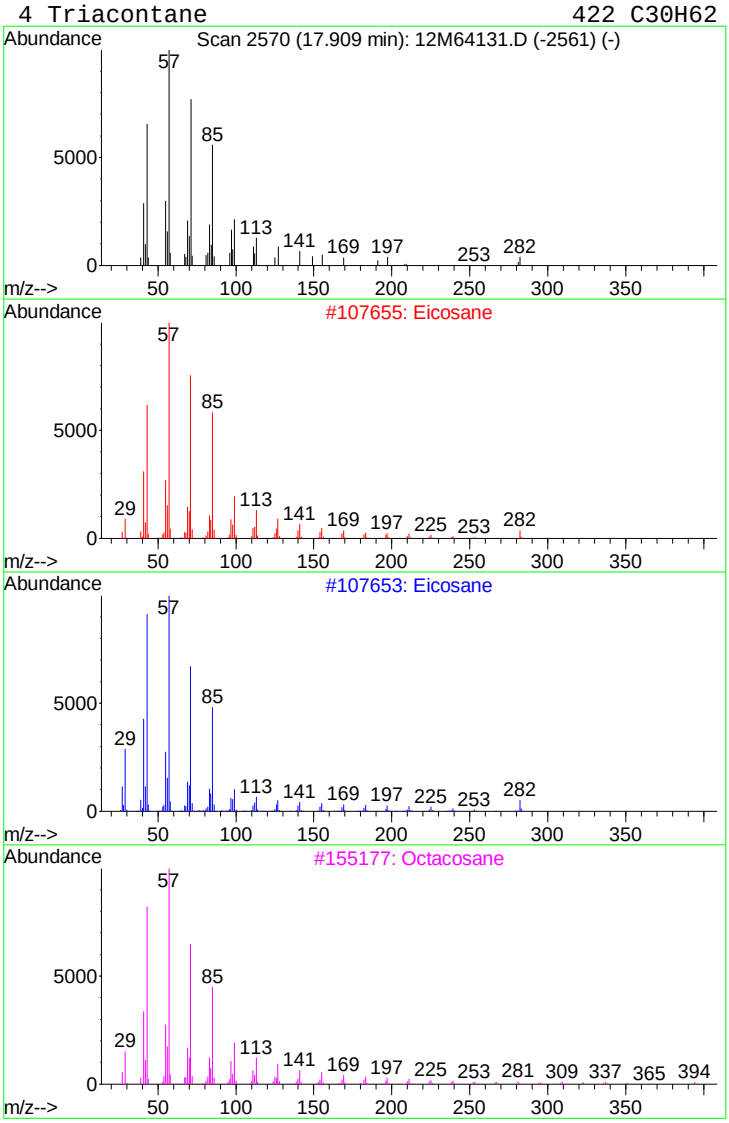
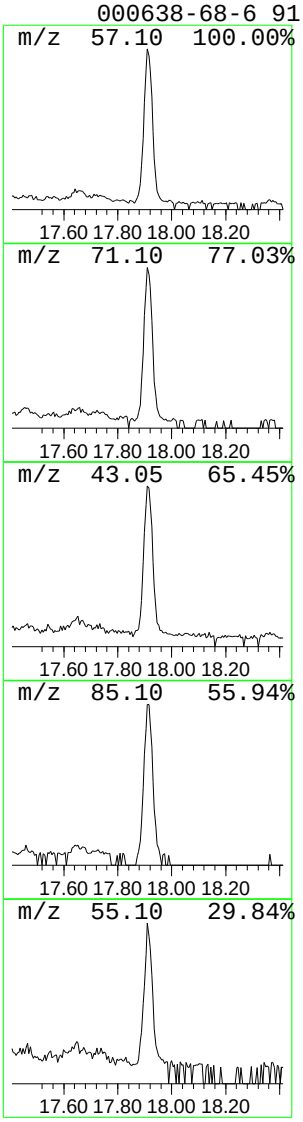
Peak Number 3 Eicosane Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.91	7.19 ug/ml	197011	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	98
2	Eicosane	282	C20H42	000112-95-8	95
3	Octacosane	394	C28H58	000630-02-4	91
4	Triacontane	422	C30H62	000638-68-6	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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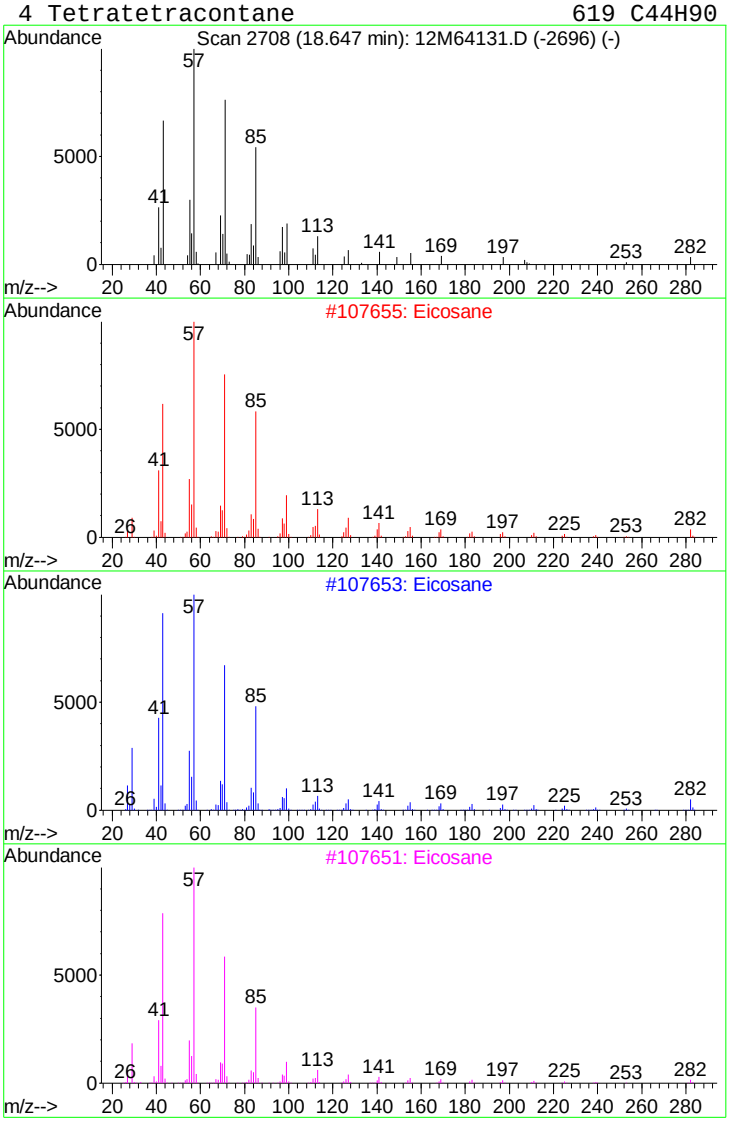
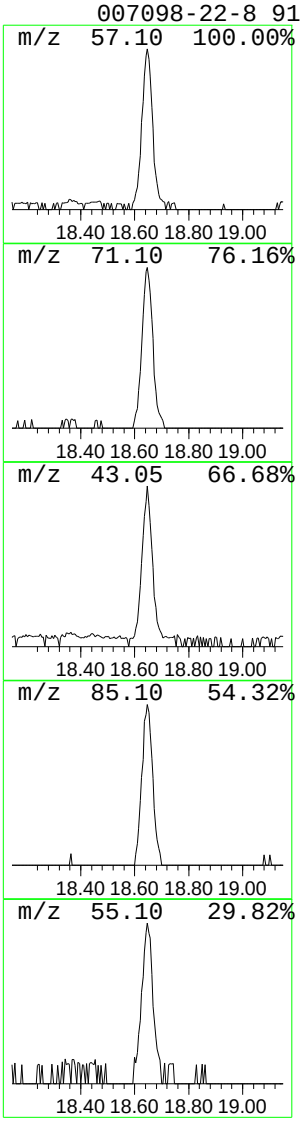
Peak Number 4 Eicosane Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.65	8.55 ug/ml	234234	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	97
2	Eicosane	282	C20H42	000112-95-8	95
3	Eicosane	282	C20H42	000112-95-8	94
4	Tetratetracontane	619	C44H90	007098-22-8	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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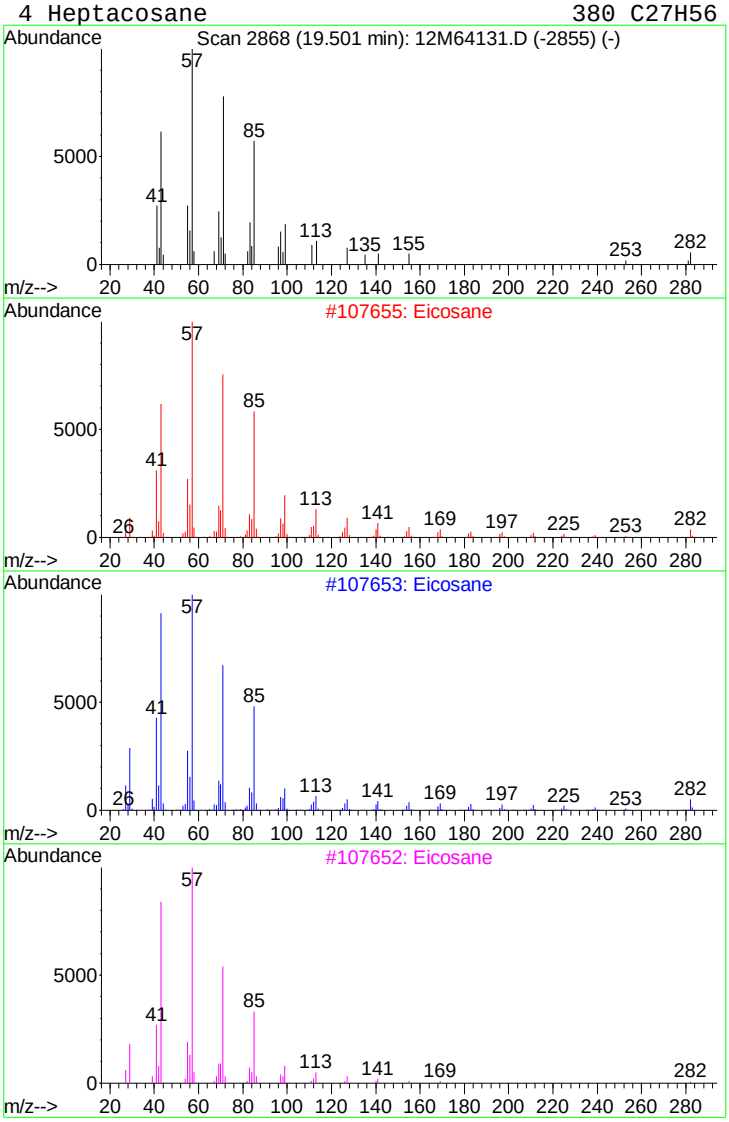
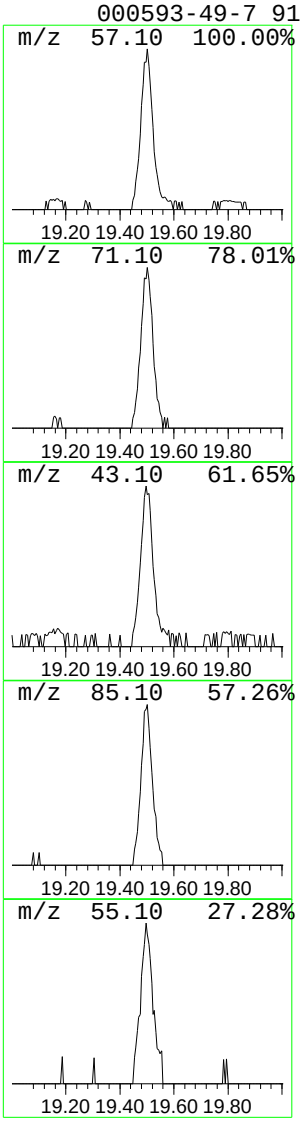
Peak Number 5 Eicosane Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.50	6.98 ug/ml	191081	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	93
2	Eicosane	282	C20H42	000112-95-8	93
3	Eicosane	282	C20H42	000112-95-8	91
4	Heptacosane	380	C27H56	000593-49-7	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64131.D Vial: 12
Acq On : 29 Aug 2017 3:12 pm Operator: scb
Sample : L17081305-19 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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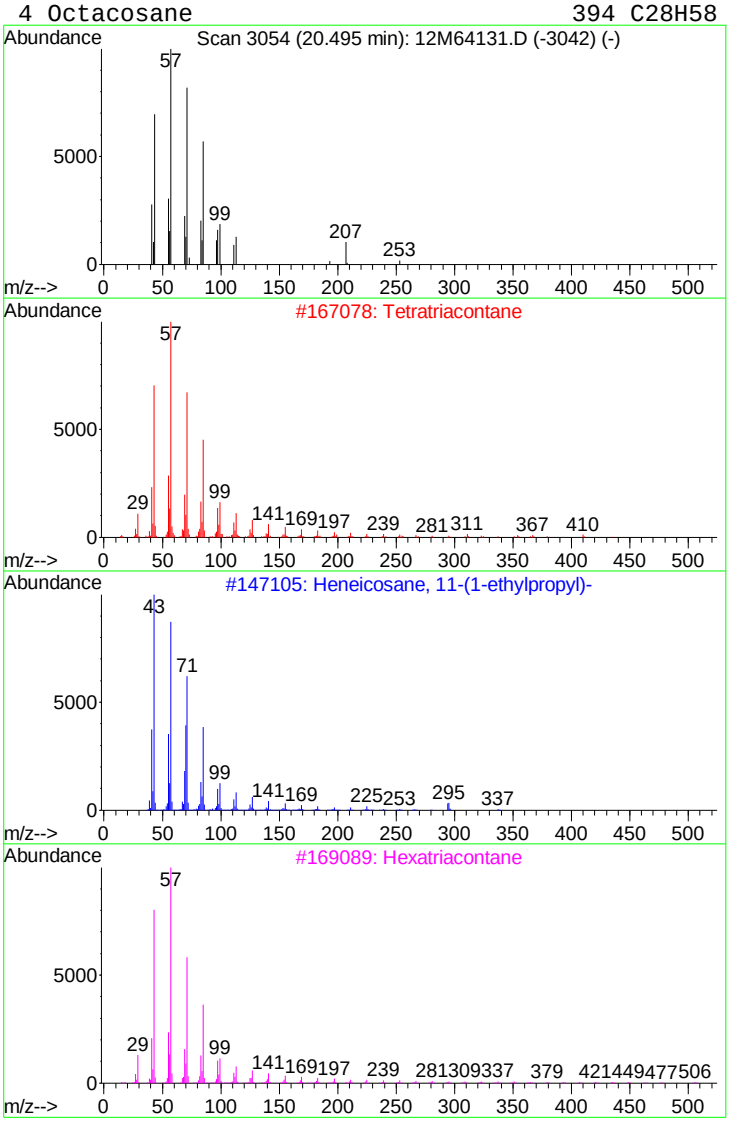
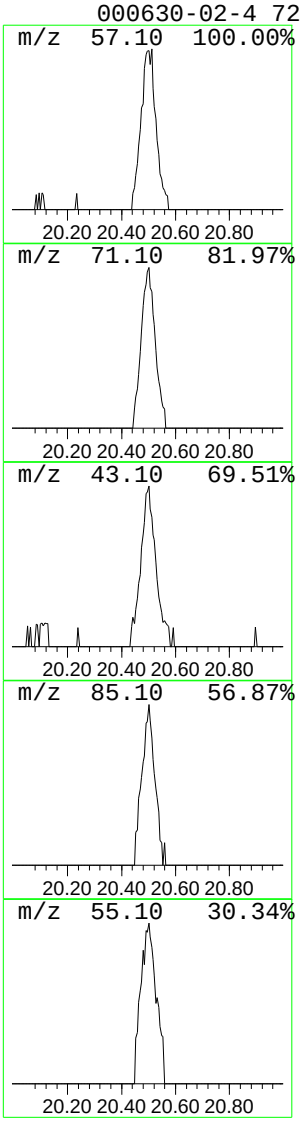
Peak Number 6 Tetratriacontane Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.50	4.35 ug/ml	119122	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetratriacontane	479	C34H70	014167-59-0	86
2	Heneicosane, 11-(1-ethylpropyl)-	366	C26H54	055282-11-6	86
3	Hexatriacontane	507	C36H74	000630-06-8	78
4	Octacosane	394	C28H58	000630-02-4	72





Tentatively Identified Compound (LSC) summary

Operator ID: scb Date Acquired: 29 Aug 2017 3:12 pm
Data File: I:\MSDCHEM\1\DATA\082917\12M64131.D
Name: L17081305-19
Misc: 1,1
Method: I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title: OVD MSS01 8270/625 ICAL 08/3/17
Library Searched: I:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
n-Hexadecanoic acid	12.98	5.9	ug/ml	178463	4	12.55	1209170	40.0
Tetratriacontane	17.27	5.2	ug/ml	167602	5	16.24	1291310	40.0
Eicosane	17.91	7.2	ug/ml	197011	6	19.08	1095410	40.0
Eicosane	18.65	8.6	ug/ml	234234	6	19.08	1095410	40.0
Eicosane	19.50	7.0	ug/ml	191081	6	19.08	1095410	40.0
Tetratriacontane	20.50	4.3	ug/ml	119122	6	19.08	1095410	40.0

2.2.1.4 Standards Data

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63396.D Vial: 14
Acq On : 14 Jul 2017 11:06 pm Operator: SCB
Sample : WG621894-01 50PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 09:14:43 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 09:14:32 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

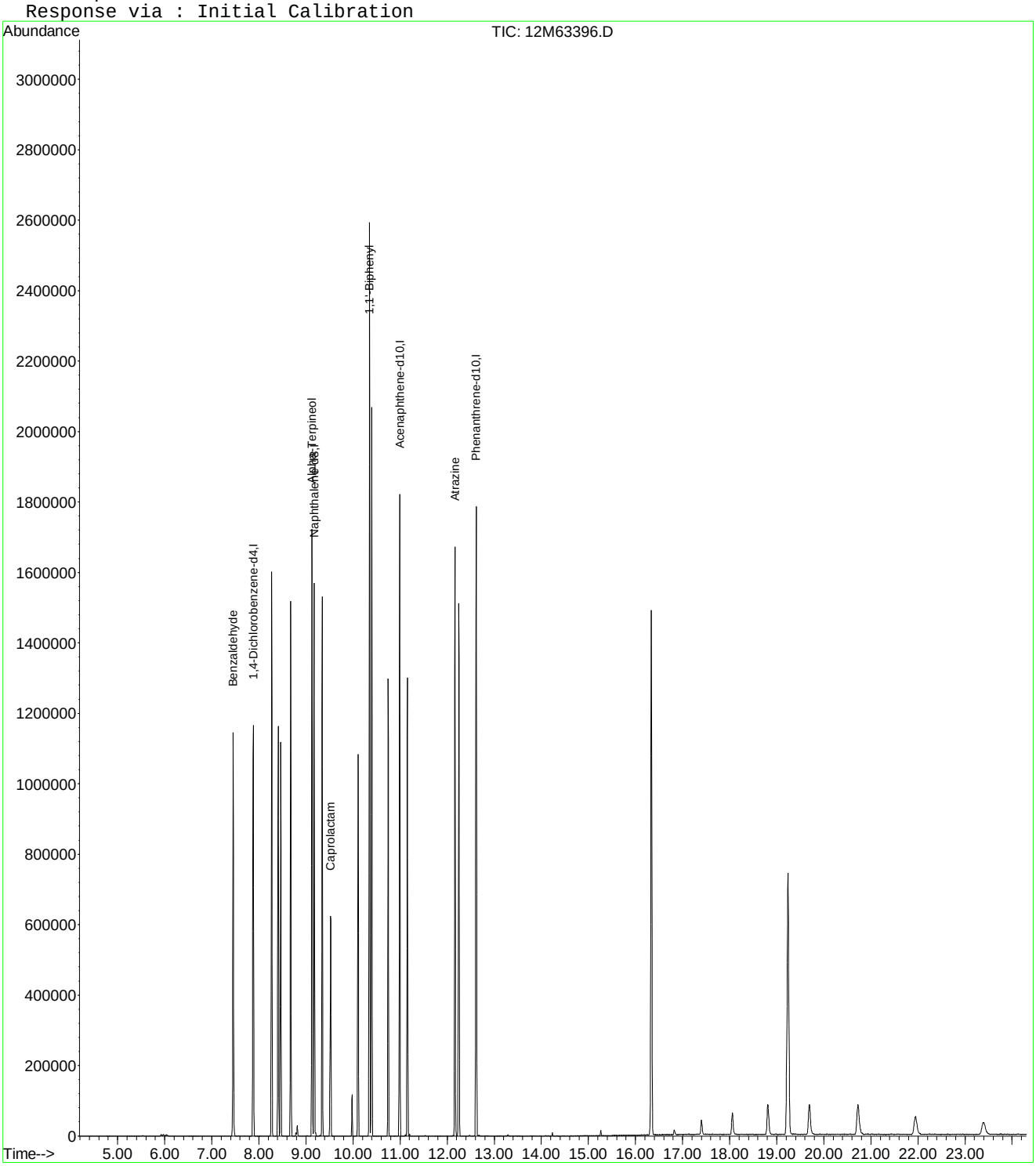
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.882	152	205605	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	754694	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	416543	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	826043	40.0000	ug/mL	0.000
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	259821	52.5820	ug/L	100
4) Alpha-Terpineol	9.13	59	227514	48.2944	ug/L	100
5) Caprolactam	9.52	55	107659	42.3758	ug/L	100
7) 1,1'-Biphenyl	10.35	154	857851	48.3161	ug/L	100
9) Atrazine	12.17	200	242250	53.1184	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63396.D TCL.M Mon Jul 17 10:40:19 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63396.D Vial: 14
Acq On : 14 Jul 2017 11:06 pm Operator: SCB
Sample : WG621894-01 50PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 9:14 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



12M63396.D TCL.M Mon Jul 17 10:40:19 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63397.D Vial: 15
Acq On : 14 Jul 2017 11:39 pm Operator: SCB
Sample : WG621894-02 3PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:35:11 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 09:15:39 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

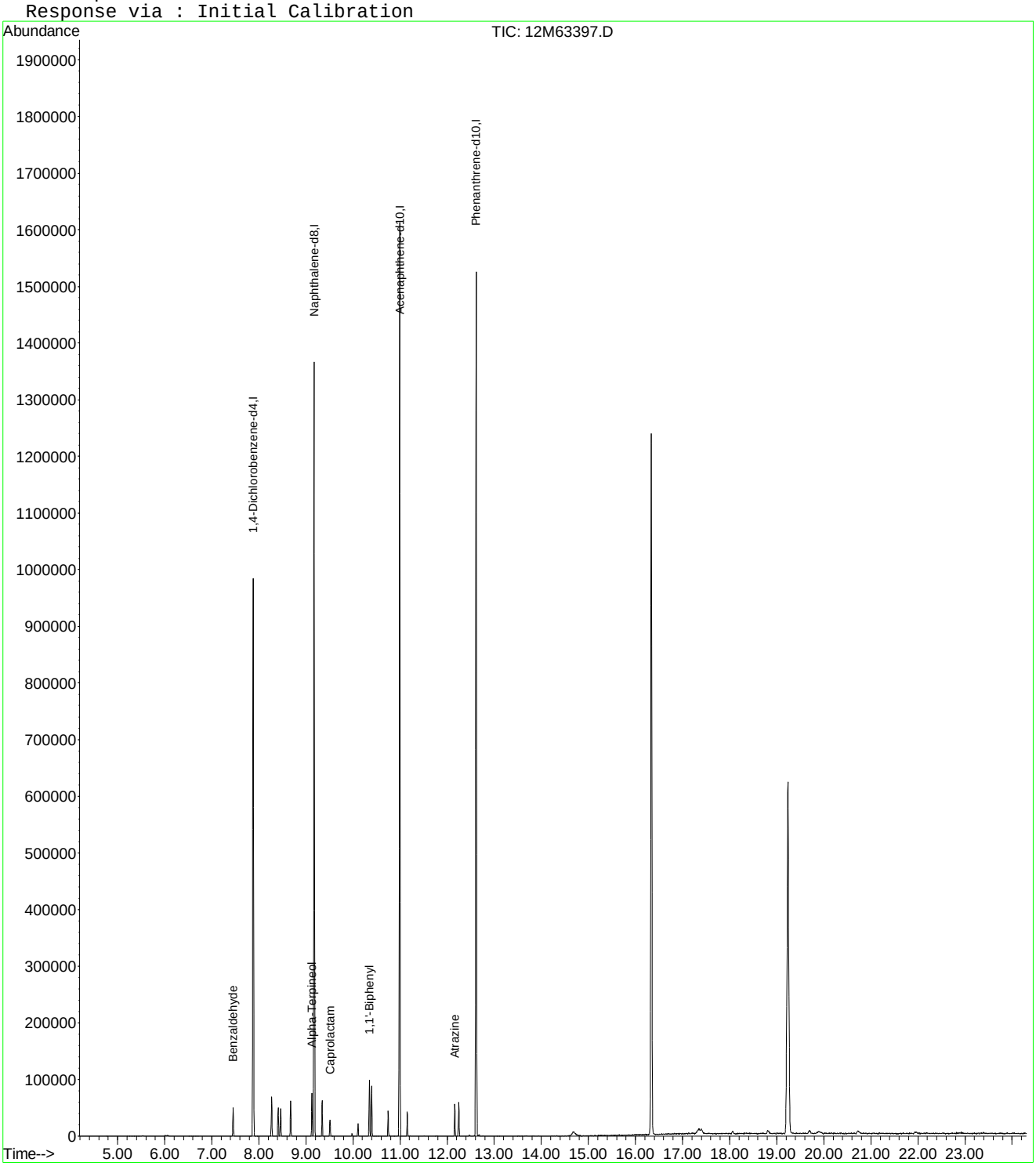
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.882	152	175455	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	669500	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	356473	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	682293	40.0000	ug/mL	0.000
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	11215	2.6771	ug/L	96
4) Alpha-Terpineol	9.13	59	10683	2.6863	ug/L	94
5) Caprolactam	9.51	55	4539	2.1623	ug/L	94
7) 1,1'-Biphenyl	10.35	154	36040	2.4157	ug/L	100
9) Atrazine	12.16	200	9279	2.4492	ug/L	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63397.D TCL.M Mon Jul 17 10:40:20 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63397.D Vial: 15
Acq On : 14 Jul 2017 11:39 pm Operator: SCB
Sample : WG621894-02 3PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:35 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63398.D Vial: 16
Acq On : 15 Jul 2017 12:12 am Operator: SCB
Sample : WG621894-03 10PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:35:37 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:35:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

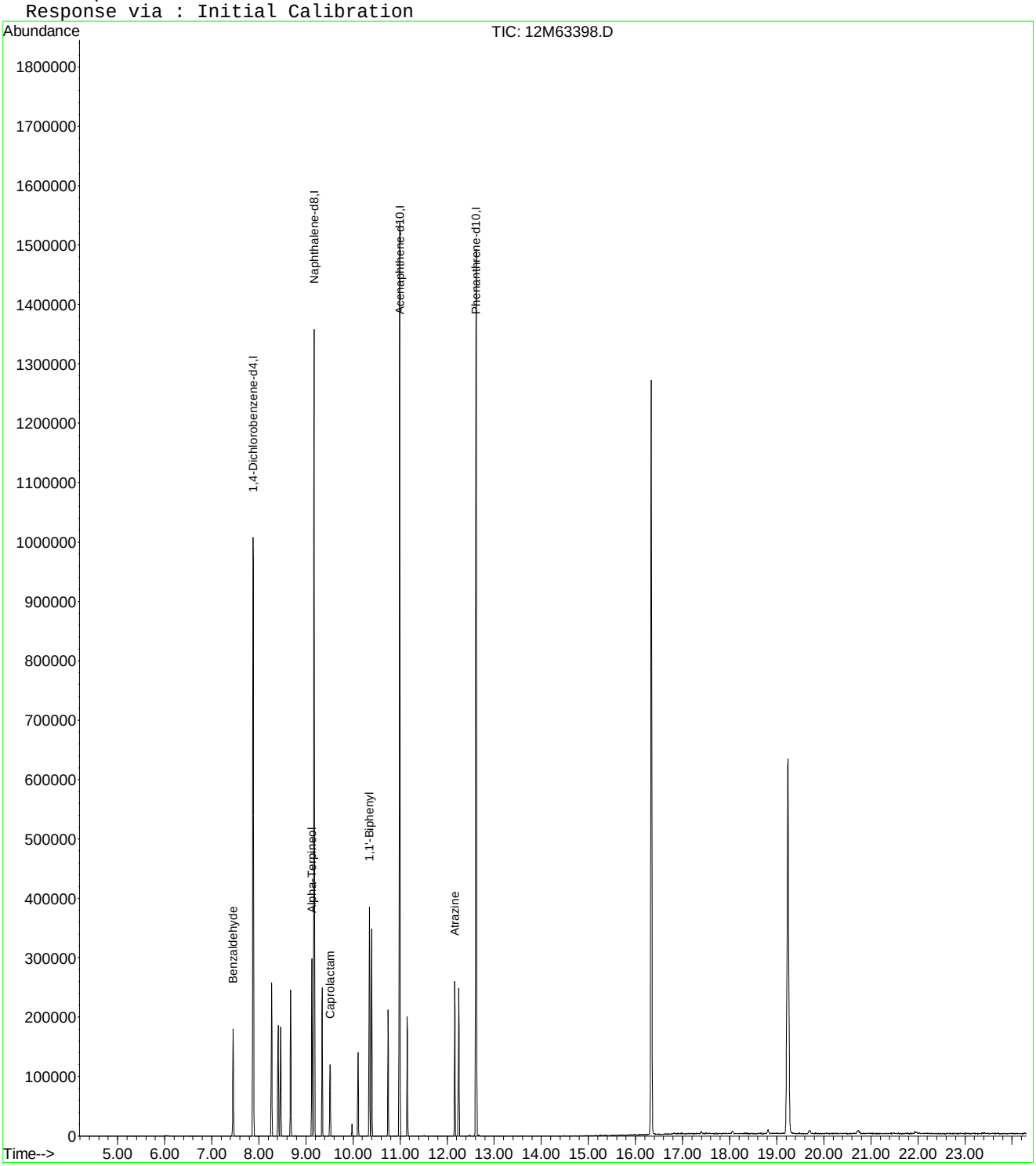
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.882	152	176891	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	662921	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	350518	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	684835	40.0000	ug/mL	0.000
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	43457	10.2894	ug/L	99
4) Alpha-Terpineol	9.13	59	39691	10.0796	ug/L	96
5) Caprolactam	9.51	55	18026	8.6726	ug/L	94
7) 1,1'-Biphenyl	10.35	154	135309	9.2237	ug/L	100
9) Atrazine	12.16	200	36977	9.7238	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63398.D TCL.M Mon Jul 17 10:40:20 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63398.D Vial: 16
Acq On : 15 Jul 2017 12:12 am Operator: SCB
Sample : WG621894-03 10PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:35 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63399.D Vial: 17
Acq On : 15 Jul 2017 12:45 am Operator: SCB
Sample : WG621894-04 25PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:35:54 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:35:42 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

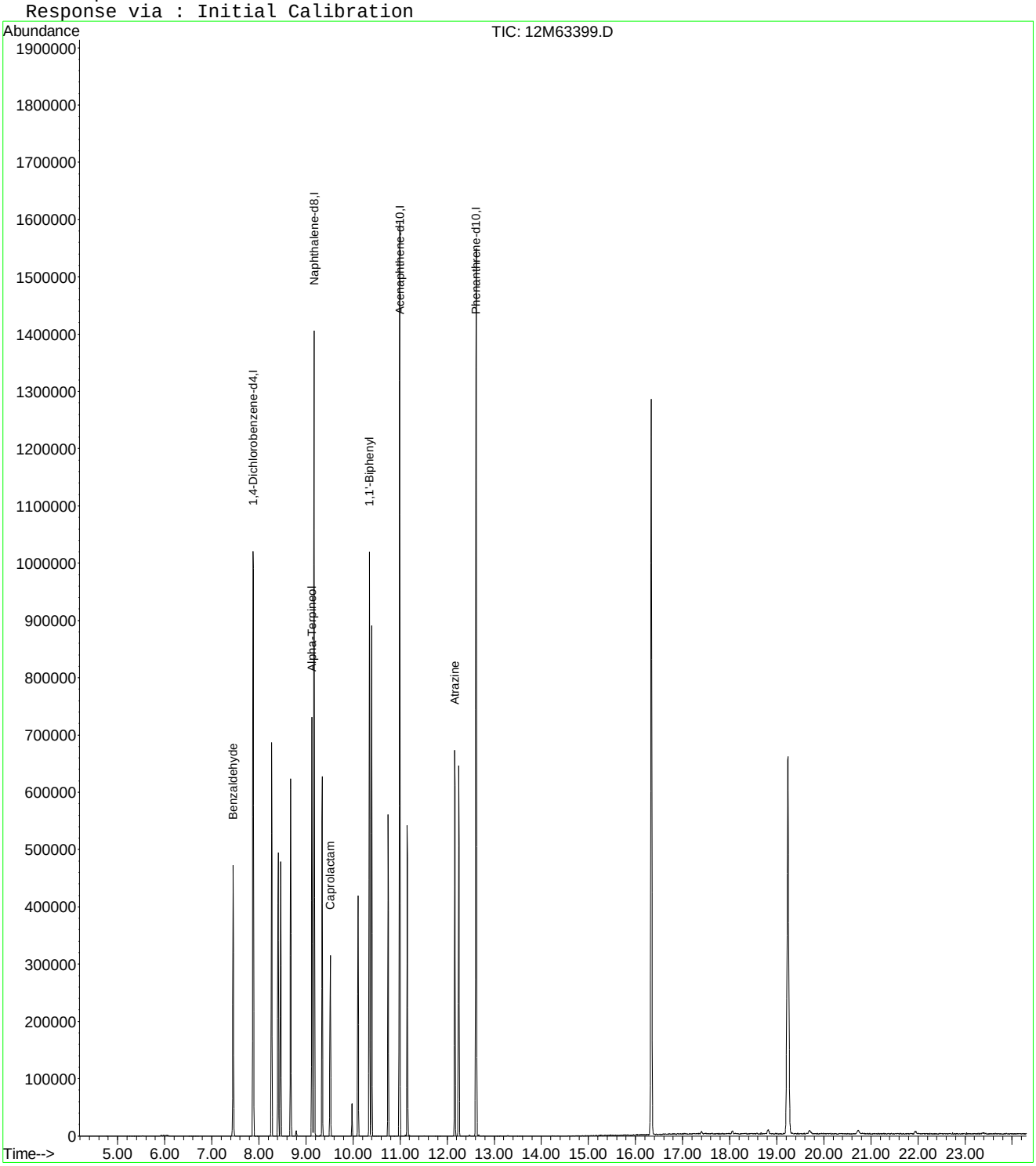
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.882	152	180106	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	678191	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	361273	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	711599	40.0000	ug/mL	0.000
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	110655	25.7324	ug/L	99
4) Alpha-Terpineol	9.13	59	100149	24.8604	ug/L	96
5) Caprolactam	9.52	55	47229	22.2111	ug/L	97
7) 1,1'-Biphenyl	10.35	154	350812	23.2021	ug/L	100
9) Atrazine	12.16	200	99008	25.0567	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63399.D TCL.M Mon Jul 17 10:40:21 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63399.D Vial: 17
Acq On : 15 Jul 2017 12:45 am Operator: SCB
Sample : WG621894-04 25PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:35 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63400.D Vial: 18
Acq On : 15 Jul 2017 1:18 am Operator: SCB
Sample : WG621894-05 80PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:36:09 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:35:59 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

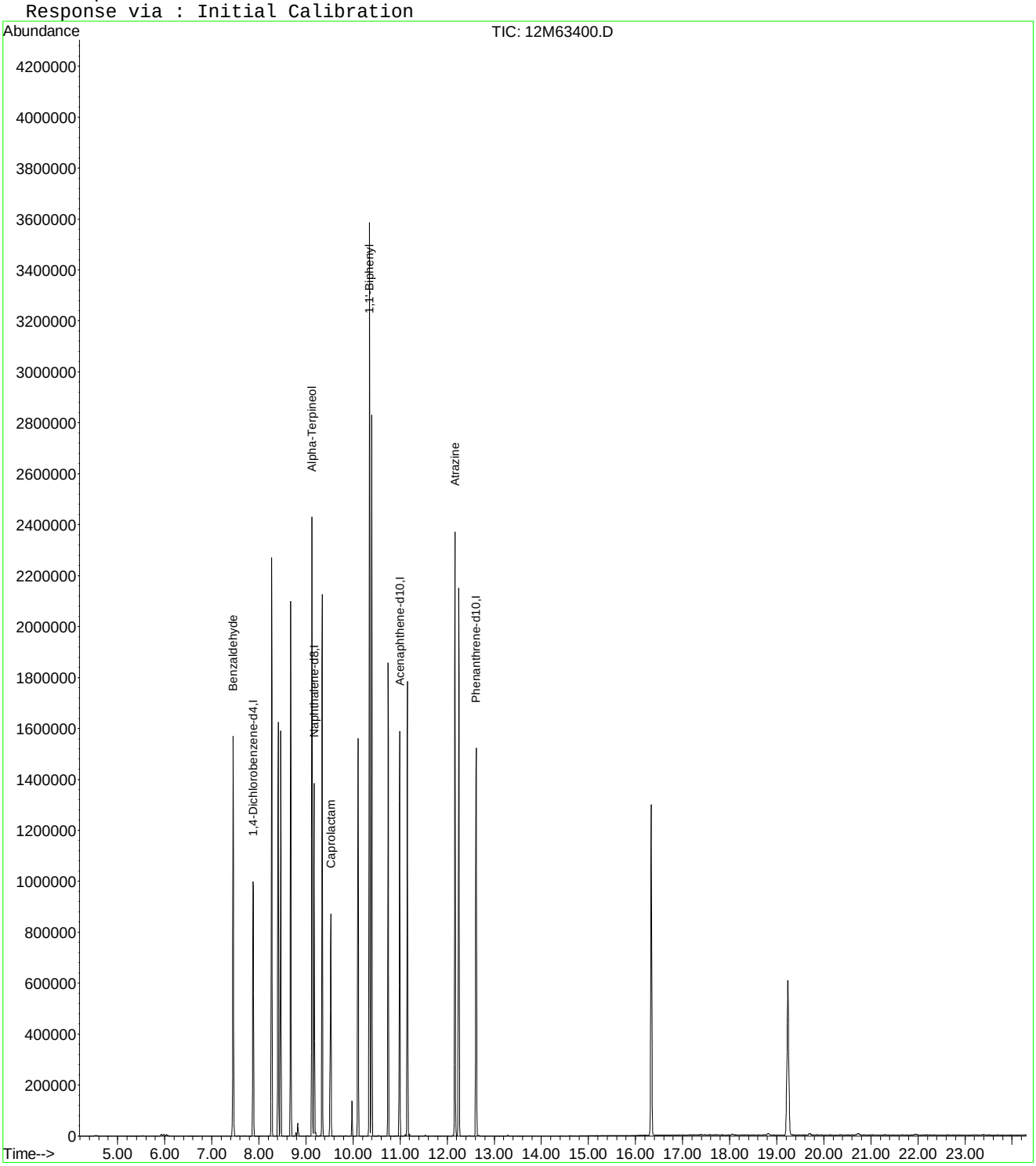
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.882	152	175720	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	660399	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	358829	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	709278	40.0000	ug/mL	0.000
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	370937	87.7504	ug/L	99
4) Alpha-Terpineol	9.13	59	321611	83.5256	ug/L	99
5) Caprolactam	9.53	55	154855	77.7957	ug/L	99
7) 1,1'-Biphenyl	10.35	154	1231389	82.2079	ug/L	99
9) Atrazine	12.17	200	346095	86.7796	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63400.D TCL.M Mon Jul 17 10:40:21 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63400.D Vial: 18
Acq On : 15 Jul 2017 1:18 am Operator: SCB
Sample : WG621894-05 80PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:36 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63401.D Vial: 19
Acq On : 15 Jul 2017 1:51 am Operator: SCB
Sample : WG621894-06 100PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:36:26 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:14 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

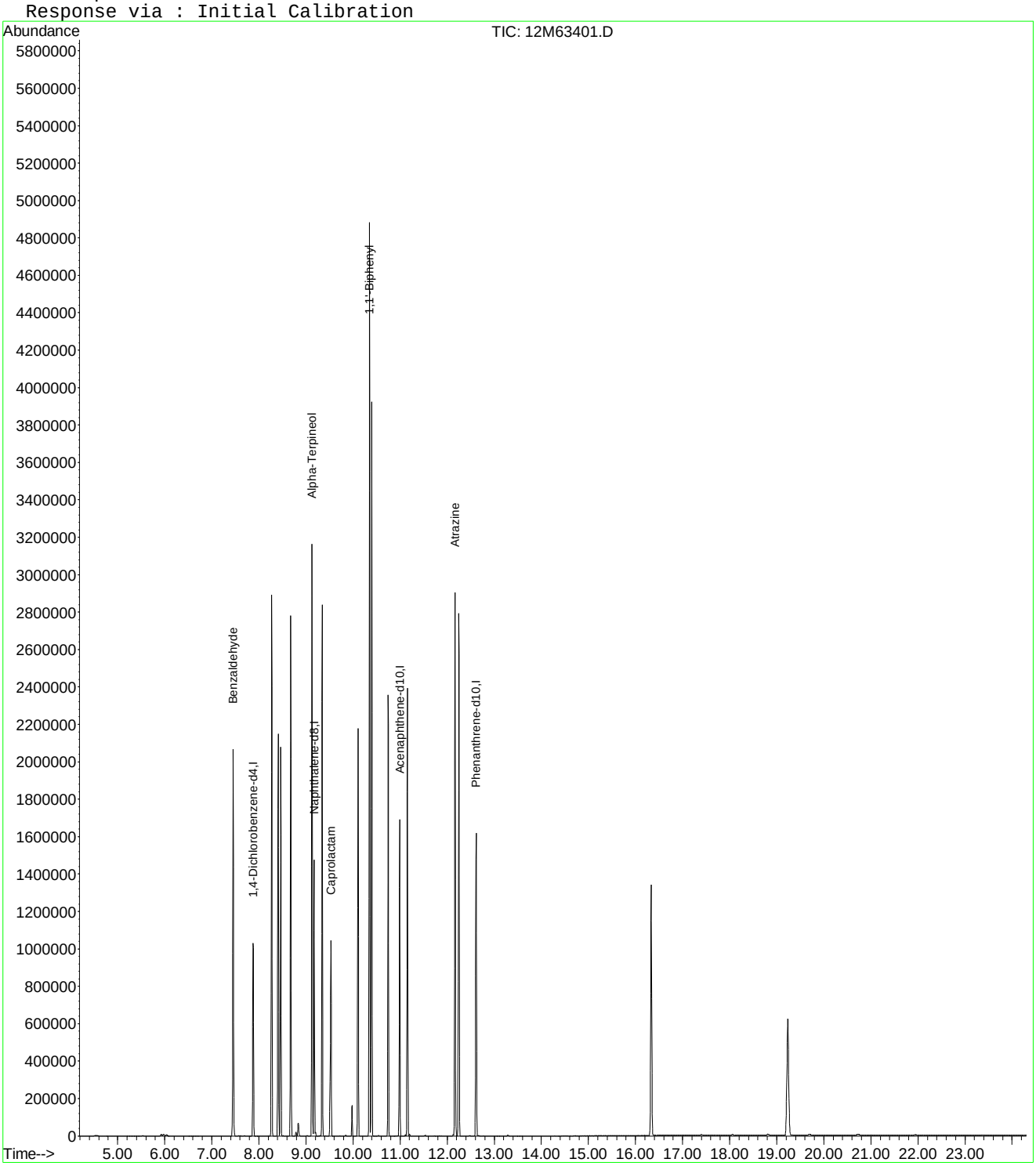
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.882	152	185820	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	692172	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	374164	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	739392	40.0000	ug/mL	0.000
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	492563	108.8452	ug/L	99
4) Alpha-Terpineol	9.13	59	419894	103.8528	ug/L	98
5) Caprolactam	9.53	55	202808	100.0365	ug/L	99
7) 1,1'-Biphenyl	10.35	154	1642731	106.1751	ug/L	100
9) Atrazine	12.17	200	459382	109.5889	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63401.D TCL.M Mon Jul 17 10:40:22 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63401.D Vial: 19
Acq On : 15 Jul 2017 1:51 am Operator: SCB
Sample : WG621894-06 100PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:36 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63402.D Vial: 20
Acq On : 15 Jul 2017 2:23 am Operator: SCB
Sample : WG621894-07 120PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:36:46 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:34 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.877	152	168083	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	622470	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.991	164	347854	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.615	188	684305	40.0000	ug/mL	0.000

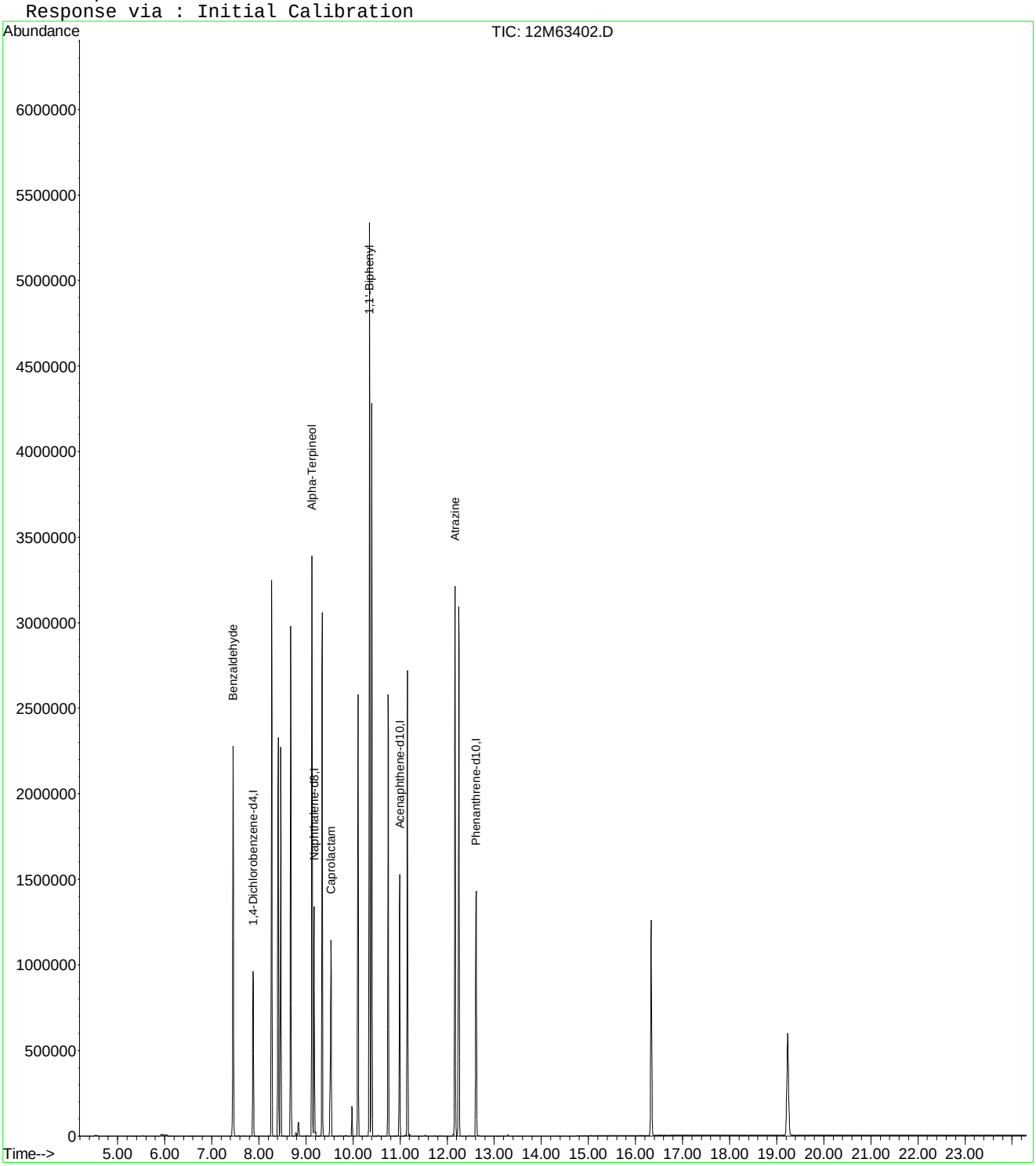
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	543928	131.0505	ug/L	99
4) Alpha-Terpineol	9.13	59	462412	126.4070	ug/L	98
5) Caprolactam	9.53	55	225881	127.0530	ug/L	99
7) 1,1'-Biphenyl	10.35	154	1846850	129.4675	ug/L	99
9) Atrazine	12.17	200	523266	134.1703	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63402.D TCL.M Mon Jul 17 10:40:22 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63402.D Vial: 20
Acq On : 15 Jul 2017 2:23 am Operator: SCB
Sample : WG621894-07 120PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:36 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63403.D Vial: 21
Acq On : 15 Jul 2017 2:56 am Operator: SCB
Sample : WG621894-08 50PPM TCL/A-TERP ALT SRC Inst : MSD12
Misc : 1,1 STD81289 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:37:26 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.877	152	181777	40.0000	ug/mL	0.000
3) Naphthalene-d8	9.175	136	672742	40.0000	ug/mL	0.000
6) Acenaphthene-d10	10.986	164	359285	40.0000	ug/mL	0.000
8) Phenanthrene-d10	12.610	188	705525	40.0000	ug/mL	0.000

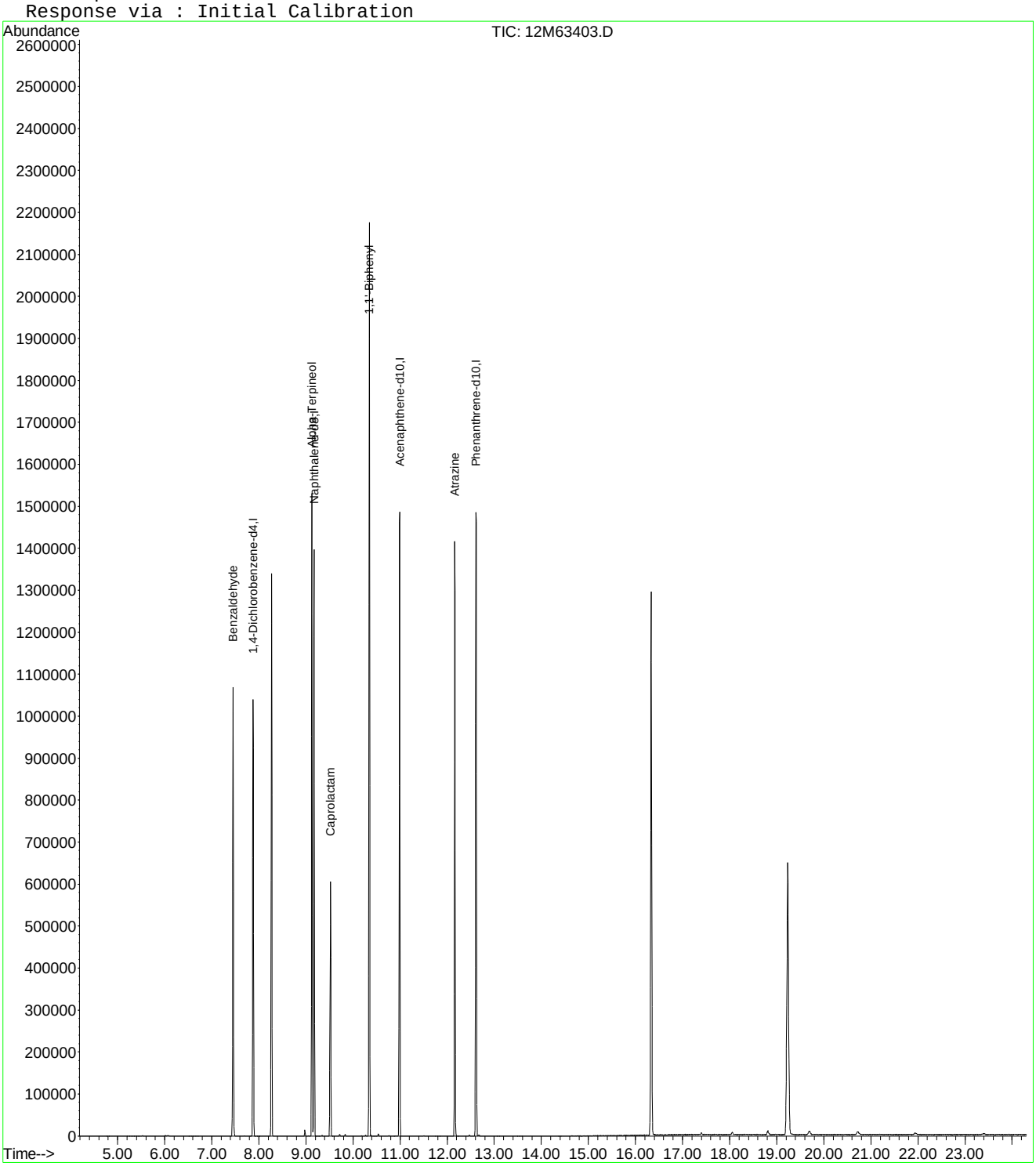
Target Compounds						Qvalue
2) Benzaldehyde	7.45	105	250794	55.0034	ug/L	99
4) Alpha-Terpineol	9.13	59	195450	48.9015	ug/L	98
5) Caprolactam	9.52	55	97729	52.1395	ug/L	98
7) 1,1'-Biphenyl	10.34	154	748834	51.4847	ug/L	100
9) Atrazine	12.16	200	209511	51.9053	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63403.D TCL.M Mon Jul 17 10:37:26 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\071417\12M63403.D Vial: 21
Acq On : 15 Jul 2017 2:56 am Operator: SCB
Sample : WG621894-08 50PPM TCL/A-TERP ALT SRC Inst : MSD12
Misc : 1,1 STD81289 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 17 10:37 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Initial Calibration



12M63403.D TCL.M Mon Jul 17 10:37:26 2017 Page 2

Evaluate Continuing Calibration Report

Data File : I:\MSDCHEM\1\DATA\071417\12M63403.D Vial: 21
Acq On : 15 Jul 2017 2:56 am Operator: SCB
Sample : WG621894-08 50PPM TCL/A-TERP ALT SRC Inst : MSD12
Misc : 1,1 STD81289 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	88	0.00
2		Benzaldehyde	1.003	1.104	-10.1	97	0.00
3	I	Naphthalene-d8	1.000	1.000	0.0	89	0.00
4		Alpha-Terpineol	0.238	0.232	2.5	86	0.00
5		Caprolactam	0.111	0.116	-4.5	91	0.00
6	I	Acenaphthene-d10	1.000	1.000	0.0	86	0.00
7		1,1'-Biphenyl	1.619	1.667	-3.0	87	0.00
8	I	Phenanthrene-d10	1.000	1.000	0.0	85	0.00
9		Atrazine	0.229	0.238	-3.9	86	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
12M63403.D TCL.M Mon Jul 17 10:37:32 2017 Page 1

Evaluate Continuing Calibration Report

Data File : I:\MSDCHEM\1\DATA\071417\12M63403.D Vial: 21
Acq On : 15 Jul 2017 2:56 am Operator: SCB
Sample : WG621894-08 50PPM TCL/A-TERP ALT SRC Inst : MSD12
Misc : 1,1 STD81289 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Mon Jul 17 10:36:52 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	88	0.00
2		Benzaldehyde	50.000	55.003	-10.0	97	0.00
3	I	Naphthalene-d8	40.000	40.000	0.0	89	0.00
4		Alpha-Terpineol	50.000	48.902	2.2	86	0.00
5		Caprolactam	50.000	52.139	-4.3	91	0.00
6	I	Acenaphthene-d10	40.000	40.000	0.0	86	0.00
7		1,1'-Biphenyl	50.000	51.485	-3.0	87	0.00
8	I	Phenanthrene-d10	40.000	40.000	0.0	85	0.00
9		Atrazine	50.000	51.905	-3.8	86	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
12M63403.D TCL.M Mon Jul 17 10:37:30 2017 Page 1

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63785.D Vial: 2
Acq On : 3 Aug 2017 9:18 am Operator: MES
Sample : WG624321-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:11:06 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:10:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	132645	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	502699	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	269929	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.578	188	530452	40.0000	ug/ml	0.000
113) Chrysene-d12	16.285	240	532162	40.0000	ug/ml	0.000
128) Perylene-d12	19.154	264	498877	40.0000	ug/ml	-0.011
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	212209	46.9754222	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 46.98%			
12) Phenol-d5	7.449	99	270016	46.4039116	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 46.40%			
31) Nitrobenzene-d5	8.422	82	261504	47.4010071	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 94.80%			
59) 2-Fluorobiphenyl	10.217	172	468737	45.7641498	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 91.53%			
86) 2,4,6-Tribromophenol	11.787	330	71525	45.1359691	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 45.14%			
117) p-Terphenyl-d14	14.619	244	586719	46.8713780	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 93.74%			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.71	88	95861	53.5526	ug/ml	100
3) n-Nitrosodimethylamine	5.17	74	128530	47.0338	ug/ml	96
4) Pyridine	5.19	79	236961	51.7878	ug/ml	100
5) 2-Picoline	6.02	93	249265	47.5528	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	103111	47.9406	ug/ml	98
7) Methyl Methanesulfonate	6.44	80	160414	51.1378	ug/ml	100
9) n-Nitrosodiethylamine	6.83	102	106759	46.6461	ug/ml	96
10) Ethyl Methanesulfonate	7.10	79	169965	47.7851	ug/ml	99
11) Aniline	7.55	66	143800	47.8797	ug/ml	97
13) Phenol	7.46	94	274165	46.4074	ug/ml	99
14) bis(2-Chloroethyl)ether	7.57	63	162035	47.4546	ug/ml	98
15) Pentachloroethane	7.59	167	88458	45.7516	ug/ml	98
16) 2-Chlorophenol	7.68	128	226794	45.6968	ug/ml	98
17) 1,3-Dichlorobenzene	7.83	146	244954	45.3745	ug/ml	98
18) 1,4-Dichlorobenzene	7.87	146	246104	45.0456	ug/ml	99
19) Benzyl Alcohol	7.96	108	147176	47.5297	ug/ml	96
20) 1,2-Dichlorobenzene	8.07	146	239335	45.8135	ug/ml	100
21) 2-Methylphenol	8.06	107	197075	46.9156	ug/ml	99
22) bis(2-Chloroisopropyl)ethe	8.11	45	196485	48.2613	ug/ml	99
23) 3-,4-Methylphenol	8.19	107	248027	46.4230	ug/ml	99
24) n-Nitrosopyrrolidine	8.24	100	109190	47.4690	ug/ml	95
25) n-Nitrosodipropylamine	8.24	70	173365	48.4351	ug/ml	99
26) Acetophenone	8.25	105	336809	47.3131	ug/ml	99
27) n-Nitrosomorpholine	8.25	56	132118	47.3880	ug/ml	98
28) o-Toluidine	8.29	106	368320	46.6506	ug/ml	99
29) Hexachloroethane	8.38	117	106041	46.6180	ug/ml	96
32) Nitrobenzene	8.44	77	254658	46.7450	ug/ml	98
33) n-Nitrosopiperidine	8.59	114	112052	46.4469	ug/ml	94
34) Isophorone	8.65	82	452788	47.7259	ug/ml	99
35) 2-Nitrophenol	8.76	139	120740	45.3304	ug/ml	97
36) 2,4-Dimethylphenol	8.73	122	204813	46.3545	ug/ml	99
37) 0,0,0-Triethyl Phosphoroth	8.82	198	116282	46.3186	ug/ml	95
38) bis(2-Chloroethoxy)methane	8.82	93	358779	48.6393	ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63785.D Vial: 2
Acq On : 3 Aug 2017 9:18 am Operator: MES
Sample : WG624321-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:11:06 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:10:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Benzoic Acid	8.77	105	92829m	36.9854 ug/ml	
40)	2,4-Dichlorophenol	8.99	162	185798	46.8749 ug/ml	99
41)	a,a-Dimethylphenethylamine	9.00	58	451155	53.3784 ug/ml#	72
42)	1,2,4-Trichlorobenzene	9.09	180	205771	44.9873 ug/ml	99
43)	Naphthalene	9.17	128	679118	45.9978 ug/ml#	98
44)	4-Chloroaniline	9.20	65	98301	47.3414 ug/ml	96
45)	2,6-Dichlorophenol	9.22	162	166585	45.3263 ug/ml	99
46)	Hexachloropropene	9.28	213	152945	46.2671 ug/ml	98
47)	Hexachlorobutadiene	9.32	225	115415	44.2670 ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.51	84	217662	49.7512 ug/ml	100
49)	p-Phenylenediamine	9.54	108	155505	53.7057 ug/ml	98
50)	4-Chloro-3-Methylphenol	9.63	107	234594	48.8586 ug/ml	96
51)	Safrole	9.73	162	175634	45.4587 ug/ml	98
52)	2-Methylnaphthalene	9.86	142	465425	46.1137 ug/ml	100
53)	1-Methylnaphthalene	9.98	142	424737	46.0099 ug/ml	99
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	216026	45.9450 ug/ml	100
56)	Hexachlorocyclopentadiene	10.08	237	104360	48.2917 ug/ml	100
57)	2,4,6-Trichlorophenol	10.15	196	143362	46.1002 ug/ml	99
58)	2,4,5-Trichlorophenol	10.20	196	147452	46.1192 ug/ml	100
60)	Isosafrole	10.25	162	171074	45.6692 ug/ml	99
61)	2-Chloronaphthalene	10.37	162	432364	46.0159 ug/ml	99
62)	1-Chloronaphthalene	10.41	162	416884	46.9741 ug/ml	99
63)	2-Nitroaniline	10.46	65	144557	48.1415 ug/ml	95
64)	1,4-Naphthoquinone	10.53	158	120793	41.2859 ug/ml	96
65)	Dimethylphthalate	10.62	163	500833	46.0560 ug/ml	100
66)	1,3-Dinitrobenzene	10.68	168	87699	46.4249 ug/ml	96
67)	2,6-Dinitrotoluene	10.72	165	118527	46.0058 ug/ml	95
68)	Acenaphthylene	10.81	152	696228	46.9415 ug/ml	100
69)	3-Nitroaniline	10.88	138	122315	46.2751 ug/ml	97
70)	2,4-Dinitrophenol	10.98	184	71697	46.6366 ug/ml	91
71)	Acenaphthene	10.99	154	450451	47.7080 ug/ml	100
72)	4-Nitrophenol	10.98	65	114976	49.1763 ug/ml	97
73)	2,4-Dinitrotoluene	11.13	165	164431	46.3520 ug/ml	96
74)	Pentachlorobenzene	11.17	250	169227	44.1202 ug/ml	97
75)	Dibenzofuran	11.15	168	615103	46.2955 ug/ml	99
76)	2,3,4,6-Tetrachlorophenol	11.30	232	130654	46.8194 ug/ml	99
77)	1-Naphthylamine	11.23	143	439502	49.2681 ug/ml	99
78)	2-Naphthylamine	11.30	143	449858	48.1048 ug/ml	98
79)	Diethylphthalate	11.33	149	522449	46.9347 ug/ml	99
80)	Thionazin	11.43	107	89039	48.2738 ug/ml	99
81)	Fluorene	11.51	166	537376	47.6302 ug/ml	99
82)	4-Chlorophenyl Phenyl Ethe	11.46	204	255700	45.4991 ug/ml	99
83)	4-Nitroaniline	11.51	138	137727	46.9768 ug/ml	96
84)	5-Nitro-o-Toluidine	11.51	152	156767	47.6306 ug/ml	96
85)	1,2-Diphenylhydrazine	11.63	77	552255	48.6432 ug/ml	99
88)	4,6-Dinitro-2-Methylphenol	11.56	198	101298	46.1171 ug/ml	96
89)	Diphenylamine/n-Nitrosodip	11.58	169	455464	46.3986 ug/ml	100
90)	Sulfotepp	11.77	322	87938	45.3373 ug/ml	94
91)	Sym-Trinitrobenzene	11.86	75	175200	49.0459 ug/ml	98
92)	Diallate	11.90	86	199627	48.7963 ug/ml	98
93)	Phenacetin	11.89	108	295462	48.7515 ug/ml	99
94)	Phorate	11.92	75	316672	48.9446 ug/ml#	99
95)	4-Bromophenyl Phenyl Ether	11.99	248	140966	45.7272 ug/ml	97
96)	Hexachlorobenzene	12.21	284	144458	44.9188 ug/ml	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63785.D Vial: 2
Acq On : 3 Aug 2017 9:18 am Operator: MES
Sample : WG624321-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:11:06 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:10:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

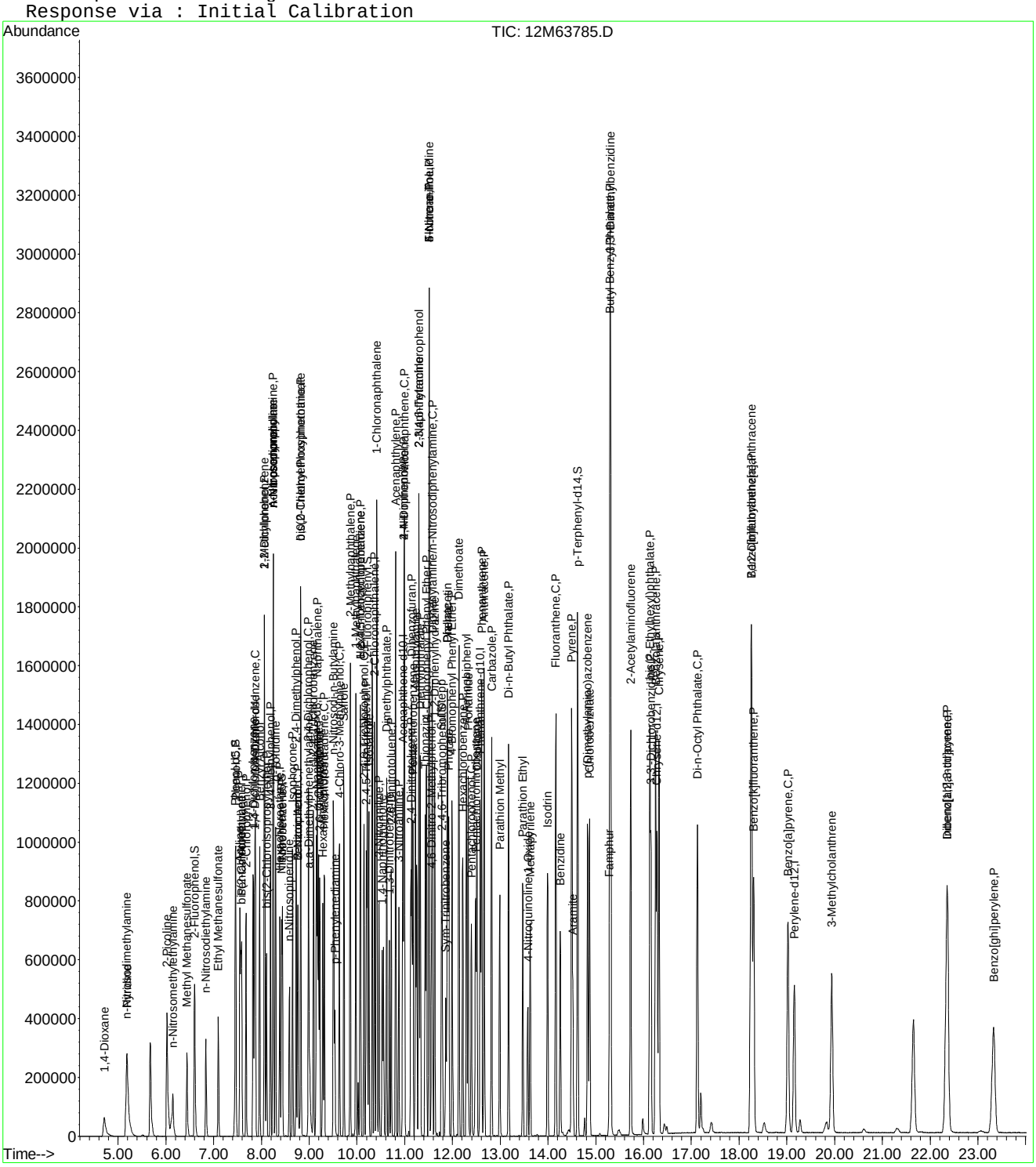
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.13	87	191655	51.7206	ug/ml	99
98)	4-Aminobiphenyl	12.29	169	546930	47.8000	ug/ml	99
99)	Pentachlorophenol	12.40	266	91214	45.8381	ug/ml	99
100)	Pronamide	12.33	173	236178	46.9353	ug/ml	100
101)	Pentachloronitrobenzene	12.49	237	67638	46.6266	ug/ml	99
102)	Disulfoton	12.51	88	257019	48.7712	ug/ml	100
103)	Phenanthrene	12.61	178	747434	46.3392	ug/ml	99
104)	Anthracene	12.66	178	786414	46.9911	ug/ml	100
105)	Carbazole	12.82	167	685230	46.7146	ug/ml	100
106)	Parathion Methyl	12.99	109	174386	51.7548	ug/ml	98
107)	Di-n-Butyl Phthalate	13.18	149	912081	47.9157	ug/ml	100
108)	Parathion Ethyl	13.47	97	118877	49.8476	ug/ml	98
109)	4-Nitroquinoline 1-Oxide	13.58	190	56064	50.5194	ug/ml	95
110)	Methapyrilene	13.62	58	242331	50.4273	ug/ml	99
111)	Isodrin	13.99	193	85311	46.2767	ug/ml	97
112)	Fluoranthene	14.16	202	836164	46.5193	ug/ml	100
114)	Benzidine	14.26	184	365186	47.4125	ug/ml	100
115)	Pyrene	14.50	202	861752	47.2752	ug/ml	100
116)	Aramite	14.52	185	55110	49.7016	ug/ml	98
118)	p-(Dimethylamino)azobenzen	14.83	225	170982	46.9265	ug/ml	94
119)	Chlorobenzilate	14.87	251	233521	47.0053	ug/ml	97
120)	Famphur	15.28	218	52489	51.1289	ug/ml	97
121)	Butyl Benzyl Phthalate	15.30	149	439238	49.3066	ug/ml	98
122)	3,3'-Dimethylbenzidine	15.31	212	769159	42.7869	ug/ml	99
123)	2-Acetylaminofluorene	15.73	181	384952	48.7700	ug/ml	99
124)	bis(2-Ethylhexyl)phthalate	16.13	149	580634	48.4098	ug/ml	99
125)	3,3'-Dichlorobenzidine	16.16	252	278281	45.9505	ug/ml	100
126)	Benzo[a]anthracene	16.25	228	809384	46.7537	ug/ml	100
127)	Chrysene	16.32	228	728585	46.4016	ug/ml	100
129)	Di-n-Octyl Phthalate	17.12	149	988911	47.7719	ug/ml	99
130)	7,12-Dimethylbenz[a]anthra	18.26	256	394056	47.9189	ug/ml	99
131)	Benzo[b]fluoranthene	18.26	252	827461	45.6391	ug/ml	100
132)	Benzo[k]fluoranthene	18.30	252	683287	44.8931	ug/ml	98
133)	Benzo[a]pyrene	19.03	252	706002	45.9931	ug/ml	100
134)	3-Methylcholanthrene	19.94	268	373059	46.6557	ug/ml	99
135)	Indeno[1,2,3-cd]pyrene	22.35	276	796452	47.1058	ug/ml	99
136)	Dibenz[ah]anthracene	22.35	278	683858	47.2651	ug/ml	99
137)	Benzo[ghi]perylene	23.33	276	635912	47.0468	ug/ml	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63785.D Vial: 2
Acq On : 3 Aug 2017 9:18 am Operator: MES
Sample : WG624321-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:11 2017 Quant Results File: MEGAMIX.RES

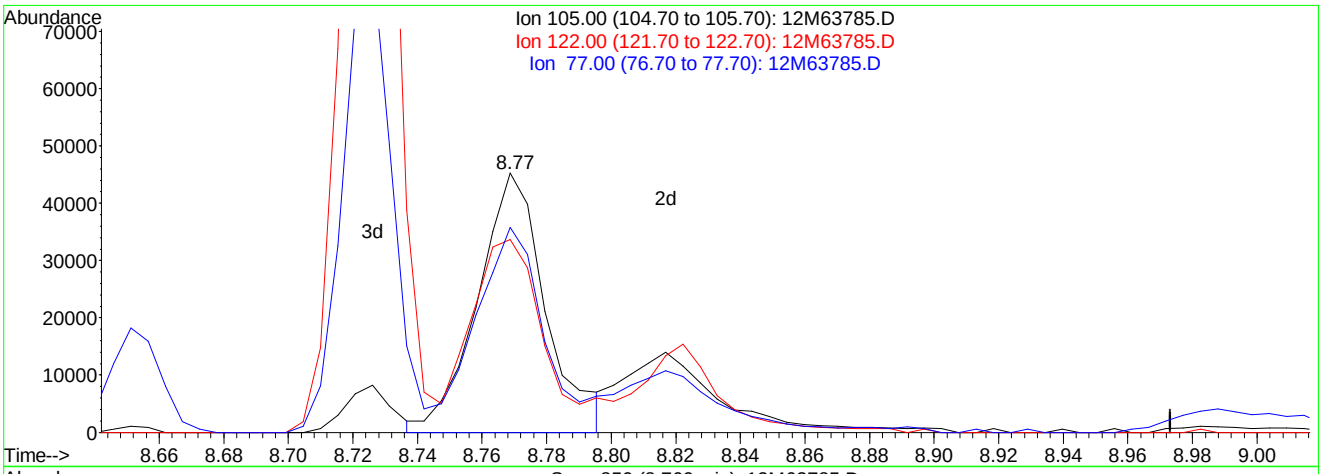
Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration

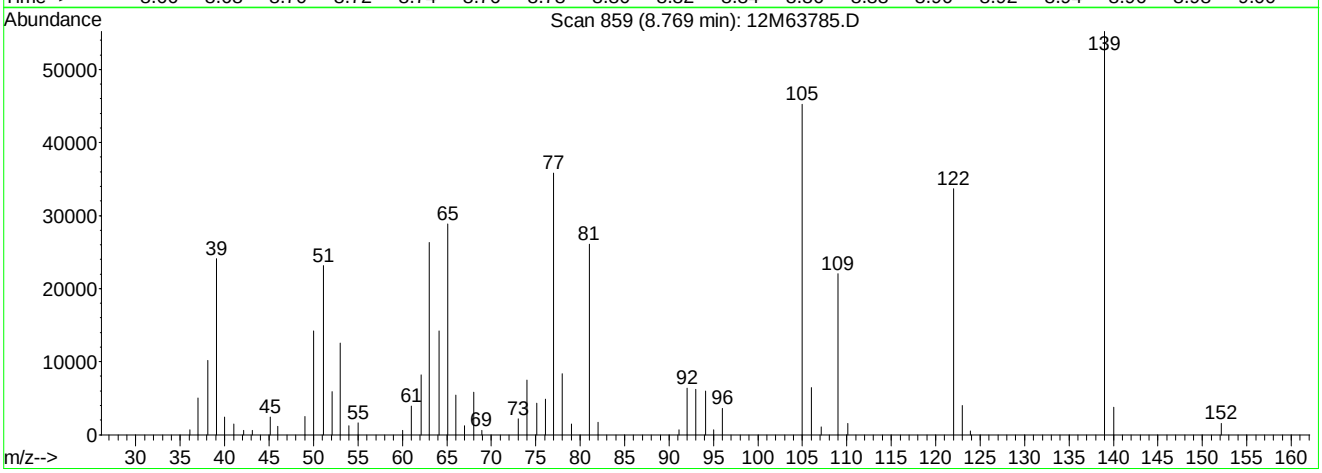


Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63785.D Vial: 2
Acq On : 3 Aug 2017 9:18 am Operator: MES
Sample : WG624321-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:11 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:10:55 2017
Response via : Multiple Level Calibration





TIC: 12M63785.D

(39) Benzoic Acid

8.77min 26.36ug/ml

response 66154

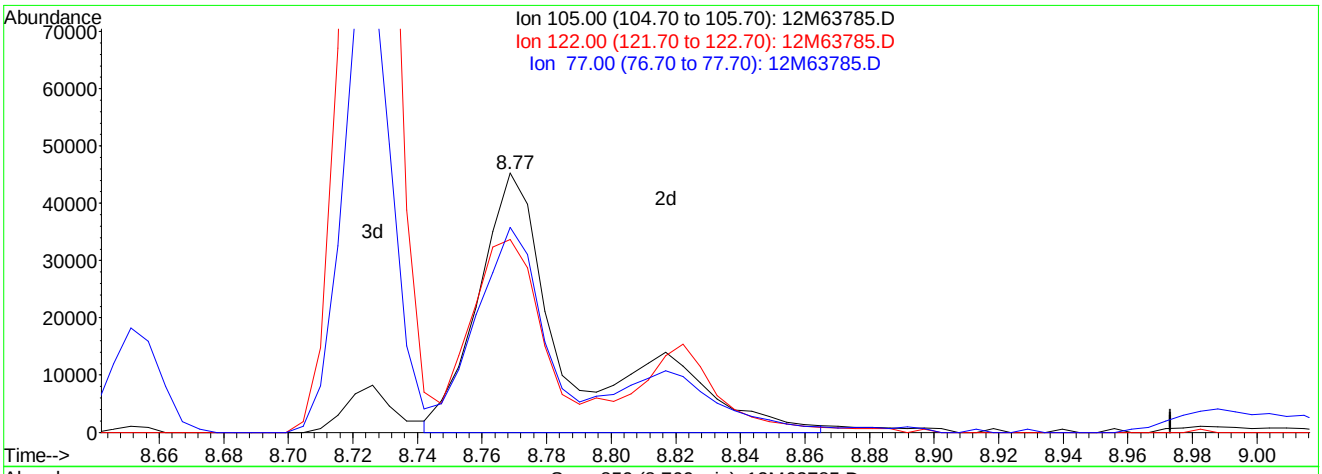
Ion	Exp%	Act%
105.00	100	100
122.00	58.00	76.11
77.00	53.80	75.49#
0.00	0.00	0.00

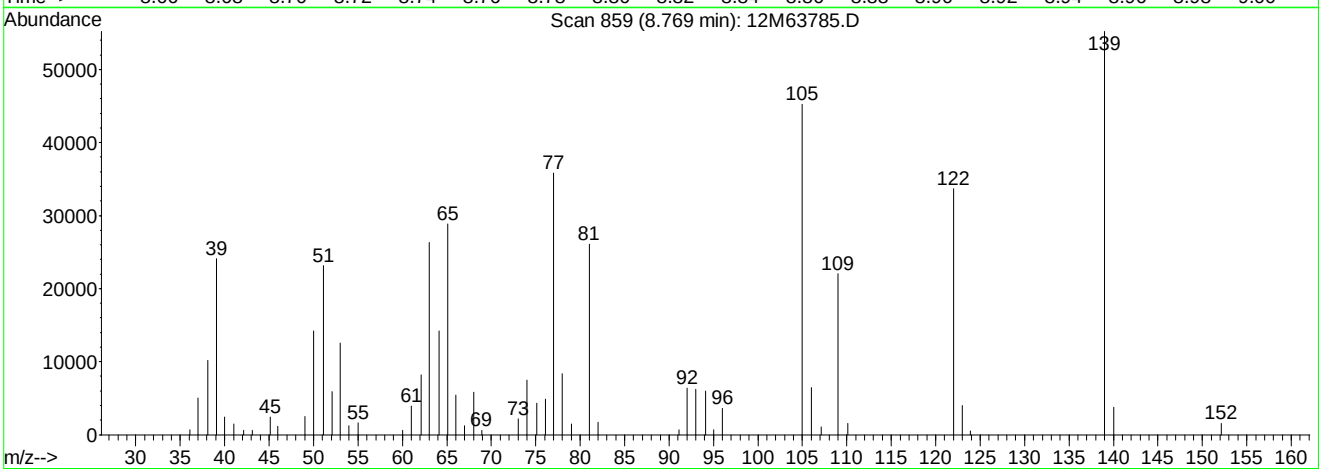
12M63785.D MEGAMIX.M Thu Aug 03 13:11:20 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63785.D Vial: 2
Acq On : 3 Aug 2017 9:18 am Operator: MES
Sample : WG624321-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:11 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:10:55 2017
Response via : Multiple Level Calibration





TIC: 12M63785.D

(39) Benzoic Acid

8.77min 36.99ug/ml mint

response 92829

Ion	Exp%	Act%
105.00	100	100
122.00	58.00	54.24
77.00	53.80	53.80
0.00	0.00	0.00

12M63785.D MEGAMIX.M Thu Aug 03 [illegible]017

Analyst: 08/04/2017 09:07 Supervisor: 08/07/2017 16:22

#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63786.D Vial: 3
Acq On : 3 Aug 2017 9:51 am Operator: MES
Sample : WG624321-03 1 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:12:10 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	130675	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	496871	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	256588	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.578	188	502032	40.0000	ug/ml	0.000
113) Chrysene-d12	16.275	240	490723	40.0000	ug/ml	-0.011
128) Perylene-d12	19.149	264	450752	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	3312	0.7489081	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 0.75%#			
12) Phenol-d5	7.449	99	4371	0.7681555	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 0.77%#			
31) Nitrobenzene-d5	8.416	82	4391	0.8082015	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 1.62%#			
59) 2-Fluorobiphenyl	10.211	172	8127	0.8414653	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 1.68%#			
86) 2,4,6-Tribromophenol	11.787	330	678	0.4540870	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 0.45%#			
117) p-Terphenyl-d14	14.613	244	8749	0.7648864	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 1.53%#			
Target Compounds						Qvalue
3) n-Nitrosodimethylamine	5.17	74	1425	0.5335	ug/ml#	94
4) Pyridine	5.21	79	3167	0.7059	ug/ml#	66
5) 2-Picoline	6.03	93	3649	0.7113	ug/ml#	76
6) n-Nitrosomethylethylamine	6.15	88	650	0.3085	ug/ml#	35
7) Methyl Methanesulfonate	6.44	80	2534	0.8218	ug/ml#	84
9) n-Nitrosodiethylamine	6.83	102	1451	0.6484	ug/ml#	91
10) Ethyl Methanesulfonate	7.10	79	2760	0.7903	ug/ml#	93
11) Aniline	7.55	66	2211	0.7496	ug/ml	93
13) Phenol	7.47	94	4320	0.7466	ug/ml	98
14) bis(2-Chloroethyl)ether	7.57	63	2575	0.7688	ug/ml	97
15) Pentachloroethane	7.58	167	1335	0.7073	ug/ml	91
16) 2-Chlorophenol	7.68	128	3806	0.7844	ug/ml	93
17) 1,3-Dichlorobenzene	7.82	146	4234	0.8033	ug/ml	98
18) 1,4-Dichlorobenzene	7.87	146	4597	0.8625	ug/ml#	61
19) Benzyl Alcohol	7.96	108	2233	0.7358	ug/ml	95
20) 1,2-Dichlorobenzene	8.07	146	4186	0.8200	ug/ml	94
21) 2-Methylphenol	8.05	107	3507	0.8536	ug/ml	93
22) bis(2-Chloroisopropyl)ethe	8.11	45	3586	0.8959	ug/ml#	88
23) 3-,4-Methylphenol	8.19	107	4028	0.7698	ug/ml	97
24) n-Nitrosopyrrolidine	8.23	100	1359	0.6050	ug/ml#	52
25) n-Nitrosodipropylamine	8.23	70	3008	0.8550	ug/ml#	90
26) Acetophenone	8.25	105	5702	0.8183	ug/ml	90
27) n-Nitrosomorpholine	8.24	56	2407	0.8790	ug/ml#	86
28) o-Toluidine	8.29	106	5778	0.7476	ug/ml	93
29) Hexachloroethane	8.38	117	1829	0.8216	ug/ml	91
32) Nitrobenzene	8.44	77	4310	0.8042	ug/ml#	93
33) n-Nitrosopiperidine	8.58	114	1548	0.6538	ug/ml#	79
34) Isophorone	8.65	82	7453	0.7975	ug/ml	96
35) 2-Nitrophenol	8.76	139	1732	0.6643	ug/ml	86
36) 2,4-Dimethylphenol	8.73	122	2997	0.6898	ug/ml	82
37) 0,0,0-Triethyl Phosphoroth	8.82	198	1793	0.7299	ug/ml	96
38) bis(2-Chloroethoxy)methane	8.82	93	5911	0.8132	ug/ml	94
40) 2,4-Dichlorophenol	8.99	162	2714	0.6970	ug/ml	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63786.D Vial: 3
Acq On : 3 Aug 2017 9:51 am Operator: MES
Sample : WG624321-03 1 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:12:10 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
41)	a,a-Dimethylphenethylamine	8.93	58	5166	0.6194 ug/ml#	76
42)	1,2,4-Trichlorobenzene	9.09	180	3465	0.7748 ug/ml	98
43)	Naphthalene	9.17	128	11577	0.7997 ug/ml#	95
44)	4-Chloroaniline	9.19	65	1400	0.6845 ug/ml	83
45)	2,6-Dichlorophenol	9.22	162	2768	0.7682 ug/ml	90
46)	Hexachloropropene	9.28	213	2410	0.7450 ug/ml	94
47)	Hexachlorobutadiene	9.31	225	1954	0.7672 ug/ml	96
48)	n-Nitrosodi-n-Butylamine	9.50	84	3329	0.7725 ug/ml	95
49)	p-Phenylenediamine	9.53	108	677	0.2387 ug/ml#	31
50)	4-Chloro-3-Methylphenol	9.63	107	3449	0.7263 ug/ml	95
51)	Safrole	9.73	162	2772	0.7312 ug/ml	89
52)	2-Methylnaphthalene	9.86	142	7539	0.7615 ug/ml	100
53)	1-Methylnaphthalene	9.98	142	7055	0.7785 ug/ml	96
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	3417	0.7712 ug/ml	98
56)	Hexachlorocyclopentadiene	10.08	237	445	0.2200 ug/ml#	27
57)	2,4,6-Trichlorophenol	10.14	196	2028	0.6918 ug/ml#	90
58)	2,4,5-Trichlorophenol	10.19	196	1830	0.6071 ug/ml	95
60)	Isosafrole	10.24	162	2503	0.7072 ug/ml	95
61)	2-Chloronaphthalene	10.37	162	7485	0.8440 ug/ml	97
62)	1-Chloronaphthalene	10.40	162	6895	0.8234 ug/ml	98
63)	2-Nitroaniline	10.46	65	2109	0.7393 ug/ml	88
64)	1,4-Naphthoquinone	10.53	158	1528	0.5545 ug/ml	89
65)	Dimethylphthalate	10.62	163	8478	0.8266 ug/ml#	86
66)	1,3-Dinitrobenzene	10.68	168	1097	0.6159 ug/ml	95
67)	2,6-Dinitrotoluene	10.71	165	1514	0.6230 ug/ml	96
68)	Acenaphthylene	10.81	152	10901	0.7783 ug/ml	99
69)	3-Nitroaniline	10.87	138	1553	0.6221 ug/ml#	94
71)	Acenaphthene	10.99	154	7019	0.7874 ug/ml	93
72)	4-Nitrophenol	10.99	65	449	0.2022 ug/ml	92
73)	2,4-Dinitrotoluene	11.12	165	1996	0.5958 ug/ml	89
74)	Pentachlorobenzene	11.17	250	2940	0.8170 ug/ml	91
75)	Dibenzofuran	11.15	168	10571	0.8426 ug/ml	93
76)	2,3,4,6-Tetrachlorophenol	11.29	232	1583	0.6024 ug/ml	94
77)	1-Naphthylamine	11.22	143	6994	0.8296 ug/ml	96
78)	2-Naphthylamine	11.29	143	7131	0.8096 ug/ml	98
79)	Diethylphthalate	11.32	149	9091	0.8640 ug/ml	94
80)	Thionazin	11.42	107	1138	0.6505 ug/ml	97
81)	Fluorene	11.50	166	8307	0.7796 ug/ml	99
82)	4-Chlorophenyl Phenyl Ethe	11.45	204	4008	0.7561 ug/ml	91
83)	4-Nitroaniline	11.51	138	1529	0.5527 ug/ml	80
84)	5-Nitro-o-Toluidine	11.50	152	1970	0.6344 ug/ml	88
85)	1,2-Diphenylhydrazine	11.62	77	9271	0.8600 ug/ml	94
89)	Diphenylamine/n-Nitrosodip	11.57	169	7315	0.7921 ug/ml	97
90)	Sulfotepp	11.77	322	1276	0.7023 ug/ml#	82
91)	Sym-Trinitrobenzene	11.85	75	914	0.2718 ug/ml#	68
92)	Diallate	11.89	86	3383	0.8739 ug/ml	89
93)	Phenacetin	11.88	108	3700	0.6473 ug/ml	93
94)	Phorate	11.92	75	5088	0.8314 ug/ml#	93
95)	4-Bromophenyl Phenyl Ether	11.98	248	2398	0.8288 ug/ml	89
96)	Hexachlorobenzene	12.21	284	2237	0.7415 ug/ml#	89
97)	Dimethoate	12.13	87	3095	0.8834 ug/ml	93
98)	4-Aminobiphenyl	12.29	169	7373	0.6841 ug/ml	99
100)	Pronamide	12.32	173	3020	0.6374 ug/ml#	95
101)	Pentachloronitrobenzene	12.48	237	761	0.5576 ug/ml#	47

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63786.D Vial: 3
Acq On : 3 Aug 2017 9:51 am Operator: MES
Sample : WG624321-03 1 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:12:10 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

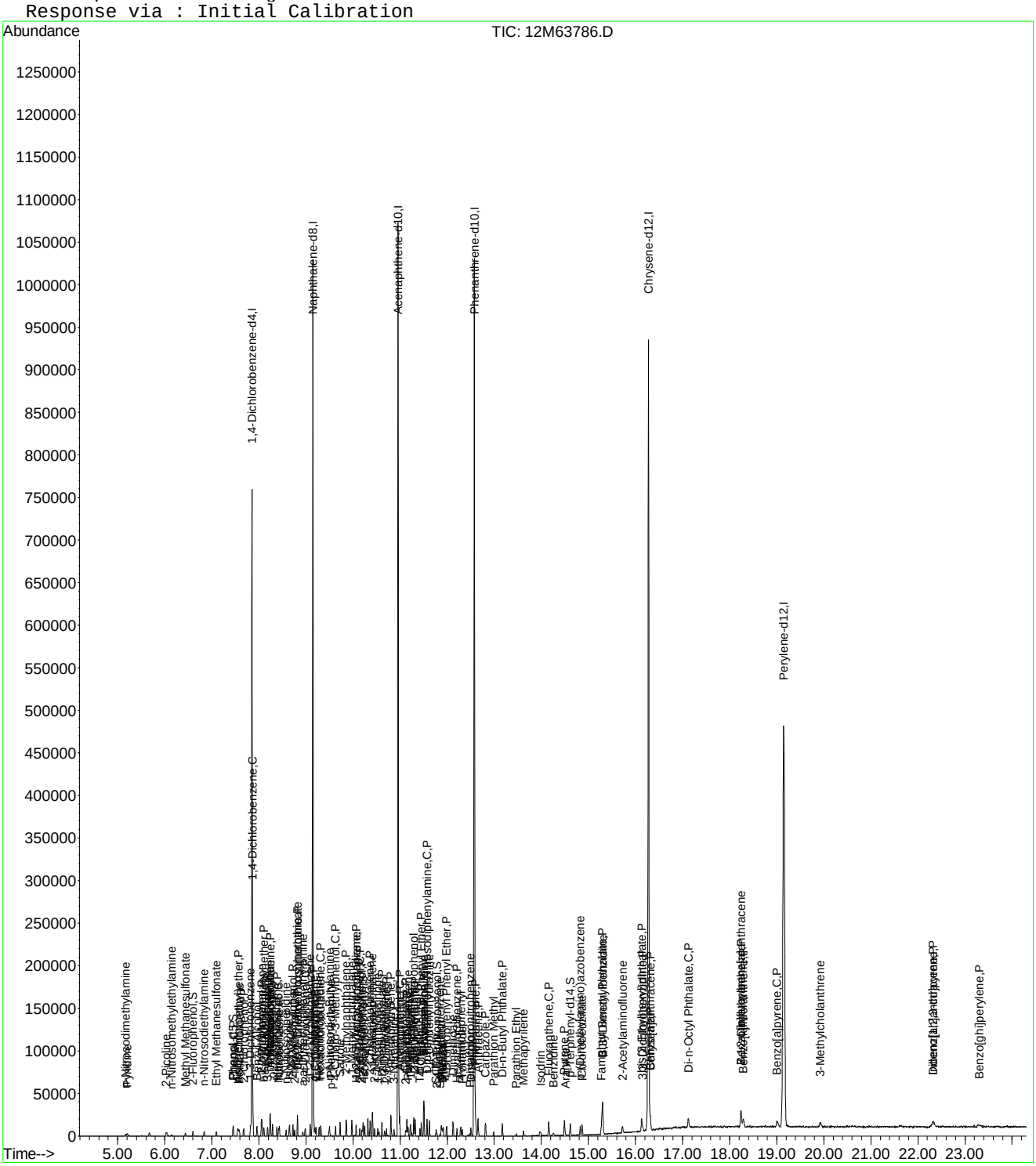
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
102) Disulfoton	12.50	88	3705	0.7431 ug/ml	94
103) Phenanthrene	12.60	178	13003	0.8580 ug/ml	94
104) Anthracene	12.66	178	12501	0.7938 ug/ml	95
105) Carbazole	12.81	167	10610	0.7687 ug/ml	98
106) Parathion Methyl	12.98	109	1732	0.5459 ug/ml	94
107) Di-n-Butyl Phthalate	13.17	149	13174	0.7345 ug/ml	94
108) Parathion Ethyl	13.47	97	888	0.3945 ug/ml#	69
110) Methapyrilene	13.62	58	3278	0.7294 ug/ml#	91
111) Isodrin	13.99	193	1121	0.6458 ug/ml#	1
112) Fluoranthene	14.16	202	12773	0.7565 ug/ml	94
114) Benzidine	14.26	184	3267	0.4632 ug/ml	100
115) Pyrene	14.49	202	13367	0.8010 ug/ml	97
116) Aramite	14.52	185	214	0.2101 ug/ml#	53
118) p-(Dimethylamino)azobenzen	14.83	225	1893	0.5684 ug/ml	89
119) Chlorobenzilate	14.86	251	3037	0.6675 ug/ml#	82
120) Famphur	15.27	218	4555	4.7054 ug/ml#	69
121) Butyl Benzyl Phthalate	15.29	149	6567	0.8034 ug/ml	87
122) 3,3'-Dimethylbenzidine	15.31	212	11048	0.6716 ug/ml#	94
123) 2-Acetylaminofluorene	15.72	181	3953	0.5470 ug/ml#	89
124) bis(2-Ethylhexyl)phthalate	16.13	149	8339	0.7580 ug/ml#	89
125) 3,3'-Dichlorobenzidine	16.15	252	3687	0.6662 ug/ml#	89
126) Benzo[a]anthracene	16.32	228	11547	0.7293 ug/ml	95
127) Chrysene	16.32	228	11547	0.8041 ug/ml	98
129) Di-n-Octyl Phthalate	17.12	149	12980	0.6971 ug/ml#	99
130) 7,12-Dimethylbenz[a]anthra	18.25	256	5364	0.7272 ug/ml	97
131) Benzo[b]fluoranthene	18.24	252	11832	0.7288 ug/ml#	81
132) Benzo[k]fluoranthene	18.29	252	10762	0.7937 ug/ml#	93
133) Benzo[a]pyrene	19.01	252	9653	0.7022 ug/ml#	86
134) 3-Methylcholanthrene	19.93	268	4810	0.6723 ug/ml#	30
135) Indeno[1,2,3-cd]pyrene	22.32	276	9236	0.6094 ug/ml#	66
136) Dibenz[ah]anthracene	22.32	278	7243	0.5586 ug/ml#	63
137) Benzo[ghi]perylene	23.31	276	7423	0.6124 ug/ml#	56

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

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63786.D Vial: 3
Acq On : 3 Aug 2017 9:51 am Operator: MES
Sample : WG624321-03 1 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:12 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:12:28 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63787.D Vial: 4
Acq On : 3 Aug 2017 10:24 am Operator: MES
Sample : WG624321-04 3 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:10:16 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	128647	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	493014	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.954	164	261757	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.573	188	506189	40.0000	ug/ml	0.000
113) Chrysene-d12	16.275	240	499632	40.0000	ug/ml	-0.011
128) Perylene-d12	19.149	264	464771	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	10872	2.7749094	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 2.77%#			
12) Phenol-d5	7.449	99	14050	2.8049194	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 2.80%#			
31) Nitrobenzene-d5	8.416	82	14091	2.8640767	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 5.73%#			
59) 2-Fluorobiphenyl	10.211	172	25922	2.8524089	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 5.70%#			
86) 2,4,6-Tribromophenol	11.787	330	3281	2.3797832	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 2.38%#			
117) p-Terphenyl-d14	14.613	244	29312	2.7251674	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 5.45%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.72	88	4188	2.4882	ug/ml	89
3) n-Nitrosodimethylamine	5.17	74	6140	2.6335	ug/ml#	94
4) Pyridine	5.19	79	11175	2.6220	ug/ml	98
5) 2-Picoline	6.03	93	12981	2.8164	ug/ml	95
6) n-Nitrosomethylethylamine	6.14	88	5188	2.7945	ug/ml#	91
7) Methyl Methanesulfonate	6.44	80	8841	2.9724	ug/ml	93
9) n-Nitrosodiethylamine	6.83	102	5354	2.7306	ug/ml	100
10) Ethyl Methanesulfonate	7.10	79	8797	2.8324	ug/ml	99
11) Aniline	7.55	66	7287	2.7949	ug/ml	93
13) Phenol	7.46	94	14334	2.8155	ug/ml	99
14) bis(2-Chloroethyl)ether	7.57	63	8721	2.9126	ug/ml	97
15) Pentachloroethane	7.58	167	4869	2.8666	ug/ml	96
16) 2-Chlorophenol	7.68	128	11995	2.8038	ug/ml	95
17) 1,3-Dichlorobenzene	7.83	146	13497	2.8815	ug/ml	97
18) 1,4-Dichlorobenzene	7.87	146	13764	2.8906	ug/ml	90
19) Benzyl Alcohol	7.96	108	7277	2.6712	ug/ml	93
20) 1,2-Dichlorobenzene	8.06	146	12503	2.7620	ug/ml	98
21) 2-Methylphenol	8.05	107	9985	2.7302	ug/ml	96
22) bis(2-Chloroisopropyl)ethe	8.11	45	11115	3.0659	ug/ml	96
23) 3-,4-Methylphenol	8.19	107	13064	2.8251	ug/ml	99
24) n-Nitrosopyrrolidine	8.23	100	5321	2.6812	ug/ml	79
25) n-Nitrosodipropylamine	8.23	70	9633	3.0299	ug/ml	97
26) Acetophenone	8.25	105	18877	3.0121	ug/ml	97
27) n-Nitrosomorpholine	8.24	56	7634	3.1001	ug/ml	96
28) o-Toluidine	8.29	106	19825	2.8938	ug/ml	100
29) Hexachloroethane	8.38	117	5656	2.8262	ug/ml	99
32) Nitrobenzene	8.44	77	14824	3.0428	ug/ml	95
33) n-Nitrosopiperidine	8.58	114	6067	2.8798	ug/ml	98
34) Isophorone	8.65	82	24521	2.9001	ug/ml	98
35) 2-Nitrophenol	8.76	139	6334	2.7412	ug/ml	96
36) 2,4-Dimethylphenol	8.72	122	10270	2.6676	ug/ml	96
37) 0,0,0-Triethyl Phosphoroth	8.82	198	6095	2.7008	ug/ml	92
38) bis(2-Chloroethoxy)methane	8.82	93	19033	2.8602	ug/ml	96

(#) = qualifier out of range (m) = manual integration
12M63787.D MEGAMIX.M Tue Aug 15 10:12:56 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63787.D Vial: 4
Acq On : 3 Aug 2017 10:24 am Operator: MES
Sample : WG624321-04 3 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:10:16 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Benzoic Acid	8.76	105	330	7.5066 ug/ml#	2
40)	2,4-Dichlorophenol	8.98	162	9188	2.6256 ug/ml	97
41)	a,a-Dimethylphenethylamine	8.93	58	20474	2.4943 ug/ml#	93
42)	1,2,4-Trichlorobenzene	9.09	180	11513	2.8449 ug/ml	98
43)	Naphthalene	9.17	128	37572	2.8697 ug/ml#	98
44)	4-Chloroaniline	9.19	65	4835	2.6724 ug/ml	78
45)	2,6-Dichlorophenol	9.22	162	9113	2.8302 ug/ml	95
46)	Hexachloropropene	9.28	213	8139	2.7167 ug/ml	98
47)	Hexachlorobutadiene	9.31	225	6950	2.9655 ug/ml	93
48)	n-Nitrosodi-n-Butylamine	9.50	84	11312	2.8588 ug/ml	98
49)	p-Phenylenediamine	9.53	108	6137	2.0806 ug/ml	97
50)	4-Chloro-3-Methylphenol	9.63	107	12060	2.7623 ug/ml	96
51)	Safrole	9.73	162	9158	2.7135 ug/ml	95
52)	2-Methylnaphthalene	9.85	142	23619	2.6572 ug/ml	95
53)	1-Methylnaphthalene	9.98	142	22428	2.7587 ug/ml	97
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	11443	2.7477 ug/ml	98
56)	Hexachlorocyclopentadiene	10.08	237	2935	3.1974 ug/ml#	93
57)	2,4,6-Trichlorophenol	10.14	196	7106	2.6027 ug/ml	97
58)	2,4,5-Trichlorophenol	10.19	196	7658	2.6820 ug/ml	90
60)	Isosafrole	10.24	162	9133	2.7655 ug/ml	99
61)	2-Chloronaphthalene	10.36	162	23264	2.7977 ug/ml	99
62)	1-Chloronaphthalene	10.40	162	22322	2.7968 ug/ml	97
63)	2-Nitroaniline	10.46	65	7360	2.7393 ug/ml	93
64)	1,4-Naphthoquinone	10.53	158	6421	2.8401 ug/ml	98
65)	Dimethylphthalate	10.62	163	26896	2.7797 ug/ml	99
66)	1,3-Dinitrobenzene	10.67	168	4204	2.5522 ug/ml	97
67)	2,6-Dinitrotoluene	10.71	165	5860	2.6052 ug/ml	88
68)	Acenaphthylene	10.80	152	35404	2.6919 ug/ml	98
69)	3-Nitroaniline	10.87	138	5796	2.5118 ug/ml	93
70)	2,4-Dinitrophenol	10.98	184	433	6.3094 ug/ml#	1
71)	Acenaphthene	10.99	154	21850	2.6018 ug/ml	95
72)	4-Nitrophenol	10.98	65	5261	2.5158 ug/ml	83
73)	2,4-Dinitrotoluene	11.12	165	7615	2.4637 ug/ml	89
74)	Pentachlorobenzene	11.17	250	9077	2.7023 ug/ml	99
75)	Dibenzofuran	11.15	168	33190	2.8060 ug/ml	98
76)	2,3,4,6-Tetrachlorophenol	11.29	232	5755	2.3410 ug/ml	96
77)	1-Naphthylamine	11.22	143	22016	2.6568 ug/ml	98
78)	2-Naphthylamine	11.29	143	24106	2.8361 ug/ml	97
79)	Diethylphthalate	11.32	149	28759	2.8845 ug/ml	98
80)	Thionazin	11.42	107	4501	2.7611 ug/ml	93
81)	Fluorene	11.50	166	25928	2.5828 ug/ml	94
82)	4-Chlorophenyl Phenyl Ethe	11.45	204	13749	2.7639 ug/ml	99
83)	4-Nitroaniline	11.50	138	6150	2.3945 ug/ml	86
84)	5-Nitro-o-Toluidine	11.50	152	7123	2.4536 ug/ml	90
85)	1,2-Diphenylhydrazine	11.62	77	29932	2.9094 ug/ml	96
88)	4,6-Dinitro-2-Methylphenol	11.55	198	2663	6.1282 ug/ml#	37
89)	Diphenylamine/n-Nitrosodip	11.57	169	22883	2.7040 ug/ml	96
90)	Sulfotepp	11.77	322	4341	2.5997 ug/ml	96
91)	Sym-Trinitrobenzene	11.85	75	5937	3.1341 ug/ml	95
92)	Diallate	11.89	86	10130	2.8304 ug/ml	96
93)	Phenacetin	11.87	108	13650	2.5728 ug/ml	97
94)	Phorate	11.92	75	16361	2.8850 ug/ml#	95
95)	4-Bromophenyl Phenyl Ether	11.99	248	6944	2.6166 ug/ml	91
96)	Hexachlorobenzene	12.21	284	7540	2.7356 ug/ml	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63787.D Vial: 4
Acq On : 3 Aug 2017 10:24 am Operator: MES
Sample : WG624321-04 3 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:10:16 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

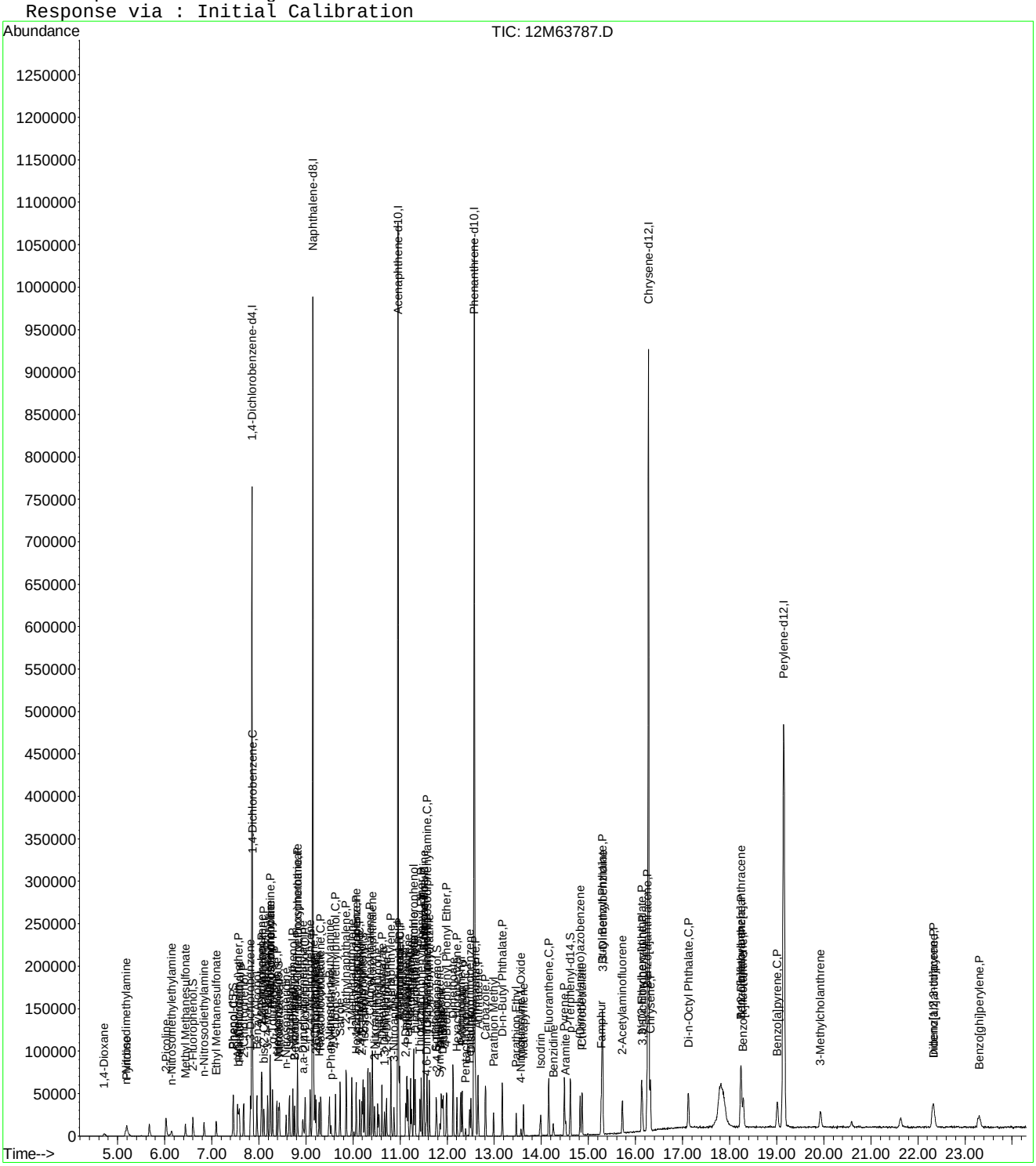
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.13	87	10306	3.0537	ug/ml	99
98)	4-Aminobiphenyl	12.29	169	26865	2.6897	ug/ml	97
99)	Pentachlorophenol	12.39	266	2336	4.4172	ug/ml	93
100)	Pronamide	12.32	173	11612	2.6644	ug/ml	98
101)	Pentachloronitrobenzene	12.48	237	3317	2.6209	ug/ml	90
102)	Disulfoton	12.50	88	12899	2.8156	ug/ml	98
103)	Phenanthrene	12.60	178	39545	2.8305	ug/ml	99
104)	Anthracene	12.66	178	40202	2.7651	ug/ml	99
105)	Carbazole	12.81	167	33531	2.6755	ug/ml	98
106)	Parathion Methyl	12.98	109	8061	2.6424	ug/ml	98
107)	Di-n-Butyl Phthalate	13.17	149	45580	2.7472	ug/ml	100
108)	Parathion Ethyl	13.46	97	4874	2.3719	ug/ml	98
109)	4-Nitroquinoline 1-Oxide	13.57	190	563	3.5578	ug/ml#	44
110)	Methapyrilene	13.62	58	14942	2.8901	ug/ml	98
111)	Isodrin	13.99	193	4516	2.8238	ug/ml#	59
112)	Fluoranthene	14.16	202	40884	2.6509	ug/ml	99
114)	Benzidine	14.26	184	12824	2.0578	ug/ml	100
115)	Pyrene	14.49	202	42259	2.7054	ug/ml	99
116)	Aramite	14.52	185	2552	2.6695	ug/ml#	85
118)	p-(Dimethylamino)azobenzen	14.83	225	7276	2.3739	ug/ml	88
119)	Chlorobenzilate	14.86	251	11533	2.6947	ug/ml	95
120)	Famphur	15.27	218	16096	16.3310	ug/ml#	73
121)	Butyl Benzyl Phthalate	15.29	149	21823	2.7833	ug/ml	90
122)	3,3'-Dimethylbenzidine	15.31	212	33823	2.5025	ug/ml	99
123)	2-Acetylaminofluorene	15.72	181	14528	2.2068	ug/ml	98
124)	bis(2-Ethylhexyl)phthalate	16.13	149	26984	2.6811	ug/ml	97
125)	3,3'-Dichlorobenzidine	16.15	252	13554	2.6689	ug/ml	98
126)	Benzo[a]anthracene	16.25	228	40820	2.7607	ug/ml	99
127)	Chrysene	16.32	228	36733	2.7380	ug/ml	99
129)	Di-n-Octyl Phthalate	17.12	149	44091	2.5420	ug/ml#	99
130)	7,12-Dimethylbenz[a]anthra	18.24	256	18839	2.6483	ug/ml	99
131)	Benzo[b]fluoranthene	18.24	252	41814	2.6987	ug/ml	91
132)	Benzo[k]fluoranthene	18.29	252	34997	2.6921	ug/ml	96
133)	Benzo[a]pyrene	19.01	252	33109	2.5855	ug/ml#	81
134)	3-Methylcholanthrene	19.93	268	16976	2.5524	ug/ml#	90
135)	Indeno[1,2,3-cd]pyrene	22.33	276	33233	2.3675	ug/ml#	85
136)	Dibenz[ah]anthracene	22.32	278	27231	2.2743	ug/ml#	87
137)	Benzo[ghi]perylene	23.30	276	26929	2.4170	ug/ml#	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63787.D MEGAMIX.M Tue Aug 15 10:12:57 2017 Page 3

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63787.D Vial: 4
Acq On : 3 Aug 2017 10:24 am Operator: MES
Sample : WG624321-04 3 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:10 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Tue Aug 08 12:31:59 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63788.D Vial: 5
Acq On : 3 Aug 2017 10:57 am Operator: MES
Sample : WG624321-05 10 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:12:11 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	134877	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	506991	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	265398	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.572	188	527010	40.0000	ug/ml	0.000
113) Chrysene-d12	16.275	240	520449	40.0000	ug/ml	-0.011
128) Perylene-d12	19.149	264	481460	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	38225	8.3741422	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 8.37%#			
12) Phenol-d5	7.449	99	48013	8.1748880	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 8.17%#			
31) Nitrobenzene-d5	8.422	82	49281	8.8895372	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 17.78%#			
59) 2-Fluorobiphenyl	10.211	172	85333	8.5420408	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 17.08%#			
86) 2,4,6-Tribromophenol	11.782	330	12474	8.0770689	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 8.08%#			
117) p-Terphenyl-d14	14.613	244	101140	8.3371899	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 16.67%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.70	88	16774	9.1412	ug/ml	95
3) n-Nitrosodimethylamine	5.17	74	22791	8.2670	ug/ml#	97
4) Pyridine	5.19	79	42465	9.1707	ug/ml	98
5) 2-Picoline	6.02	93	45383	8.5713	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	17955	8.2561	ug/ml	97
7) Methyl Methanesulfonate	6.44	80	29886	9.3906	ug/ml	97
9) n-Nitrosodiethylamine	6.83	102	19058	8.2512	ug/ml	98
10) Ethyl Methanesulfonate	7.09	79	30451	8.4480	ug/ml	99
11) Aniline	7.55	66	25809	8.4775	ug/ml	95
13) Phenol	7.46	94	50320	8.4252	ug/ml	97
14) bis(2-Chloroethyl)ether	7.57	63	30688	8.8772	ug/ml	96
15) Pentachloroethane	7.58	167	17525	8.9953	ug/ml	94
16) 2-Chlorophenol	7.67	128	41658	8.3184	ug/ml	99
17) 1,3-Dichlorobenzene	7.82	146	45397	8.3448	ug/ml	99
18) 1,4-Dichlorobenzene	7.87	146	46283	8.4132	ug/ml	97
19) Benzyl Alcohol	7.96	108	26096	8.3308	ug/ml	95
20) 1,2-Dichlorobenzene	8.06	146	42947	8.1511	ug/ml	98
21) 2-Methylphenol	8.05	107	36290	8.5576	ug/ml	97
22) bis(2-Chloroisopropyl)ethe	8.11	45	36804	8.9079	ug/ml	98
23) 3-,4-Methylphenol	8.19	107	44920	8.3178	ug/ml	99
24) n-Nitrosopyrrolidine	8.23	100	19240	8.2987	ug/ml	85
25) n-Nitrosodipropylamine	8.23	70	32730	9.0137	ug/ml	95
26) Acetophenone	8.25	105	62420	8.6785	ug/ml	97
27) n-Nitrosomorpholine	8.24	56	25821	9.1353	ug/ml	96
28) o-Toluidine	8.29	106	67841	8.5043	ug/ml	98
29) Hexachloroethane	8.38	117	19853	8.6401	ug/ml	97
32) Nitrobenzene	8.44	77	48730	8.9106	ug/ml	96
33) n-Nitrosopiperidine	8.58	114	20247	8.3802	ug/ml	97
34) Isophorone	8.65	82	82831	8.6866	ug/ml	99
35) 2-Nitrophenol	8.76	139	21094	7.9294	ug/ml	94
36) 2,4-Dimethylphenol	8.72	122	36775	8.2951	ug/ml	98
37) 0,0,0-Triethyl Phosphoroth	8.82	198	21196	8.4569	ug/ml	96
38) bis(2-Chloroethoxy)methane	8.82	93	64797	8.7362	ug/ml	99

(#) = qualifier out of range (m) = manual integration

Data File : I:\MSDCHEM\1\DATA\080317\12M63788.D Vial: 5
Acq On : 3 Aug 2017 10:57 am Operator: MES
Sample : WG624321-05 10 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:12:11 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Benzoic Acid	8.77	105	5734	2.3727 ug/ml#	47
40)	2,4-Dichlorophenol	8.98	162	32496	8.1786 ug/ml	99
41)	a,a-Dimethylphenethylamine	8.96	58	77510	9.1085 ug/ml	98
42)	1,2,4-Trichlorobenzene	9.09	180	38031	8.3347 ug/ml	99
43)	Naphthalene	9.17	128	123398	8.3536 ug/ml#	98
44)	4-Chloroaniline	9.19	65	17682	8.4723 ug/ml	98
45)	2,6-Dichlorophenol	9.22	162	30571	8.3149 ug/ml	98
46)	Hexachloropropene	9.28	213	28659	8.6821 ug/ml	100
47)	Hexachlorobutadiene	9.31	225	22667	8.7224 ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.50	84	39334	8.9449 ug/ml	97
49)	p-Phenylenediamine	9.53	108	28806	9.9550 ug/ml	97
50)	4-Chloro-3-Methylphenol	9.63	107	42328	8.7358 ug/ml	98
51)	Safrole	9.73	162	31526	8.1502 ug/ml	97
52)	2-Methylnaphthalene	9.85	142	83107	8.2270 ug/ml	99
53)	1-Methylnaphthalene	9.97	142	74821	8.0916 ug/ml	96
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	37738	8.2342 ug/ml	97
56)	Hexachlorocyclopentadiene	10.08	237	15349	7.3373 ug/ml	98
57)	2,4,6-Trichlorophenol	10.15	196	24942	8.2254 ug/ml	98
58)	2,4,5-Trichlorophenol	10.19	196	26581	8.5261 ug/ml	99
60)	Isosafrole	10.24	162	31009	8.4703 ug/ml	97
61)	2-Chloronaphthalene	10.36	162	78479	8.5554 ug/ml	98
62)	1-Chloronaphthalene	10.40	162	74222	8.5697 ug/ml	98
63)	2-Nitroaniline	10.46	65	26193	8.8770 ug/ml	97
64)	1,4-Naphthoquinone	10.53	158	25230	8.8520 ug/ml	97
65)	Dimethylphthalate	10.62	163	93063	8.7723 ug/ml	99
66)	1,3-Dinitrobenzene	10.67	168	15336	8.3242 ug/ml	97
67)	2,6-Dinitrotoluene	10.71	165	22035	8.7666 ug/ml	98
68)	Acenaphthylene	10.81	152	122252	8.4392 ug/ml	100
69)	3-Nitroaniline	10.87	138	21227	8.2211 ug/ml	96
70)	2,4-Dinitrophenol	10.98	184	6281	4.2141 ug/ml#	1
71)	Acenaphthene	10.99	154	76074	8.2506 ug/ml	96
72)	4-Nitrophenol	10.98	65	19664	8.5618 ug/ml	92
73)	2,4-Dinitrotoluene	11.12	165	28735	8.2930 ug/ml	88
74)	Pentachlorobenzene	11.17	250	31328	8.4167 ug/ml	100
75)	Dibenzofuran	11.15	168	110919	8.5475 ug/ml	98
76)	2,3,4,6-Tetrachlorophenol	11.30	232	21641	7.9621 ug/ml	96
77)	1-Naphthylamine	11.22	143	76594	8.7841 ug/ml	98
78)	2-Naphthylamine	11.29	143	74960	8.2275 ug/ml	96
79)	Diethylphthalate	11.32	149	97099	8.9217 ug/ml	99
80)	Thionazin	11.42	107	15158	8.3775 ug/ml	96
81)	Fluorene	11.50	166	92662	8.4073 ug/ml	99
82)	4-Chlorophenyl Phenyl Ethe	11.45	204	46179	8.4219 ug/ml	96
83)	4-Nitroaniline	11.51	138	22743	7.9476 ug/ml	89
84)	5-Nitro-o-Toluidine	11.50	152	25454	7.9249 ug/ml	88
85)	1,2-Diphenylhydrazine	11.62	77	102766	9.2166 ug/ml	98
88)	4,6-Dinitro-2-Methylphenol	11.55	198	13252	6.1176 ug/ml	72
89)	Diphenylamine/n-Nitrosodip	11.57	169	80357	8.2892 ug/ml	99
90)	Sulfotepp	11.77	322	15356	8.0509 ug/ml	96
91)	Sym-Trinitrobenzene	11.85	75	28147	7.9721 ug/ml	97
92)	Diallate	11.89	86	36111	8.8865 ug/ml	98
93)	Phenacetin	11.88	108	52834	8.8052 ug/ml	97
94)	Phorate	11.92	75	57162	8.8978 ug/ml#	97
95)	4-Bromophenyl Phenyl Ether	11.99	248	24786	8.1606 ug/ml	96
96)	Hexachlorobenzene	12.21	284	26254	8.2901 ug/ml	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63788.D Vial: 5
Acq On : 3 Aug 2017 10:57 am Operator: MES
Sample : WG624321-05 10 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:12:11 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:11:55 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

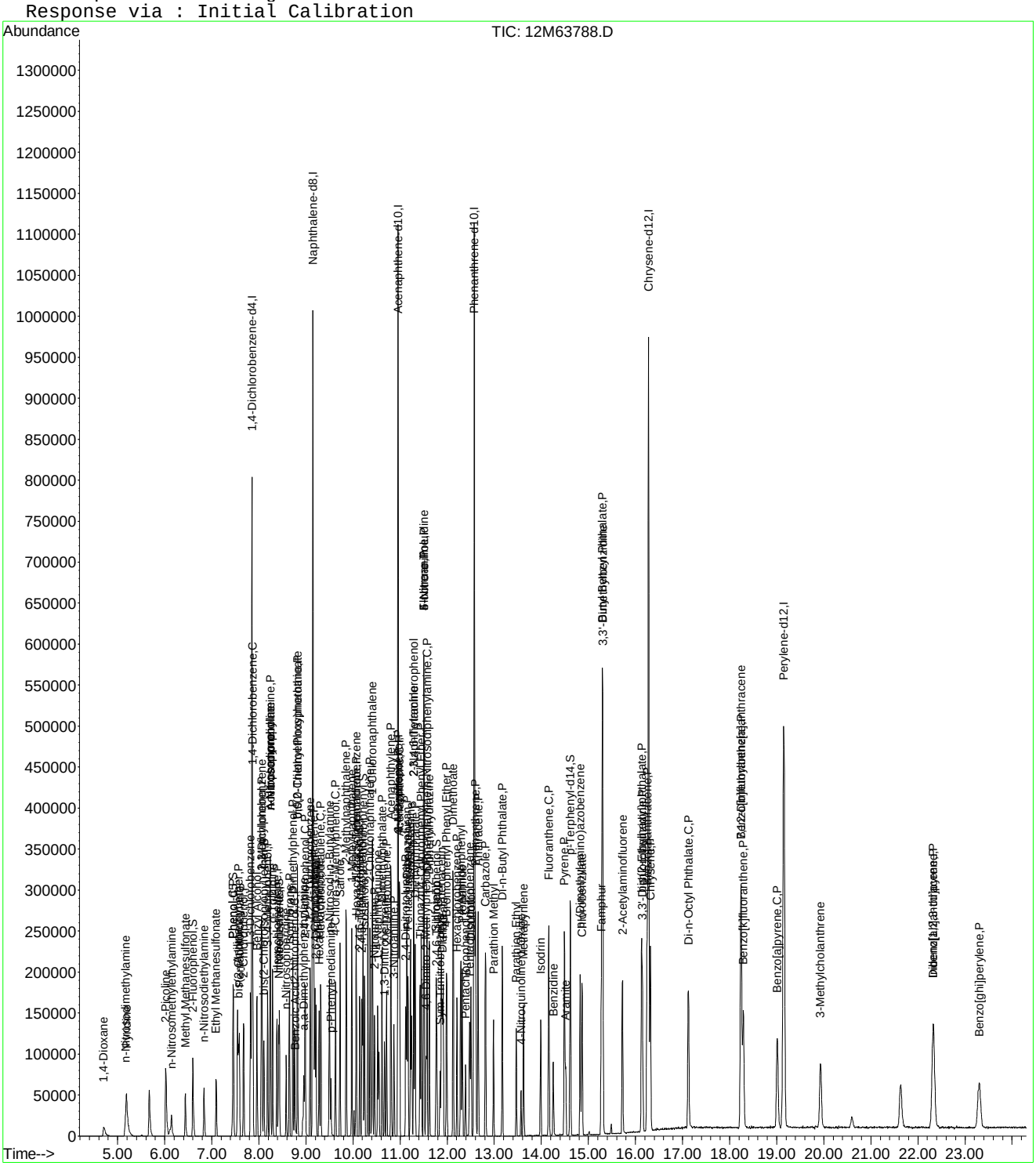
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.13	87	37758	10.2658	ug/ml	98
98)	4-Aminobiphenyl	12.29	169	91971	8.1294	ug/ml	99
99)	Pentachlorophenol	12.39	266	12346	6.2994	ug/ml	99
100)	Pronamide	12.32	173	42163	8.4771	ug/ml	99
101)	Pentachloronitrobenzene	12.48	237	11988	8.3670	ug/ml	98
102)	Disulfoton	12.50	88	45324	8.6597	ug/ml	99
103)	Phenanthrene	12.60	178	133409	8.3862	ug/ml	100
104)	Anthracene	12.66	178	136818	8.2761	ug/ml	100
105)	Carbazole	12.81	167	116254	8.0233	ug/ml	99
106)	Parathion Methyl	12.98	109	32005	9.6099	ug/ml	98
107)	Di-n-Butyl Phthalate	13.17	149	160503	8.5244	ug/ml	99
108)	Parathion Ethyl	13.46	97	19882	8.4133	ug/ml	97
109)	4-Nitroquinoline 1-Oxide	13.57	190	5839	5.4035	ug/ml	94
110)	Methapyrilene	13.62	58	56125	11.8968	ug/ml	100
111)	Isodrin	13.99	193	15356	8.4270	ug/ml	99
112)	Fluoranthene	14.16	202	144887	8.1745	ug/ml	100
114)	Benzidine	14.26	184	54142	7.2377	ug/ml	100
115)	Pyrene	14.49	202	150104	8.4808	ug/ml	100
116)	Aramite	14.52	185	9531	8.8211	ug/ml	95
118)	p-(Dimethylamino)azobenzen	14.83	225	28647	8.1110	ug/ml	96
119)	Chlorobenzilate	14.86	251	40596	8.4126	ug/ml	94
120)	Famphur	15.27	218	51989	50.6383	ug/ml#	72
121)	Butyl Benzyl Phthalate	15.29	149	78452	9.0495	ug/ml	96
122)	3,3'-Dimethylbenzidine	15.31	212	123008	7.0510	ug/ml	100
123)	2-Acetylaminofluorene	15.72	181	59220	7.7261	ug/ml	99
124)	bis(2-Ethylhexyl)phthalate	16.13	149	97614	8.3658	ug/ml	100
125)	3,3'-Dichlorobenzidine	16.15	252	48154	8.2038	ug/ml	99
126)	Benzo[a]anthracene	16.25	228	140851	8.3878	ug/ml	99
127)	Chrysene	16.32	228	126579	8.3109	ug/ml	99
129)	Di-n-Octyl Phthalate	17.12	149	166658	8.3796	ug/ml	100
130)	7,12-Dimethylbenz[a]anthra	18.24	256	64967	8.2454	ug/ml	99
131)	Benzo[b]fluoranthene	18.24	252	143249	8.2606	ug/ml	97
132)	Benzo[k]fluoranthene	18.29	252	124540	8.5992	ug/ml	98
133)	Benzo[a]pyrene	19.02	252	120278	8.1915	ug/ml	94
134)	3-Methylcholanthrene	19.93	268	61338	8.0259	ug/ml#	92
135)	Indeno[1,2,3-cd]pyrene	22.33	276	129211	7.9819	ug/ml	99
136)	Dibenz[ah]anthracene	22.32	278	107894	7.7910	ug/ml	98
137)	Benzo[ghi]perylene	23.31	276	105513	8.1492	ug/ml	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63788.D MEGAMIX.M Thu Aug 03 13:16:25 2017 Page 3

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63788.D Vial: 5
Acq On : 3 Aug 2017 10:57 am Operator: MES
Sample : WG624321-05 10 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:12 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:15:47 2017
Response via : Initial Calibration



12M63788.D MEGAMIX.M Thu Aug 03 13:16:25 2017 Page 4

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63789.D Vial: 6
Acq On : 3 Aug 2017 11:29 am Operator: MES
Sample : WG624321-06 15 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:16:34 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:29 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	130762	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	486577	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	257950	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.578	188	509869	40.0000	ug/ml	0.000
113) Chrysene-d12	16.280	240	505377	40.0000	ug/ml	0.000
128) Perylene-d12	19.149	264	472631	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	59051	13.8017826	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 13.80%#			
12) Phenol-d5	7.449	99	74665	13.5891817	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 13.59%			
31) Nitrobenzene-d5	8.416	82	73867	14.3674840	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 28.73%#			
59) 2-Fluorobiphenyl	10.211	172	129322	13.7075389	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 27.41%#			
86) 2,4,6-Tribromophenol	11.787	330	18681	12.8619575	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 12.86%			
117) p-Terphenyl-d14	14.613	244	154193	13.4729352	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 26.95%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.71	88	24661	14.0711	ug/ml	97
3) n-Nitrosodimethylamine	5.17	74	34912	13.5920	ug/ml#	97
4) Pyridine	5.19	79	65462	14.9371	ug/ml	98
5) 2-Picoline	6.02	93	70273	14.2128	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	27736	13.6238	ug/ml	96
7) Methyl Methanesulfonate	6.44	80	44485	14.8723	ug/ml	99
9) n-Nitrosodiethylamine	6.83	102	28784	13.3863	ug/ml	99
10) Ethyl Methanesulfonate	7.09	79	46900	13.9098	ug/ml	98
11) Aniline	7.55	66	39630	14.1035	ug/ml	98
13) Phenol	7.46	94	75803	13.6409	ug/ml	97
14) bis(2-Chloroethyl)ether	7.57	63	46577	14.5000	ug/ml	96
15) Pentachloroethane	7.58	167	24825	13.5852	ug/ml	99
16) 2-Chlorophenol	7.67	128	63932	13.6870	ug/ml	99
17) 1,3-Dichlorobenzene	7.82	146	68067	13.3538	ug/ml	98
18) 1,4-Dichlorobenzene	7.87	146	71201	13.8482	ug/ml	99
19) Benzyl Alcohol	7.96	108	40276	13.6611	ug/ml	97
20) 1,2-Dichlorobenzene	8.06	146	65744	13.4294	ug/ml	99
21) 2-Methylphenol	8.05	107	53599	13.4847	ug/ml	96
22) bis(2-Chloroisopropyl)ethe	8.11	45	55347	14.1673	ug/ml	99
23) 3-,4-Methylphenol	8.19	107	68021	13.4601	ug/ml	99
24) n-Nitrosopyrrolidine	8.23	100	29026	13.4122	ug/ml	87
25) n-Nitrosodipropylamine	8.24	70	49607	14.6318	ug/ml	97
26) Acetophenone	8.25	105	93276	13.8014	ug/ml	96
27) n-Nitrosomorpholine	8.24	56	38790	14.7605	ug/ml	97
28) o-Toluidine	8.29	106	101762	13.6683	ug/ml	99
29) Hexachloroethane	8.38	117	29642	13.7685	ug/ml	95
32) Nitrobenzene	8.44	77	73203	14.4264	ug/ml	96
33) n-Nitrosopiperidine	8.58	114	30182	13.4168	ug/ml	98
34) Isophorone	8.65	82	125651	14.2254	ug/ml	99
35) 2-Nitrophenol	8.76	139	33472	13.6414	ug/ml	96
36) 2,4-Dimethylphenol	8.72	122	56143	13.7422	ug/ml	99
37) 0,0,0-Triethyl Phosphoroth	8.82	198	32240	13.7667	ug/ml	98
38) bis(2-Chloroethoxy)methane	8.82	93	97594	14.1763	ug/ml	98

(#) = qualifier out of range (m) = manual integration

Data File : I:\MSDCHEM\1\DATA\080317\12M63789.D Vial: 6
Acq On : 3 Aug 2017 11:29 am Operator: MES
Sample : WG624321-06 15 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:16:34 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:29 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Benzoic Acid	8.78	105	13981	6.1085 ug/ml#	71
40)	2,4-Dichlorophenol	8.98	162	49007	13.3016 ug/ml	99
41)	a,a-Dimethylphenethylamine	8.96	58	120599	14.3259 ug/ml	99
42)	1,2,4-Trichlorobenzene	9.09	180	58768	13.8065 ug/ml	97
43)	Naphthalene	9.17	128	188456	13.7339 ug/ml#	99
44)	4-Chloroaniline	9.19	65	28345	14.9802 ug/ml	91
45)	2,6-Dichlorophenol	9.22	162	45772	13.4007 ug/ml	99
46)	Hexachloropropene	9.28	213	43572	14.2629 ug/ml	99
47)	Hexachlorobutadiene	9.31	225	34509	14.2289 ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.50	84	59905	14.7440 ug/ml	97
49)	p-Phenylenediamine	9.53	108	45041	17.2070 ug/ml	99
50)	4-Chloro-3-Methylphenol	9.63	107	63873	14.0909 ug/ml	99
51)	Safrole	9.73	162	47555	13.2568 ug/ml	97
52)	2-Methylnaphthalene	9.86	142	125995	13.4506 ug/ml	99
53)	1-Methylnaphthalene	9.98	142	115260	13.4132 ug/ml	98
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	58464	13.5313 ug/ml	98
56)	Hexachlorocyclopentadiene	10.08	237	25858	14.1694 ug/ml	99
57)	2,4,6-Trichlorophenol	10.15	196	39627	13.9011 ug/ml	98
58)	2,4,5-Trichlorophenol	10.19	196	40246	13.5913 ug/ml	99
60)	Isosafrole	10.25	162	47697	13.8533 ug/ml	98
61)	2-Chloronaphthalene	10.37	162	119334	13.7912 ug/ml	99
62)	1-Chloronaphthalene	10.41	162	112209	13.7168 ug/ml	97
63)	2-Nitroaniline	10.46	65	39922	14.3167 ug/ml	98
64)	1,4-Naphthoquinone	10.53	158	38924	15.2941 ug/ml	99
65)	Dimethylphthalate	10.62	163	140820	14.0805 ug/ml	100
66)	1,3-Dinitrobenzene	10.67	168	23201	13.3782 ug/ml	96
67)	2,6-Dinitrotoluene	10.71	165	32109	13.5710 ug/ml	97
68)	Acenaphthylene	10.81	152	187076	13.7237 ug/ml	100
69)	3-Nitroaniline	10.87	138	32030	13.1543 ug/ml	96
70)	2,4-Dinitrophenol	10.98	184	12208	8.6406 ug/ml#	9
71)	Acenaphthene	10.99	154	116647	13.4787 ug/ml	98
72)	4-Nitrophenol	10.98	65	29343	13.5610 ug/ml	94
73)	2,4-Dinitrotoluene	11.12	165	43591	13.4190 ug/ml	94
74)	Pentachlorobenzene	11.17	250	47069	13.4530 ug/ml	98
75)	Dibenzofuran	11.15	168	167457	13.6405 ug/ml	97
76)	2,3,4,6-Tetrachlorophenol	11.30	232	32963	12.9224 ug/ml	95
77)	1-Naphthylamine	11.22	143	115467	14.0932 ug/ml	97
78)	2-Naphthylamine	11.29	143	110678	12.7937 ug/ml	97
79)	Diethylphthalate	11.32	149	145730	14.1423 ug/ml	99
80)	Thionazin	11.42	107	23641	13.8847 ug/ml	99
81)	Fluorene	11.50	166	141214	13.6416 ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.45	204	70268	13.5528 ug/ml	98
83)	4-Nitroaniline	11.51	138	35634	13.2438 ug/ml	92
84)	5-Nitro-o-Toluidine	11.50	152	40268	13.3804 ug/ml	93
85)	1,2-Diphenylhydrazine	11.62	77	154628	14.7024 ug/ml	98
88)	4,6-Dinitro-2-Methylphenol	11.55	198	22851	11.3046 ug/ml	84
89)	Diphenylamine/n-Nitrosodip	11.57	169	120543	13.3109 ug/ml	99
90)	Sulfotepp	11.77	322	23196	12.8789 ug/ml	98
91)	Sym-Trinitrobenzene	11.85	75	45475	14.0311 ug/ml	99
92)	Diallate	11.90	86	54747	14.4230 ug/ml	98
93)	Phenacetin	11.88	108	80138	14.3432 ug/ml	99
94)	Phorate	11.92	75	88570	14.8697 ug/ml#	98
95)	4-Bromophenyl Phenyl Ether	11.99	248	37714	13.1895 ug/ml	96
96)	Hexachlorobenzene	12.21	284	39198	13.1676 ug/ml	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63789.D Vial: 6
Acq On : 3 Aug 2017 11:29 am Operator: MES
Sample : WG624321-06 15 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:16:34 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:29 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

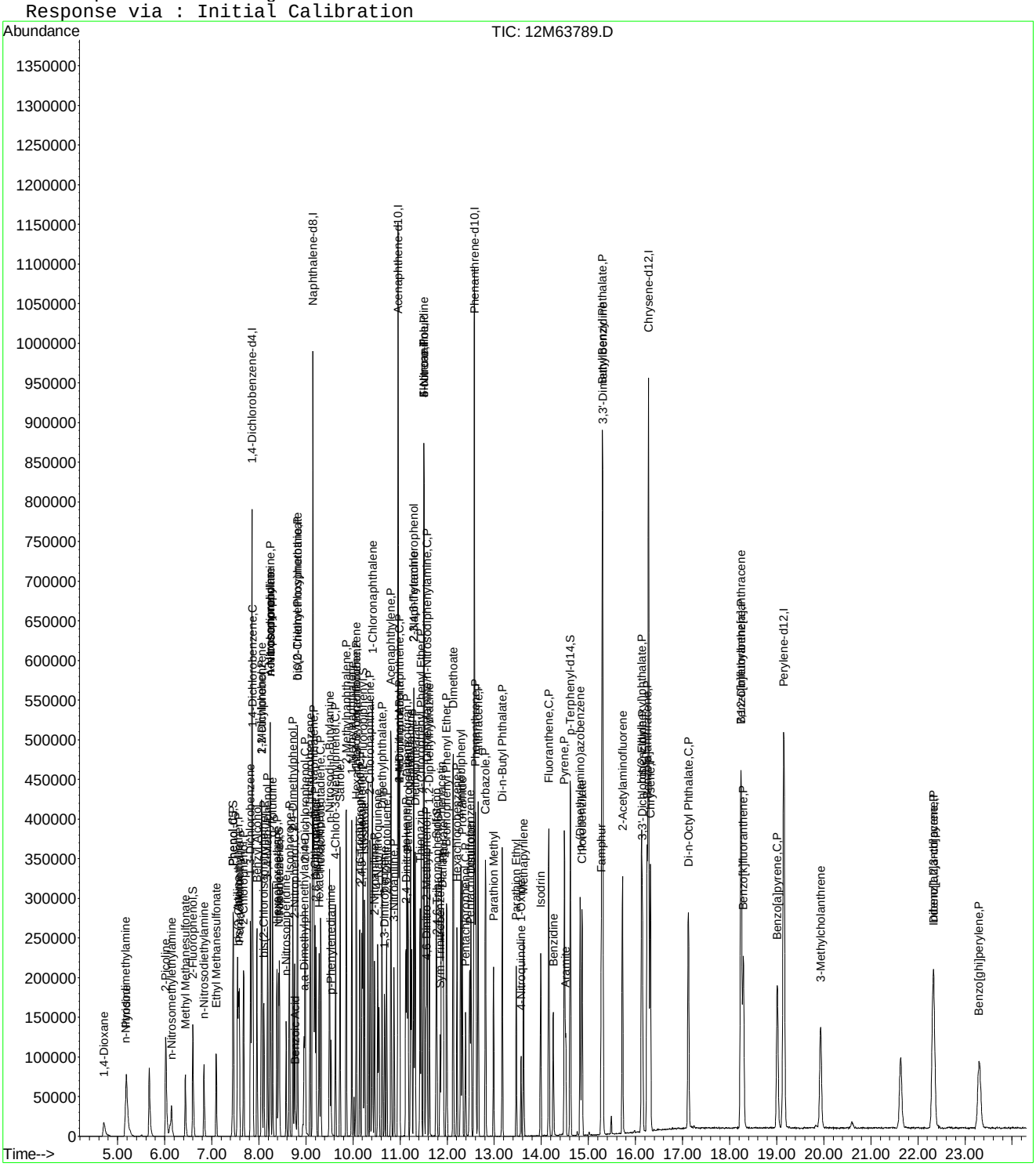
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.13	87	55920	16.4085	ug/ml	99
98)	4-Aminobiphenyl	12.29	169	143218	13.5282	ug/ml	100
99)	Pentachlorophenol	12.39	266	20576	11.2148	ug/ml	99
100)	Pronamide	12.32	173	63862	13.7348	ug/ml	99
101)	Pentachloronitrobenzene	12.48	237	18552	13.8829	ug/ml	98
102)	Disulfoton	12.50	88	68289	14.0339	ug/ml	98
103)	Phenanthrene	12.60	178	200128	13.3943	ug/ml	100
104)	Anthracene	12.66	178	208660	13.4455	ug/ml	99
105)	Carbazole	12.81	167	178792	13.2201	ug/ml	100
106)	Parathion Methyl	12.98	109	47817	15.4444	ug/ml	98
107)	Di-n-Butyl Phthalate	13.17	149	243872	13.8451	ug/ml	99
108)	Parathion Ethyl	13.46	97	30412	13.9143	ug/ml	100
109)	4-Nitroquinoline 1-Oxide	13.57	190	10760	11.0056	ug/ml	96
110)	Methapyrilene	13.62	58	87234	19.5404	ug/ml	99
111)	Isodrin	13.99	193	23580	13.8471	ug/ml	99
112)	Fluoranthene	14.16	202	222326	13.4332	ug/ml	99
114)	Benzidine	14.26	184	86898	12.4303	ug/ml	100
115)	Pyrene	14.49	202	226877	13.6137	ug/ml	99
116)	Aramite	14.52	185	14552	14.3376	ug/ml	96
118)	p-(Dimethylamino)azobenzen	14.83	225	45137	13.7170	ug/ml	97
119)	Chlorobenzilate	14.86	251	63525	14.0033	ug/ml	98
120)	Famphur	15.27	218	67850	68.0581	ug/ml#	73
121)	Butyl Benzyl Phthalate	15.29	149	117224	14.3927	ug/ml	94
122)	3,3'-Dimethylbenzidine	15.31	212	206484	13.3942	ug/ml	100
123)	2-Acetylaminofluorene	15.72	181	94803	13.3729	ug/ml	99
124)	bis(2-Ethylhexyl)phthalate	16.13	149	154290	14.4724	ug/ml	99
125)	3,3'-Dichlorobenzidine	16.15	252	75253	13.7929	ug/ml	99
126)	Benzo[a]anthracene	16.25	228	214524	13.5656	ug/ml	100
127)	Chrysene	16.32	228	193906	13.5495	ug/ml	99
129)	Di-n-Octyl Phthalate	17.12	149	257918	13.7936	ug/ml	100
130)	7,12-Dimethylbenz[a]anthra	18.24	256	100628	13.2159	ug/ml	97
131)	Benzo[b]fluoranthene	18.24	252	217959	13.0763	ug/ml	98
132)	Benzo[k]fluoranthene	18.29	252	192193	14.0252	ug/ml	98
133)	Benzo[a]pyrene	19.01	252	184441	13.2646	ug/ml	98
134)	3-Methylcholanthrene	19.93	268	96394	13.3144	ug/ml	99
135)	Indeno[1,2,3-cd]pyrene	22.34	276	201995	13.2156	ug/ml	99
136)	Dibenz[ah]anthracene	22.33	278	169641	13.0092	ug/ml	98
137)	Benzo[ghi]perylene	23.30	276	164207	13.5079	ug/ml	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63789.D MEGAMIX.M Thu Aug 03 13:20:45 2017 Page 3

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63789.D Vial: 6
Acq On : 3 Aug 2017 11:29 am Operator: MES
Sample : WG624321-06 15 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:16 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:18:35 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63790.D Vial: 7
Acq On : 3 Aug 2017 12:02 pm Operator: MES
Sample : WG624321-07 25 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:17:09 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:59 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	126600	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	483787	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	259242	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.578	188	511119	40.0000	ug/ml	0.000
113) Chrysene-d12	16.280	240	513258	40.0000	ug/ml	0.000
128) Perylene-d12	19.154	264	477821	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	97494	24.1274772	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 24.13%			
12) Phenol-d5	7.449	99	124411	24.0053321	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 24.01%			
31) Nitrobenzene-d5	8.416	82	122854	24.6329977	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 49.27%			
59) 2-Fluorobiphenyl	10.211	172	218387	23.4766265	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 46.95%			
86) 2,4,6-Tribromophenol	11.787	330	32804	22.9908559	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 22.99%			
117) p-Terphenyl-d14	14.613	244	267694	23.5166571	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 47.03%			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.71	88	40699	24.6320	ug/ml	97
3) n-Nitrosodimethylamine	5.17	74	58751	24.3782	ug/ml	99
4) Pyridine	5.19	79	108139	25.8290	ug/ml	99
5) 2-Picoline	6.02	93	116283	24.9001	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	47097	24.5764	ug/ml	97
7) Methyl Methanesulfonate	6.44	80	75397	26.7773	ug/ml	98
9) n-Nitrosodiethylamine	6.83	102	49551	24.4868	ug/ml	99
10) Ethyl Methanesulfonate	7.10	79	79213	24.8912	ug/ml	99
11) Aniline	7.55	66	66847	25.2262	ug/ml	99
13) Phenol	7.46	94	126901	24.2150	ug/ml	97
14) bis(2-Chloroethyl)ether	7.57	63	75738	24.9194	ug/ml	98
15) Pentachloroethane	7.58	167	42763	24.8731	ug/ml	97
16) 2-Chlorophenol	7.68	128	105067	23.7732	ug/ml	100
17) 1,3-Dichlorobenzene	7.82	146	116409	24.1954	ug/ml	100
18) 1,4-Dichlorobenzene	7.87	146	116139	23.8118	ug/ml	99
19) Benzyl Alcohol	7.96	108	68050	24.3665	ug/ml	99
20) 1,2-Dichlorobenzene	8.06	146	110526	23.8631	ug/ml	99
21) 2-Methylphenol	8.06	107	90392	24.1034	ug/ml	98
22) bis(2-Chloroisopropyl)ethe	8.11	45	90251	24.3792	ug/ml	100
23) 3-,4-Methylphenol	8.19	107	114848	24.1033	ug/ml	99
24) n-Nitrosopyrrolidine	8.23	100	48717	23.9338	ug/ml	91
25) n-Nitrosodipropylamine	8.24	70	81207	25.3443	ug/ml	98
26) Acetophenone	8.25	105	156536	24.5655	ug/ml	99
27) n-Nitrosomorpholine	8.25	56	63595	25.6560	ug/ml	98
28) o-Toluidine	8.29	106	169806	24.1467	ug/ml	100
29) Hexachloroethane	8.38	117	51006	25.1100	ug/ml	99
32) Nitrobenzene	8.44	77	121949	24.7851	ug/ml	99
33) n-Nitrosopiperidine	8.58	114	50307	23.0803	ug/ml	96
34) Isophorone	8.65	82	210355	24.4813	ug/ml	100
35) 2-Nitrophenol	8.76	139	56431	23.6596	ug/ml	98
36) 2,4-Dimethylphenol	8.72	122	92342	23.2841	ug/ml	97
37) 0,0,0-Triethyl Phosphoroth	8.82	198	54283	23.7973	ug/ml	99
38) bis(2-Chloroethoxy)methane	8.82	93	164694	24.6390	ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63790.D Vial: 7
Acq On : 3 Aug 2017 12:02 pm Operator: MES
Sample : WG624321-07 25 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:17:09 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:59 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Benzoic Acid	8.76	105	35220m	15.8982 ug/ml	
40)	2,4-Dichlorophenol	8.98	162	83977	23.4168 ug/ml	98
41)	a,a-Dimethylphenethylamine	8.97	58	205268	24.6753 ug/ml	99
42)	1,2,4-Trichlorobenzene	9.09	180	97225	23.4266 ug/ml	100
43)	Naphthalene	9.17	128	315192	23.6176 ug/ml#	99
44)	4-Chloroaniline	9.19	65	46240	25.1816 ug/ml	97
45)	2,6-Dichlorophenol	9.22	162	78647	23.7363 ug/ml	99
46)	Hexachloropropene	9.28	213	74165	24.9712 ug/ml	99
47)	Hexachlorobutadiene	9.31	225	57361	24.1578 ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.50	84	100224	25.4875 ug/ml	99
49)	p-Phenylenediamine	9.53	108	79682	32.4598 ug/ml	99
50)	4-Chloro-3-Methylphenol	9.63	107	108144	24.4423 ug/ml	98
51)	Safrole	9.72	162	81707	23.4482 ug/ml	99
52)	2-Methylnaphthalene	9.86	142	213585	23.4239 ug/ml	100
53)	1-Methylnaphthalene	9.98	142	194510	23.2627 ug/ml	98
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	100148	23.5806 ug/ml	99
56)	Hexachlorocyclopentadiene	10.08	237	47267	27.1485 ug/ml	99
57)	2,4,6-Trichlorophenol	10.15	196	65340	23.2206 ug/ml	99
58)	2,4,5-Trichlorophenol	10.20	196	68652	23.4956 ug/ml	100
60)	Isosafrole	10.25	162	81243	23.9524 ug/ml	100
61)	2-Chloronaphthalene	10.36	162	198280	23.2568 ug/ml	98
62)	1-Chloronaphthalene	10.41	162	193749	24.0513 ug/ml	99
63)	2-Nitroaniline	10.46	65	66562	24.3281 ug/ml	99
64)	1,4-Naphthoquinone	10.53	158	64514	26.2048 ug/ml	99
65)	Dimethylphthalate	10.62	163	237766	24.1426 ug/ml	100
66)	1,3-Dinitrobenzene	10.68	168	40979	24.1555 ug/ml	99
67)	2,6-Dinitrotoluene	10.71	165	55193	23.7393 ug/ml	98
68)	Acenaphthylene	10.81	152	316294	23.5798 ug/ml	100
69)	3-Nitroaniline	10.87	138	56152	23.4912 ug/ml	99
70)	2,4-Dinitrophenol	10.98	184	25403	18.5076 ug/ml	54
71)	Acenaphthene	10.99	154	201889	23.7300 ug/ml	98
72)	4-Nitrophenol	10.98	65	52970	25.1206 ug/ml	94
73)	2,4-Dinitrotoluene	11.12	165	75016	23.4887 ug/ml	96
74)	Pentachlorobenzene	11.17	250	81218	23.5288 ug/ml	100
75)	Dibenzofuran	11.15	168	283516	23.4476 ug/ml	98
76)	2,3,4,6-Tetrachlorophenol	11.30	232	58408	23.3667 ug/ml	98
77)	1-Naphthylamine	11.22	143	199011	24.7431 ug/ml	98
78)	2-Naphthylamine	11.29	143	196242	22.9750 ug/ml	98
79)	Diethylphthalate	11.32	149	244914	24.1812 ug/ml	100
80)	Thionazin	11.42	107	39584	23.6584 ug/ml	94
81)	Fluorene	11.51	166	244912	24.0314 ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.45	204	120505	23.6021 ug/ml	99
83)	4-Nitroaniline	11.51	138	61559	23.3959 ug/ml	94
84)	5-Nitro-o-Toluidine	11.51	152	71085	24.0608 ug/ml	97
85)	1,2-Diphenylhydrazine	11.62	77	259440	25.0595 ug/ml	99
88)	4,6-Dinitro-2-Methylphenol	11.55	198	41961	21.3164 ug/ml	90
89)	Diphenylamine/n-Nitrosodip	11.57	169	208216	23.4479 ug/ml	99
90)	Sulfotepp	11.77	322	40374	22.8404 ug/ml	97
91)	Sym-Trinitrobenzene	11.85	75	81015	25.5944 ug/ml	99
92)	Diallate	11.90	86	91590	24.6510 ug/ml	98
93)	Phenacetin	11.88	108	137014	25.0279 ug/ml	98
94)	Phorate	11.92	75	147687	25.2698 ug/ml#	97
95)	4-Bromophenyl Phenyl Ether	11.99	248	65494	23.3371 ug/ml	98
96)	Hexachlorobenzene	12.21	284	65837	22.4954 ug/ml	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63790.D Vial: 7
Acq On : 3 Aug 2017 12:02 pm Operator: MES
Sample : WG624321-07 25 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:17:09 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:59 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

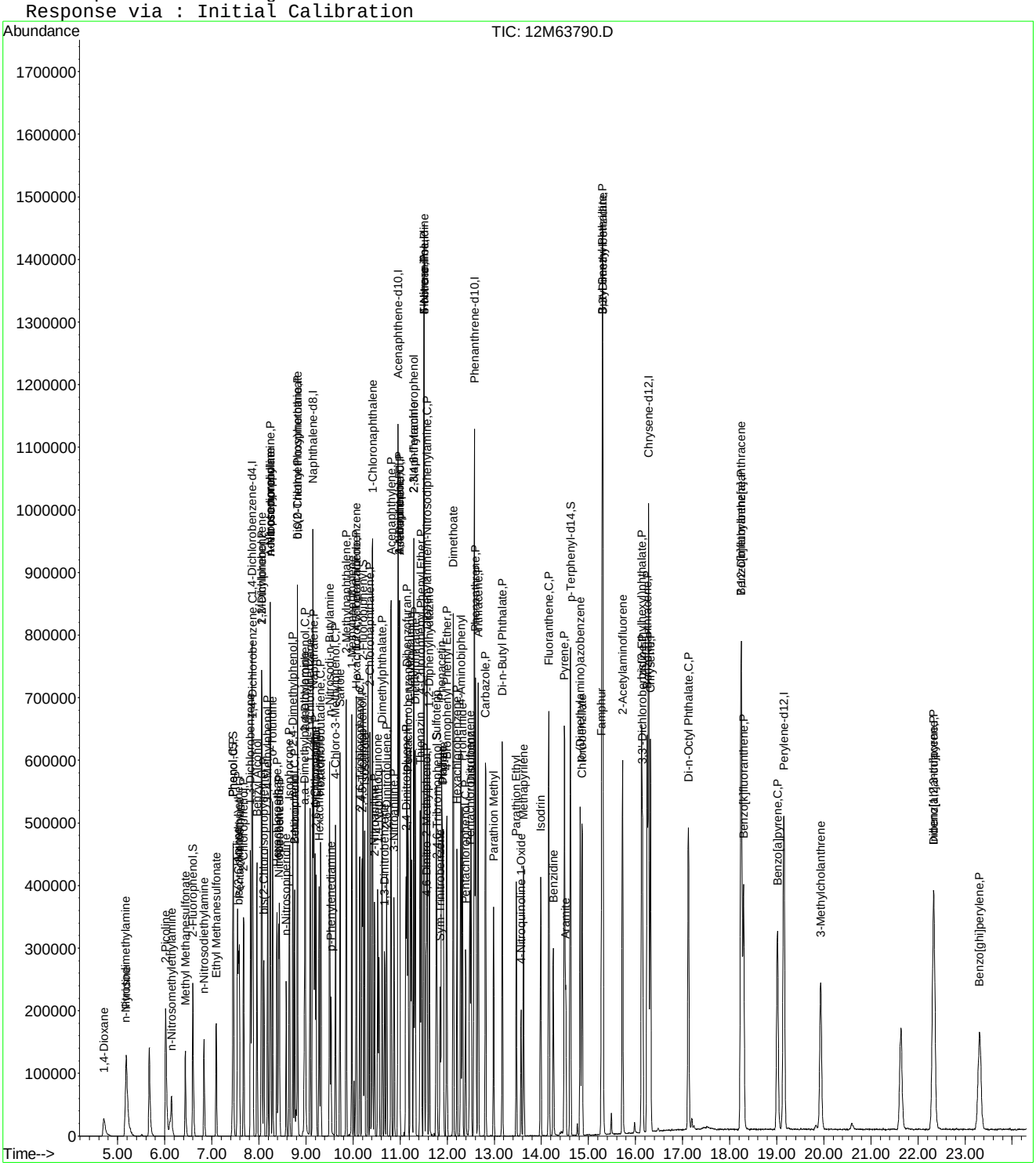
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.13	87	93440	28.0951	ug/ml	98
98)	4-Aminobiphenyl	12.29	169	248352	23.8937	ug/ml	100
99)	Pentachlorophenol	12.39	266	38379	21.5154	ug/ml	99
100)	Pronamide	12.32	173	110095	24.1648	ug/ml	99
101)	Pentachloronitrobenzene	12.48	237	33431	25.5185	ug/ml	96
102)	Disulfoton	12.51	88	117211	24.6572	ug/ml	98
103)	Phenanthrene	12.60	178	341207	23.2498	ug/ml	99
104)	Anthracene	12.66	178	357363	23.4387	ug/ml	100
105)	Carbazole	12.81	167	309150	23.3448	ug/ml	100
106)	Parathion Methyl	12.98	109	84973	28.2207	ug/ml	98
107)	Di-n-Butyl Phthalate	13.17	149	420683	24.3744	ug/ml	99
108)	Parathion Ethyl	13.47	97	54112	25.3735	ug/ml	99
109)	4-Nitroquinoline 1-Oxide	13.57	190	23508	25.1603	ug/ml	98
110)	Methapyrilene	13.62	58	141029	31.7504	ug/ml	100
111)	Isodrin	13.99	193	40323	24.0793	ug/ml	100
112)	Fluoranthene	14.16	202	382018	23.5212	ug/ml	100
114)	Benzidine	14.26	184	160156	23.4446	ug/ml	100
115)	Pyrene	14.49	202	392433	23.6762	ug/ml	99
116)	Aramite	14.52	185	25453	25.2585	ug/ml	98
118)	p-(Dimethylamino)azobenzen	14.83	225	77977	23.7698	ug/ml	98
119)	Chlorobenzilate	14.87	251	108841	24.0581	ug/ml	99
120)	Famphur	15.28	218	81855	80.8454	ug/ml#	76
121)	Butyl Benzyl Phthalate	15.29	149	205889	25.4809	ug/ml	98
122)	3,3'-Dimethylbenzidine	15.31	212	367649	24.2837	ug/ml	99
123)	2-Acetylaminofluorene	15.72	181	171635	24.4329	ug/ml	99
124)	bis(2-Ethylhexyl)phthalate	16.13	149	264664	24.9236	ug/ml	100
125)	3,3'-Dichlorobenzidine	16.15	252	131621	24.2678	ug/ml	100
126)	Benzo[a]anthracene	16.25	228	370948	23.5661	ug/ml	100
127)	Chrysene	16.32	228	336236	23.5937	ug/ml	99
129)	Di-n-Octyl Phthalate	17.12	149	450729	24.4085	ug/ml	99
130)	7,12-Dimethylbenz[a]anthra	18.25	256	176135	23.2792	ug/ml	99
131)	Benzo[b]fluoranthene	18.25	252	392919	23.6803	ug/ml	98
132)	Benzo[k]fluoranthene	18.29	252	323520	23.5852	ug/ml	99
133)	Benzo[a]pyrene	19.02	252	321504	23.3340	ug/ml	99
134)	3-Methylcholanthrene	19.93	268	169306	23.6467	ug/ml	99
135)	Indeno[1,2,3-cd]pyrene	22.34	276	355359	23.4821	ug/ml	99
136)	Dibenz[ah]anthracene	22.33	278	303148	23.5284	ug/ml	99
137)	Benzo[ghi]perylene	23.31	276	285468	23.7656	ug/ml	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63790.D MEGAMIX.M Thu Aug 03 13:17:40 2017 Page 3

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63790.D Vial: 7
Acq On : 3 Aug 2017 12:02 pm Operator: MES
Sample : WG624321-07 25 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:17 2017 Quant Results File: MEGAMIX.RES

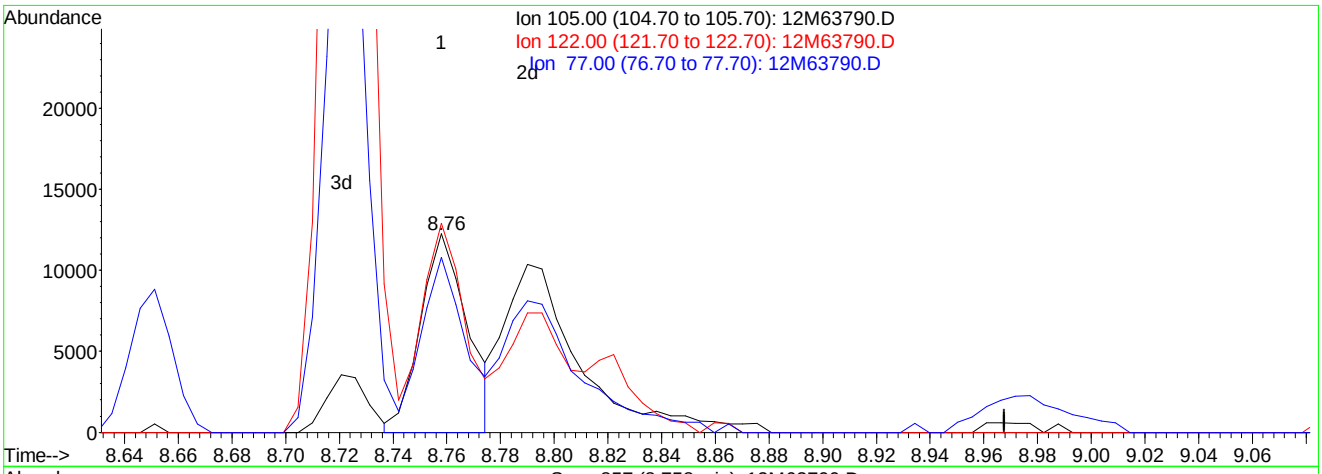
Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:59 2017
Response via : Initial Calibration

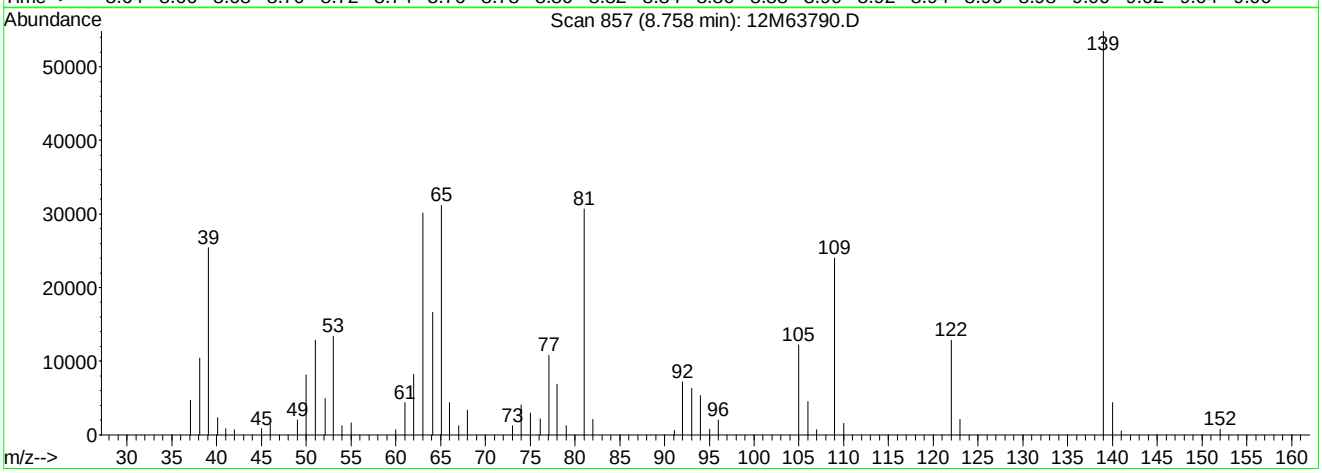


Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63790.D Vial: 7
Acq On : 3 Aug 2017 12:02 pm Operator: MES
Sample : WG624321-07 25 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:17 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:59 2017
Response via : Multiple Level Calibration





TIC: 12M63790.D

(39) Benzoic Acid

8.76min 6.71ug/ml

response 14867

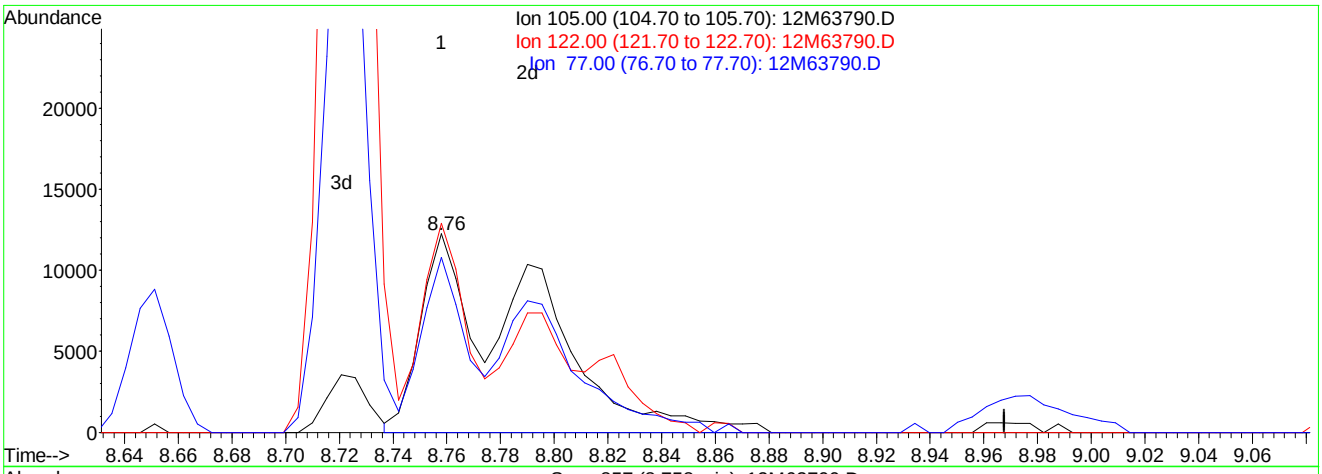
Ion	Exp%	Act%
105.00	100	100
122.00	54.20	73.96
77.00	53.80	82.20#
0.00	0.00	0.00

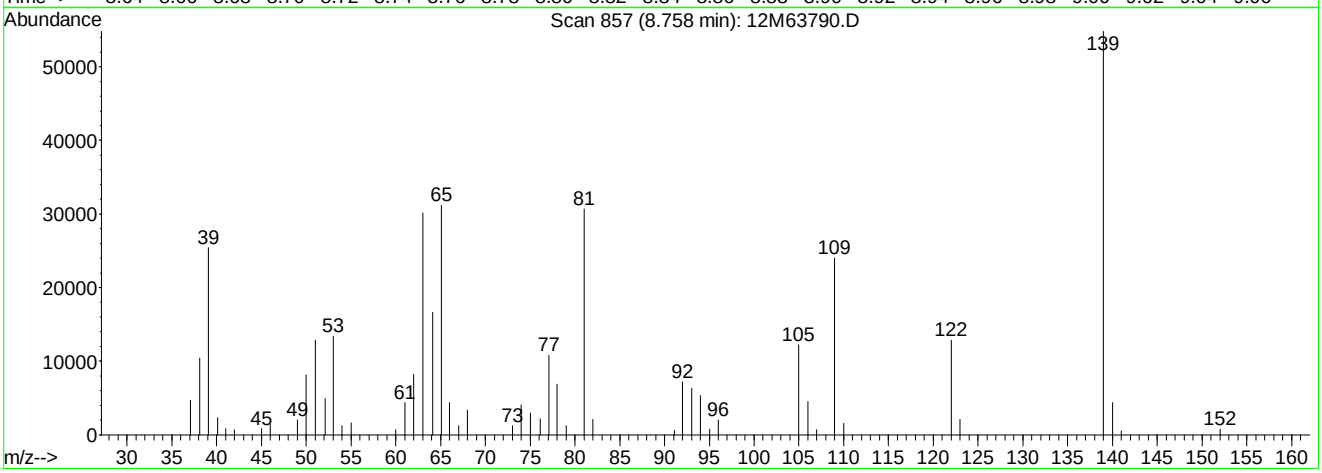
12M63790.D MEGAMIX.M Thu Aug 03 13:17:19 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63790.D Vial: 7
Acq On : 3 Aug 2017 12:02 pm Operator: MES
Sample : WG624321-07 25 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:17 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:16:59 2017
Response via : Multiple Level Calibration





TIC: 12M63790.D

(39) Benzoic Acid

8.76min 15.90ug/ml mint

response 35220

Ion	Exp%	Act%
105.00	100	100
122.00	54.20	31.22#
77.00	53.80	34.70
0.00	0.00	0.00

12M63790.D MEGAMIX.M Thu Aug 03 [illegible]017

Analyst: 08/04/2017 09:07 Supervisor: 08/07/2017 16:22

#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:17:50 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	130007	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	492359	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	265298	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.583	188	533718	40.0000	ug/ml	0.000
113) Chrysene-d12	16.285	240	543772	40.0000	ug/ml	0.000
128) Perylene-d12	19.159	264	506164	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	319058	77.6856229	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 77.69%			
12) Phenol-d5	7.449	99	415922	78.9857527	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 78.99%			
31) Nitrobenzene-d5	8.421	82	391799	77.8619174	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 155.72%#			
59) 2-Fluorobiphenyl	10.216	172	764770	81.0636905	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 162.13%#			
86) 2,4,6-Tribromophenol	11.787	330	122609	84.8490118	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 84.85%			
117) p-Terphenyl-d14	14.618	244	991442	82.9158406	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 165.83%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.71	88	141291	83.7697	ug/ml	99
3) n-Nitrosodimethylamine	5.17	74	192105	78.7056	ug/ml	100
4) Pyridine	5.19	79	346666	81.2722	ug/ml	100
5) 2-Picoline	6.02	93	372422	78.2299	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	149967	76.9198	ug/ml	98
7) Methyl Methanesulfonate	6.44	80	238777	82.6303	ug/ml	99
9) n-Nitrosodiethylamine	6.83	102	161410	78.3702	ug/ml	98
10) Ethyl Methanesulfonate	7.10	79	250561	77.3404	ug/ml	98
11) Aniline	7.55	66	210685	77.9746	ug/ml	96
13) Phenol	7.47	94	416281	77.9747	ug/ml	98
14) bis(2-Chloroethyl)ether	7.57	63	235911	76.0326	ug/ml	95
15) Pentachloroethane	7.59	167	137966	78.3533	ug/ml	99
16) 2-Chlorophenol	7.68	128	354351	78.8754	ug/ml	98
17) 1,3-Dichlorobenzene	7.83	146	385617	78.5803	ug/ml	99
18) 1,4-Dichlorobenzene	7.87	146	393875	79.1699	ug/ml	97
19) Benzyl Alcohol	7.96	108	228348	80.1636	ug/ml	97
20) 1,2-Dichlorobenzene	8.07	146	380815	80.6081	ug/ml	99
21) 2-Methylphenol	8.06	107	303953	79.7047	ug/ml	99
22) bis(2-Chloroisopropyl)ethe	8.11	45	286863	76.0131	ug/ml	99
23) 3-,4-Methylphenol	8.19	107	378730	78.0623	ug/ml	99
24) n-Nitrosopyrrolidine	8.25	100	168730	81.7838	ug/ml	92
25) n-Nitrosodipropylamine	8.25	70	250291	76.6499	ug/ml	98
26) Acetophenone	8.25	105	509320	78.4450	ug/ml	97
27) n-Nitrosomorpholine	8.25	56	192171	76.1915	ug/ml	98
28) o-Toluidine	8.30	106	558580	78.0758	ug/ml	99
29) Hexachloroethane	8.38	117	164882	79.4021	ug/ml	96
32) Nitrobenzene	8.44	77	381673	76.7769	ug/ml	98
33) n-Nitrosopiperidine	8.59	114	171901	78.5972	ug/ml	97
34) Isophorone	8.66	82	676136	78.0096	ug/ml	98
35) 2-Nitrophenol	8.76	139	192421	80.1178	ug/ml	97
36) 2,4-Dimethylphenol	8.73	122	319871	80.3248	ug/ml	99
37) 0,0,0-Triethyl Phosphoroth	8.83	198	190671	82.8340	ug/ml	93
38) bis(2-Chloroethoxy)methane	8.83	93	540595	80.0880	ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:17:50 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Benzoic Acid	8.79	105	213353m	96.0123	ug/ml	
40)	2,4-Dichlorophenol	8.99	162	298122	82.4698	ug/ml	98
41)	a,a-Dimethylphenethylamine	9.03	58	682239m	80.9415	ug/ml	
42)	1,2,4-Trichlorobenzene	9.09	180	332590	79.5925	ug/ml	99
43)	Naphthalene	9.17	128	1079380	80.2109	ug/ml#	97
44)	4-Chloroaniline	9.20	65	144666	78.1441	ug/ml	76
45)	2,6-Dichlorophenol	9.22	162	265664	79.5155	ug/ml	98
46)	Hexachloropropene	9.29	213	249410	83.0364	ug/ml	99
47)	Hexachlorobutadiene	9.32	225	189889	79.1296	ug/ml	100
48)	n-Nitrosodi-n-Butylamine	9.51	84	329223	82.9926	ug/ml	99
49)	p-Phenylenediamine	9.54	108	232311	95.2828	ug/ml	98
50)	4-Chloro-3-Methylphenol	9.63	107	356554	79.6595	ug/ml	96
51)	Safrole	9.73	162	283240	80.6426	ug/ml	97
52)	2-Methylnaphthalene	9.86	142	748466	81.5163	ug/ml	100
53)	1-Methylnaphthalene	9.98	142	683715	81.2043	ug/ml	99
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	357174	82.8378	ug/ml	99
56)	Hexachlorocyclopentadiene	10.08	237	176615	102.6977	ug/ml	99
57)	2,4,6-Trichlorophenol	10.15	196	233221	81.8253	ug/ml	99
58)	2,4,5-Trichlorophenol	10.20	196	241798	81.3166	ug/ml	99
60)	Isosafrole	10.25	162	277469	80.4965	ug/ml	97
61)	2-Chloronaphthalene	10.37	162	698700	80.7929	ug/ml	98
62)	1-Chloronaphthalene	10.41	162	682302	83.3855	ug/ml	99
63)	2-Nitroaniline	10.46	65	219696	79.2612	ug/ml	96
64)	1,4-Naphthoquinone	10.53	158	169885	69.2472	ug/ml	97
65)	Dimethylphthalate	10.62	163	809883	80.8561	ug/ml	100
66)	1,3-Dinitrobenzene	10.68	168	142084	82.3071	ug/ml	94
67)	2,6-Dinitrotoluene	10.72	165	189731	80.5245	ug/ml	96
68)	Acenaphthylene	10.81	152	1127859	82.9664	ug/ml	100
69)	3-Nitroaniline	10.88	138	190533	78.6029	ug/ml	99
70)	2,4-Dinitrophenol	10.99	184	126383	91.2622	ug/ml	86
71)	Acenaphthene	11.00	154	736001	85.3232	ug/ml	100
72)	4-Nitrophenol	10.99	65	174395	81.5491	ug/ml	92
73)	2,4-Dinitrotoluene	11.13	165	266953	82.5802	ug/ml	95
74)	Pentachlorobenzene	11.17	250	287193	81.9997	ug/ml	97
75)	Dibenzofuran	11.15	168	1004223	81.8452	ug/ml	98
76)	2,3,4,6-Tetrachlorophenol	11.30	232	224257	88.3973	ug/ml	98
77)	1-Naphthylamine	11.23	143	717286	88.0899	ug/ml	98
78)	2-Naphthylamine	11.30	143	758413	87.8221	ug/ml	96
79)	Diethylphthalate	11.33	149	824061	80.1560	ug/ml	99
80)	Thionazin	11.43	107	136807	80.8228	ug/ml	99
81)	Fluorene	11.51	166	876167	84.6182	ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.46	204	425909	82.0776	ug/ml	97
83)	4-Nitroaniline	11.53	138	219862	82.7488	ug/ml	96
84)	5-Nitro-o-Toluidine	11.51	152	259802	86.6804	ug/ml	92
85)	1,2-Diphenylhydrazine	11.63	77	836653	79.4227	ug/ml	98
88)	4,6-Dinitro-2-Methylphenol	11.56	198	168515	82.9196	ug/ml	93
89)	Diphenylamine/n-Nitrosodip	11.58	169	745212	81.1563	ug/ml	100
90)	Sulfotepp	11.78	322	150020	81.9484	ug/ml	92
91)	Sym-Trinitrobenzene	11.87	75	273650	83.8877	ug/ml	98
92)	Diallate	11.90	86	302129	78.5859	ug/ml	97
93)	Phenacetin	11.89	108	461633	81.3942	ug/ml	98
94)	Phorate	11.92	75	471408	77.8737	ug/ml#	97
95)	4-Bromophenyl Phenyl Ether	12.00	248	235008	80.8405	ug/ml	97
96)	Hexachlorobenzene	12.21	284	244656	80.9730	ug/ml	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:17:50 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

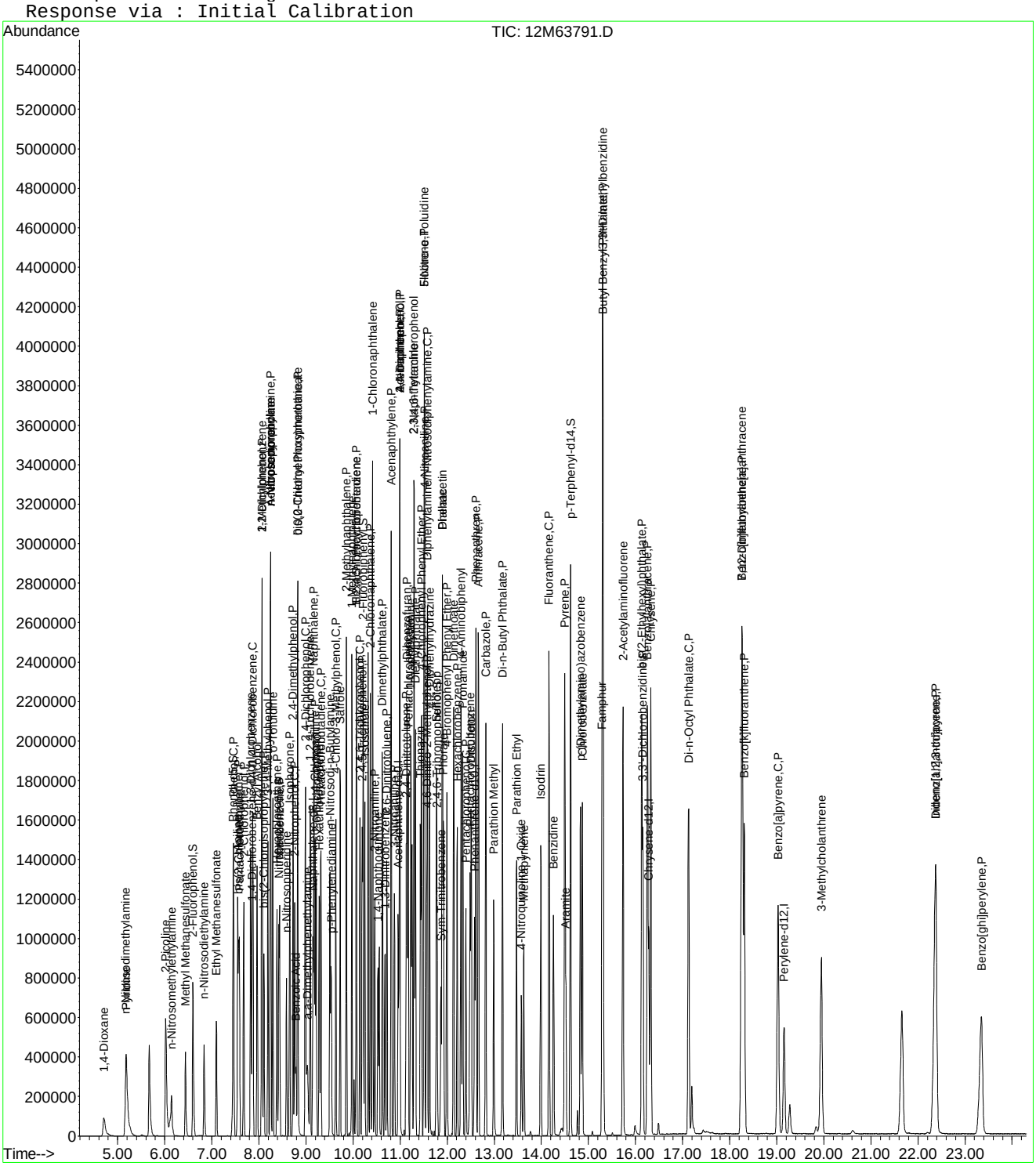
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.14	87	264445	76.8949	ug/ml	98
98)	4-Aminobiphenyl	12.29	169	896331	83.3281	ug/ml	99
99)	Pentachlorophenol	12.40	266	154762	84.2856	ug/ml	99
100)	Pronamide	12.33	173	381489	80.8601	ug/ml	99
101)	Pentachloronitrobenzene	12.49	237	109866	80.7017	ug/ml	99
102)	Disulfoton	12.51	88	390243	79.4632	ug/ml	100
103)	Phenanthrene	12.61	178	1228478	80.9083	ug/ml	100
104)	Anthracene	12.66	178	1284765	81.4650	ug/ml	100
105)	Carbazole	12.82	167	1117866	81.6655	ug/ml	100
106)	Parathion Methyl	12.99	109	258292	82.8825	ug/ml	98
107)	Di-n-Butyl Phthalate	13.18	149	1443127	80.8464	ug/ml	100
108)	Parathion Ethyl	13.48	97	181368	82.3912	ug/ml	97
109)	4-Nitroquinoline 1-Oxide	13.58	190	98769	104.6254	ug/ml	97
110)	Methapyrilene	13.63	58	320947	66.9838	ug/ml	99
111)	Isodrin	13.99	193	139094	80.2176	ug/ml	99
112)	Fluoranthene	14.16	202	1373799	81.8260	ug/ml	100
114)	Benzidine	14.26	184	590730	84.3804	ug/ml	100
115)	Pyrene	14.50	202	1422928	81.6750	ug/ml	100
116)	Aramite	14.52	185	84542	79.8328	ug/ml	98
118)	p-(Dimethylamino)azobenzen	14.83	225	286650	83.2204	ug/ml	92
119)	Chlorobenzilate	14.87	251	386568	81.0927	ug/ml	95
120)	Famphur	15.28	218	18253	17.0162	ug/ml#	1
121)	Butyl Benzyl Phthalate	15.30	149	704392	82.8572	ug/ml	96
122)	3,3'-Dimethylbenzidine	15.31	212	1262919	80.9017	ug/ml	99
123)	2-Acetylaminofluorene	15.73	181	626504	85.1372	ug/ml	98
124)	bis(2-Ethylhexyl)phthalate	16.13	149	932962	83.6832	ug/ml	100
125)	3,3'-Dichlorobenzidine	16.16	252	456724	80.0478	ug/ml	99
126)	Benzo[a]anthracene	16.25	228	1345971	81.2996	ug/ml	100
127)	Chrysene	16.33	228	1226809	81.8373	ug/ml	100
129)	Di-n-Octyl Phthalate	17.13	149	1588303	82.0106	ug/ml	99
130)	7,12-Dimethylbenz[a]anthra	18.26	256	672430	84.5906	ug/ml	99
131)	Benzo[b]fluoranthene	18.26	252	1450579	82.7915	ug/ml	100
132)	Benzo[k]fluoranthene	18.32	252	1194591	83.2860	ug/ml	99
133)	Benzo[a]pyrene	19.03	252	1184971	81.9589	ug/ml	100
134)	3-Methylcholanthrene	19.95	268	621313	82.7556	ug/ml	99
135)	Indeno[1,2,3-cd]pyrene	22.38	276	1324916	83.6843	ug/ml	99
136)	Dibenz[ah]anthracene	22.37	278	1144648	84.8716	ug/ml	100
137)	Benzo[ghi]perylene	23.35	276	1036703	82.5340	ug/ml	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:18 2017 Quant Results File: MEGAMIX.RES

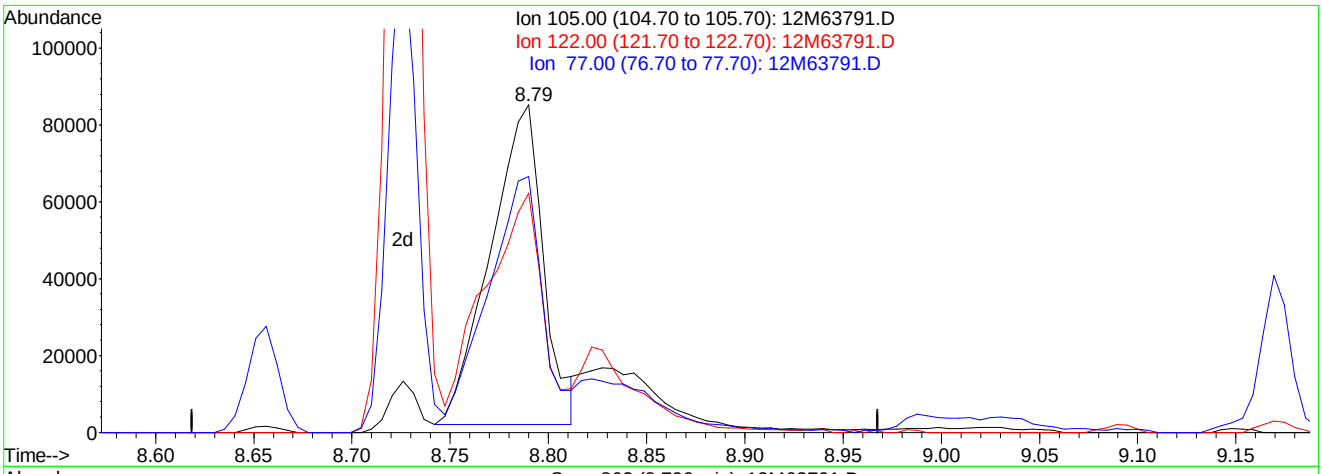
Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Initial Calibration

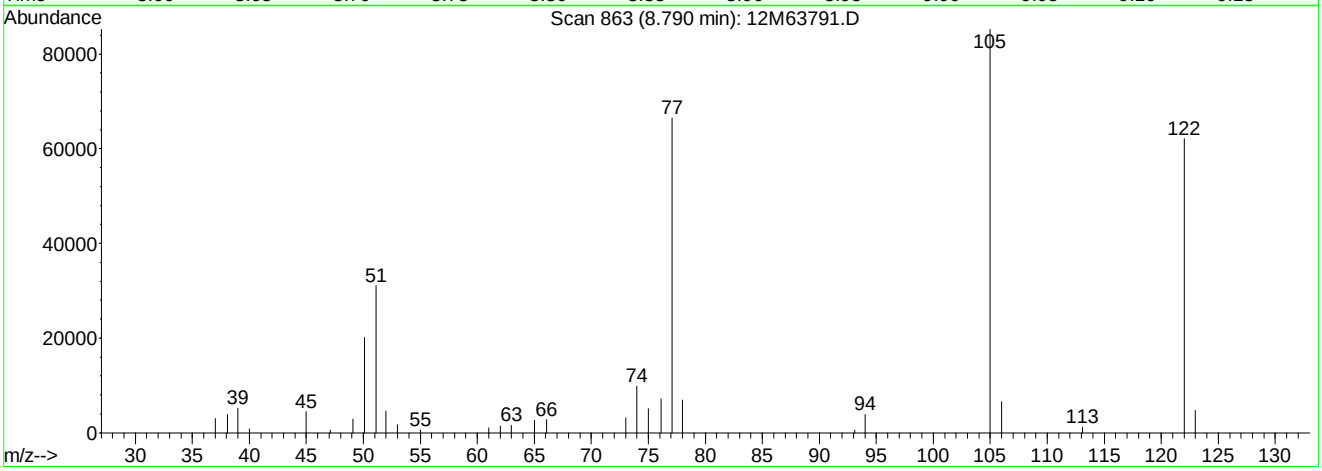


Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:17 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Multiple Level Calibration





TIC: 12M63791.D

(39) Benzoic Acid

8.79min 70.39ug/ml

response 156416

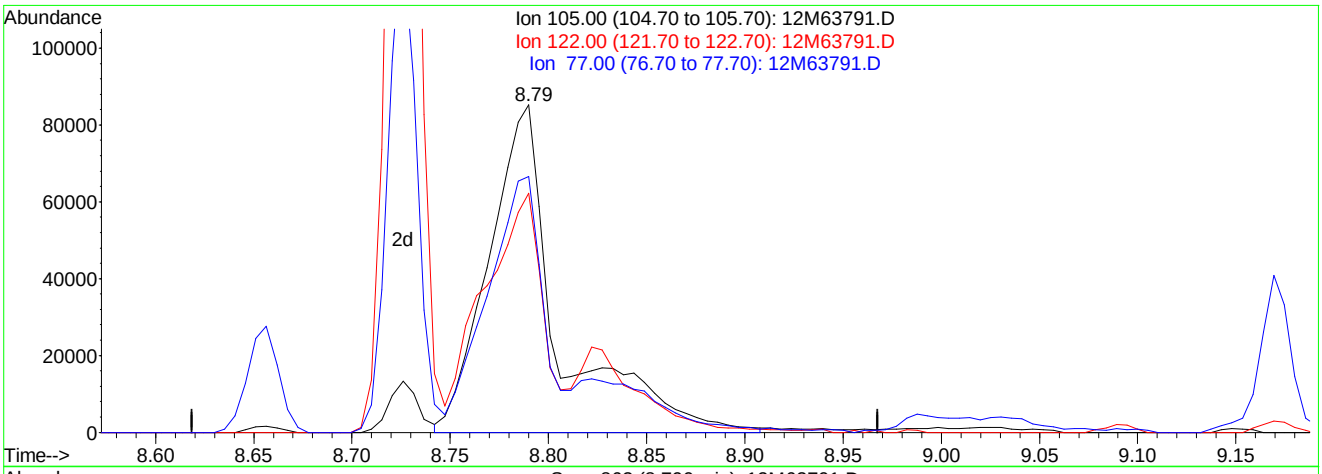
Ion	Exp%	Act%
105.00	100	100
122.00	54.20	80.87#
77.00	53.80	82.53#
0.00	0.00	0.00

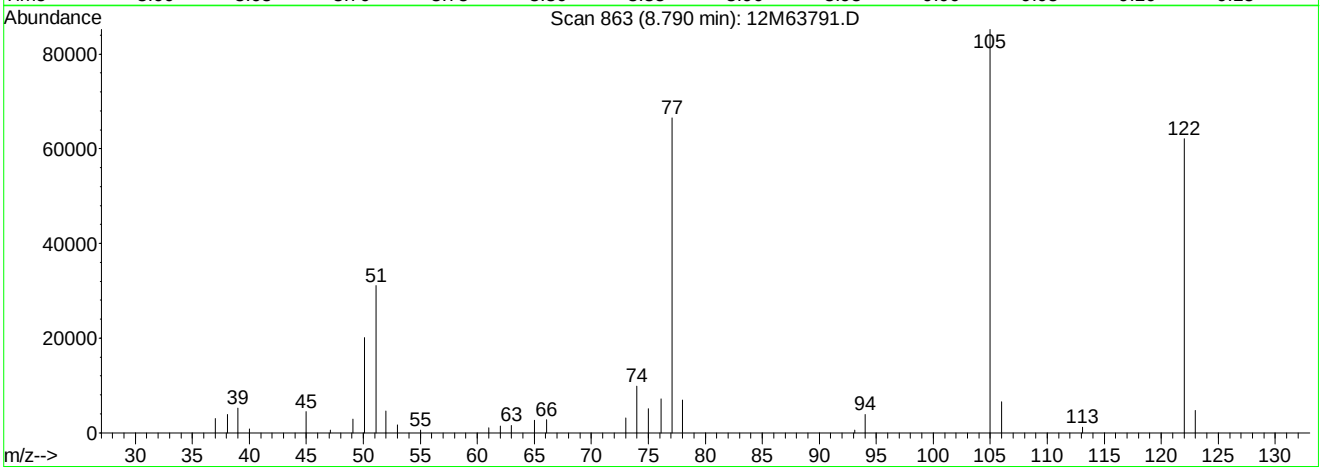
12M63791.D MEGAMIX.M Thu Aug 03 13:18:00 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:18 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Multiple Level Calibration





TIC: 12M63791.D

(39) Benzoic Acid

8.79min 96.01ug/ml mint

response 213353

Ion	Exp%	Act%
105.00	100	100
122.00	54.20	59.29
77.00	53.80	60.51
0.00	0.00	0.00

12M63791.D MEGAMIX.M Thu Aug 03 [illegible]017

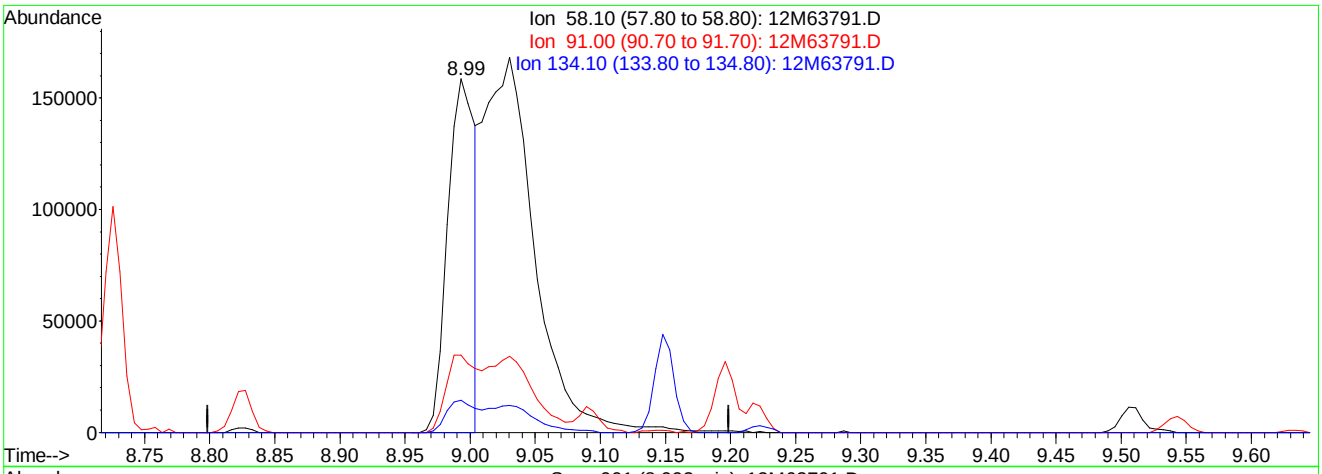
Analyst: 08/04/2017 09:07 Supervisor: 08/07/2017 16:22

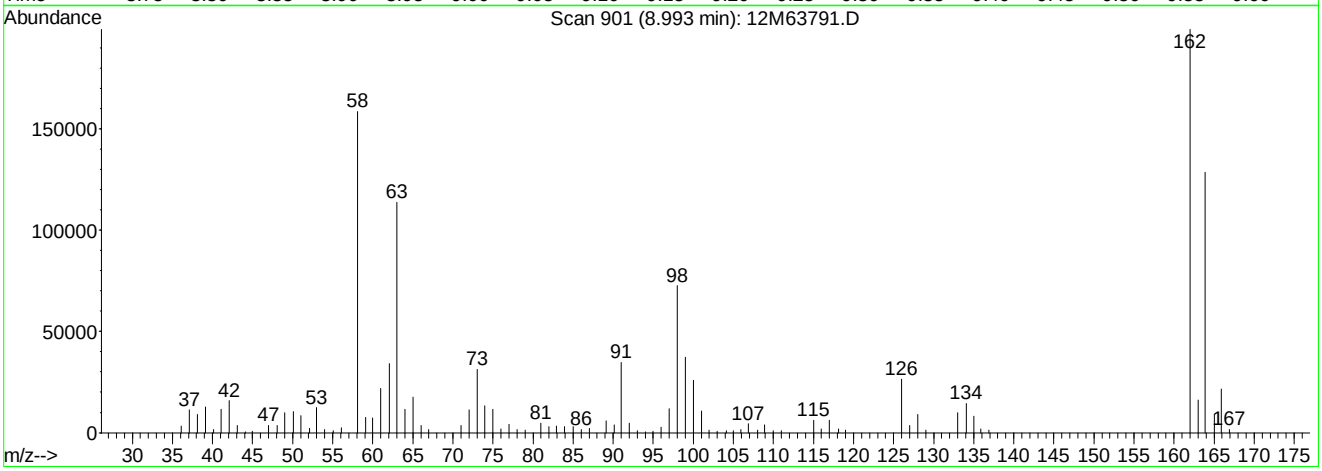
#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:18 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Multiple Level Calibration





TIC: 12M63791.D

(41) a,a-Dimethylphenethylamine

8.99min 27.37ug/ml

response 230707

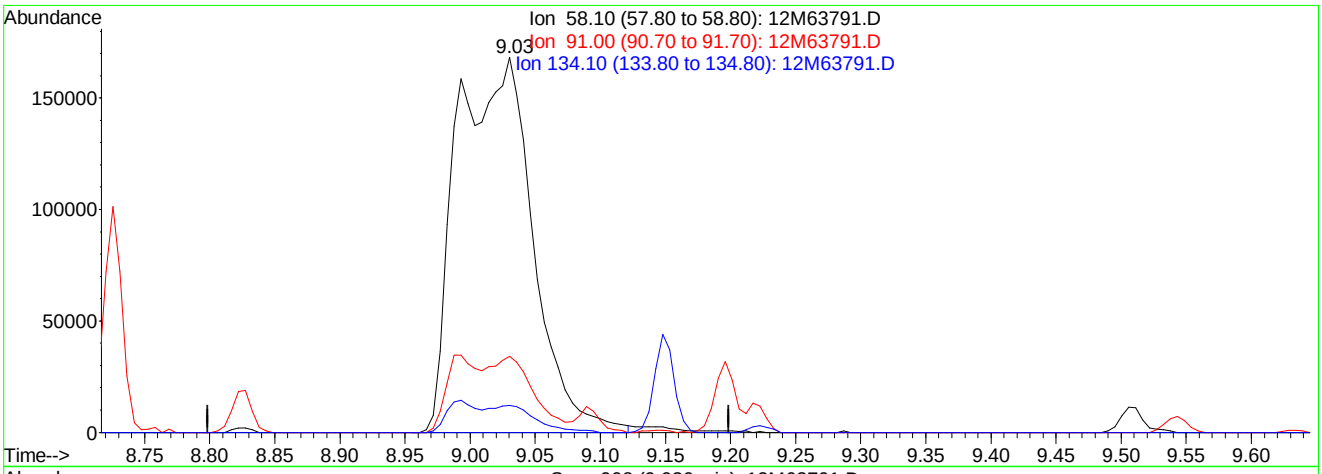
Ion	Exp%	Act%
58.10	100	100
91.00	20.00	26.40#
134.10	7.70	10.42#
0.00	0.00	0.00

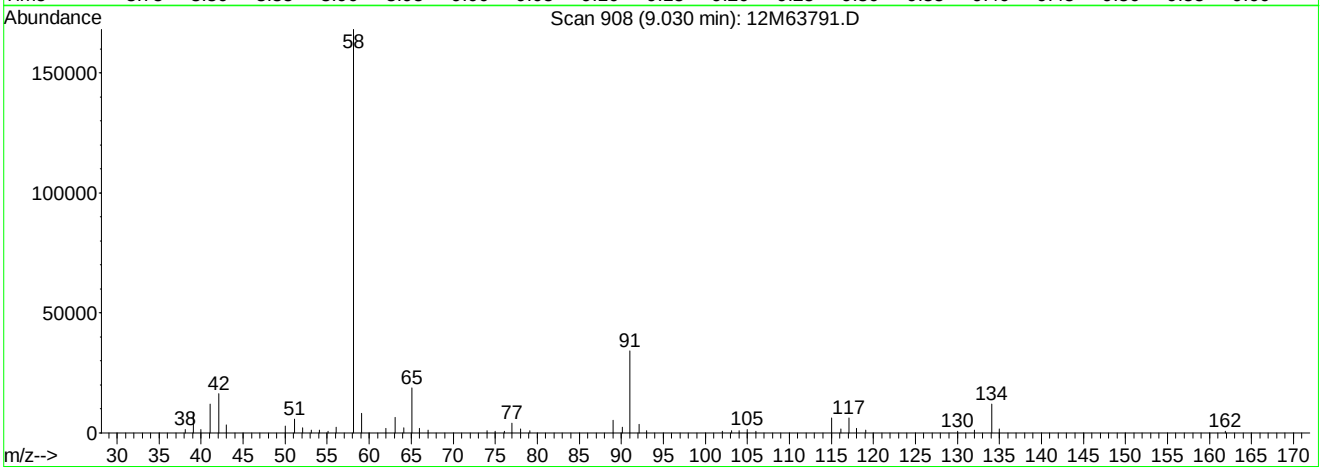
12M63791.D MEGAMIX.M Thu Aug 03 13:18:11 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63791.D Vial: 8
Acq On : 3 Aug 2017 12:35 pm Operator: MES
Sample : WG624321-08 80 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:18 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:17:43 2017
Response via : Multiple Level Calibration





TIC: 12M63791.D

(41) a,a-Dimethylphenethylamine

9.03min 80.94ug/ml mint

response 682239

Ion	Exp%	Act%
58.10	100	100
91.00	20.00	8.93#
134.10	7.70	3.52#
0.00	0.00	0.00

12M63791.D MEGAMIX.M Thu Aug 03 [illegible] 017

Analyst: 08/04/2017 09:07 Supervisor: 08/07/2017 16:22

#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63792.D Vial: 9
Acq On : 3 Aug 2017 1:08 pm Operator: MES
Sample : WG624321-09 100 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:46:42 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:18:35 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	130103	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	494029	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	268407	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.583	188	527621	40.0000	ug/ml	0.000
113) Chrysene-d12	16.285	240	537977	40.0000	ug/ml	0.000
128) Perylene-d12	19.159	264	501035	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	6.600	112	416139	102.6703024	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 102.67%#			
12) Phenol-d5	7.455	99	529775	101.8480196	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 101.85%#			
31) Nitrobenzene-d5	8.422	82	496840	99.3592652	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 198.72%#			
59) 2-Fluorobiphenyl	10.217	172	993054	105.1018938	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 210.20%#			
86) 2,4,6-Tribromophenol	11.793	330	161691	111.7327978	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 111.73%			
117) p-Terphenyl-d14	14.619	244	1281174	109.5396129	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 219.08%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.71	88	182600	108.3077	ug/ml	100
3) n-Nitrosodimethylamine	5.17	74	248021	102.9603	ug/ml	99
4) Pyridine	5.18	79	443706	104.5562	ug/ml	100
5) 2-Picoline	6.02	93	481922	102.1343	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	193480	100.6638	ug/ml	98
7) Methyl Methanesulfonate	6.44	80	304290	104.6414	ug/ml	99
9) n-Nitrosodiethylamine	6.84	102	209565	103.0291	ug/ml	97
10) Ethyl Methanesulfonate	7.10	79	322005	100.5517	ug/ml	98
11) Aniline	7.55	66	268321	100.3093	ug/ml	94
13) Phenol	7.47	94	535436	101.5871	ug/ml	98
14) bis(2-Chloroethyl)ether	7.57	63	302382	98.4726	ug/ml	94
15) Pentachloroethane	7.58	167	178852	102.4705	ug/ml	99
16) 2-Chlorophenol	7.68	128	457587	103.0996	ug/ml	97
17) 1,3-Dichlorobenzene	7.83	146	504058	103.8788	ug/ml	98
18) 1,4-Dichlorobenzene	7.87	146	507185	102.9688	ug/ml	98
19) Benzyl Alcohol	7.97	108	293984	104.3195	ug/ml	95
20) 1,2-Dichlorobenzene	8.07	146	496440	106.2597	ug/ml	98
21) 2-Methylphenol	8.06	107	390919	103.7724	ug/ml	98
22) bis(2-Chloroisopropyl)ethe	8.11	45	362643	97.0643	ug/ml	98
23) 3-,4-Methylphenol	8.19	107	496291	103.6665	ug/ml	98
24) n-Nitrosopyrrolidine	8.25	100	215271	105.6514	ug/ml	89
25) n-Nitrosodipropylamine	8.25	70	312128	96.5196	ug/ml	97
26) Acetophenone	8.25	105	645199	100.3265	ug/ml	97
27) n-Nitrosomorpholine	8.26	56	239116	95.4306	ug/ml	97
28) o-Toluidine	8.30	106	720423	101.8897	ug/ml	99
29) Hexachloroethane	8.38	117	210355	102.0911	ug/ml	94
32) Nitrobenzene	8.44	77	485640	98.3320	ug/ml	98
33) n-Nitrosopiperidine	8.59	114	222654	102.8781	ug/ml	94
34) Isophorone	8.66	82	860450	100.0235	ug/ml	98
35) 2-Nitrophenol	8.76	139	249412	104.9768	ug/ml	96
36) 2,4-Dimethylphenol	8.73	122	412040	104.5264	ug/ml	98
37) 0,0,0-Triethyl Phosphoroth	8.83	198	247108	108.1558	ug/ml	91
38) bis(2-Chloroethoxy)methane	8.83	93	683354	101.9163	ug/ml	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63792.D Vial: 9
Acq On : 3 Aug 2017 1:08 pm Operator: MES
Sample : WG624321-09 100 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:46:42 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:18:35 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Benzoic Acid	8.80	105	294992	138.5688	ug/ml#	77
40)	2,4-Dichlorophenol	8.99	162	381144	106.1682	ug/ml	98
41)	a,a-Dimethylphenethylamine	9.04	58	875823m	104.5488	ug/ml	
42)	1,2,4-Trichlorobenzene	9.09	180	436642	105.4104	ug/ml	99
43)	Naphthalene	9.17	128	1398291	104.7806	ug/ml#	97
44)	4-Chloroaniline	9.20	65	182232	99.2110	ug/ml	79
45)	2,6-Dichlorophenol	9.22	162	343796	103.8717	ug/ml	98
46)	Hexachloropropene	9.28	213	320013	106.5160	ug/ml	98
47)	Hexachlorobutadiene	9.32	225	248272	104.1231	ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.51	84	415445	105.5190	ug/ml#	89
49)	p-Phenylenediamine	9.55	108	286109	111.4534	ug/ml	98
50)	4-Chloro-3-Methylphenol	9.63	107	453969	102.1285	ug/ml	94
51)	Safrole	9.73	162	368466	105.9906	ug/ml	95
52)	2-Methylnaphthalene	9.86	142	972575	107.0083	ug/ml	100
53)	1-Methylnaphthalene	9.98	142	888375	106.5772	ug/ml	99
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	466900	108.0645	ug/ml	99
56)	Hexachlorocyclopentadiene	10.08	237	229066	128.9271	ug/ml	100
57)	2,4,6-Trichlorophenol	10.15	196	307049	107.8017	ug/ml	100
58)	2,4,5-Trichlorophenol	10.20	196	321114	107.9131	ug/ml	99
60)	Isosafrole	10.25	162	359325	104.0182	ug/ml	96
61)	2-Chloronaphthalene	10.37	162	913688	105.5325	ug/ml	97
62)	1-Chloronaphthalene	10.41	162	872813	106.2207	ug/ml	98
63)	2-Nitroaniline	10.46	65	273517	98.1965	ug/ml	93
64)	1,4-Naphthoquinone	10.53	158	197501	81.3455	ug/ml	97
65)	Dimethylphthalate	10.62	163	1044551	104.0247	ug/ml	100
66)	1,3-Dinitrobenzene	10.68	168	181728	105.0305	ug/ml	93
67)	2,6-Dinitrotoluene	10.72	165	244214	103.6425	ug/ml	94
68)	Acenaphthylene	10.81	152	1443464	106.0800	ug/ml	99
69)	3-Nitroaniline	10.88	138	249145	102.9404	ug/ml	96
70)	2,4-Dinitrophenol	10.99	184	170019	125.0219	ug/ml	78
71)	Acenaphthene	11.00	154	948706	109.6755	ug/ml	100
72)	4-Nitrophenol	10.99	65	216670	101.0055	ug/ml	90
73)	2,4-Dinitrotoluene	11.14	165	347832	107.6804	ug/ml	91
74)	Pentachlorobenzene	11.17	250	375928	107.2692	ug/ml	96
75)	Dibenzofuran	11.15	168	1290423	104.9847	ug/ml	97
76)	2,3,4,6-Tetrachlorophenol	11.30	232	291354	114.3720	ug/ml	96
77)	1-Naphthylamine	11.23	143	922913	111.4634	ug/ml	97
78)	2-Naphthylamine	11.30	143	976744	112.3832	ug/ml	95
79)	Diethylphthalate	11.33	149	1052518	102.0222	ug/ml	99
80)	Thionazin	11.43	107	175784	103.6692	ug/ml	99
81)	Fluorene	11.51	166	1116917	107.4828	ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.46	204	546459	105.1684	ug/ml	96
83)	4-Nitroaniline	11.53	138	278018	104.3905	ug/ml	93
84)	5-Nitro-o-Toluidine	11.51	152	331188	110.1888	ug/ml	89
85)	1,2-Diphenylhydrazine	11.63	77	1041087	98.2645	ug/ml	97
88)	4,6-Dinitro-2-Methylphenol	11.56	198	222455	113.1685	ug/ml	87
89)	Diphenylamine/n-Nitrosodip	11.58	169	971005	108.4251	ug/ml	100
90)	Sulfotepp	11.78	322	199727	112.0051	ug/ml	87
91)	Sym-Trinitrobenzene	11.87	75	347629	109.1302	ug/ml	97
92)	Diallate	11.90	86	376366	99.9855	ug/ml#	94
93)	Phenacetin	11.90	108	579556	104.3790	ug/ml	97
94)	Phorate	11.92	75	583473	98.3967	ug/ml#	95
95)	4-Bromophenyl Phenyl Ether	11.99	248	308599	108.8905	ug/ml	94
96)	Hexachlorobenzene	12.21	284	317630	107.7845	ug/ml	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63792.D Vial: 9
Acq On : 3 Aug 2017 1:08 pm Operator: MES
Sample : WG624321-09 100 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 13:46:42 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:18:35 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

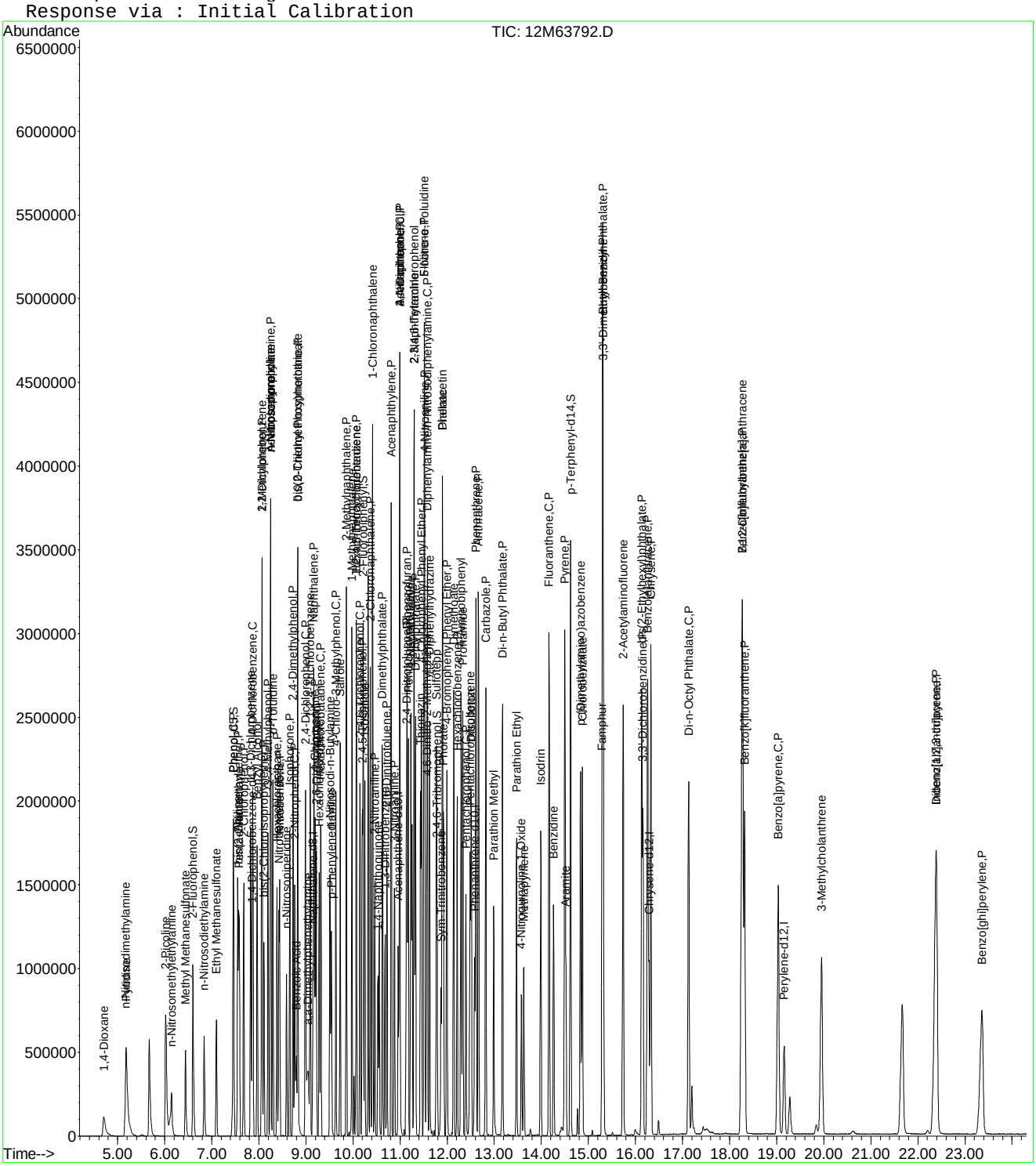
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.15	87	308365	90.5609	ug/ml	98
98)	4-Aminobiphenyl	12.29	169	1131416	107.2730	ug/ml	99
99)	Pentachlorophenol	12.40	266	205896	115.3974	ug/ml	100
100)	Pronamide	12.33	173	490250	106.3807	ug/ml	99
101)	Pentachloronitrobenzene	12.49	237	142077	106.5492	ug/ml	98
102)	Disulfoton	12.51	88	489842	101.7865	ug/ml	99
103)	Phenanthrene	12.61	178	1562504	105.4533	ug/ml	99
104)	Anthracene	12.66	178	1646526	106.9489	ug/ml	100
105)	Carbazole	12.82	167	1435053	107.5014	ug/ml	99
106)	Parathion Methyl	12.99	109	302020	97.8269	ug/ml	97
107)	Di-n-Butyl Phthalate	13.18	149	1824819	104.4951	ug/ml	100
108)	Parathion Ethyl	13.48	97	228001	105.7170	ug/ml	96
109)	4-Nitroquinoline 1-Oxide	13.58	190	127059	138.7140	ug/ml	94
110)	Methapyrilene	13.62	58	344516	70.7815	ug/ml	99
111)	Isodrin	13.99	193	176205	103.9377	ug/ml	99
112)	Fluoranthene	14.16	202	1756636	107.1257	ug/ml	100
114)	Benzidine	14.26	184	698148	102.3975	ug/ml	100
115)	Pyrene	14.50	202	1825441	107.0374	ug/ml	100
116)	Aramite	14.52	185	106206	102.2403	ug/ml	96
118)	p-(Dimethylamino)azobenzen	14.83	225	368796	109.5433	ug/ml	90
119)	Chlorobenzilate	14.87	251	498113	106.6599	ug/ml	93
120)	Famphur	15.28	218	8646	8.1470	ug/ml#	1
121)	Butyl Benzyl Phthalate	15.30	149	873713	104.3619	ug/ml	95
122)	3,3'-Dimethylbenzidine	15.32	212	1543447	101.9133	ug/ml	99
123)	2-Acetylaminofluorene	15.74	181	806751	112.0899	ug/ml	99
124)	bis(2-Ethylhexyl)phthalate	16.13	149	1178977	107.8200	ug/ml	99
125)	3,3'-Dichlorobenzidine	16.16	252	590051	105.7004	ug/ml	99
126)	Benzo[a]anthracene	16.26	228	1725881	106.6354	ug/ml	100
127)	Chrysene	16.33	228	1582651	107.9058	ug/ml	100
129)	Di-n-Octyl Phthalate	17.13	149	2002193	105.5608	ug/ml	99
130)	7,12-Dimethylbenz[a]anthra	18.27	256	853674	109.5304	ug/ml	98
131)	Benzo[b]fluoranthene	18.27	252	1878686	109.2736	ug/ml	100
132)	Benzo[k]fluoranthene	18.32	252	1527748	107.8958	ug/ml	100
133)	Benzo[a]pyrene	19.03	252	1525044	107.9295	ug/ml	99
134)	3-Methylcholanthrene	19.96	268	787629	107.4200	ug/ml	99
135)	Indeno[1,2,3-cd]pyrene	22.39	276	1704851	110.2976	ug/ml	99
136)	Dibenz[ah]anthracene	22.38	278	1478809	112.2402	ug/ml	100
137)	Benzo[ghi]perylene	23.36	276	1313171	106.9812	ug/ml	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63792.D Vial: 9
Acq On : 3 Aug 2017 1:08 pm Operator: MES
Sample : WG624321-09 100 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:49 2017 Quant Results File: MEGAMIX.RES

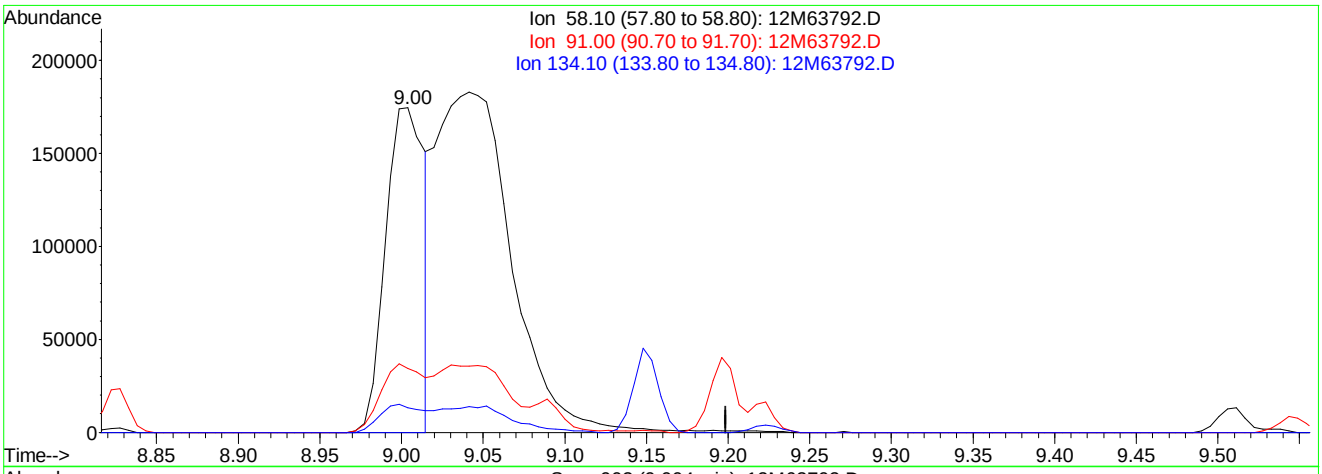
Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:47:54 2017
Response via : Initial Calibration

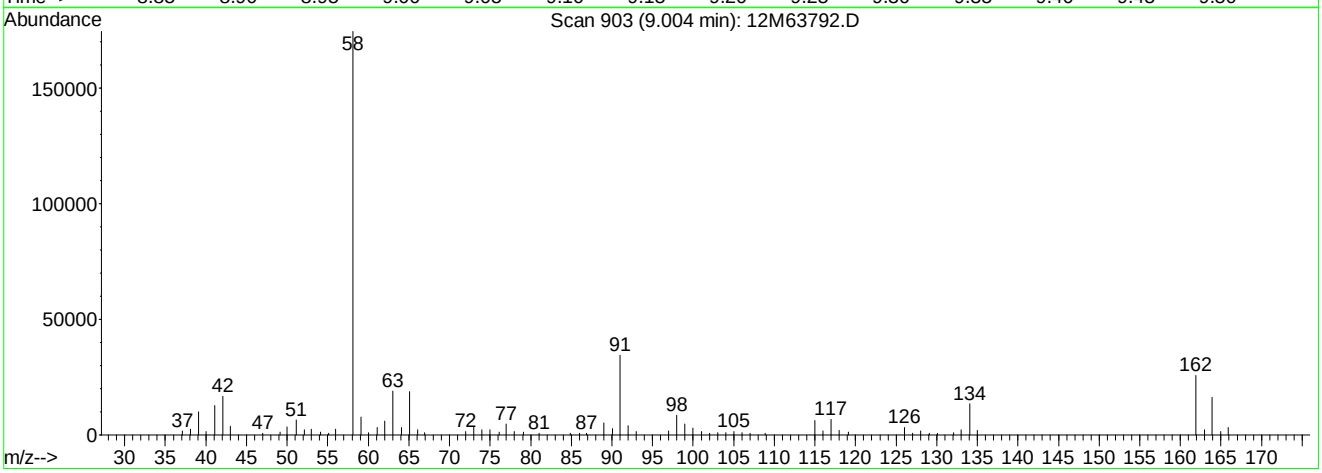


Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63792.D Vial: 9
Acq On : 3 Aug 2017 1:08 pm Operator: MES
Sample : WG624321-09 100 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:46 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:18:35 2017
Response via : Multiple Level Calibration





TIC: 12M63792.D

(41) a,a-Dimethylphenethylamine

9.00min 34.70ug/ml

response 290646

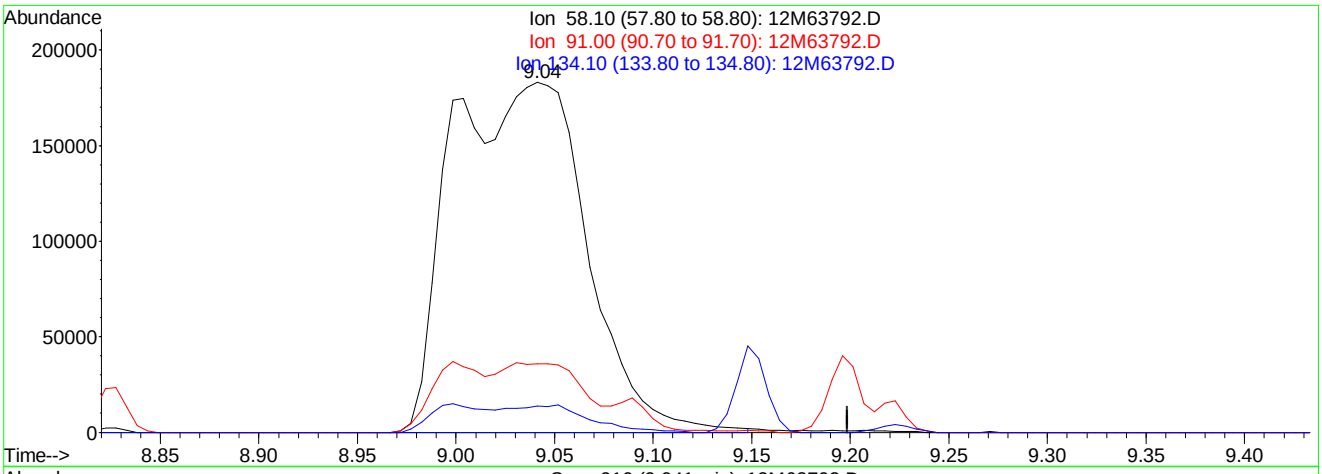
Ion	Exp%	Act%
58.10	100	100
91.00	20.00	22.63
134.10	7.70	10.53#
0.00	0.00	0.00

12M63792.D MEGAMIX.M Thu Aug 03 13:46:59 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63792.D Vial: 9
Acq On : 3 Aug 2017 1:08 pm Operator: MES
Sample : WG624321-09 100 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 13:49 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:47:54 2017
Response via : Multiple Level Calibration



TIC: 12M63792.D

(41) a,a-Dimethylphenethylamine

9.04min 104.55ug/ml mint

response 875823

Ion	Exp%	Act%
58.10	100	100
91.00	20.00	7.51#
134.10	7.70	3.50#
0.00	0.00	0.00

12M63792.D MEGAMIX.M Thu Aug 03 [illegible]017

Analyst: 08/04/2017 09:07 Supervisor: 08/07/2017 16:22

#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63793.D Vial: 10
Acq On : 3 Aug 2017 1:41 pm Operator: MES
Sample : WG624321-10 120 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 14:05:26 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:49:29 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	131765	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	501263	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	266674	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.583	188	532979	40.0000	ug/ml	0.000
113) Chrysene-d12	16.285	240	553464	40.0000	ug/ml	0.000
128) Perylene-d12	19.165	264	511861	40.0000	ug/ml	0.011

System Monitoring Compounds						
8) 2-Fluorophenol	6.605	112	499049	122.8712646	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 122.87%#			
12) Phenol-d5	7.454	99	643411	123.7160269	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 123.72%#			
31) Nitrobenzene-d5	8.427	82	595524	118.1827265	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 236.37%#			
59) 2-Fluorobiphenyl	10.216	172	1206498	129.6483411	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 259.30%#			
86) 2,4,6-Tribromophenol	11.792	330	200589	141.2733591	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 141.27%#			
117) p-Terphenyl-d14	14.618	244	1552522	129.6408901	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 259.28%#			

Target Compounds						Qvalue
2) 1,4-Dioxane	4.71	88	219380	127.7962	ug/ml	99
3) n-Nitrosodimethylamine	5.17	74	298855	123.7388	ug/ml	98
4) Pyridine	5.18	79	535918	123.1885	ug/ml	100
5) 2-Picoline	6.02	93	574516	120.8445	ug/ml	99
6) n-Nitrosomethylethylamine	6.15	88	234579	121.8976	ug/ml	99
7) Methyl Methanesulfonate	6.44	80	361511	120.9633	ug/ml	99
9) n-Nitrosodiethylamine	6.84	102	250964	123.2331	ug/ml	95
10) Ethyl Methanesulfonate	7.10	79	385156	119.8855	ug/ml	98
11) Aniline	7.55	66	319870	119.0437	ug/ml	91
13) Phenol	7.47	94	646442	122.6177	ug/ml	96
14) bis(2-Chloroethyl)ether	7.57	63	360745	116.8749	ug/ml	91
15) Pentachloroethane	7.59	167	213406	121.7080	ug/ml	99
16) 2-Chlorophenol	7.68	128	550916	123.9750	ug/ml	96
17) 1,3-Dichlorobenzene	7.83	146	607371	124.9112	ug/ml	98
18) 1,4-Dichlorobenzene	7.87	146	619373	125.5481	ug/ml	98
19) Benzyl Alcohol	7.97	108	354665	125.5407	ug/ml	94
20) 1,2-Dichlorobenzene	8.07	146	600354	128.2409	ug/ml	98
21) 2-Methylphenol	8.07	107	470883	124.7673	ug/ml	97
22) bis(2-Chloroisopropyl)ethe	8.11	45	435525	116.2572	ug/ml	97
23) 3-,4-Methylphenol	8.20	107	592638	123.5089	ug/ml	98
24) n-Nitrosopyrrolidine	8.26	100	251936	123.1231	ug/ml	88
25) n-Nitrosodipropylamine	8.25	70	368997	113.2686	ug/ml	96
26) Acetophenone	8.26	105	761720	117.8052	ug/ml	96
27) n-Nitrosomorpholine	8.26	56	277678	109.7726	ug/ml	97
28) o-Toluidine	8.30	106	857093	120.8475	ug/ml	99
29) Hexachloroethane	8.38	117	250408	120.9837	ug/ml	93
32) Nitrobenzene	8.44	77	580807	116.5994	ug/ml	96
33) n-Nitrosopiperidine	8.59	114	268648	123.6291	ug/ml	92
34) Isophorone	8.66	82	1027349	118.5211	ug/ml	97
35) 2-Nitrophenol	8.76	139	304533	127.8636	ug/ml	94
36) 2,4-Dimethylphenol	8.73	122	501537	126.6976	ug/ml	98
37) 0,0,0-Triethyl Phosphoroth	8.83	198	297365	129.0716	ug/ml	90
38) bis(2-Chloroethoxy)methane	8.83	93	812727	120.0320	ug/ml	98

(#) = qualifier out of range (m) = manual integration
12M63793.D MEGAMIX.M Thu Aug 03 14:06:00 2017 Page 1

Data File : I:\MSDCHEM\1\DATA\080317\12M63793.D Vial: 10
Acq On : 3 Aug 2017 1:41 pm Operator: MES
Sample : WG624321-10 120 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 14:05:26 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:49:29 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Benzoic Acid	8.81	105	371653	180.1428	ug/ml#	64
40)	2,4-Dichlorophenol	8.99	162	470852	130.6188	ug/ml	97
41)	a,a-Dimethylphenethylamine	9.06	58	1056969m	125.3157	ug/ml	
42)	1,2,4-Trichlorobenzene	9.09	180	530719	127.3626	ug/ml	99
43)	Naphthalene	9.17	128	1690525	125.8490	ug/ml#	98
44)	4-Chloroaniline	9.20	65	217884	117.7080	ug/ml	79
45)	2,6-Dichlorophenol	9.22	162	418217	125.8778	ug/ml	98
46)	Hexachloropropene	9.29	213	388687	127.5867	ug/ml	99
47)	Hexachlorobutadiene	9.32	225	297796	123.8128	ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.51	84	413848	102.1170	ug/ml	88
49)	p-Phenylenediamine	9.55	108	334661	120.3591	ug/ml	97
50)	4-Chloro-3-Methylphenol	9.64	107	545910	121.8570	ug/ml	93
51)	Safrole	9.73	162	447909	128.4965	ug/ml	93
52)	2-Methylnaphthalene	9.86	142	1187531	130.0582	ug/ml	100
53)	1-Methylnaphthalene	9.98	142	1075956	128.5798	ug/ml	98
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	566250	132.8923	ug/ml	99
56)	Hexachlorocyclopentadiene	10.08	237	275259	151.6994	ug/ml	99
57)	2,4,6-Trichlorophenol	10.15	196	371944	132.5916	ug/ml	99
58)	2,4,5-Trichlorophenol	10.20	196	391150	133.4299	ug/ml	99
60)	Isosafrole	10.25	162	435836	128.3409	ug/ml	95
61)	2-Chloronaphthalene	10.37	162	1104447	129.5041	ug/ml	97
62)	1-Chloronaphthalene	10.41	162	1058854	130.6513	ug/ml	98
63)	2-Nitroaniline	10.46	65	324591	118.1064	ug/ml	91
64)	1,4-Naphthoquinone	10.53	158	226790	96.6741	ug/ml	95
65)	Dimethylphthalate	10.63	163	1252629	126.3473	ug/ml	99
66)	1,3-Dinitrobenzene	10.68	168	221705	130.5124	ug/ml	92
67)	2,6-Dinitrotoluene	10.72	165	299118	129.4296	ug/ml	91
68)	Acenaphthylene	10.81	152	1765239	131.6421	ug/ml	100
69)	3-Nitroaniline	10.88	138	302266	127.2574	ug/ml	94
70)	2,4-Dinitrophenol	10.99	184	211589	161.3634	ug/ml	72
71)	Acenaphthene	11.00	154	1135339	132.8325	ug/ml	100
72)	4-Nitrophenol	10.99	65	254402	119.5572	ug/ml	89
73)	2,4-Dinitrotoluene	11.14	165	428141	135.1031	ug/ml	87
74)	Pentachlorobenzene	11.17	250	464803	134.8864	ug/ml	95
75)	Dibenzofuran	11.15	168	1582379	130.8788	ug/ml	96
76)	2,3,4,6-Tetrachlorophenol	11.30	232	352601	140.3582	ug/ml	95
77)	1-Naphthylamine	11.23	143	1122263	135.1990	ug/ml	96
78)	2-Naphthylamine	11.30	143	1167629	135.5526	ug/ml	94
79)	Diethylphthalate	11.33	149	1257685	123.4328	ug/ml	98
80)	Thionazin	11.43	107	210181	125.9560	ug/ml	99
81)	Fluorene	11.51	166	1340305	130.7609	ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.46	204	671948	131.6516	ug/ml	95
83)	4-Nitroaniline	11.53	138	335534	127.8624	ug/ml	92
84)	5-Nitro-o-Toluidine	11.52	152	399797	134.7984	ug/ml	88
85)	1,2-Diphenylhydrazine	11.63	77	1231003	117.4444	ug/ml	95
88)	4,6-Dinitro-2-Methylphenol	11.57	198	277710	142.1145	ug/ml	83
89)	Diphenylamine/n-Nitrosodip	11.58	169	1173167	130.6040	ug/ml	99
90)	Sulfotepp	11.78	322	243715	136.6512	ug/ml	85
91)	Sym-Trinitrobenzene	11.87	75	417417	130.5987	ug/ml	96
92)	Diallate	11.90	86	446315	117.9146	ug/ml#	93
93)	Phenacetin	11.90	108	684395	122.3710	ug/ml	96
94)	Phorate	11.93	75	692611	115.9504	ug/ml#	95
95)	4-Bromophenyl Phenyl Ether	12.00	248	380006	134.0781	ug/ml	93
96)	Hexachlorobenzene	12.21	284	392652	133.2784	ug/ml	94

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63793.D Vial: 10
Acq On : 3 Aug 2017 1:41 pm Operator: MES
Sample : WG624321-10 120 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 03 14:05:26 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:49:29 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

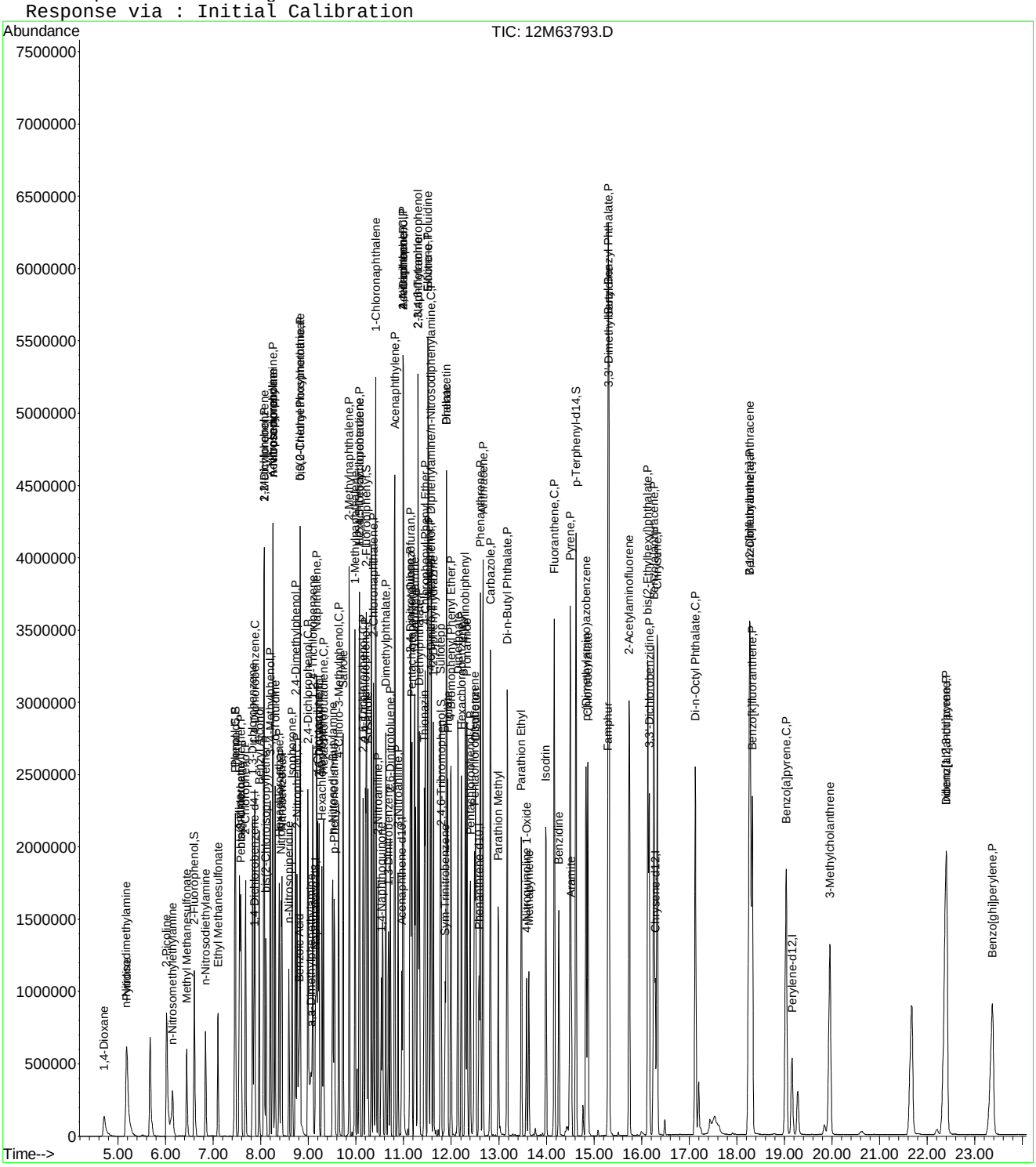
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.14	87	351712	101.4171	ug/ml	98
98)	4-Aminobiphenyl	12.29	169	1374811	129.7306	ug/ml	99
99)	Pentachlorophenol	12.40	266	255209	143.2951	ug/ml	99
100)	Pronamide	12.33	173	584174	126.2171	ug/ml	99
101)	Pentachloronitrobenzene	12.49	237	171723	128.0988	ug/ml	99
102)	Disulfoton	12.51	88	581596	120.1129	ug/ml	100
103)	Phenanthrene	12.62	178	1919512	129.2997	ug/ml	100
104)	Anthracene	12.67	178	1992241	129.0655	ug/ml	99
105)	Carbazole	12.82	167	1735866	129.9904	ug/ml	100
106)	Parathion Methyl	12.99	109	356987	114.2049	ug/ml	97
107)	Di-n-Butyl Phthalate	13.18	149	2185028	124.4422	ug/ml	99
108)	Parathion Ethyl	13.48	97	270685	124.7863	ug/ml	94
109)	4-Nitroquinoline 1-Oxide	13.58	190	156260	170.5326	ug/ml	93
110)	Methapyrilene	13.63	58	380508	75.5874	ug/ml	97
111)	Isodrin	13.99	193	213318	125.5161	ug/ml	99
112)	Fluoranthene	14.16	202	2133959	130.0694	ug/ml	99
114)	Benzidine	14.26	184	842305	121.8767	ug/ml	100
115)	Pyrene	14.50	202	2227242	127.8291	ug/ml	100
116)	Aramite	14.52	185	124942	117.3850	ug/ml	96
118)	p-(Dimethylamino)azobenzen	14.83	225	452616	131.8971	ug/ml	87
119)	Chlorobenzilate	14.87	251	614398	128.5721	ug/ml	91
120)	Famphur	15.28	218	4381	4.0126	ug/ml#	1
121)	Butyl Benzyl Phthalate	15.30	149	1026870	118.9259	ug/ml	94
122)	3,3'-Dimethylbenzidine	15.32	212	1839068	120.3204	ug/ml	99
123)	2-Acetylaminofluorene	15.75	181	968975	131.6466	ug/ml	98
124)	bis(2-Ethylhexyl)phthalate	16.13	149	1419936	126.7849	ug/ml	99
125)	3,3'-Dichlorobenzidine	16.16	252	724680	127.3097	ug/ml	99
126)	Benzo[a]anthracene	16.26	228	2112698	127.8452	ug/ml	99
127)	Chrysene	16.33	228	1939193	129.3884	ug/ml	100
129)	Di-n-Octyl Phthalate	17.13	149	2418483	125.7461	ug/ml	98
130)	7,12-Dimethylbenz[a]anthra	18.27	256	1047793	132.6515	ug/ml	98
131)	Benzo[b]fluoranthene	18.28	252	2261901	130.0348	ug/ml	100
132)	Benzo[k]fluoranthene	18.33	252	1917662	133.7339	ug/ml	97
133)	Benzo[a]pyrene	19.04	252	1889093	132.3517	ug/ml	100
134)	3-Methylcholanthrene	19.96	268	969103	130.8117	ug/ml	99
135)	Indeno[1,2,3-cd]pyrene	22.41	276	2089990	133.7125	ug/ml	99
136)	Dibenz[ah]anthracene	22.40	278	1821329	136.7623	ug/ml	99
137)	Benzo[ghi]perylene	23.37	276	1608025	129.7357	ug/ml	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63793.D Vial: 10
Acq On : 3 Aug 2017 1:41 pm Operator: MES
Sample : WG624321-10 120 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 14:05 2017 Quant Results File: MEGAMIX.RES

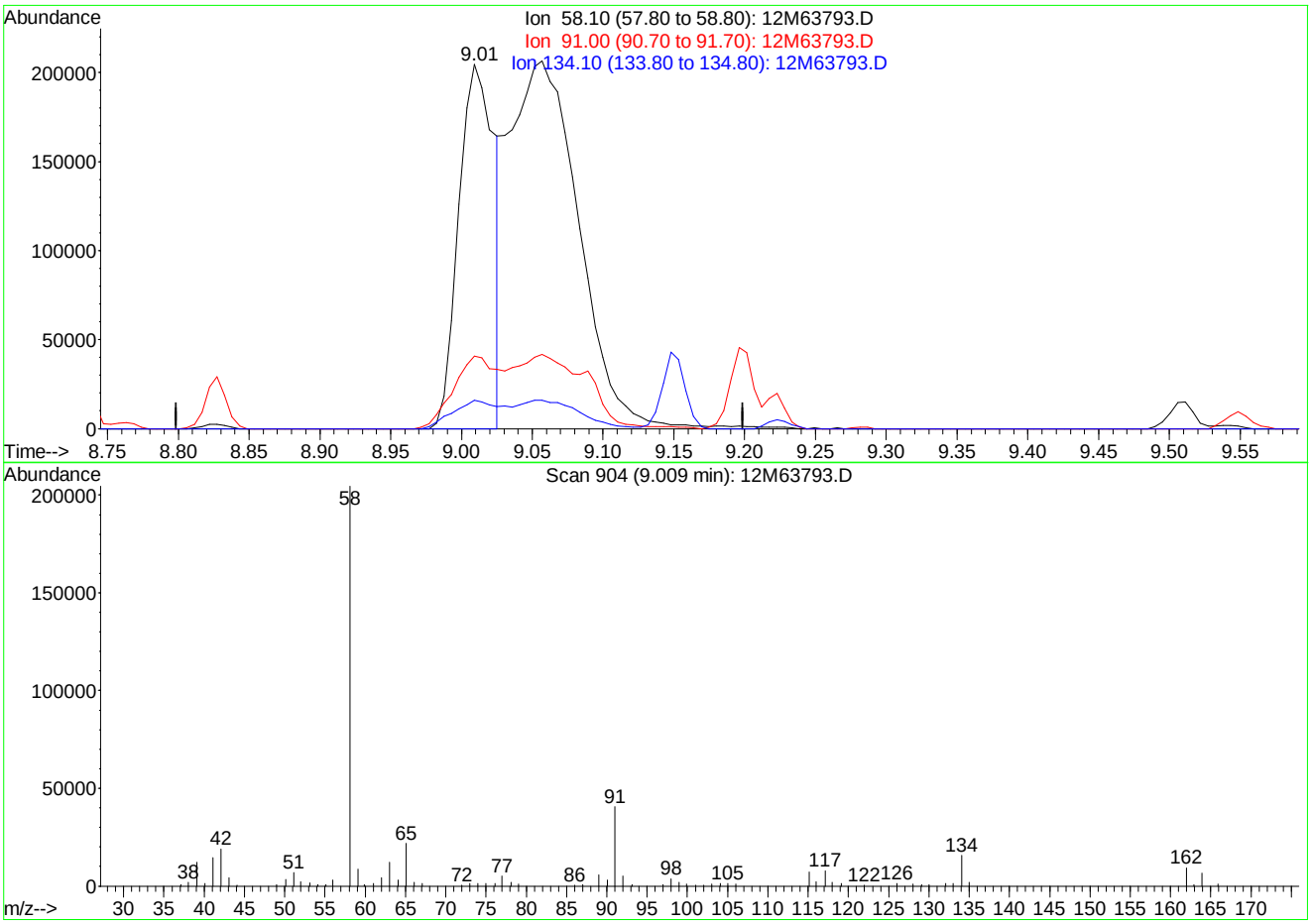
Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:49:29 2017
Response via : Initial Calibration



Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63793.D Vial: 10
Acq On : 3 Aug 2017 1:41 pm Operator: MES
Sample : WG624321-10 120 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 14:05 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:49:29 2017
Response via : Multiple Level Calibration



TIC: 12M63793.D

(41) a,a-Dimethylphenethylamine

9.01min 42.44ug/ml

response 357970

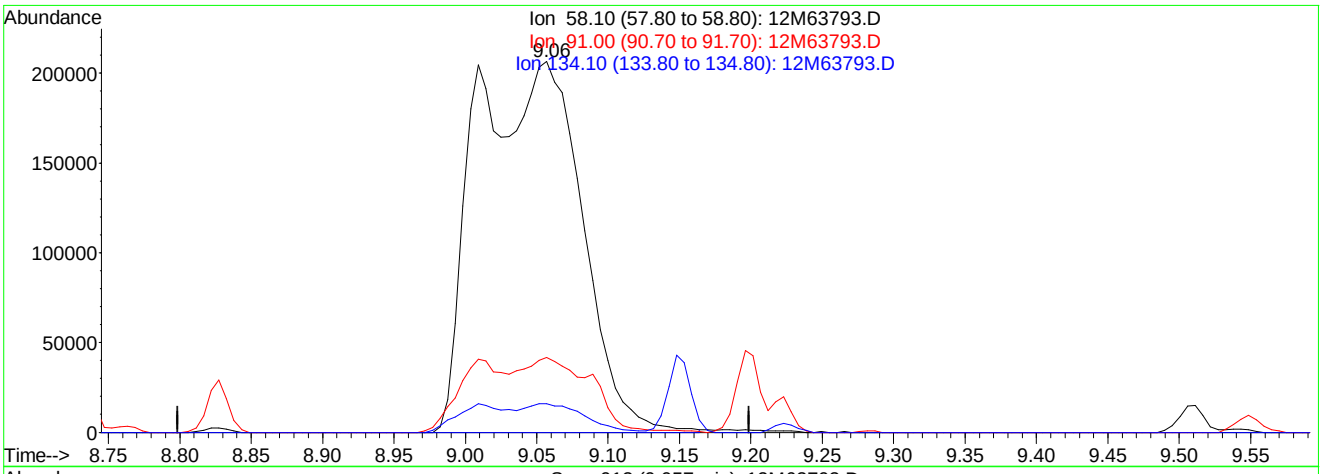
Ion	Exp%	Act%
58.10	100	100
91.00	20.00	25.92#
134.10	7.70	11.29#
0.00	0.00	0.00

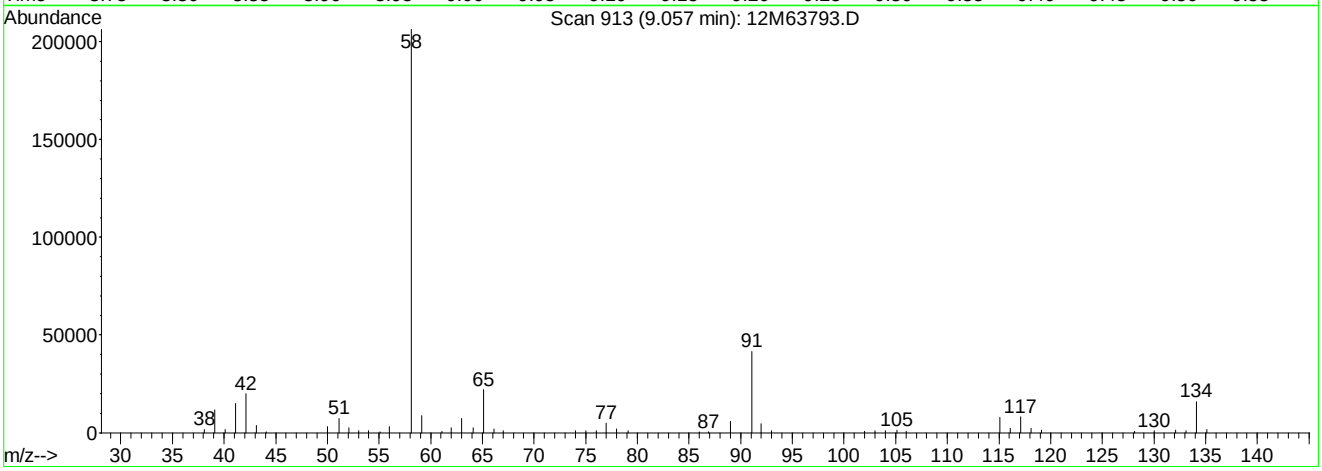
12M63793.D MEGAMIX.M Thu Aug 03 14:05:38 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63793.D Vial: 10
Acq On : 3 Aug 2017 1:41 pm Operator: MES
Sample : WG624321-10 120 PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 14:05 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Thu Aug 03 13:49:29 2017
Response via : Multiple Level Calibration





TIC: 12M63793.D

(41) a,a-Dimethylphenethylamine

9.06min 125.32ug/ml mint

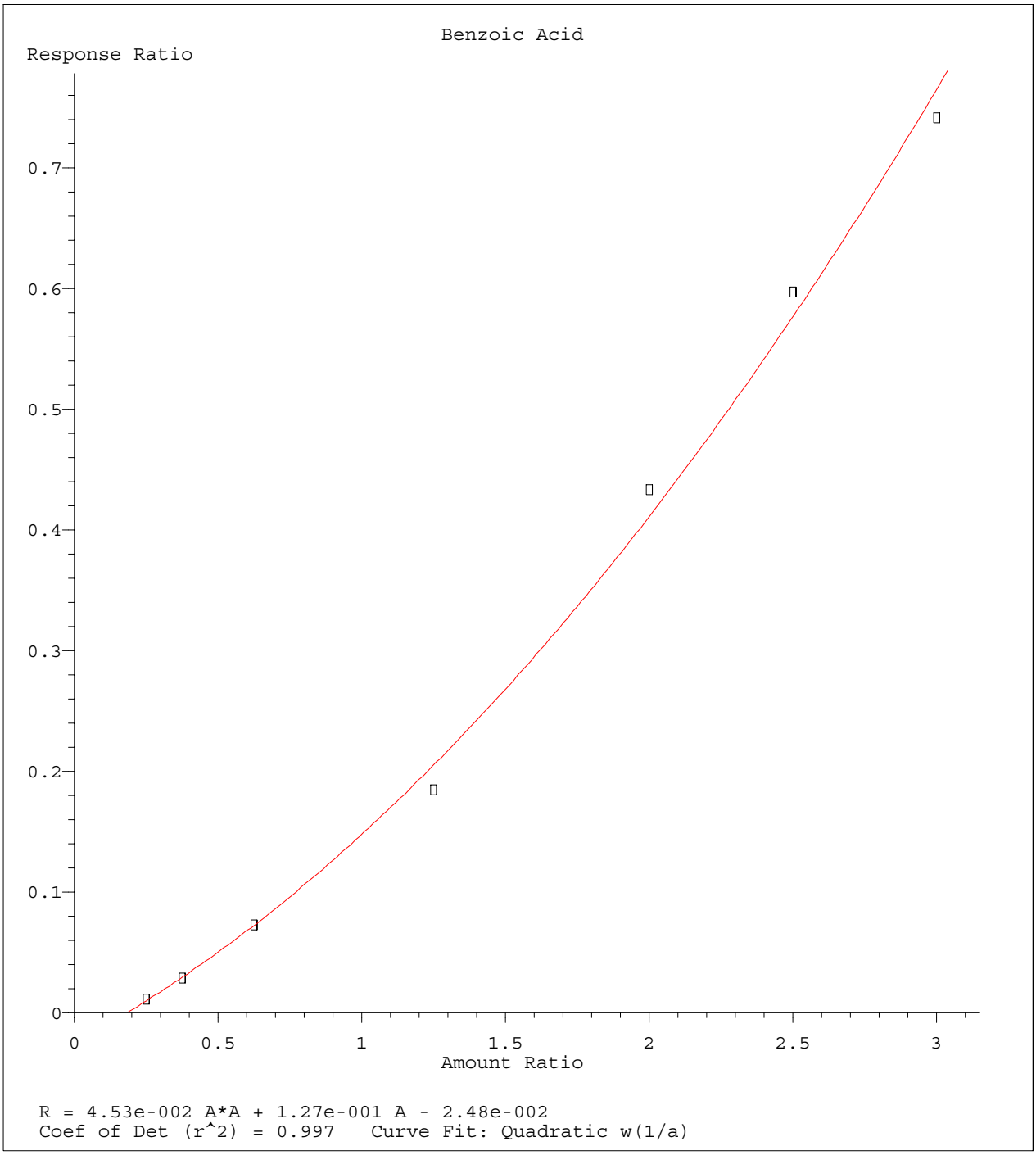
response 1056969

Ion	Exp%	Act%
58.10	100	100
91.00	20.00	8.78#
134.10	7.70	3.82#
0.00	0.00	0.00

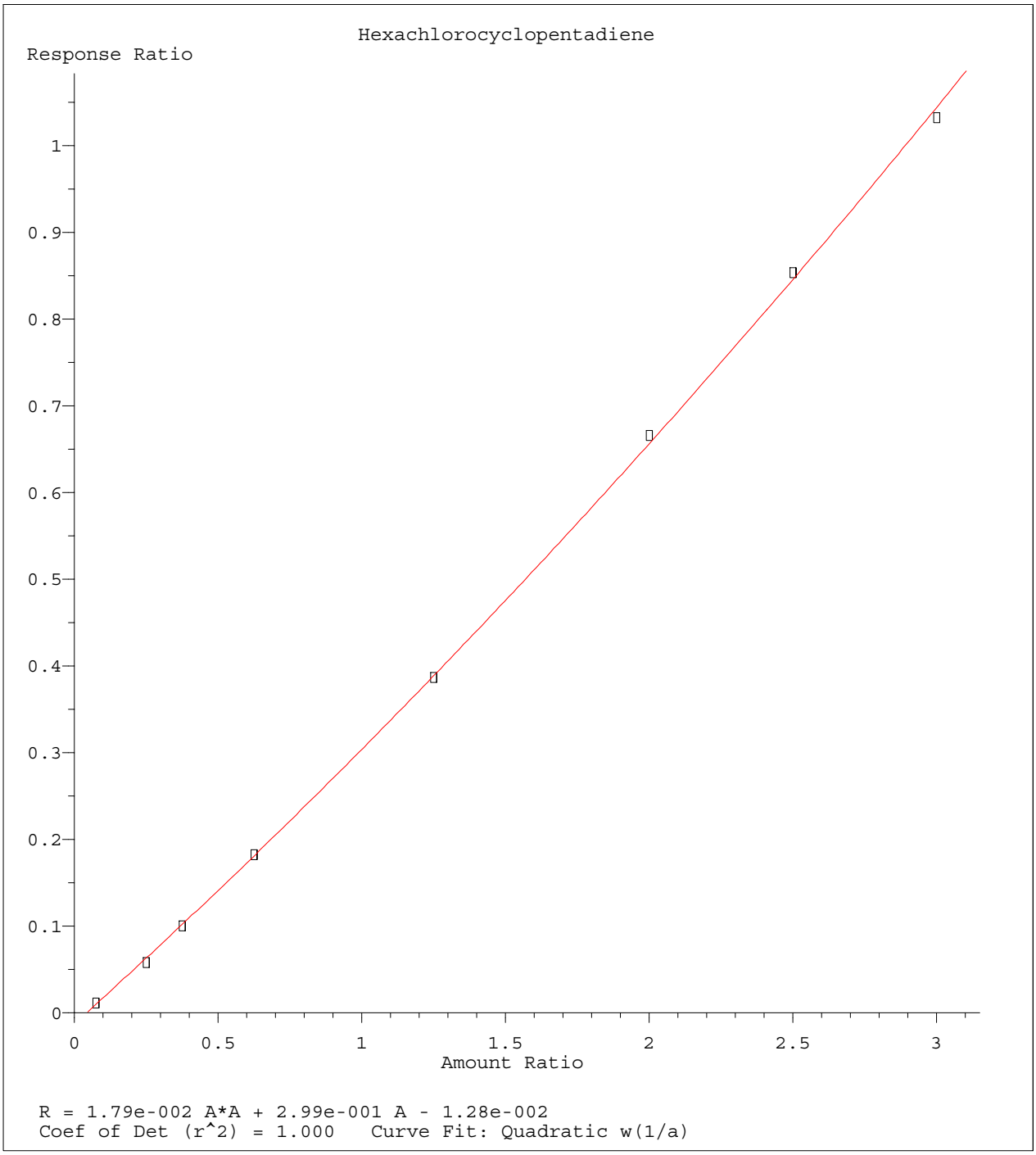
12M63793.D MEGAMIX.M Thu Aug 03 [illegible]017

Analyst: 08/04/2017 09:08 Supervisor: 08/07/2017 16:22

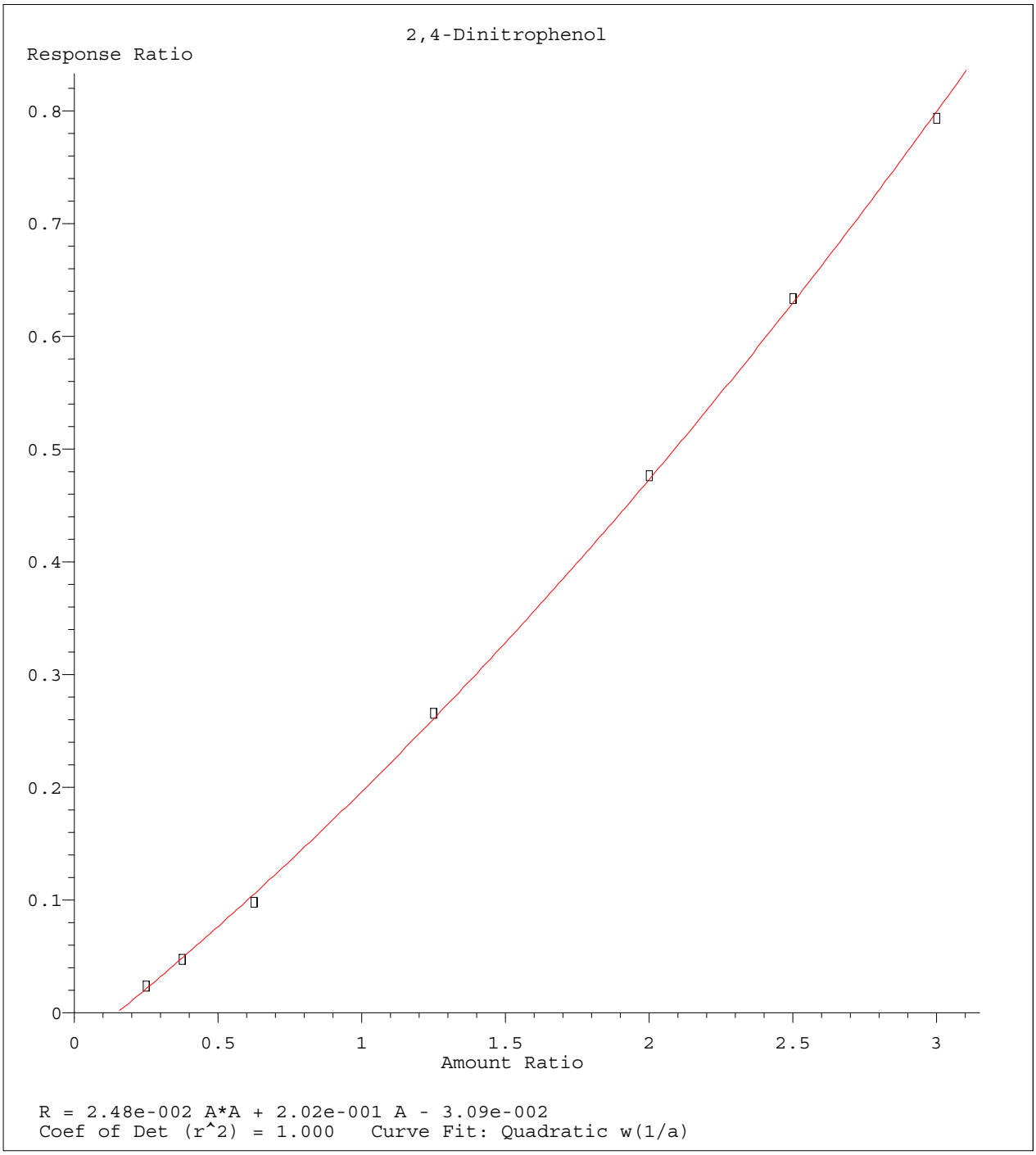
#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak



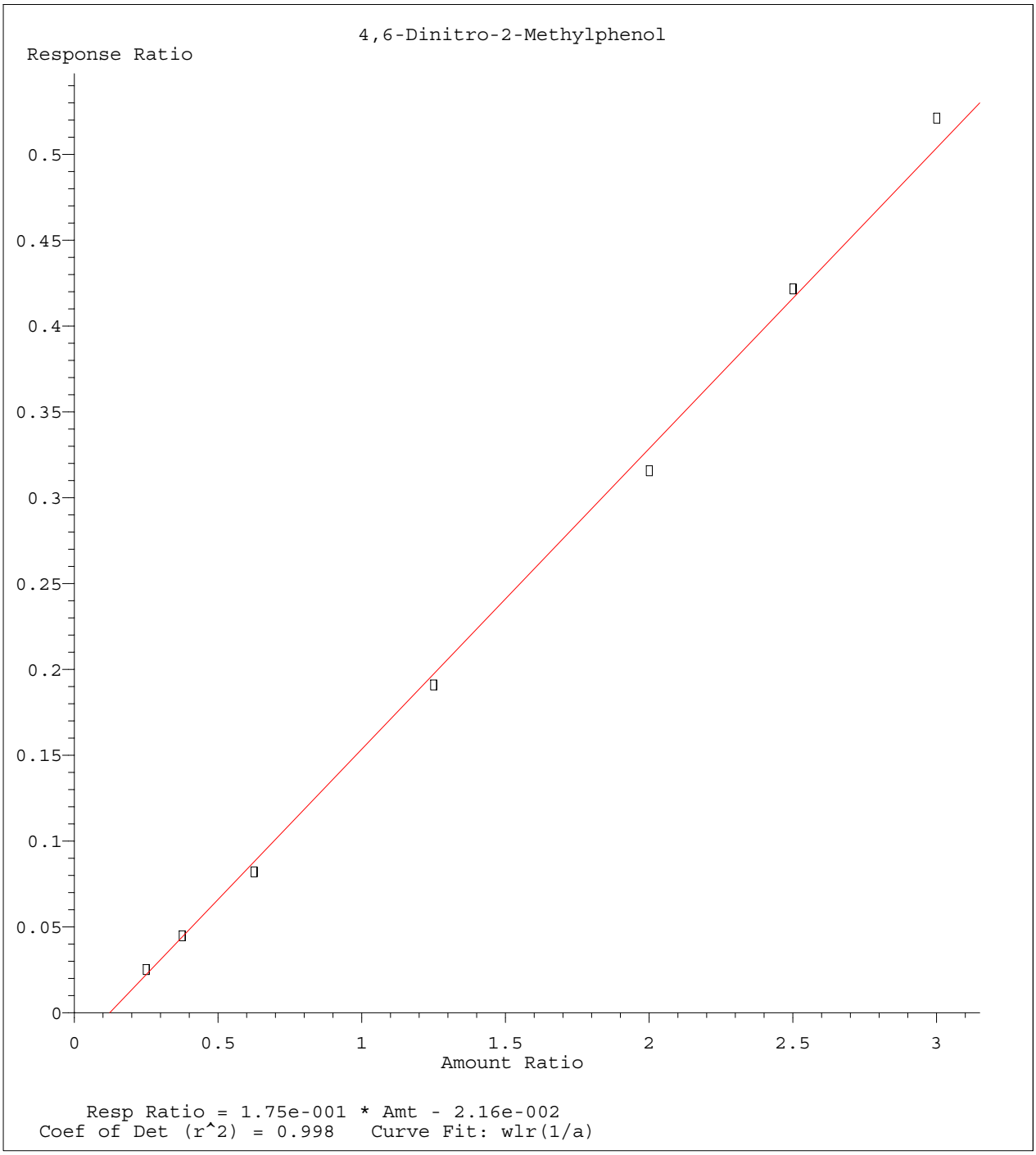
Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



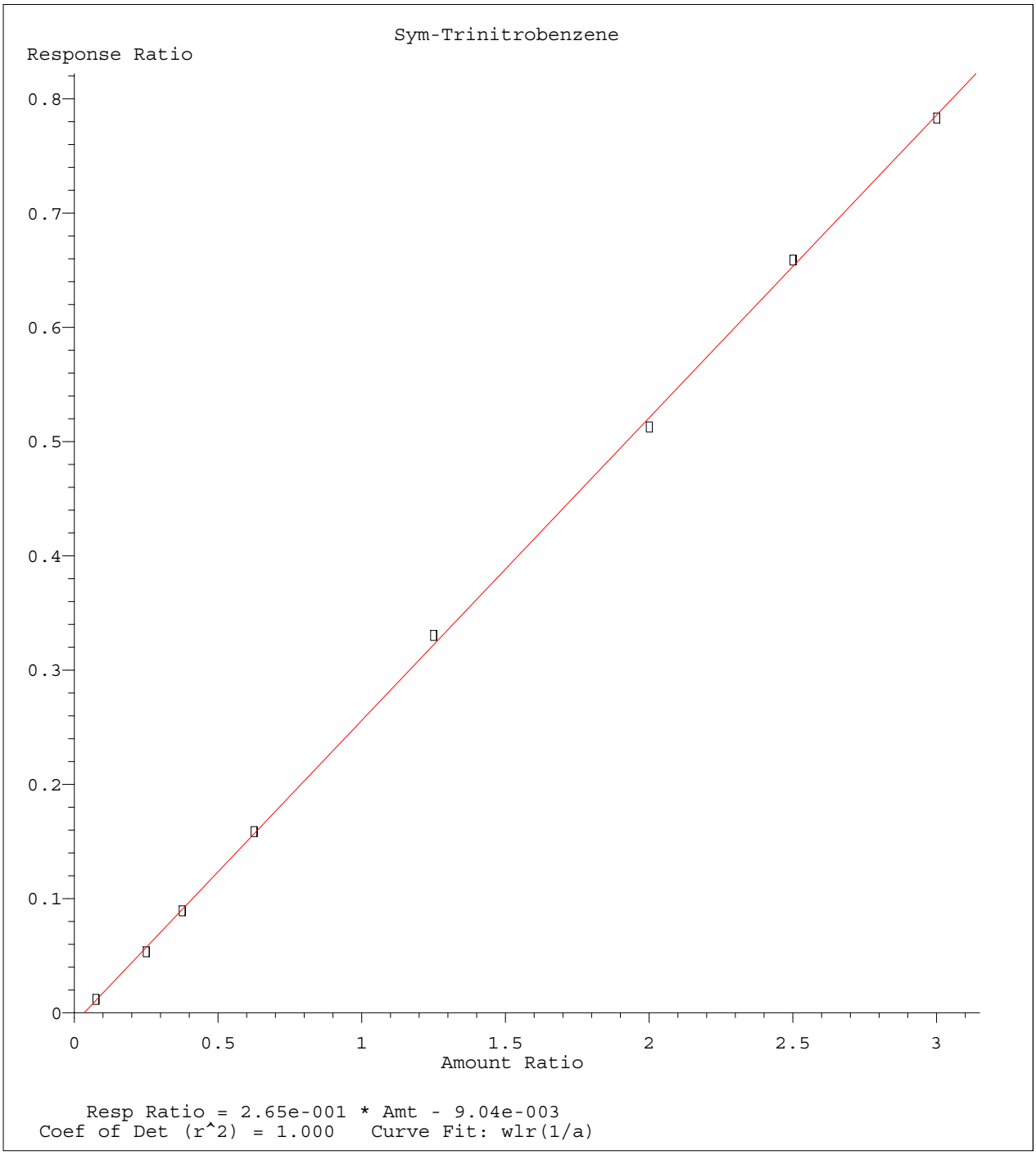
Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



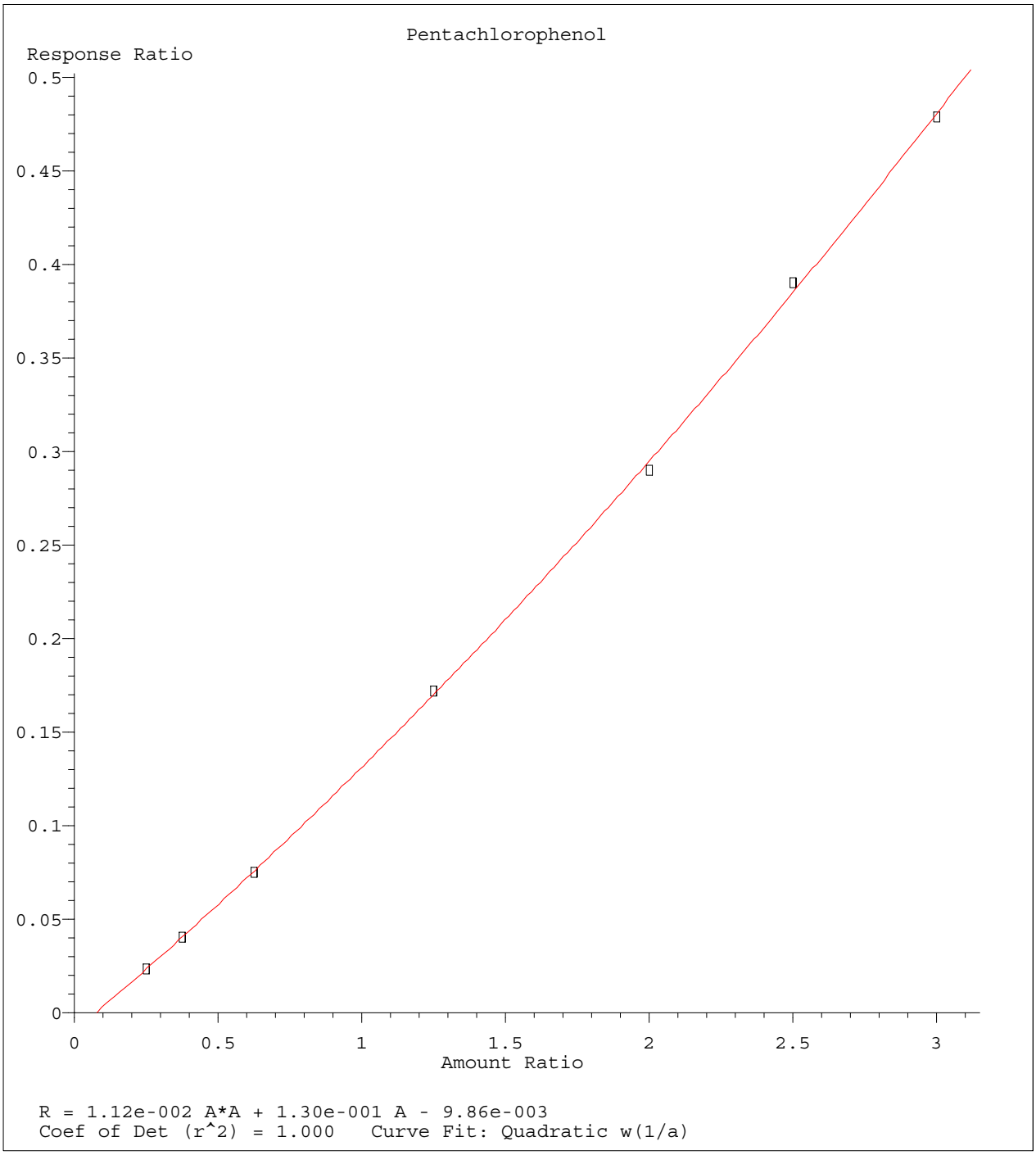
Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



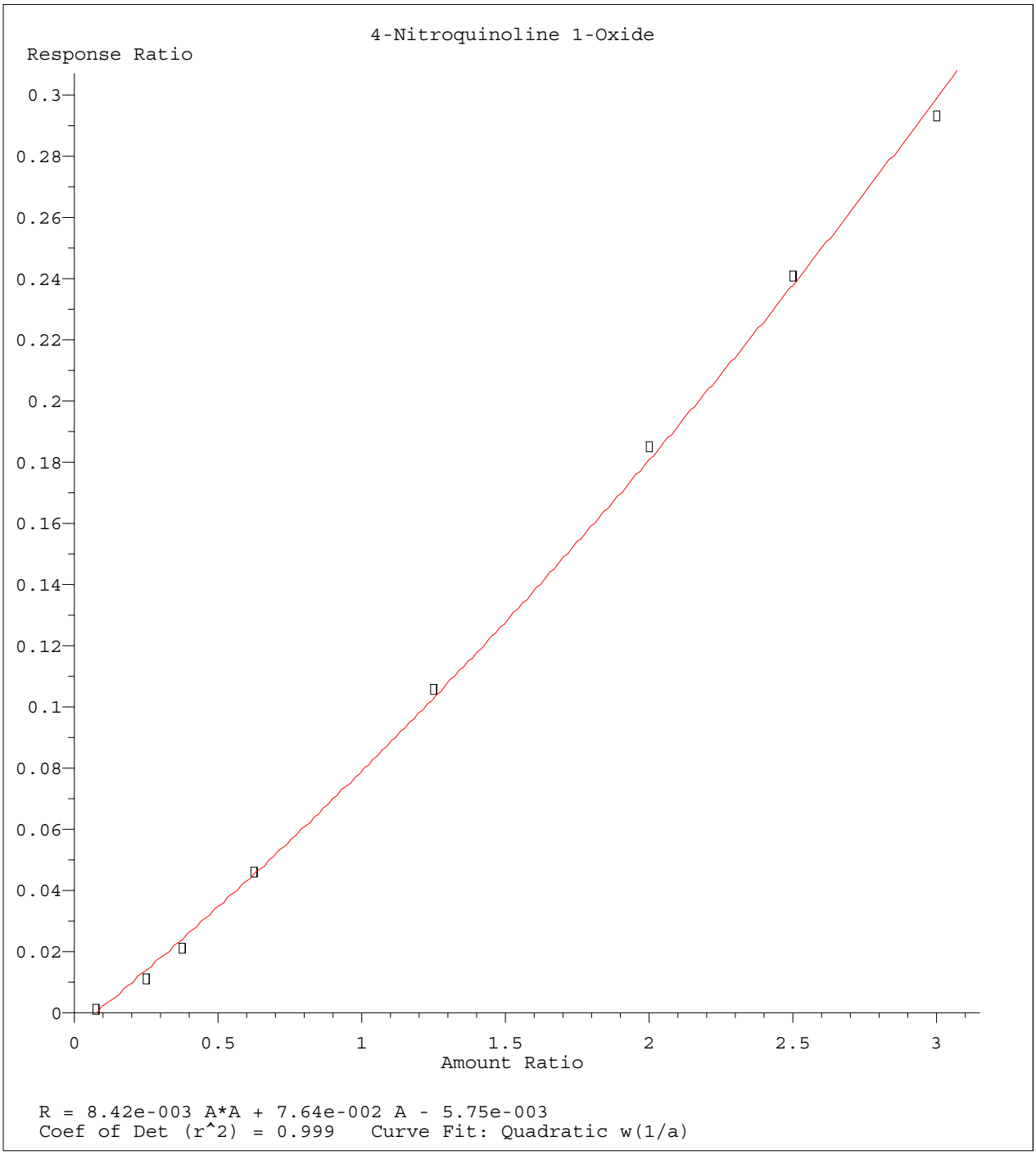
Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



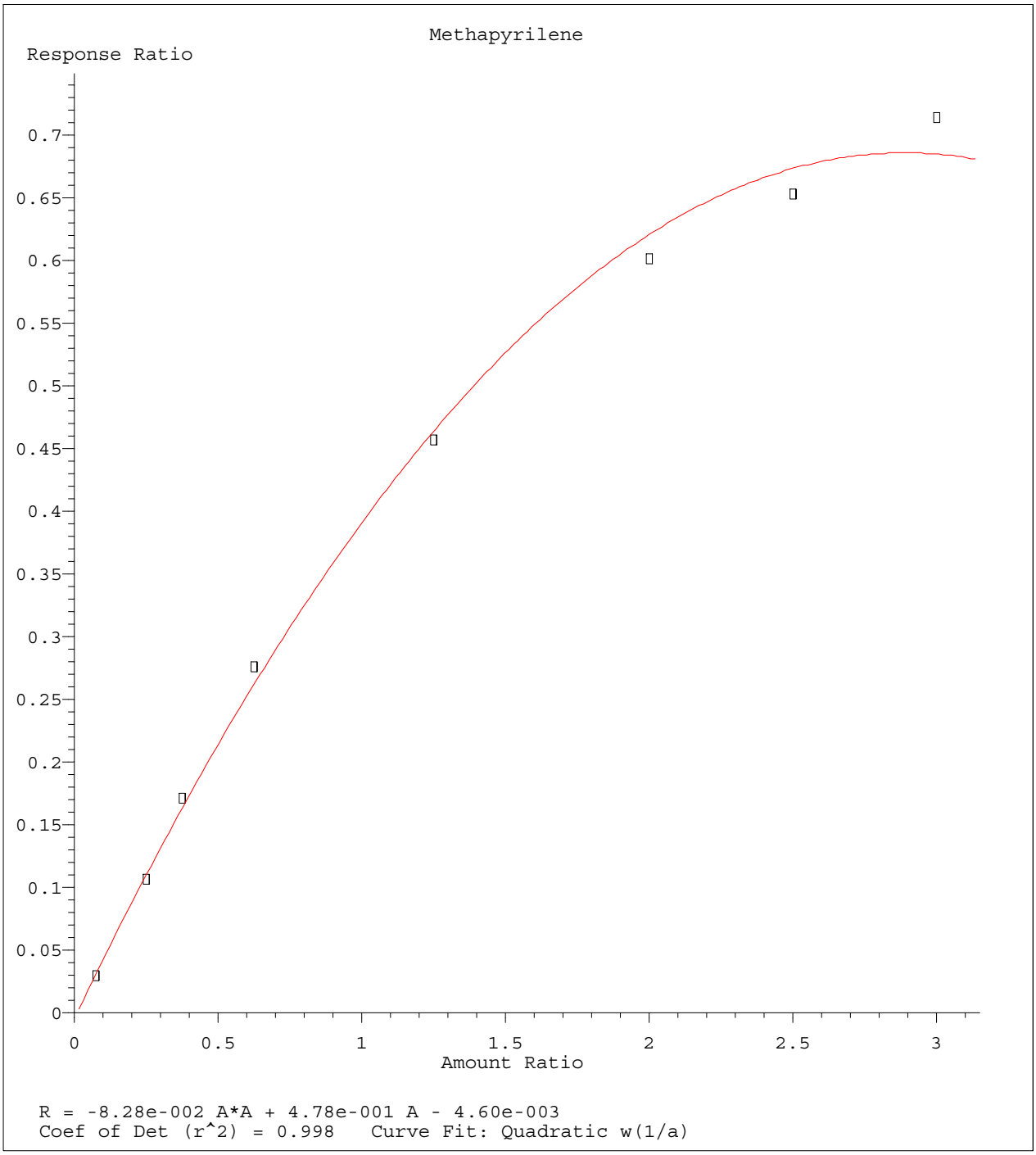
Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017



Method Name: I:\MSDCHEM\1\METHODS\MEGAMIX.M
Calibration Table Last Updated: Fri Aug 04 07:07:19 2017

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63795.D Vial: 12
Acq On : 3 Aug 2017 2:58 pm Operator: MES
Sample : WG624321-12 50PPM 1,4-DIOXANE ALT SOURCE Inst : MSD12
Misc : 1,1 STD81996 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:11:25 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

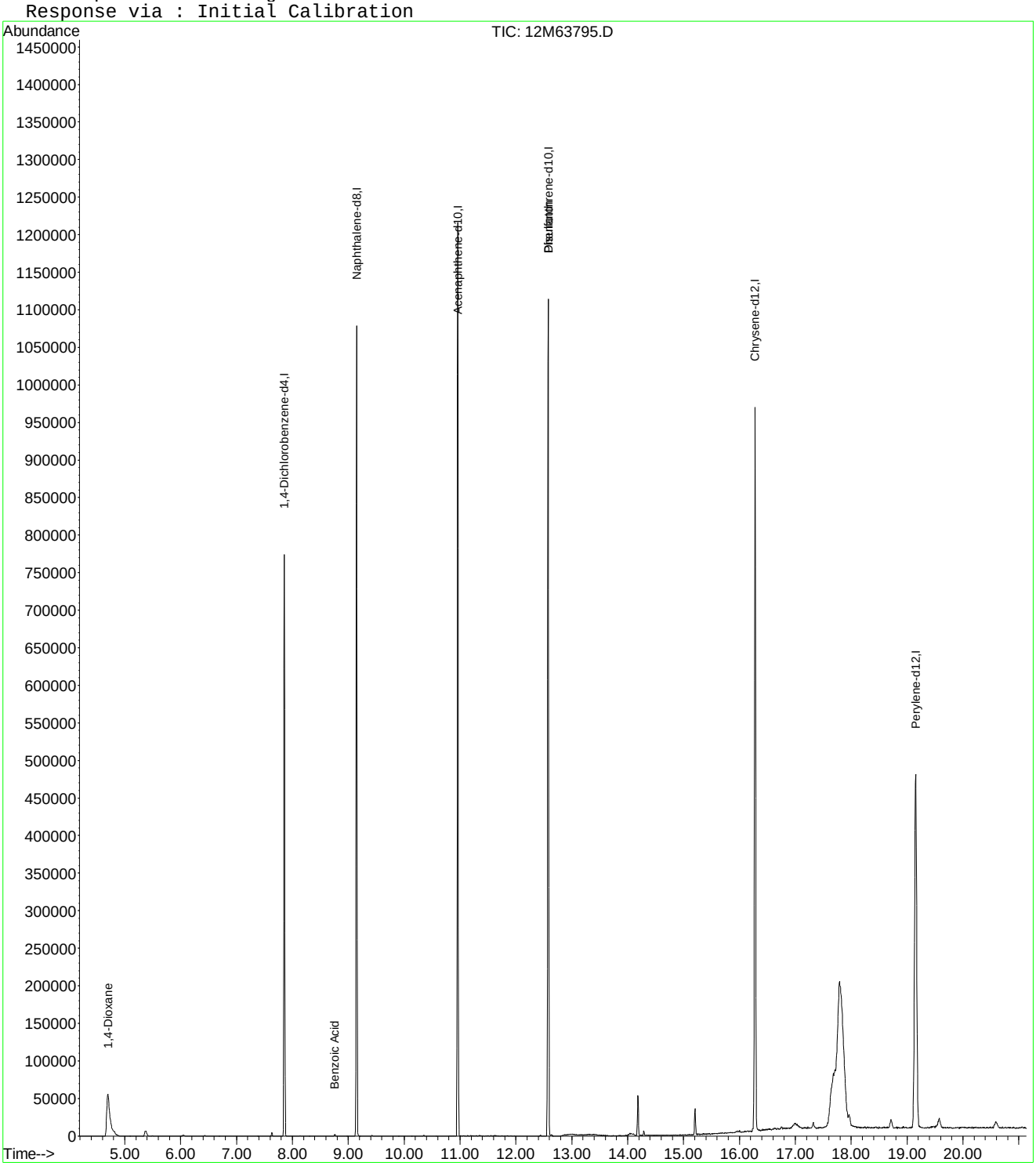
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	135020	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	521554	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	273477	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.578	188	518647	40.0000	ug/ml	0.000
113) Chrysene-d12	16.280	240	511616	40.0000	ug/ml	0.000
128) Perylene-d12	19.154	264	467635	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	0.000	112	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
12) Phenol-d5	0.000	99	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
31) Nitrobenzene-d5	0.000	82	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 35 - 114		Recovery =	0.00%#		
59) 2-Fluorobiphenyl	0.000	172	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 43 - 116		Recovery =	0.00%#		
86) 2,4,6-Tribromophenol	0.000	330	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
117) p-Terphenyl-d14	0.000	244	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 33 - 141		Recovery =	0.00%#		
Target Compounds						Qvalue
2) 1,4-Dioxane	4.70	88	97186	55.0150	ug/ml	98
39) Benzoic Acid	8.76	105	1056	7.8811	ug/ml#	73
102) Disulfoton	12.57	88	7760	1.6532	ug/ml#	41

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63795.D MEGAMIX.M Fri Aug 04 07:11:26 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63795.D Vial: 12
Acq On : 3 Aug 2017 2:58 pm Operator: MES
Sample : WG624321-12 50PPM 1,4-DIOXANE ALT SOURCE Inst : MSD12
Misc : 1,1 STD81996 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:11 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration



Data File : I:\MSDCHEM\1\DATA\080317\12M63795.D Vial: 12
Acq On : 3 Aug 2017 2:58 pm Operator: MES
Sample : WG624321-12 50PPM 1,4-DIOXANE ALT SOURCE Inst : MSD12
Misc : 1,1 STD81996 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	102	0.00
2		1,4-Dioxane	50.000	55.015	-10.0	101	-0.01
3		n-Nitrosodimethylamine	50.000	0.000	100.0#	0	-5.17#
4		Pyridine	50.000	0.000	100.0#	0	-5.19#
5		2-Picoline	50.000	0.000	100.0#	0	-6.02#
6		n-Nitrosomethylethylamine	50.000	0.000	100.0#	0	-6.15#
7		Methyl Methanesulfonate	50.000	0.000	100.0#	0	-6.44#
8	S	2-Fluorophenol	50.000	0.000	100.0#	0	-6.60#
9		n-Nitrosodiethylamine	50.000	0.000	100.0#	0	-6.83#
10		Ethyl Methanesulfonate	50.000	0.000	100.0#	0	-7.10#
11		Aniline	50.000	0.000	100.0#	0	-7.55#
12	S	Phenol-d5	50.000	0.000	100.0#	0	-7.45#
13	C,P	Phenol	50.000	0.000	100.0#	0	-7.46#
14	P	bis(2-Chloroethyl)ether	50.000	0.000	100.0#	0	-7.57#
15		Pentachloroethane	50.000	0.000	100.0#	0	-7.59#
16	P	2-Chlorophenol	50.000	0.000	100.0#	0	-7.68#
17		1,3-Dichlorobenzene	50.000	0.000	100.0#	0	-7.83#
18	C	1,4-Dichlorobenzene	50.000	0.000	100.0#	0	-7.87#
19		Benzyl Alcohol	50.000	0.136	99.7#	0	-0.11
20		1,2-Dichlorobenzene	50.000	0.000	100.0#	0	-8.07#
21	P	2-Methylphenol	50.000	0.000	100.0#	0	-8.06#
22	P	bis(2-Chloroisopropyl)ether	50.000	0.000	100.0#	0	-8.11#
23	P	3-,4-Methylphenol	50.000	0.000	100.0#	0	-8.19#
24		n-Nitrosopyrrolidine	50.000	0.000	100.0#	0	-8.24#
25	P	n-Nitrosodipropylamine	50.000	0.000	100.0#	0	-8.24#
26		Acetophenone	50.000	0.000	100.0#	0	-8.25#
27		n-Nitrosomorpholine	50.000	0.000	100.0#	0	-8.25#
28		o-Toluidine	50.000	0.000	100.0#	0	-8.29#
29	P	Hexachloroethane	50.000	0.000	100.0#	0	-8.38#
30	I	Naphthalene-d8	40.000	40.000	0.0	104	0.00
31	S	Nitrobenzene-d5	50.000	0.000	100.0#	0	-8.42#
32	P	Nitrobenzene	50.000	0.000	100.0#	0	-8.44#
33		n-Nitrosopiperidine	50.000	0.000	100.0#	0	-8.59#
34	P	Isophorone	50.000	0.000	100.0#	0	-8.65#
35	C,P	2-Nitrophenol	50.000	0.000	100.0#	0	-8.76#
36	P	2,4-Dimethylphenol	50.000	0.054	99.9#	0	0.03
37		0,0,0-Triethyl Phosphorothi	50.000	0.000	100.0#	0	-8.82#
38	P	bis(2-Chloroethoxy)methane	50.000	0.000	100.0#	0	-8.82#
39		Benzoic Acid	50.000	7.881	84.2#	1	0.00
40	C,P	2,4-Dichlorophenol	50.000	0.000	100.0#	0	-8.99#
41		a,a-Dimethylphenethylamine	50.000	0.255	99.5#	0	0.15
42		1,2,4-Trichlorobenzene	50.000	0.000	100.0#	0	-9.09#
43	P	Naphthalene	50.000	0.000	100.0#	0	-9.17#
44	P	4-Chloroaniline	50.000	0.298	99.4#	1	-0.04
45		2,6-Dichlorophenol	50.000	0.000	100.0#	0	-9.22#
46		Hexachloropropene	50.000	0.000	100.0#	0	-9.28#
47	C,P	Hexachlorobutadiene	50.000	0.000	100.0#	0	-9.32#
48		n-Nitrosodi-n-Butylamine	50.000	0.000	100.0#	0	-9.51#
49		p-Phenylenediamine	50.000	0.000	100.0#	0	-9.54#
50	C,P	4-Chloro-3-Methylphenol	50.000	0.000	100.0#	0	-9.63#
51		Safrole	50.000	0.000	100.0#	0	-9.73#
52	P	2-Methylnaphthalene	50.000	0.000	100.0#	0	-9.86#
53		1-Methylnaphthalene	50.000	0.000	100.0#	0	-9.98#

(#) = Out of Range
12M63795.D MEGAMIX.M Fri Aug 04 07:11:29 2017 Page 1

Data File : I:\MSDCHEM\1\DATA\080317\12M63795.D Vial: 12
Acq On : 3 Aug 2017 2:58 pm Operator: MES
Sample : WG624321-12 50PPM 1,4-DIOXANE ALT SOURCE Inst : MSD12
Misc : 1,1 STD81996 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
54	I	Acenaphthene-d10	40.000	40.000	0.0	101	0.00
55		1,2,4,5-Tetrachlorobenzene	50.000	0.000	100.0#	0	-10.07#
56	P	Hexachlorocyclopentadiene	50.000	0.000	100.0#	0	-10.08#
57	C,P	2,4,6-Trichlorophenol	50.000	0.000	100.0#	0	-10.15#
58	P	2,4,5-Trichlorophenol	50.000	0.000	100.0#	0	-10.20#
59	S	2-Fluorobiphenyl	50.000	0.000	100.0#	0	-10.22#
60		Isosafrole	50.000	0.000	100.0#	0	-10.25#
61	P	2-Chloronaphthalene	50.000	0.000	100.0#	0	-10.37#
62		1-Chloronaphthalene	50.000	0.000	100.0#	0	-10.41#
63	P	2-Nitroaniline	50.000	0.000	100.0#	0	-10.46#
64		1,4-Naphthoquinone	50.000	0.000	100.0#	0	-10.53#
65	P	Dimethylphthalate	50.000	0.000	100.0#	0	-10.62#
66		1,3-Dinitrobenzene	50.000	0.000	100.0#	0	-10.68#
67	P	2,6-Dinitrotoluene	50.000	0.000	100.0#	0	-10.72#
68	P	Acenaphthylene	50.000	0.000	100.0#	0	-10.81#
69	P	3-Nitroaniline	50.000	0.000	100.0#	0	-10.88#
70	P	2,4-Dinitrophenol	50.000	0.000	100.0#	0	-10.98#
71	C,P	Acenaphthene	50.000	0.089	99.8#	0	-0.04
72	P	4-Nitrophenol	50.000	0.214	99.6#	0	-0.03
73	P	2,4-Dinitrotoluene	50.000	0.000	100.0#	0	-11.13#
74		Pentachlorobenzene	50.000	0.000	100.0#	0	-11.17#
75	P	Dibenzofuran	50.000	0.000	100.0#	0	-11.15#
76		2,3,4,6-Tetrachlorophenol	50.000	0.000	100.0#	0	-11.30#
77		1-Naphthylamine	50.000	0.000	100.0#	0	-11.23#
78		2-Naphthylamine	50.000	0.000	100.0#	0	-11.30#
79	P	Diethylphthalate	50.000	0.000	100.0#	0	-11.33#
80		Thionazin	50.000	0.000	100.0#	0	-11.43#
81	P	Fluorene	50.000	0.000	100.0#	0	-11.51#
82	P	4-Chlorophenyl Phenyl Ether	50.000	0.000	100.0#	0	-11.46#
83	P	4-Nitroaniline	50.000	0.000	100.0#	0	-11.51#
84		5-Nitro-o-Toluidine	50.000	0.000	100.0#	0	-11.51#
85		1,2-Diphenylhydrazine	50.000	0.000	100.0#	0	-11.63#
86	S	2,4,6-Tribromophenol	50.000	0.000	100.0#	0	-11.79#
87	I	Phenanthrene-d10	40.000	40.000	0.0	98	0.00
88	P	4,6-Dinitro-2-Methylphenol	50.000	0.000	100.0#	0	-11.56#
89	C,P	Diphenylamine/n-Nitrosodiph	50.000	0.000	100.0#	0	-11.58#
90		Sulfotepp	50.000	0.000	100.0#	0	-11.77#
91		Sym-Trinitrobenzene	50.000	0.000	100.0#	0	-11.86#
92		Diallate	50.000	0.000	100.0#	0	-11.90#
93		Phenacetin	50.000	0.000	100.0#	0	-11.89#
94		Phorate	50.000	0.000	100.0#	0	-11.92#
95	P	4-Bromophenyl Phenyl Ether	50.000	0.000	100.0#	0	-11.99#
96	P	Hexachlorobenzene	50.000	0.000	100.0#	0	-12.21#
97		Dimethoate	50.000	0.000	100.0#	0	-12.13#
98		4-Aminobiphenyl	50.000	0.000	100.0#	0	-12.29#
99	C,P	Pentachlorophenol	50.000	0.000	100.0#	0	-12.40#
100		Pronamide	50.000	0.000	100.0#	0	-12.33#
101		Pentachloronitrobenzene	50.000	0.000	100.0#	0	-12.49#
102		Disulfoton	50.000	1.653	96.7#	3	0.06
103	P	Phenanthrene	50.000	0.000	100.0#	0	-12.61#
104	P	Anthracene	50.000	0.000	100.0#	0	-12.66#
105	P	Carbazole	50.000	0.000	100.0#	0	-12.82#
106		Parathion Methyl	50.000	0.000	100.0#	0	-12.99#

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\080317\12M63795.D Vial: 12
Acq On : 3 Aug 2017 2:58 pm Operator: MES
Sample : WG624321-12 50PPM 1,4-DIOXANE ALT SOURCE Inst : MSD12
Misc : 1,1 STD81996 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
107	P	Di-n-Butyl Phthalate	50.000	0.000	100.0#	0	-13.18#
108		Parathion Ethyl	50.000	0.000	100.0#	0	-13.47#
109		4-Nitroquinoline 1-Oxide	50.000	0.000	100.0#	0	-13.58#
110		Methapyrilene	50.000	0.000	100.0#	0	-13.62#
111		Isodrin	50.000	0.000	100.0#	0	-13.99#
112	C,P	Fluoranthene	50.000	0.000	100.0#	0	-14.16#
113	I	Chrysene-d12	40.000	40.000	0.0	96	0.00
114		Benzidine	50.000	0.000	100.0#	0	-14.26#
115	P	Pyrene	50.000	0.000	100.0#	0	-14.50#
116		Aramite	50.000	0.000	100.0#	0	-14.52#
117	S	p-Terphenyl-d14	50.000	0.000	100.0#	0	-14.62#
118		p-(Dimethylamino)azobenzene	50.000	0.000	100.0#	0	-14.83#
119		Chlorobenzilate	50.000	0.000	100.0#	0	-14.87#
120		Famphur	50.000	0.000	100.0#	0	-15.28#
121	P	Butyl Benzyl Phthalate	50.000	0.000	100.0#	0	-15.30#
122		3,3'-Dimethylbenzidine	50.000	0.000	100.0#	0	-15.31#
123		2-Acetylaminofluorene	50.000	0.000	100.0#	0	-15.73#
124	P	bis(2-Ethylhexyl)phthalate	50.000	0.000	100.0#	0	-16.13#
125	P	3,3'-Dichlorobenzidine	50.000	0.000	100.0#	0	-16.16#
126	P	Benzo[a]anthracene	50.000	0.060	99.9#	0	0.02
127	P	Chrysene	50.000	0.066	99.9#	0	-0.05
128	I	Perylene-d12	40.000	40.000	0.0	94	0.00
129	C,P	Di-n-Octyl Phthalate	50.000	0.000	100.0#	0	-17.12#
130		7,12-Dimethylbenz[a]anthrac	50.000	0.000	100.0#	0	-18.26#
131	P	Benzo[b]fluoranthene	50.000	0.000	100.0#	0	-18.26#
132	P	Benzo[k]fluoranthene	50.000	0.000	100.0#	0	-18.30#
133	C,P	Benzo[a]pyrene	50.000	0.061	99.9#	0	0.12
134		3-Methylcholanthrene	50.000	0.000	100.0#	0	-19.94#
135	P	Indeno[1,2,3-cd]pyrene	50.000	0.000	100.0#	0	-22.35#
136	P	Dibenz[ah]anthracene	50.000	0.000	100.0#	0	-22.35#
137	P	Benzo[ghi]perylene	50.000	0.000	100.0#	0	-23.33#

(#) = Out of Range SPCC's out = 0 CCC's out = 13
12M63795.D MEGAMIX.M Fri Aug 04 07:11:29 2017 Page 3

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:11:34 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	125071	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	473321	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.959	164	255717	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.578	188	498710	40.0000	ug/ml	0.000
113) Chrysene-d12	16.280	240	504405	40.0000	ug/ml	0.000
128) Perylene-d12	19.154	264	469897	40.0000	ug/ml	0.000
System Monitoring Compounds						
8) 2-Fluorophenol	0.000	112	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
12) Phenol-d5	0.000	99	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
31) Nitrobenzene-d5	8.384	82	26397	5.5885723	ug/ml	-0.04
Spiked Amount 50.000	Range 35 - 114		Recovery =	11.18%#		
59) 2-Fluorobiphenyl	0.000	172	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 43 - 116		Recovery =	0.00%#		
86) 2,4,6-Tribromophenol	0.000	330	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
117) p-Terphenyl-d14	0.000	244	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 33 - 141		Recovery =	0.00%#		
Target Compounds						Qvalue
3) n-Nitrosodimethylamine	5.17	74	109244	48.1963	ug/ml	99
4) Pyridine	5.18	79	216868	52.3382	ug/ml	99
7) Methyl Methanesulfonate	6.44	80	150069	51.8963	ug/ml	100
10) Ethyl Methanesulfonate	7.10	79	157351	52.1121	ug/ml	100
11) Aniline	7.55	66	127111	50.1466	ug/ml	97
13) Phenol	7.46	94	250929	50.6973	ug/ml	95
14) bis(2-Chloroethyl)ether	7.57	63	149535	51.3695	ug/ml	97
15) Pentachloroethane	7.58	167	91073	55.1522	ug/ml	99
16) 2-Chlorophenol	7.68	128	216441	52.0394	ug/ml	98
17) 1,3-Dichlorobenzene	7.82	146	236710	51.9806	ug/ml	99
18) 1,4-Dichlorobenzene	7.87	146	236275	51.0391	ug/ml	99
19) Benzyl Alcohol	7.96	108	139996	52.8576	ug/ml	98
20) 1,2-Dichlorobenzene	8.06	146	223621	50.8112	ug/ml	100
21) 2-Methylphenol	8.05	107	179794	50.5661	ug/ml	99
22) bis(2-Chloroisopropyl)ethe	8.11	45	179343	50.8836	ug/ml	99
23) 3-,4-Methylphenol	8.19	107	233580	51.9568	ug/ml	99
25) n-Nitrosodipropylamine	8.24	70	153689	49.7224	ug/ml#	66
26) Acetophenone	8.25	105	326021	53.5084	ug/ml	100
27) n-Nitrosomorpholine	8.24	56	9469	3.9552	ug/ml#	47
28) o-Toluidine	8.25	106	25392	3.8124	ug/ml#	1
29) Hexachloroethane	8.38	117	97491	50.1077	ug/ml	97
32) Nitrobenzene	8.44	77	245482	52.4842	ug/ml	100
34) Isophorone	8.65	82	425282	52.3906	ug/ml	98
35) 2-Nitrophenol	8.76	139	117033	52.7555	ug/ml	98
36) 2,4-Dimethylphenol	8.73	122	201587	54.5394	ug/ml	98
37) 0,0,0-Triethyl Phosphoroth	8.82	198	111035	51.2484	ug/ml#	56
38) bis(2-Chloroethoxy)methane	8.82	93	349500	54.7064	ug/ml#	96
39) Benzoic Acid	8.78	105	140259	64.2103	ug/ml#	69
40) 2,4-Dichlorophenol	8.99	162	172665	51.3949	ug/ml	99
42) 1,2,4-Trichlorobenzene	9.09	180	196538	50.5857	ug/ml	99
43) Naphthalene	9.17	128	642958	51.1508	ug/ml#	100
44) 4-Chloroaniline	9.20	65	89215	51.3623	ug/ml	69
45) 2,6-Dichlorophenol	9.22	162	176151	56.9822	ug/ml	98

(#) = qualifier out of range (m) = manual integration
12M63796.D MEGAMIX.M Fri Aug 04 07:11:34 2017 Page 1

Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:11:34 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
46)	Hexachloropropene	9.28	213	162052	56.3414 ug/ml	100
47)	Hexachlorobutadiene	9.31	225	129445	57.5304 ug/ml	99
49)	p-Phenylenediamine	9.63	108	16619	5.8686 ug/ml#	1
50)	4-Chloro-3-Methylphenol	9.63	107	220257	52.5472 ug/ml	99
51)	Safrole	9.73	162	175046	54.0240 ug/ml	99
52)	2-Methylnaphthalene	9.86	142	423216	49.5948 ug/ml	100
53)	1-Methylnaphthalene	9.98	142	421906	54.0546 ug/ml	100
55)	1,2,4,5-Tetrachlorobenzene	10.07	216	215316	52.9237 ug/ml	99
56)	Hexachlorocyclopentadiene	10.08	237	108571	54.1822 ug/ml	100
57)	2,4,6-Trichlorophenol	10.15	196	136608	51.2168 ug/ml	99
58)	2,4,5-Trichlorophenol	10.19	196	133305	47.7891 ug/ml	99
60)	Isosafrole	10.25	162	180937	56.0823 ug/ml	99
61)	2-Chloronaphthalene	10.37	162	470251	57.8875 ug/ml	99
62)	1-Chloronaphthalene	10.41	162	392401	50.3264 ug/ml	100
63)	2-Nitroaniline	10.46	65	135652	51.6796 ug/ml	99
64)	1,4-Naphthoquinone	10.53	158	186196	84.3027 ug/ml	96
65)	Dimethylphthalate	10.62	163	489727	51.8080 ug/ml	100
66)	1,3-Dinitrobenzene	10.68	168	77102	47.9140 ug/ml	99
67)	2,6-Dinitrotoluene	10.72	165	109999	50.0571 ug/ml	99
68)	Acenaphthylene	10.81	152	648036	50.4355 ug/ml	100
69)	3-Nitroaniline	10.88	138	113324	50.2709 ug/ml	98
70)	2,4-Dinitrophenol	10.98	184	74376	54.5048 ug/ml	89
71)	Acenaphthene	10.99	154	437894	53.3745 ug/ml	99
72)	4-Nitrophenol	10.98	65	105278	51.5320 ug/ml	98
73)	2,4-Dinitrotoluene	11.12	165	151716	50.2450 ug/ml	99
74)	Pentachlorobenzene	11.17	250	170911	52.0831 ug/ml	98
75)	Dibenzofuran	11.15	168	582838	50.4395 ug/ml	99
76)	2,3,4,6-Tetrachlorophenol	11.30	232	113565	47.2863 ug/ml	98
79)	Diethylphthalate	11.32	149	509281	52.2871 ug/ml	100
80)	Thionazin	11.42	107	82116	51.5638 ug/ml	100
81)	Fluorene	11.51	166	498813	50.8622 ug/ml	99
82)	4-Chlorophenyl Phenyl Ethe	11.46	204	247557	50.9411 ug/ml	98
83)	4-Nitroaniline	11.51	138	121685	48.4973 ug/ml	94
84)	5-Nitro-o-Toluidine	11.56	152	6142	2.1657 ug/ml#	1
85)	1,2-Diphenylhydrazine	11.62	77	505678	50.3136 ug/ml	99
88)	4,6-Dinitro-2-Methylphenol	11.56	198	99077	50.2707 ug/ml	97
89)	Diphenylamine/n-Nitrosodip	11.58	169	436475	52.3508 ug/ml	99
90)	Sulfotepp	11.77	322	86759	52.7369 ug/ml	96
91)	Sym-Trinitrobenzene	11.86	75	185949	57.6383 ug/ml	99
92)	Diallate	11.90	86	179473	50.8987 ug/ml	98
93)	Phenacetin	11.89	108	284197	54.3688 ug/ml	99
94)	Phorate	11.92	75	280084	50.1291 ug/ml#	100
95)	4-Bromophenyl Phenyl Ether	11.99	248	137112	52.4407 ug/ml	100
96)	Hexachlorobenzene	12.21	284	140508	51.7429 ug/ml	98
97)	Dimethoate	12.13	87	192641	57.9360 ug/ml	95
99)	Pentachlorophenol	12.39	266	109098	62.0885 ug/ml	100
100)	Pronamide	12.33	173	244212	56.8757 ug/ml	99
101)	Pentachloronitrobenzene	12.48	237	68215	54.7074 ug/ml	99
102)	Disulfoton	12.51	88	237917	52.7114 ug/ml	100
103)	Phenanthrene	12.61	178	695765	50.5471 ug/ml	100
104)	Anthracene	12.66	178	716422	50.0145 ug/ml	100
105)	Carbazole	12.82	167	653106	52.8947 ug/ml	99
106)	Parathion Methyl	12.99	109	183845	61.1680 ug/ml	99
107)	Di-n-Butyl Phthalate	13.17	149	880983	53.8950 ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:11:34 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

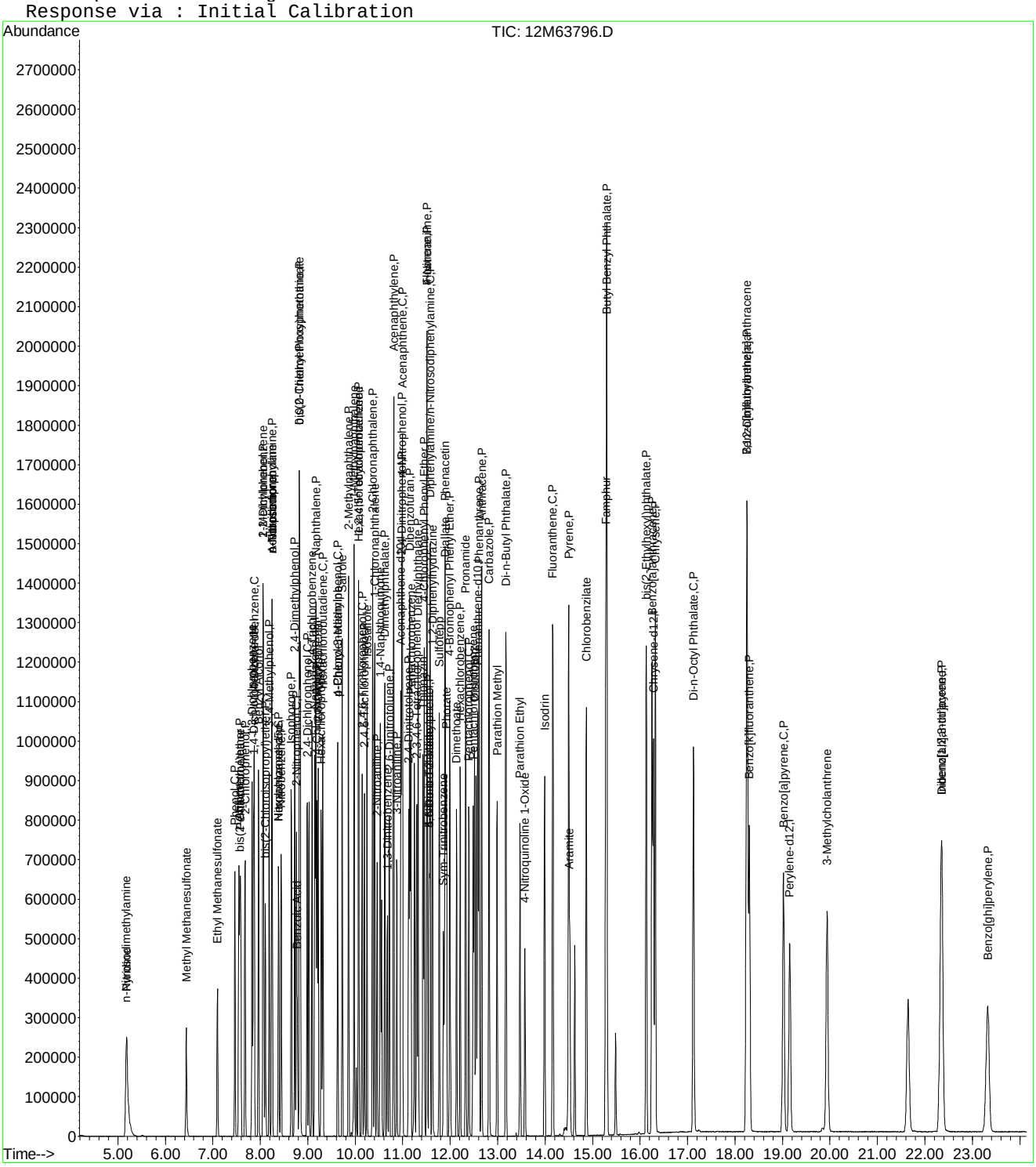
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
108) Parathion Ethyl	13.47	97	106360	52.5347	ug/ml	99
109) 4-Nitroquinoline 1-Oxide	13.58	190	63341	59.6907	ug/ml	97
111) Isodrin	13.99	193	85851	54.4861	ug/ml	100
112) Fluoranthene	14.16	202	765775	50.3980	ug/ml	100
115) Pyrene	14.50	202	792112	50.2304	ug/ml	100
116) Aramite	14.52	185	54053	56.0063	ug/ml	98
119) Chlorobenzilate	14.87	251	241254	55.8354	ug/ml	98
120) Famphur	15.28	218	341990	343.7000	ug/ml#	67
121) Butyl Benzyl Phthalate	15.29	149	406690	51.3779	ug/ml	98
124) bis(2-Ethylhexyl)phthalate	16.13	149	532090	52.3679	ug/ml	100
126) Benzo[a]anthracene	16.25	228	739990	49.5720	ug/ml	100
127) Chrysene	16.32	228	703432	51.9370	ug/ml	100
129) Di-n-Octyl Phthalate	17.12	149	914581	52.1538	ug/ml	100
130) 7,12-Dimethylbenz[a]anthra	18.25	256	393754	54.7486	ug/ml	100
131) Benzo[b]fluoranthene	18.25	252	805346	51.4108	ug/ml	99
132) Benzo[k]fluoranthene	18.30	252	661465	50.3269	ug/ml	100
133) Benzo[a]pyrene	19.02	252	647322	49.9988	ug/ml	100
134) 3-Methylcholanthrene	19.94	268	400660	59.5834	ug/ml	99
135) Indeno[1,2,3-cd]pyrene	22.35	276	713192	50.2540	ug/ml	100
136) Dibenz[ah]anthracene	22.35	278	617829	51.0369	ug/ml	100
137) Benzo[ghi]perylene	23.33	276	572504	50.8252	ug/ml	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M63796.D MEGAMIX.M Fri Aug 04 07:11:34 2017 Page 3

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:11 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration



Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	94	0.00
2		1,4-Dioxane	50.000	0.000	100.0#	0	-4.71#
3		n-Nitrosodimethylamine	50.000	48.196	3.6	85	0.00
4		Pyridine	50.000	52.338	-4.7	92	0.00
5		2-Picoline	50.000	0.000	100.0#	0	-6.02#
6		n-Nitrosomethylethylamine	50.000	0.000	100.0#	0	-6.15#
7		Methyl Methanesulfonate	50.000	51.896	-3.8	94	0.00
8	S	2-Fluorophenol	50.000	0.000	100.0#	0	-6.60#
9		n-Nitrosodiethylamine	50.000	0.000	100.0#	0	-6.83#
10		Ethyl Methanesulfonate	50.000	52.112	-4.2	93	0.00
11		Aniline	50.000	50.147	-0.3	88	0.00
12	S	Phenol-d5	50.000	0.000	100.0#	0	-7.45#
13	C,P	Phenol	50.000	50.697	-1.4	92	0.00
14	P	bis(2-Chloroethyl)ether	50.000	51.370	-2.7	92	0.00
15		Pentachloroethane	50.000	55.152	-10.3	103	0.00
16	P	2-Chlorophenol	50.000	52.039	-4.1	95	0.00
17		1,3-Dichlorobenzene	50.000	51.981	-4.0	97	0.00
18	C	1,4-Dichlorobenzene	50.000	51.039	-2.1	96	0.00
19		Benzyl Alcohol	50.000	52.858	-5.7	95	0.00
20		1,2-Dichlorobenzene	50.000	50.811	-1.6	93	0.00
21	P	2-Methylphenol	50.000	50.566	-1.1	91	0.00
22	P	bis(2-Chloroisopropyl)ether	50.000	50.884	-1.8	91	0.00
23	P	3-,4-Methylphenol	50.000	51.957	-3.9	94	0.00
24		n-Nitrosopyrrolidine	50.000	0.000	100.0#	0	-8.24#
25	P	n-Nitrosodipropylamine	50.000	49.722	0.6	89	0.00
26		Acetophenone	50.000	53.508	-7.0	97	0.00
27		n-Nitrosomorpholine	50.000	3.955	92.1#	7	-0.01
28		o-Toluidine	50.000	3.812	92.4#	7	-0.04
29	P	Hexachloroethane	50.000	50.108	-0.2	92	0.00
30	I	Naphthalene-d8	40.000	40.000	0.0	94	0.00
31	S	Nitrobenzene-d5	50.000	5.589	88.8#	10	-0.04
32	P	Nitrobenzene	50.000	52.484	-5.0	96	0.00
33		n-Nitrosopiperidine	50.000	0.000	100.0#	0	-8.59#
34	P	Isophorone	50.000	52.391	-4.8	94	0.00
35	C,P	2-Nitrophenol	50.000	52.756	-5.5	97	0.00
36	P	2,4-Dimethylphenol	50.000	54.539	-9.1	98	0.00
37		0,0,0-Triethyl Phosphorothi	50.000	51.248	-2.5	95	0.00
38	P	bis(2-Chloroethoxy)methane	50.000	54.706	-9.4	97	0.00
39		Benzoic Acid	50.000	64.210	-28.4	151	0.01
40	C,P	2,4-Dichlorophenol	50.000	51.395	-2.8	93	0.00
41		a,a-Dimethylphenethylamine	50.000	0.021	100.0#	0	0.15
42		1,2,4-Trichlorobenzene	50.000	50.586	-1.2	96	0.00
43	P	Naphthalene	50.000	51.151	-2.3	95	0.00
44	P	4-Chloroaniline	50.000	51.362	-2.7	91	0.00
45		2,6-Dichlorophenol	50.000	56.982	-14.0	106	0.00
46		Hexachloropropene	50.000	56.341	-12.7	106	0.00
47	C,P	Hexachlorobutadiene	50.000	57.530	-15.1	112	0.00
48		n-Nitrosodi-n-Butylamine	50.000	0.404	99.2#	1	0.12
49		p-Phenylenediamine	50.000	5.869	88.3#	11	0.09
50	C,P	4-Chloro-3-Methylphenol	50.000	52.547	-5.1	94	0.00
51		Safrole	50.000	54.024	-8.0	100	0.00
52	P	2-Methylnaphthalene	50.000	49.595	0.8	91	0.00
53		1-Methylnaphthalene	50.000	54.055	-8.1	99	0.00

(#) = Out of Range
12M63796.D MEGAMIX.M Fri Aug 04 07:11:37 2017 Page 1

Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
54	I	Acenaphthene-d10	40.000	40.000	0.0	95	0.00
55		1,2,4,5-Tetrachlorobenzene	50.000	52.924	-5.8	100	0.00
56	P	Hexachlorocyclopentadiene	50.000	54.182	-8.4	104	0.00
57	C,P	2,4,6-Trichlorophenol	50.000	51.217	-2.4	95	0.00
58	P	2,4,5-Trichlorophenol	50.000	47.789	4.4	90	0.00
59	S	2-Fluorobiphenyl	50.000	0.000	100.0#	0	-10.22#
60		Isosafrole	50.000	56.082	-12.2	106	0.00
61	P	2-Chloronaphthalene	50.000	57.888	-15.8	109	0.00
62		1-Chloronaphthalene	50.000	50.326	-0.7	94	0.00
63	P	2-Nitroaniline	50.000	51.680	-3.4	94	0.00
64		1,4-Naphthoquinone	50.000	84.303	-68.6#	154	0.00
65	P	Dimethylphthalate	50.000	51.808	-3.6	98	0.00
66		1,3-Dinitrobenzene	50.000	47.914	4.2	88	0.00
67	P	2,6-Dinitrotoluene	50.000	50.057	-0.1	93	0.00
68	P	Acenaphthylene	50.000	50.436	-0.9	93	0.00
69	P	3-Nitroaniline	50.000	50.271	-0.5	93	0.00
70	P	2,4-Dinitrophenol	50.000	54.505	-9.0	104	0.00
71	C,P	Acenaphthene	50.000	53.374	-6.7	97	0.00
72	P	4-Nitrophenol	50.000	51.532	-3.1	92	0.00
73	P	2,4-Dinitrotoluene	50.000	50.245	-0.5	92	0.00
74		Pentachlorobenzene	50.000	52.083	-4.2	101	0.00
75	P	Dibenzofuran	50.000	50.439	-0.9	95	0.00
76		2,3,4,6-Tetrachlorophenol	50.000	47.286	5.4	87	0.00
77		1-Naphthylamine	50.000	0.350	99.3#	1	0.02
78		2-Naphthylamine	50.000	0.431	99.1#	1	0.00
79	P	Diethylphthalate	50.000	52.287	-4.6	97	0.00
80		Thionazin	50.000	51.564	-3.1	92	0.00
81	P	Fluorene	50.000	50.862	-1.7	93	0.00
82	P	4-Chlorophenyl Phenyl Ether	50.000	50.941	-1.9	97	0.00
83	P	4-Nitroaniline	50.000	48.497	3.0	88	0.00
84		5-Nitro-o-Toluidine	50.000	2.166	95.7#	4	0.05
85		1,2-Diphenylhydrazine	50.000	50.314	-0.6	92	0.00
86	S	2,4,6-Tribromophenol	50.000	0.000	100.0#	0	-11.79#
87	I	Phenanthrene-d10	40.000	40.000	0.0	94	0.00
88	P	4,6-Dinitro-2-Methylphenol	50.000	50.271	-0.5	98	0.00
89	C,P	Diphenylamine/n-Nitrosodiph	50.000	52.351	-4.7	96	0.00
90		Sulfotepp	50.000	52.737	-5.5	99	0.00
91		Sym-Trinitrobenzene	50.000	57.638	-15.3	106	0.00
92		Diallate	50.000	50.899	-1.8	90	0.00
93		Phenacetin	50.000	54.369	-8.7	96	0.00
94		Phorate	50.000	50.129	-0.3	88	0.00
95	P	4-Bromophenyl Phenyl Ether	50.000	52.441	-4.9	97	0.00
96	P	Hexachlorobenzene	50.000	51.743	-3.5	97	0.00
97		Dimethoate	50.000	57.936	-15.9	101	0.00
98		4-Aminobiphenyl	50.000	0.088	99.8#	0	-0.09
99	C,P	Pentachlorophenol	50.000	62.089	-24.2#	120	0.00
100		Pronamide	50.000	56.876	-13.8	103	0.00
101		Pentachloronitrobenzene	50.000	54.707	-9.4	101	0.00
102		Disulfoton	50.000	52.711	-5.4	93	0.00
103	P	Phenanthrene	50.000	50.547	-1.1	93	0.00
104	P	Anthracene	50.000	50.014	-0.0	91	0.00
105	P	Carbazole	50.000	52.895	-5.8	95	0.00
106		Parathion Methyl	50.000	61.168	-22.3	105	0.00

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\080317\12M63796.D Vial: 13
Acq On : 3 Aug 2017 3:28 pm Operator: MES
Sample : WG624321-11 50PPM MM ALT SOURCE Inst : MSD12
Misc : 1,1 STD81294 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
107	P	Di-n-Butyl Phthalate	50.000	53.895	-7.8	97	0.00
108		Parathion Ethyl	50.000	52.535	-5.1	89	0.00
109		4-Nitroquinoline 1-Oxide	50.000	59.691	-19.4	113	0.00
110		Methapyrilene	50.000	0.414	99.2#	0	-0.15
111		Isodrin	50.000	54.486	-9.0	101	0.00
112	C,P	Fluoranthene	50.000	50.398	-0.8	92	0.00
113	I	Chrysene-d12	40.000	40.000	0.0	95	0.00
114		Benzidine	50.000	0.000	100.0#	0	-14.26#
115	P	Pyrene	50.000	50.230	-0.5	92	0.00
116		Aramite	50.000	56.006	-12.0	98	0.00
117	S	p-Terphenyl-d14	50.000	0.000	100.0#	0	-14.62#
118		p-(Dimethylamino)azobenzene	50.000	0.000	100.0#	0	-14.83#
119		Chlorobenzilate	50.000	55.835	-11.7	103	0.00
120		Famphur	50.000	343.700	-587.4#	652	0.00
121	P	Butyl Benzyl Phthalate	50.000	51.378	-2.8	93	0.00
122		3,3'-Dimethylbenzidine	50.000	0.411	99.2#	1	-0.01
123		2-Acetylaminofluorene	50.000	0.000	100.0#	0	-15.73#
124	P	bis(2-Ethylhexyl)phthalate	50.000	52.368	-4.7	92	0.00
125	P	3,3'-Dichlorobenzidine	50.000	0.000	100.0#	0	-16.16#
126	P	Benzo[a]anthracene	50.000	49.572	0.9	91	0.00
127	P	Chrysene	50.000	51.937	-3.9	97	0.00
128	I	Perylene-d12	40.000	40.000	0.0	94	0.00
129	C,P	Di-n-Octyl Phthalate	50.000	52.154	-4.3	92	0.00
130		7,12-Dimethylbenz[a]anthrac	50.000	54.749	-9.5	100	0.00
131	P	Benzo[b]fluoranthene	50.000	51.411	-2.8	97	0.00
132	P	Benzo[k]fluoranthene	50.000	50.327	-0.7	97	0.00
133	C,P	Benzo[a]pyrene	50.000	49.999	0.0	92	0.00
134		3-Methylcholanthrene	50.000	59.583	-19.2	107	0.00
135	P	Indeno[1,2,3-cd]pyrene	50.000	50.254	-0.5	90	0.00
136	P	Dibenz[ah]anthracene	50.000	51.037	-2.1	90	0.00
137	P	Benzo[ghi]perylene	50.000	50.825	-1.7	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1
12M63796.D MEGAMIX.M Fri Aug 04 07:11:37 2017 Page 3

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63797.D Vial: 14
Acq On : 3 Aug 2017 4:00 pm Operator: MES
Sample : WG624321-13 50PPM APPIX/MP/BENZIDINE ALT Inst : MSD12
Misc : 1,1 STD82728 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 04 07:11:44 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.855	152	125729	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.148	136	480444	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.954	164	253515	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.572	188	493988	40.0000	ug/ml	0.000
113) Chrysene-d12	16.280	240	495460	40.0000	ug/ml	0.000
128) Perylene-d12	19.143	264	442994	40.0000	ug/ml	-0.011

System Monitoring Compounds						
8) 2-Fluorophenol	0.000	112	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 21 - 100		Recovery =	0.00%#		
12) Phenol-d5	0.000	99	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 10 - 94		Recovery =	0.00%#		
31) Nitrobenzene-d5	0.000	82	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 35 - 114		Recovery =	0.00%#		
59) 2-Fluorobiphenyl	0.000	172	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 43 - 116		Recovery =	0.00%#		
86) 2,4,6-Tribromophenol	0.000	330	0	0.0000000	ug/ml	
Spiked Amount 100.000	Range 10 - 123		Recovery =	0.00%#		
117) p-Terphenyl-d14	0.000	244	0	0.0000000	ug/ml	
Spiked Amount 50.000	Range 33 - 141		Recovery =	0.00%#		

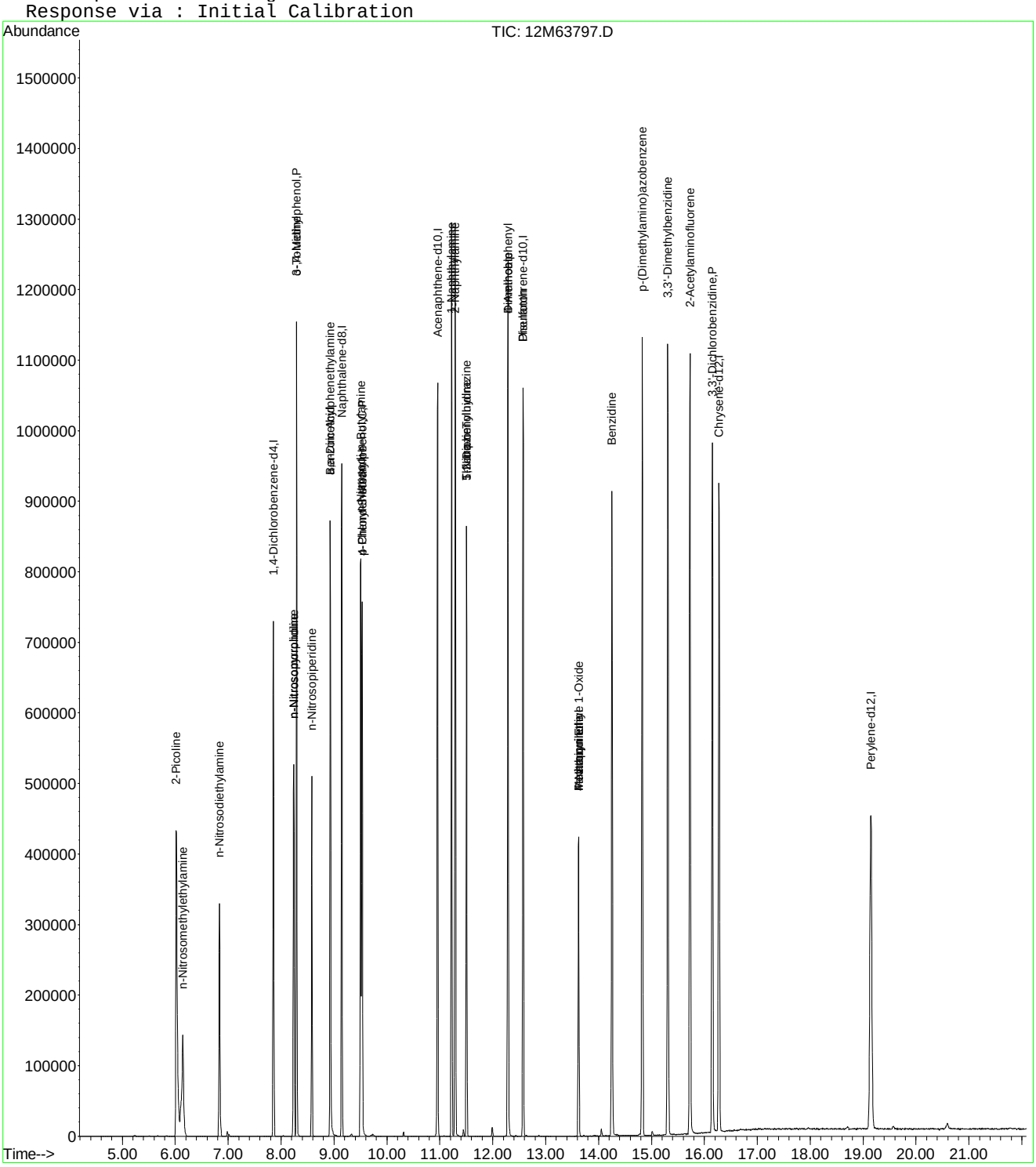
Target Compounds						Qvalue
5) 2-Picoline	6.02	93	241569	53.6281	ug/ml	99
6) n-Nitrosomethylethylamine	6.14	88	101406	55.8893	ug/ml	98
9) n-Nitrosodiethylamine	6.83	102	104068	54.3080	ug/ml	98
23) 3-,4-Methylphenol	8.29	107	274323	60.7002	ug/ml#	42
24) n-Nitrosopyrrolidine	8.23	100	106608	54.9664	ug/ml#	46
27) n-Nitrosomorpholine	8.25	56	128425	53.3628	ug/ml	98
28) o-Toluidine	8.29	106	366376	54.7207	ug/ml	100
33) n-Nitrosopiperidine	8.58	114	106344	51.7985	ug/ml	97
39) Benzoic Acid	8.93	105	1466	8.1633	ug/ml#	1
41) a,a-Dimethylphenethylamine	8.93	58	477774	59.7280	ug/ml	99
48) n-Nitrosodi-n-Butylamine	9.51	84	170461	44.2060	ug/ml	90
49) p-Phenylenediamine	9.53	108	265693	92.4317	ug/ml	99
50) 4-Chloro-3-Methylphenol	9.53	107	80250	18.8616	ug/ml#	26
77) 1-Naphthylamine	11.22	143	449336	55.9875	ug/ml	97
78) 2-Naphthylamine	11.29	143	471808	57.3144	ug/ml	99
80) Thionazin	11.50	107	11431	7.2403	ug/ml#	1
84) 5-Nitro-o-Toluidine	11.50	152	138346	49.2043	ug/ml	97
85) 1,2-Diphenylhydrazine	11.50	77	137063	13.7559	ug/ml#	61
97) Dimethoate	12.29	87	8116	2.4642	ug/ml#	54
98) 4-Aminobiphenyl	12.29	169	522228	53.5757	ug/ml	99
102) Disulfoton	12.57	88	7805	1.7458	ug/ml#	44
108) Parathion Ethyl	13.62	97	134783	67.2101	ug/ml#	8
109) 4-Nitroquinoline 1-Oxide	13.62	190	11227	14.3430	ug/ml#	8
110) Methapyrilene	13.62	58	143937	28.2016	ug/ml	97
114) Benzidine	14.26	184	460581	74.5290	ug/ml	100
118) p-(Dimethylamino)azobenzen	14.83	225	179017	58.8997	ug/ml	96
122) 3,3'-Dimethylbenzidine	15.31	212	559241	41.7258	ug/ml	98
123) 2-Acetylaminofluorene	15.73	181	361946	55.4436	ug/ml	99
125) 3,3'-Dichlorobenzidine	16.15	252	287515	57.0905	ug/ml	100

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

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\080317\12M63797.D Vial: 14
Acq On : 3 Aug 2017 4:00 pm Operator: MES
Sample : WG624321-13 50PPM APPIX/MP/BENZIDINE ALT Inst : MSD12
Misc : 1,1 STD82728 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 4 7:11 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Initial Calibration



Data File : I:\MSDCHEM\1\DATA\080317\12M63797.D Vial: 14
Acq On : 3 Aug 2017 4:00 pm Operator: MES
Sample : WG624321-13 50PPM APPIX/MP/BENZIDINE ALT Inst : MSD12
Misc : 1,1 STD82728 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	95	0.00
2		1,4-Dioxane	50.000	0.000	100.0#	0	-4.71#
3		n-Nitrosodimethylamine	50.000	0.000	100.0#	0	-5.17#
4		Pyridine	50.000	0.000	100.0#	0	-5.19#
5		2-Picoline	50.000	53.628	-7.3	97	0.00
6		n-Nitrosomethylethylamine	50.000	55.889	-11.8	98	0.00
7		Methyl Methanesulfonate	50.000	0.000	100.0#	0	-6.44#
8	S	2-Fluorophenol	50.000	0.000	100.0#	0	-6.60#
9		n-Nitrosodiethylamine	50.000	54.308	-8.6	97	0.00
10		Ethyl Methanesulfonate	50.000	0.000	100.0#	0	-7.10#
11		Aniline	50.000	0.000	100.0#	0	-7.55#
12	S	Phenol-d5	50.000	0.000	100.0#	0	-7.45#
13	C,P	Phenol	50.000	0.000	100.0#	0	-7.46#
14	P	bis(2-Chloroethyl)ether	50.000	0.000	100.0#	0	-7.57#
15		Pentachloroethane	50.000	0.000	100.0#	0	-7.59#
16	P	2-Chlorophenol	50.000	0.000	100.0#	0	-7.68#
17		1,3-Dichlorobenzene	50.000	0.000	100.0#	0	-7.83#
18	C	1,4-Dichlorobenzene	50.000	0.000	100.0#	0	-7.87#
19		Benzyl Alcohol	50.000	0.080	99.8#	0	-0.11
20		1,2-Dichlorobenzene	50.000	0.000	100.0#	0	-8.07#
21	P	2-Methylphenol	50.000	0.000	100.0#	0	-8.06#
22	P	bis(2-Chloroisopropyl)ether	50.000	0.000	100.0#	0	-8.11#
23	P	3-,4-Methylphenol	50.000	60.700	-21.4	111	0.10
24		n-Nitrosopyrrolidine	50.000	54.966	-9.9	98	0.00
25	P	n-Nitrosodipropylamine	50.000	0.736	98.5#	1	0.00
26		Acetophenone	50.000	0.000	100.0#	0	-8.25#
27		n-Nitrosomorpholine	50.000	53.363	-6.7	97	0.00
28		o-Toluidine	50.000	54.721	-9.4	99	0.00
29	P	Hexachloroethane	50.000	0.000	100.0#	0	-8.38#
30	I	Naphthalene-d8	40.000	40.000	0.0	96	0.00
31	S	Nitrobenzene-d5	50.000	0.000	100.0#	0	-8.42#
32	P	Nitrobenzene	50.000	0.000	100.0#	0	-8.44#
33		n-Nitrosopiperidine	50.000	51.799	-3.6	95	0.00
34	P	Isophorone	50.000	0.879	98.2#	2	-0.07
35	C,P	2-Nitrophenol	50.000	0.000	100.0#	0	-8.76#
36	P	2,4-Dimethylphenol	50.000	0.000	100.0#	0	-8.73#
37		0,0,0-Triethyl Phosphorothi	50.000	0.000	100.0#	0	-8.82#
38	P	bis(2-Chloroethoxy)methane	50.000	0.248	99.5#	0	0.11
39		Benzoic Acid	50.000	8.163	83.7#	2	0.16
40	C,P	2,4-Dichlorophenol	50.000	0.000	100.0#	0	-8.99#
41		a,a-Dimethylphenethylamine	50.000	59.728	-19.5	106	-0.07
42		1,2,4-Trichlorobenzene	50.000	0.000	100.0#	0	-9.09#
43	P	Naphthalene	50.000	0.000	100.0#	0	-9.17#
44	P	4-Chloroaniline	50.000	0.167	99.7#	0	-0.06
45		2,6-Dichlorophenol	50.000	0.000	100.0#	0	-9.22#
46		Hexachloropropene	50.000	0.000	100.0#	0	-9.28#
47	C,P	Hexachlorobutadiene	50.000	0.000	100.0#	0	-9.32#
48		n-Nitrosodi-n-Butylamine	50.000	44.206	11.6	78	0.00
49		p-Phenylenediamine	50.000	92.432	-84.9#	171	0.00
50	C,P	4-Chloro-3-Methylphenol	50.000	18.862	62.3#	34	-0.10
51		Safrole	50.000	0.000	100.0#	0	-9.73#
52	P	2-Methylnaphthalene	50.000	0.000	100.0#	0	-9.86#
53		1-Methylnaphthalene	50.000	0.000	100.0#	0	-9.98#

(#) = Out of Range
12M63797.D MEGAMIX.M Fri Aug 04 07:11:47 2017 Page 1

Data File : I:\MSDCHEM\1\DATA\080317\12M63797.D Vial: 14
Acq On : 3 Aug 2017 4:00 pm Operator: MES
Sample : WG624321-13 50PPM APPIX/MP/BENZIDINE ALT Inst : MSD12
Misc : 1,1 STD82728 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
54	I	Acenaphthene-d10	40.000	40.000	0.0	94	0.00
55		1,2,4,5-Tetrachlorobenzene	50.000	0.000	100.0#	0	-10.07#
56	P	Hexachlorocyclopentadiene	50.000	0.000	100.0#	0	-10.08#
57	C,P	2,4,6-Trichlorophenol	50.000	0.000	100.0#	0	-10.15#
58	P	2,4,5-Trichlorophenol	50.000	0.000	100.0#	0	-10.20#
59	S	2-Fluorobiphenyl	50.000	0.000	100.0#	0	-10.22#
60		Isosafrole	50.000	0.000	100.0#	0	-10.25#
61	P	2-Chloronaphthalene	50.000	0.000	100.0#	0	-10.37#
62		1-Chloronaphthalene	50.000	0.000	100.0#	0	-10.41#
63	P	2-Nitroaniline	50.000	0.000	100.0#	0	-10.46#
64		1,4-Naphthoquinone	50.000	0.000	100.0#	0	-10.53#
65	P	Dimethylphthalate	50.000	0.000	100.0#	0	-10.62#
66		1,3-Dinitrobenzene	50.000	0.000	100.0#	0	-10.68#
67	P	2,6-Dinitrotoluene	50.000	0.000	100.0#	0	-10.72#
68	P	Acenaphthylene	50.000	0.000	100.0#	0	-10.81#
69	P	3-Nitroaniline	50.000	0.000	100.0#	0	-10.88#
70	P	2,4-Dinitrophenol	50.000	0.000	100.0#	0	-10.98#
71	C,P	Acenaphthene	50.000	0.185	99.6#	0	-0.04
72	P	4-Nitrophenol	50.000	0.181	99.6#	0	-0.02
73	P	2,4-Dinitrotoluene	50.000	0.000	100.0#	0	-11.13#
74		Pentachlorobenzene	50.000	0.000	100.0#	0	-11.17#
75	P	Dibenzofuran	50.000	0.000	100.0#	0	-11.15#
76		2,3,4,6-Tetrachlorophenol	50.000	0.000	100.0#	0	-11.30#
77		1-Naphthylamine	50.000	55.987	-12.0	102	0.00
78		2-Naphthylamine	50.000	57.314	-14.6	105	0.00
79	P	Diethylphthalate	50.000	0.000	100.0#	0	-11.33#
80		Thionazin	50.000	7.240	85.5#	13	0.07
81	P	Fluorene	50.000	0.000	100.0#	0	-11.51#
82	P	4-Chlorophenyl Phenyl Ether	50.000	0.000	100.0#	0	-11.46#
83	P	4-Nitroaniline	50.000	0.000	100.0#	0	-11.51#
84		5-Nitro-o-Toluidine	50.000	49.204	1.6	88	0.00
85		1,2-Diphenylhydrazine	50.000	13.756	72.5#	25	-0.12
86	S	2,4,6-Tribromophenol	50.000	0.000	100.0#	0	-11.79#
87	I	Phenanthrene-d10	40.000	40.000	0.0	93	0.00
88	P	4,6-Dinitro-2-Methylphenol	50.000	0.000	100.0#	0	-11.56#
89	C,P	Diphenylamine/n-Nitrosodiph	50.000	0.299	99.4#	1	-0.13
90		Sulfotepp	50.000	0.000	100.0#	0	-11.77#
91		Sym-Trinitrobenzene	50.000	0.000	100.0#	0	-11.86#
92		Diallate	50.000	0.000	100.0#	0	-11.90#
93		Phenacetin	50.000	0.000	100.0#	0	-11.89#
94		Phorate	50.000	0.000	100.0#	0	-11.92#
95	P	4-Bromophenyl Phenyl Ether	50.000	0.000	100.0#	0	-11.99#
96	P	Hexachlorobenzene	50.000	0.000	100.0#	0	-12.21#
97		Dimethoate	50.000	2.464	95.1#	4	0.15
98		4-Aminobiphenyl	50.000	53.576	-7.2	95	0.00
99	C,P	Pentachlorophenol	50.000	0.000	100.0#	0	-12.40#
100		Pronamide	50.000	0.000	100.0#	0	-12.33#
101		Pentachloronitrobenzene	50.000	0.000	100.0#	0	-12.49#
102		Disulfoton	50.000	1.746	96.5#	3	0.06
103	P	Phenanthrene	50.000	0.000	100.0#	0	-12.61#
104	P	Anthracene	50.000	0.000	100.0#	0	-12.66#
105	P	Carbazole	50.000	0.000	100.0#	0	-12.82#
106		Parathion Methyl	50.000	0.000	100.0#	0	-12.99#

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\080317\12M63797.D Vial: 14
Acq On : 3 Aug 2017 4:00 pm Operator: MES
Sample : WG624321-13 50PPM APPIX/MP/BENZIDINE ALT Inst : MSD12
Misc : 1,1 STD82728 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Fri Aug 04 07:07:19 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
107	P	Di-n-Butyl Phthalate	50.000	0.000	100.0#	0	-13.18#
108		Parathion Ethyl	50.000	67.210	-34.4	113	0.15
109		4-Nitroquinoline 1-Oxide	50.000	14.343	71.3#	20	0.05
110		Methapyrilene	50.000	28.202	43.6#	59	0.00
111		Isodrin	50.000	0.000	100.0#	0	-13.99#
112	C,P	Fluoranthene	50.000	0.000	100.0#	0	-14.16#
113	I	Chrysene-d12	40.000	40.000	0.0	93	0.00
114		Benzidine	50.000	74.529	-49.1#	126	0.00
115	P	Pyrene	50.000	0.000	100.0#	0	-14.50#
116		Aramite	50.000	0.000	100.0#	0	-14.52#
117	S	p-Terphenyl-d14	50.000	0.000	100.0#	0	-14.62#
118		p-(Dimethylamino)azobenzene	50.000	58.900	-17.8	105	0.00
119		Chlorobenzilate	50.000	0.000	100.0#	0	-14.87#
120		Famphur	50.000	0.000	100.0#	0	-15.28#
121	P	Butyl Benzyl Phthalate	50.000	0.000	100.0#	0	-15.30#
122		3,3'-Dimethylbenzidine	50.000	41.726	16.5	73	0.00
123		2-Acetylaminofluorene	50.000	55.444	-10.9	94	0.00
124	P	bis(2-Ethylhexyl)phthalate	50.000	0.104	99.8#	0	0.02
125	P	3,3'-Dichlorobenzidine	50.000	57.090	-14.2	103	0.00
126	P	Benzo[a]anthracene	50.000	0.056	99.9#	0	0.03
127	P	Chrysene	50.000	0.062	99.9#	0	-0.04
128	I	Perylene-d12	40.000	40.000	0.0	89	-0.01
129	C,P	Di-n-Octyl Phthalate	50.000	0.000	100.0#	0	-17.12#
130		7,12-Dimethylbenz[a]anthrac	50.000	0.000	100.0#	0	-18.26#
131	P	Benzo[b]fluoranthene	50.000	0.000	100.0#	0	-18.26#
132	P	Benzo[k]fluoranthene	50.000	0.000	100.0#	0	-18.30#
133	C,P	Benzo[a]pyrene	50.000	0.000	100.0#	0	-19.03#
134		3-Methylcholanthrene	50.000	0.000	100.0#	0	-19.94#
135	P	Indeno[1,2,3-cd]pyrene	50.000	0.000	100.0#	0	-22.35#
136	P	Dibenz[ah]anthracene	50.000	0.000	100.0#	0	-22.35#
137	P	Benzo[ghi]perylene	50.000	0.000	100.0#	0	-23.33#

(#) = Out of Range SPCC's out = 0 CCC's out = 13

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:14:04 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.834	152	140196	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.127	136	554616	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.938	164	307412	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.551	188	599106	40.0000	ug/ml	0.000
113) Chrysene-d12	16.243	240	602811	40.0000	ug/ml	0.000
128) Perylene-d12	19.090	264	584828	40.0000	ug/ml	-0.011
System Monitoring Compounds						
8) 2-Fluorophenol	6.573	112	227411	53.2616822	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 53.26%			
12) Phenol-d5	7.428	99	299111	54.7949438	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 54.79%			
31) Nitrobenzene-d5	8.400	82	300793	54.3472291	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 108.69%			
59) 2-Fluorobiphenyl	10.195	172	536543	50.2719006	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 100.54%			
86) 2,4,6-Tribromophenol	11.760	330	77463	47.8412994	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 47.84%			
117) p-Terphenyl-d14	14.581	244	666308	51.3442520	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 102.69%			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.67	88	89939	49.0329	ug/ml	96
3) n-Nitrosodimethylamine	5.14	74	154353	60.7508	ug/ml	97
4) Pyridine	5.16	79	273172	58.8140	ug/ml	96
5) 2-Picoline	5.99	93	279292	55.6044	ug/ml	98
6) n-Nitrosomethylethylamine	6.11	88	117011	57.8351	ug/ml	97
7) Methyl Methanesulfonate	6.41	80	180805	55.7798	ug/ml	99
9) n-Nitrosodiethylamine	6.81	102	119025	55.7038	ug/ml	99
10) Ethyl Methanesulfonate	7.08	79	197369	58.3135	ug/ml	95
11) Aniline	7.52	66	163486	57.5387	ug/ml	96
13) Phenol	7.44	94	307899	55.4962	ug/ml	98
14) bis(2-Chloroethyl)ether	7.55	63	182527	55.9385	ug/ml	98
15) Pentachloroethane	7.56	167	93186	50.3437	ug/ml	99
16) 2-Chlorophenol	7.65	128	227956	48.8950	ug/ml	94
17) 1,3-Dichlorobenzene	7.80	146	261158	51.1622	ug/ml	99
18) 1,4-Dichlorobenzene	7.85	146	266576	51.3721	ug/ml	99
19) Benzyl Alcohol	7.94	108	162203	54.6351	ug/ml	94
20) 1,2-Dichlorobenzene	8.04	146	268129	54.3515	ug/ml	100
21) 2-Methylphenol	8.04	107	216580	54.3405	ug/ml	95
22) bis(2-Chloroisopropyl)ethe	8.08	45	214270	54.2345	ug/ml	96
23) 3-,4-Methylphenol	8.17	107	262746	52.1392	ug/ml	94
24) n-Nitrosopyrrolidine	8.22	100	124785	57.6992	ug/ml	98
25) n-Nitrosodipropylamine	8.22	70	198968	57.4267	ug/ml	99
26) Acetophenone	8.23	105	380656	55.7353	ug/ml	98
27) n-Nitrosomorpholine	8.22	56	153662	57.2605	ug/ml	99
28) o-Toluidine	8.27	106	388199	51.9971	ug/ml	99
29) Hexachloroethane	8.36	117	116003	53.1900	ug/ml	98
32) Nitrobenzene	8.42	77	299656	54.6758	ug/ml	93
33) n-Nitrosopiperidine	8.56	114	120559	50.8691	ug/ml	93
34) Isophorone	8.63	82	511769	53.8039	ug/ml	99
35) 2-Nitrophenol	8.74	139	132917	51.1333	ug/ml	94
36) 2,4-Dimethylphenol	8.70	122	215065	49.6571	ug/ml	95
37) 0,0,0-Triethyl Phosphoroth	8.80	198	141531	55.7488	ug/ml	92
38) bis(2-Chloroethoxy)methane	8.80	93	409984	54.7673	ug/ml	98

(#) = qualifier out of range (m) = manual integration
12M64121.D MEGAMIX.M Tue Aug 29 16:23:17 2017 Page 1

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:14:04 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39)	Benzoic Acid	8.75	105	58967m	32.0552 ug/ml	
40)	2,4-Dichlorophenol	8.96	162	207533	52.7189 ug/ml	99
41)	a,a-Dimethylphenethylamine	8.96	58	504915	54.6795 ug/ml	98
42)	1,2,4-Trichlorobenzene	9.07	180	233942	51.3870 ug/ml	99
43)	Naphthalene	9.15	128	725629	49.2661 ug/ml#	100
44)	4-Chloroaniline	9.17	65	113315	55.6747 ug/ml	58
45)	2,6-Dichlorophenol	9.20	162	184697	50.9891 ug/ml	99
46)	Hexachloropropene	9.26	213	185478	55.0338 ug/ml	98
47)	Hexachlorobutadiene	9.29	225	144725	54.8933 ug/ml	98
48)	n-Nitrosodi-n-Butylamine	9.48	84	242363	54.4469 ug/ml	99
49)	p-Phenylenediamine	9.52	108	163536	49.2838 ug/ml	99
50)	4-Chloro-3-Methylphenol	9.61	107	258206	52.5714 ug/ml	99
51)	Safrole	9.70	162	197031	51.8958 ug/ml	98
52)	2-Methylnaphthalene	9.83	142	517312	51.7357 ug/ml	100
53)	1-Methylnaphthalene	9.95	142	467620	51.1297 ug/ml	98
55)	1,2,4,5-Tetrachlorobenzene	10.05	216	256139	52.3707 ug/ml	100
56)	Hexachlorocyclopentadiene	10.05	237	122310	51.0923 ug/ml	99
57)	2,4,6-Trichlorophenol	10.13	196	163317	50.9339 ug/ml	99
58)	2,4,5-Trichlorophenol	10.17	196	168904	50.3687 ug/ml	99
60)	Isosafrole	10.23	162	188573	48.6202 ug/ml	97
61)	2-Chloronaphthalene	10.34	162	496073	50.7972 ug/ml	98
62)	1-Chloronaphthalene	10.39	162	490277	52.3053 ug/ml	99
63)	2-Nitroaniline	10.44	65	162685	51.5560 ug/ml	100
64)	1,4-Naphthoquinone	10.51	158	131208	49.4163 ug/ml	97
65)	Dimethylphthalate	10.60	163	571419	50.2847 ug/ml	100
66)	1,3-Dinitrobenzene	10.65	168	95353	49.2912 ug/ml	90
67)	2,6-Dinitrotoluene	10.70	165	132011	49.9719 ug/ml	95
68)	Acenaphthylene	10.79	152	807642	52.2872 ug/ml	100
69)	3-Nitroaniline	10.86	138	133321	49.1963 ug/ml	99
70)	2,4-Dinitrophenol	10.96	184	84641	52.1925 ug/ml	99
71)	Acenaphthene	10.97	154	530237	53.7618 ug/ml	99
72)	4-Nitrophenol	10.96	65	134897	54.9263 ug/ml	96
73)	2,4-Dinitrotoluene	11.10	165	180759	49.7967 ug/ml	91
74)	Pentachlorobenzene	11.15	250	204888	51.9376 ug/ml	100
75)	Dibenzofuran	11.12	168	686853	49.4453 ug/ml	97
76)	2,3,4,6-Tetrachlorophenol	11.27	232	158940	55.0507 ug/ml	99
77)	1-Naphthylamine	11.20	143	468697	48.1609 ug/ml	99
78)	2-Naphthylamine	11.27	143	513927	51.4852 ug/ml	99
79)	Diethylphthalate	11.30	149	586984	50.1305 ug/ml	100
80)	Thionazin	11.40	107	94226	49.2183 ug/ml	92
81)	Fluorene	11.48	166	630736	53.4988 ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.43	204	289180	49.4994 ug/ml	97
83)	4-Nitroaniline	11.49	138	159353	52.8299 ug/ml	97
84)	5-Nitro-o-Toluidine	11.49	152	186088	54.5805 ug/ml	97
85)	1,2-Diphenylhydrazine	11.60	77	640465	53.0085 ug/ml	96
88)	4,6-Dinitro-2-Methylphenol	11.54	198	108994	46.4502 ug/ml	93
89)	Diphenylamine/n-Nitrosodip	11.55	169	513273	51.2456 ug/ml	100
90)	Sulfotepp	11.75	322	100165	50.6828 ug/ml	97
91)	Sym-Trinitrobenzene	11.84	75	208561	53.9045 ug/ml	97
92)	Diallate	11.87	86	226541	53.4809 ug/ml	99
93)	Phenacetin	11.87	108	348764	55.5400 ug/ml	99
94)	Phorate	11.89	75	355959	53.0330 ug/ml#	96
95)	4-Bromophenyl Phenyl Ether	11.96	248	161829	51.5221 ug/ml	99
96)	Hexachlorobenzene	12.18	284	164492	50.4242 ug/ml	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:14:04 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

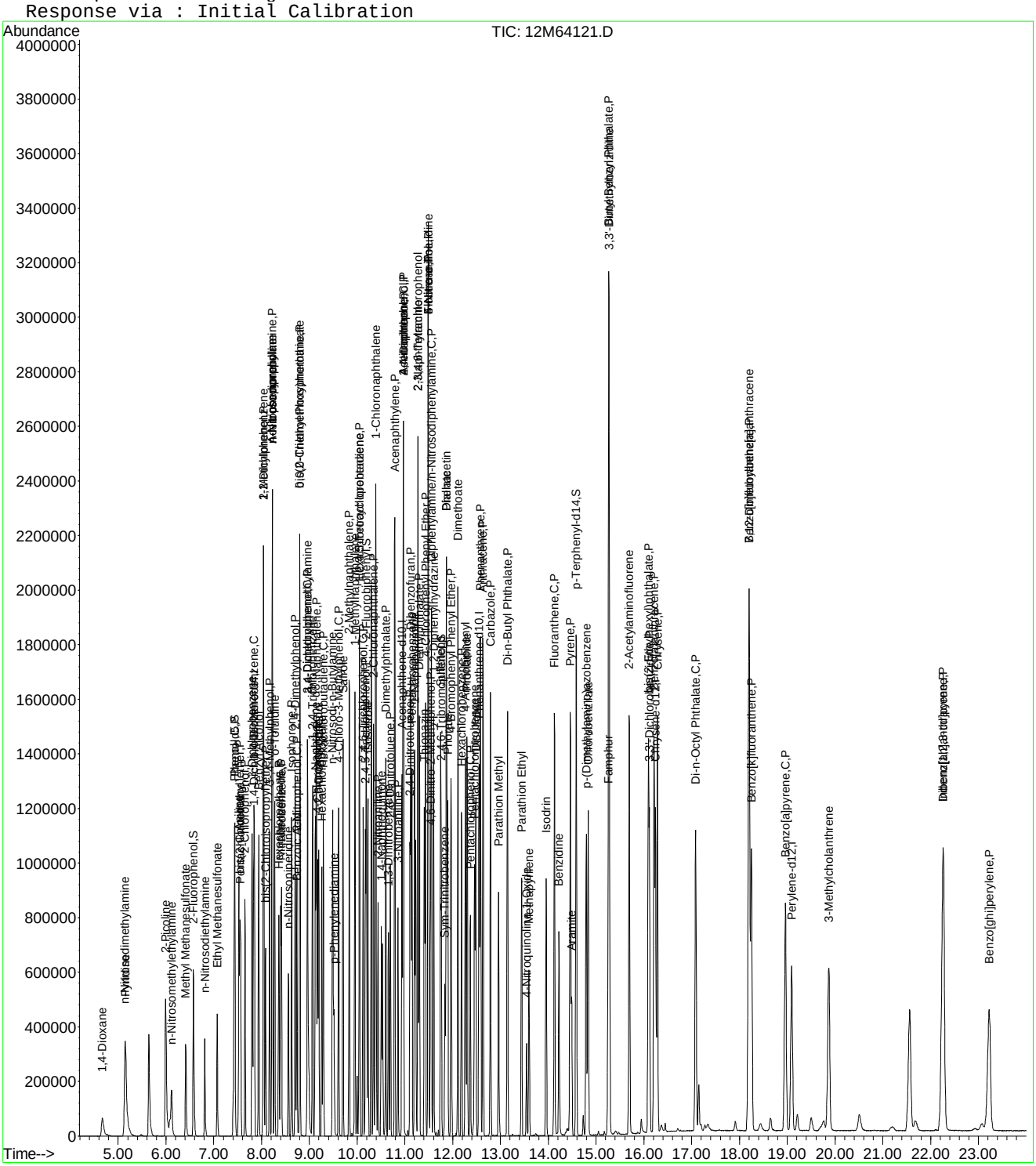
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
97)	Dimethoate	12.11	87	210529	52.7055	ug/ml	98
98)	4-Aminobiphenyl	12.27	169	591625	50.0457	ug/ml	99
99)	Pentachlorophenol	12.37	266	99259	48.9009	ug/ml	99
100)	Pronamide	12.30	173	271982	52.7284	ug/ml	98
101)	Pentachloronitrobenzene	12.45	237	85985	57.4028	ug/ml	97
102)	Disulfoton	12.48	88	286939	52.9192	ug/ml	98
103)	Phenanthrene	12.58	178	846066	51.1661	ug/ml	100
104)	Anthracene	12.63	178	879335	51.1006	ug/ml	99
105)	Carbazole	12.79	167	766675	51.6873	ug/ml	99
106)	Parathion Methyl	12.96	109	194388	53.8377	ug/ml	98
107)	Di-n-Butyl Phthalate	13.14	149	1021271	52.0075	ug/ml	100
108)	Parathion Ethyl	13.44	97	127225	52.3100	ug/ml	96
109)	4-Nitroquinoline 1-Oxide	13.54	190	47439	40.0488	ug/ml	95
110)	Methapyrilene	13.59	58	199265	32.8901	ug/ml	94
111)	Isodrin	13.96	193	93511	49.4024	ug/ml	99
112)	Fluoranthene	14.13	202	929422	50.9178	ug/ml	99
114)	Benzidine	14.22	184	409868	54.5118	ug/ml	100
115)	Pyrene	14.46	202	966332	51.2749	ug/ml	100
116)	Aramite	14.49	185	59559	51.6372	ug/ml	97
118)	p-(Dimethylamino)azobenzen	14.79	225	199916	54.0622	ug/ml	83
119)	Chlorobenzilate	14.83	251	280915	54.4012	ug/ml	90
120)	Famphur	15.24	218	40708	34.2329	ug/ml	94
121)	Butyl Benzyl Phthalate	15.26	149	472408	49.9377	ug/ml	92
122)	3,3'-Dimethylbenzidine	15.28	212	900052	55.1951	ug/ml	98
123)	2-Acetylaminofluorene	15.70	181	433248	54.5471	ug/ml	98
124)	bis(2-Ethylhexyl)phthalate	16.09	149	616877	50.8016	ug/ml	98
125)	3,3'-Dichlorobenzidine	16.12	252	339429	55.3961	ug/ml	98
126)	Benzo[a]anthracene	16.22	228	941155	52.7558	ug/ml	100
127)	Chrysene	16.29	228	861930	53.2506	ug/ml	99
129)	Di-n-Octyl Phthalate	17.08	149	1057776	48.4654	ug/ml	98
130)	7,12-Dimethylbenz[a]anthra	18.20	256	489362	54.6705	ug/ml	94
131)	Benzo[b]fluoranthene	18.20	252	1040674	53.3779	ug/ml	98
132)	Benzo[k]fluoranthene	18.25	252	894205	54.6644	ug/ml	99
133)	Benzo[a]pyrene	18.96	252	869946	53.9891	ug/ml	98
134)	3-Methylcholanthrene	19.87	268	437142	52.2332	ug/ml	97
135)	Indeno[1,2,3-cd]pyrene	22.27	276	1025784	58.0757	ug/ml	97
136)	Dibenz[ah]anthracene	22.26	278	833437	55.3176	ug/ml	99
137)	Benzo[ghi]perylene	23.22	276	806615	57.5363	ug/ml	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64121.D MEGAMIX.M Tue Aug 29 16:23:18 2017 Page 3

Quantitation Report (QT Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:23 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	106	0.00
2		1,4-Dioxane	0.523	0.513	1.9	94	0.00
3		n-Nitrosodimethylamine	0.725	0.881	-21.5	120	0.00
4		Pyridine	1.325	1.559	-17.7	115	0.00
5		2-Picoline	1.433	1.594	-11.2	112	0.00
6		n-Nitrosomethylethylamine	0.577	0.668	-15.8	113	0.00
7		Methyl Methanesulfonate	0.925	1.032	-11.6	113	0.00
8	S	2-Fluorophenol	1.218	1.298	-6.6	107	0.00
9		n-Nitrosodiethylamine	0.610	0.679	-11.3	111	0.00
10		Ethyl Methanesulfonate	0.966	1.126	-16.6	116	0.00
11		Aniline	0.811	0.933	-15.0	114	0.00
12	S	Phenol-d5	1.557	1.707	-9.6	111	0.00
13	C,P	Phenol	1.583	1.757	-11.0	112	0.00
14	P	bis(2-Chloroethyl)ether	0.931	1.042	-11.9	113	0.00
15		Pentachloroethane	0.528	0.532	-0.8	105	0.00
16	P	2-Chlorophenol	1.330	1.301	2.2	101	0.00
17		1,3-Dichlorobenzene	1.456	1.490	-2.3	107	0.00
18	C	1,4-Dichlorobenzene	1.481	1.521	-2.7	108	0.00
19		Benzyl Alcohol	0.847	0.926	-9.3	110	0.00
20		1,2-Dichlorobenzene	1.408	1.530	-8.7	112	0.00
21	P	2-Methylphenol	1.137	1.236	-8.7	110	0.00
22	P	bis(2-Chloroisopropyl)ether	1.127	1.223	-8.5	109	0.00
23	P	3-,4-Methylphenol	1.438	1.499	-4.2	106	0.00
24		n-Nitrosopyrrolidine	0.617	0.712	-15.4	114	0.00
25	P	n-Nitrosodipropylamine	0.989	1.135	-14.8	115	0.00
26		Acetophenone	1.949	2.172	-11.4	113	0.00
27		n-Nitrosomorpholine	0.766	0.877	-14.5	116	0.00
28		o-Toluidine	2.130	2.215	-4.0	105	0.00
29	P	Hexachloroethane	0.622	0.662	-6.4	109	0.00
30	I	Naphthalene-d8	1.000	1.000	0.0	110	0.00
31	S	Nitrobenzene-d5	0.399	0.434	-8.8	115	0.00
32	P	Nitrobenzene	0.395	0.432	-9.4	118	0.00
33		n-Nitrosopiperidine	0.171	0.174	-1.8	108	0.00
34	P	Isophorone	0.686	0.738	-7.6	113	0.00
35	C,P	2-Nitrophenol	0.187	0.192	-2.7	110	0.00
36	P	2,4-Dimethylphenol	0.312	0.310	0.6	105	0.00
37		0,0,0-Triethyl Phosphorothi	0.183	0.204	-11.5	122	0.00
38	P	bis(2-Chloroethoxy)methane	0.540	0.591	-9.4	114	0.00
39		Benzoic Acid	0.156	0.085	45.5#	64	0.00
40	C,P	2,4-Dichlorophenol	0.284	0.299	-5.3	112	0.00
41		a,a-Dimethylphenethylamine	0.666	0.728	-9.3	112	0.00
42		1,2,4-Trichlorobenzene	0.328	0.337	-2.7	114	0.00
43	P	Naphthalene	1.062	1.047	1.4	107	0.00
44	P	4-Chloroaniline	0.147	0.163	-10.9	115	0.00
45		2,6-Dichlorophenol	0.261	0.266	-1.9	111	0.00
46		Hexachloropropene	0.243	0.268	-10.3	121	0.00
47	C,P	Hexachlorobutadiene	0.190	0.209	-10.0	125	0.00
48		n-Nitrosodi-n-Butylamine	0.321	0.350	-9.0	111	0.00
49		p-Phenylenediamine	0.239	0.236	1.3	105	0.00
50	C,P	4-Chloro-3-Methylphenol	0.354	0.372	-5.1	110	0.00
51		Safrole	0.274	0.284	-3.6	112	0.00
52	P	2-Methylnaphthalene	0.721	0.746	-3.5	111	0.00
53		1-Methylnaphthalene	0.660	0.675	-2.3	110	0.00

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	I	Acenaphthene-d10	1.000	1.000	0.0	114	0.00
55		1,2,4,5-Tetrachlorobenzene	0.636	0.667	-4.9	119	0.00
56	P	Hexachlorocyclopentadiene	0.283	0.318	-12.4	117	0.00
57	C,P	2,4,6-Trichlorophenol	0.417	0.425	-1.9	114	0.00
58	P	2,4,5-Trichlorophenol	0.436	0.440	-0.9	115	0.00
59	S	2-Fluorobiphenyl	1.389	1.396	-0.5	114	0.00
60		Isosafrole	0.505	0.491	2.8	110	0.00
61	P	2-Chloronaphthalene	1.271	1.291	-1.6	115	0.00
62		1-Chloronaphthalene	1.220	1.276	-4.6	118	0.00
63	P	2-Nitroaniline	0.411	0.423	-2.9	113	0.00
64		1,4-Naphthoquinone	0.345	0.341	1.2	109	0.00
65	P	Dimethylphthalate	1.479	1.487	-0.5	114	0.00
66		1,3-Dinitrobenzene	0.252	0.248	1.6	109	0.00
67	P	2,6-Dinitrotoluene	0.344	0.344	0.0	111	0.00
68	P	Acenaphthylene	2.010	2.102	-4.6	116	0.00
69	P	3-Nitroaniline	0.353	0.347	1.7	109	0.00
70	P	2,4-Dinitrophenol	0.192	0.220	-14.6	118	0.00
71	C,P	Acenaphthene	1.283	1.380	-7.6	118	0.00
72	P	4-Nitrophenol	0.320	0.351	-9.7	117	0.00
73	P	2,4-Dinitrotoluene	0.472	0.470	0.4	110	0.00
74		Pentachlorobenzene	0.513	0.533	-3.9	121	0.00
75	P	Dibenzofuran	1.807	1.787	1.1	112	0.00
76		2,3,4,6-Tetrachlorophenol	0.376	0.414	-10.1	122	0.00
77		1-Naphthylamine	1.266	1.220	3.6	107	0.00
78		2-Naphthylamine	1.299	1.337	-2.9	114	0.00
79	P	Diethylphthalate	1.524	1.528	-0.3	112	0.00
80		Thionazin	0.249	0.245	1.6	106	0.00
81	P	Fluorene	1.534	1.641	-7.0	117	0.00
82	P	4-Chlorophenyl Phenyl Ether	0.760	0.753	0.9	113	0.00
83	P	4-Nitroaniline	0.392	0.415	-5.9	116	0.00
84		5-Nitro-o-Toluidine	0.444	0.484	-9.0	119	0.00
85		1,2-Diphenylhydrazine	1.572	1.667	-6.0	116	0.00
86	S	2,4,6-Tribromophenol	0.211	0.202	4.3	108	0.00
87	I	Phenanthrene-d10	1.000	1.000	0.0	113	0.00
88	P	4,6-Dinitro-2-Methylphenol	0.143	0.146	-2.1	108	0.00
89	C,P	Diphenylamine/n-Nitrosodiph	0.669	0.685	-2.4	113	0.00
90		Sulfotepp	0.132	0.134	-1.5	114	0.00
91		Sym-Trinitrobenzene	0.238	0.278	-16.8	119	0.00
92		Diallate	0.283	0.303	-7.1	113	0.00
93		Phenacetin	0.419	0.466	-11.2	118	0.00
94		Phorate	0.448	0.475	-6.0	112	0.00
95	P	4-Bromophenyl Phenyl Ether	0.210	0.216	-2.9	115	0.00
96	P	Hexachlorobenzene	0.218	0.220	-0.9	114	0.00
97		Dimethoate	0.267	0.281	-5.2	110	0.00
98		4-Aminobiphenyl	0.789	0.790	-0.1	108	0.00
99	C,P	Pentachlorophenol	0.131	0.133	-1.5	109	0.00
100		Pronamide	0.344	0.363	-5.5	115	0.00
101		Pentachloronitrobenzene	0.100	0.115	-15.0	127	0.00
102		Disulfoton	0.362	0.383	-5.8	112	0.00
103	P	Phenanthrene	1.104	1.130	-2.4	113	0.00
104	P	Anthracene	1.149	1.174	-2.2	112	0.00
105	P	Carbazole	0.990	1.024	-3.4	112	0.00
106		Parathion Methyl	0.241	0.260	-7.9	111	0.00

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
107	P	Di-n-Butyl Phthalate	1.311	1.364	-4.0	112	0.00
108		Parathion Ethyl	0.162	0.170	-4.9	107	0.00
109		4-Nitroquinoline 1-Oxide	0.070	0.063	10.0	85	0.00
110		Methapyrilene	0.360	0.266	26.1	82	0.00
111		Isodrin	0.126	0.125	0.8	110	0.00
112	C,P	Fluoranthene	1.219	1.241	-1.8	111	0.00
113	I	Chrysene-d12	1.000	1.000	0.0	113	0.00
114		Benzidine	0.499	0.544	-9.0	112	0.00
115	P	Pyrene	1.251	1.282	-2.5	112	0.00
116		Aramite	0.077	0.079	-2.6	108	0.00
117	S	p-Terphenyl-d14	0.861	0.884	-2.7	114	0.00
118		p-(Dimethylamino)azobenzene	0.245	0.265	-8.2	117	0.00
119		Chlorobenzilate	0.343	0.373	-8.7	120	0.00
120		Famphur	0.079	0.054	31.6	78	0.00
121	P	Butyl Benzyl Phthalate	0.628	0.627	0.2	108	0.00
122		3,3'-Dimethylbenzidine	1.082	1.194	-10.4	117	0.00
123		2-Acetylaminofluorene	0.527	0.575	-9.1	113	0.00
124	P	bis(2-Ethylhexyl)phthalate	0.806	0.819	-1.6	106	0.00
125	P	3,3'-Dichlorobenzidine	0.407	0.450	-10.6	122	0.00
126	P	Benzo[a]anthracene	1.184	1.249	-5.5	116	0.00
127	P	Chrysene	1.074	1.144	-6.5	118	0.00
128	I	Perylene-d12	1.000	1.000	0.0	117	-0.01
129	C,P	Di-n-Octyl Phthalate	1.493	1.447	3.1	107	0.00
130		7,12-Dimethylbenz[a]anthrac	0.612	0.669	-9.3	124	-0.01
131	P	Benzo[b]fluoranthene	1.333	1.424	-6.8	126	0.00
132	P	Benzo[k]fluoranthene	1.119	1.223	-9.3	131	0.00
133	C,P	Benzo[a]pyrene	1.102	1.190	-8.0	123	0.00
134		3-Methylcholanthrene	0.572	0.598	-4.5	117	0.00
135	P	Indeno[1,2,3-cd]pyrene	1.208	1.403	-16.1	129	0.00
136	P	Dibenz[ah]anthracene	1.030	1.140	-10.7	122	-0.01
137	P	Benzo[ghi]perylene	0.959	1.103	-15.0	127	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
12M64121.D MEGAMIX.M Tue Aug 29 16:23:24 2017 Page 3

Evaluate Continuing Calibration Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	106	0.00
2		1,4-Dioxane	50.000	49.033	1.9	94	0.00
3		n-Nitrosodimethylamine	50.000	60.751	-21.5	120	0.00
4		Pyridine	50.000	58.814	-17.6	115	0.00
5		2-Picoline	50.000	55.604	-11.2	112	0.00
6		n-Nitrosomethylethylamine	50.000	57.835	-15.7	113	0.00
7		Methyl Methanesulfonate	50.000	55.780	-11.6	113	0.00
8	S	2-Fluorophenol	50.000	53.262	-6.5	107	0.00
9		n-Nitrosodiethylamine	50.000	55.704	-11.4	111	0.00
10		Ethyl Methanesulfonate	50.000	58.314	-16.6	116	0.00
11		Aniline	50.000	57.539	-15.1	114	0.00
12	S	Phenol-d5	50.000	54.795	-9.6	111	0.00
13	C,P	Phenol	50.000	55.496	-11.0	112	0.00
14	P	bis(2-Chloroethyl)ether	50.000	55.938	-11.9	113	0.00
15		Pentachloroethane	50.000	50.344	-0.7	105	0.00
16	P	2-Chlorophenol	50.000	48.895	2.2	101	0.00
17		1,3-Dichlorobenzene	50.000	51.162	-2.3	107	0.00
18	C	1,4-Dichlorobenzene	50.000	51.372	-2.7	108	0.00
19		Benzyl Alcohol	50.000	54.635	-9.3	110	0.00
20		1,2-Dichlorobenzene	50.000	54.352	-8.7	112	0.00
21	P	2-Methylphenol	50.000	54.340	-8.7	110	0.00
22	P	bis(2-Chloroisopropyl)ether	50.000	54.234	-8.5	109	0.00
23	P	3-,4-Methylphenol	50.000	52.139	-4.3	106	0.00
24		n-Nitrosopyrrolidine	50.000	57.699	-15.4	114	0.00
25	P	n-Nitrosodipropylamine	50.000	57.427	-14.9	115	0.00
26		Acetophenone	50.000	55.735	-11.5	113	0.00
27		n-Nitrosomorpholine	50.000	57.261	-14.5	116	0.00
28		o-Toluidine	50.000	51.997	-4.0	105	0.00
29	P	Hexachloroethane	50.000	53.190	-6.4	109	0.00
30	I	Naphthalene-d8	40.000	40.000	0.0	110	0.00
31	S	Nitrobenzene-d5	50.000	54.347	-8.7	115	0.00
32	P	Nitrobenzene	50.000	54.676	-9.4	118	0.00
33		n-Nitrosopiperidine	50.000	50.869	-1.7	108	0.00
34	P	Isophorone	50.000	53.804	-7.6	113	0.00
35	C,P	2-Nitrophenol	50.000	51.133	-2.3	110	0.00
36	P	2,4-Dimethylphenol	50.000	49.657	0.7	105	0.00
37		0,0,0-Triethyl Phosphorothi	50.000	55.749	-11.5	122	0.00
38	P	bis(2-Chloroethoxy)methane	50.000	54.767	-9.5	114	0.00
39		Benzoic Acid	50.000	32.055	35.9	64	0.00
40	C,P	2,4-Dichlorophenol	50.000	52.719	-5.4	112	0.00
41		a,a-Dimethylphenethylamine	50.000	54.679	-9.4	112	0.00
42		1,2,4-Trichlorobenzene	50.000	51.387	-2.8	114	0.00
43	P	Naphthalene	50.000	49.266	1.5	107	0.00
44	P	4-Chloroaniline	50.000	55.675	-11.3	115	0.00
45		2,6-Dichlorophenol	50.000	50.989	-2.0	111	0.00
46		Hexachloropropene	50.000	55.034	-10.1	121	0.00
47	C,P	Hexachlorobutadiene	50.000	54.893	-9.8	125	0.00
48		n-Nitrosodi-n-Butylamine	50.000	54.447	-8.9	111	0.00
49		p-Phenylenediamine	50.000	49.284	1.4	105	0.00
50	C,P	4-Chloro-3-Methylphenol	50.000	52.571	-5.1	110	0.00
51		Safrole	50.000	51.896	-3.8	112	0.00
52	P	2-Methylnaphthalene	50.000	51.736	-3.5	111	0.00
53		1-Methylnaphthalene	50.000	51.130	-2.3	110	0.00

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
54	I	Acenaphthene-d10	40.000	40.000	0.0	114	0.00
55		1,2,4,5-Tetrachlorobenzene	50.000	52.371	-4.7	119	0.00
56	P	Hexachlorocyclopentadiene	50.000	51.092	-2.2	117	0.00
57	C,P	2,4,6-Trichlorophenol	50.000	50.934	-1.9	114	0.00
58	P	2,4,5-Trichlorophenol	50.000	50.369	-0.7	115	0.00
59	S	2-Fluorobiphenyl	50.000	50.272	-0.5	114	0.00
60		Isosafrole	50.000	48.620	2.8	110	0.00
61	P	2-Chloronaphthalene	50.000	50.797	-1.6	115	0.00
62		1-Chloronaphthalene	50.000	52.305	-4.6	118	0.00
63	P	2-Nitroaniline	50.000	51.556	-3.1	113	0.00
64		1,4-Naphthoquinone	50.000	49.416	1.2	109	0.00
65	P	Dimethylphthalate	50.000	50.285	-0.6	114	0.00
66		1,3-Dinitrobenzene	50.000	49.291	1.4	109	0.00
67	P	2,6-Dinitrotoluene	50.000	49.972	0.1	111	0.00
68	P	Acenaphthylene	50.000	52.287	-4.6	116	0.00
69	P	3-Nitroaniline	50.000	49.196	1.6	109	0.00
70	P	2,4-Dinitrophenol	50.000	52.193	-4.4	118	0.00
71	C,P	Acenaphthene	50.000	53.762	-7.5	118	0.00
72	P	4-Nitrophenol	50.000	54.926	-9.9	117	0.00
73	P	2,4-Dinitrotoluene	50.000	49.797	0.4	110	0.00
74		Pentachlorobenzene	50.000	51.938	-3.9	121	0.00
75	P	Dibenzofuran	50.000	49.445	1.1	112	0.00
76		2,3,4,6-Tetrachlorophenol	50.000	55.051	-10.1	122	0.00
77		1-Naphthylamine	50.000	48.161	3.7	107	0.00
78		2-Naphthylamine	50.000	51.485	-3.0	114	0.00
79	P	Diethylphthalate	50.000	50.131	-0.3	112	0.00
80		Thionazin	50.000	49.218	1.6	106	0.00
81	P	Fluorene	50.000	53.499	-7.0	117	0.00
82	P	4-Chlorophenyl Phenyl Ether	50.000	49.499	1.0	113	0.00
83	P	4-Nitroaniline	50.000	52.830	-5.7	116	0.00
84		5-Nitro-o-Toluidine	50.000	54.581	-9.2	119	0.00
85		1,2-Diphenylhydrazine	50.000	53.008	-6.0	116	0.00
86	S	2,4,6-Tribromophenol	50.000	47.841	4.3	108	0.00
87	I	Phenanthrene-d10	40.000	40.000	0.0	113	0.00
88	P	4,6-Dinitro-2-Methylphenol	50.000	46.450	7.1	108	0.00
89	C,P	Diphenylamine/n-Nitrosodiph	50.000	51.246	-2.5	113	0.00
90		Sulfotepp	50.000	50.683	-1.4	114	0.00
91		Sym-Trinitrobenzene	50.000	53.904	-7.8	119	0.00
92		Diallate	50.000	53.481	-7.0	113	0.00
93		Phenacetin	50.000	55.540	-11.1	118	0.00
94		Phorate	50.000	53.033	-6.1	112	0.00
95	P	4-Bromophenyl Phenyl Ether	50.000	51.522	-3.0	115	0.00
96	P	Hexachlorobenzene	50.000	50.424	-0.8	114	0.00
97		Dimethoate	50.000	52.706	-5.4	110	0.00
98		4-Aminobiphenyl	50.000	50.046	-0.1	108	0.00
99	C,P	Pentachlorophenol	50.000	48.901	2.2	109	0.00
100		Pronamide	50.000	52.728	-5.5	115	0.00
101		Pentachloronitrobenzene	50.000	57.403	-14.8	127	0.00
102		Disulfoton	50.000	52.919	-5.8	112	0.00
103	P	Phenanthrene	50.000	51.166	-2.3	113	0.00
104	P	Anthracene	50.000	51.101	-2.2	112	0.00
105	P	Carbazole	50.000	51.687	-3.4	112	0.00
106		Parathion Methyl	50.000	53.838	-7.7	111	0.00

(#) = Out of Range

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration

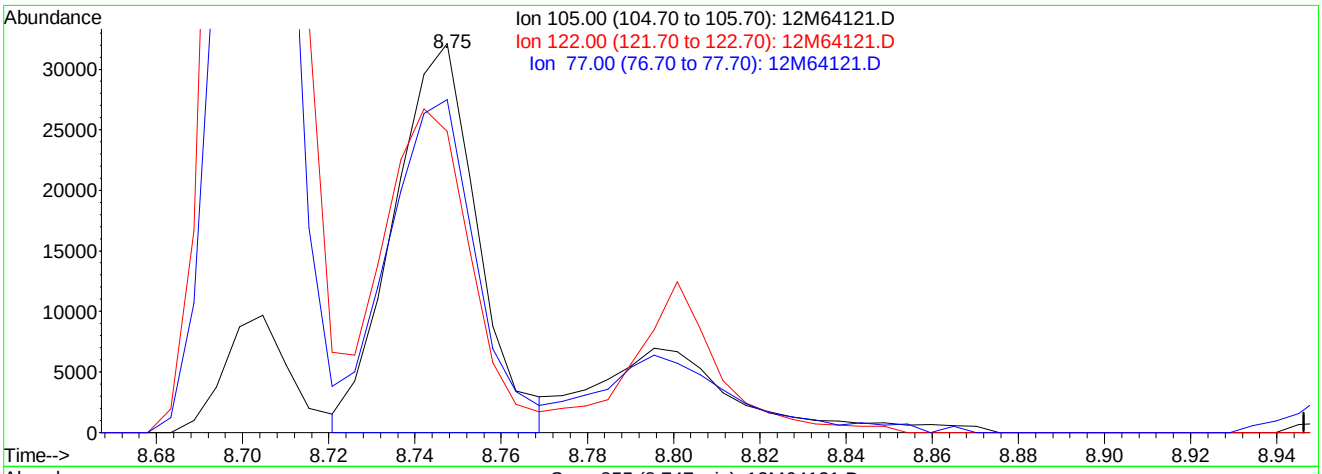
Min. RRF : 0.050 Min. Rel. Area : 1% Max. R.T. Dev 0.50min
Max. RRF Dev : 40% Max. Rel. Area : 500%

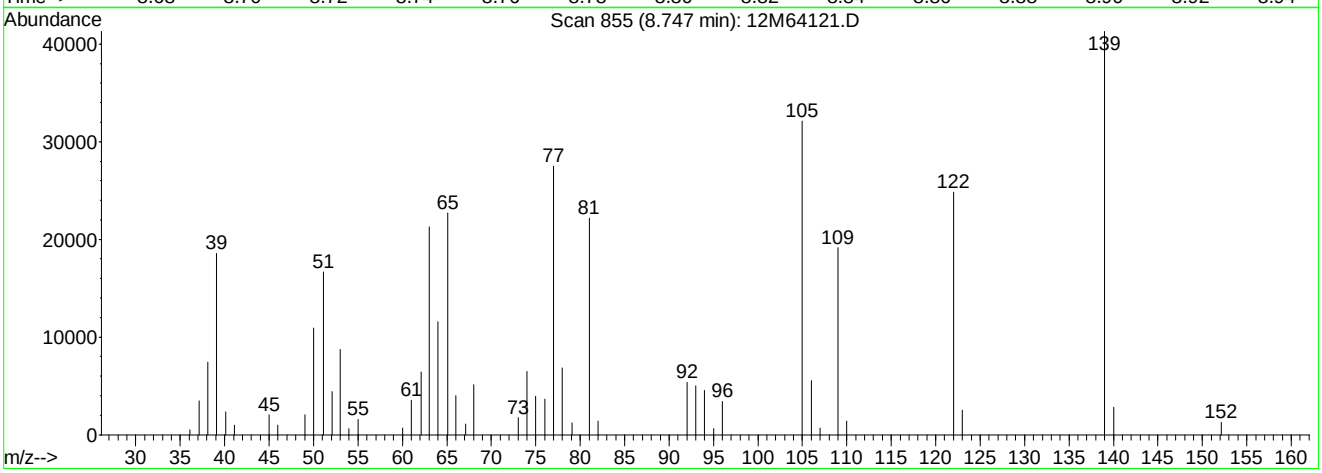
		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
107	P	Di-n-Butyl Phthalate	50.000	52.008	-4.0	112	0.00
108		Parathion Ethyl	50.000	52.310	-4.6	107	0.00
109		4-Nitroquinoline 1-Oxide	50.000	40.049	19.9	85	0.00
110		Methapyrilene	50.000	32.890	34.2	82	0.00
111		Isodrin	50.000	49.402	1.2	110	0.00
112	C,P	Fluoranthene	50.000	50.918	-1.8	111	0.00
113	I	Chrysene-d12	40.000	40.000	0.0	113	0.00
114		Benzidine	50.000	54.512	-9.0	112	0.00
115	P	Pyrene	50.000	51.275	-2.5	112	0.00
116		Aramite	50.000	51.637	-3.3	108	0.00
117	S	p-Terphenyl-d14	50.000	51.344	-2.7	114	0.00
118		p-(Dimethylamino)azobenzene	50.000	54.062	-8.1	117	0.00
119		Chlorobenzilate	50.000	54.401	-8.8	120	0.00
120		Famphur	50.000	34.233	31.5	78	0.00
121	P	Butyl Benzyl Phthalate	50.000	49.938	0.1	108	0.00
122		3,3'-Dimethylbenzidine	50.000	55.195	-10.4	117	0.00
123		2-Acetylaminofluorene	50.000	54.547	-9.1	113	0.00
124	P	bis(2-Ethylhexyl)phthalate	50.000	50.802	-1.6	106	0.00
125	P	3,3'-Dichlorobenzidine	50.000	55.396	-10.8	122	0.00
126	P	Benzo[a]anthracene	50.000	52.756	-5.5	116	0.00
127	P	Chrysene	50.000	53.251	-6.5	118	0.00
128	I	Perylene-d12	40.000	40.000	0.0	117	-0.01
129	C,P	Di-n-Octyl Phthalate	50.000	48.465	3.1	107	0.00
130		7,12-Dimethylbenz[a]anthrac	50.000	54.670	-9.3	124	-0.01
131	P	Benzo[b]fluoranthene	50.000	53.378	-6.8	126	0.00
132	P	Benzo[k]fluoranthene	50.000	54.664	-9.3	131	0.00
133	C,P	Benzo[a]pyrene	50.000	53.989	-8.0	123	0.00
134		3-Methylcholanthrene	50.000	52.233	-4.5	117	0.00
135	P	Indeno[1,2,3-cd]pyrene	50.000	58.076	-16.2	129	0.00
136	P	Dibenz[ah]anthracene	50.000	55.318	-10.6	122	-0.01
137	P	Benzo[ghi]perylene	50.000	57.536	-15.1	127	-0.01

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:14 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration





TIC: 12M64121.D

(39) Benzoic Acid

8.75min 26.13ug/ml

response 43095

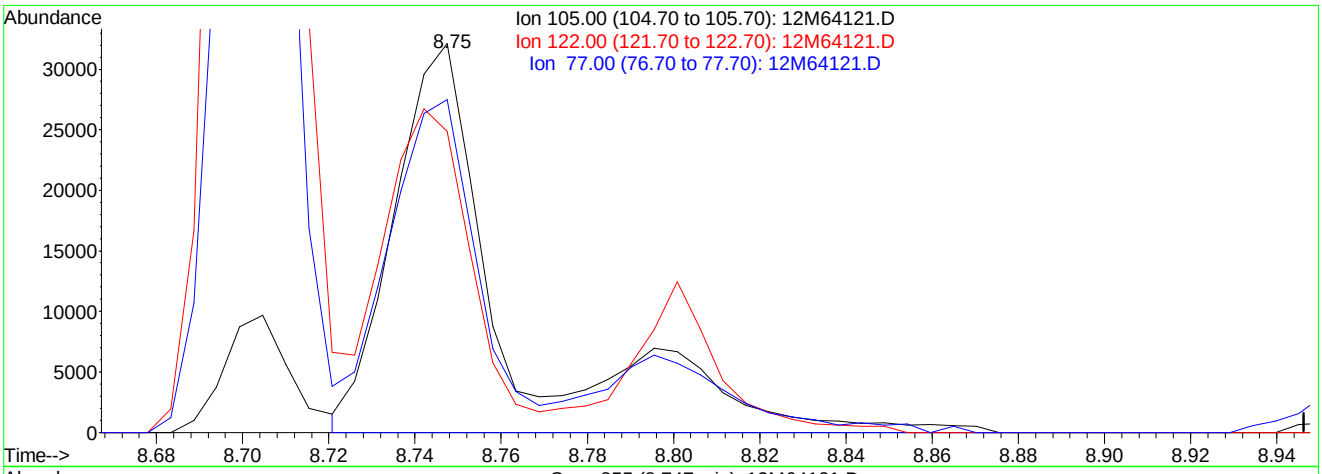
Ion	Exp%	Act%
105.00	100	100
122.00	54.20	83.93#
77.00	53.80	89.69#
0.00	0.00	0.00

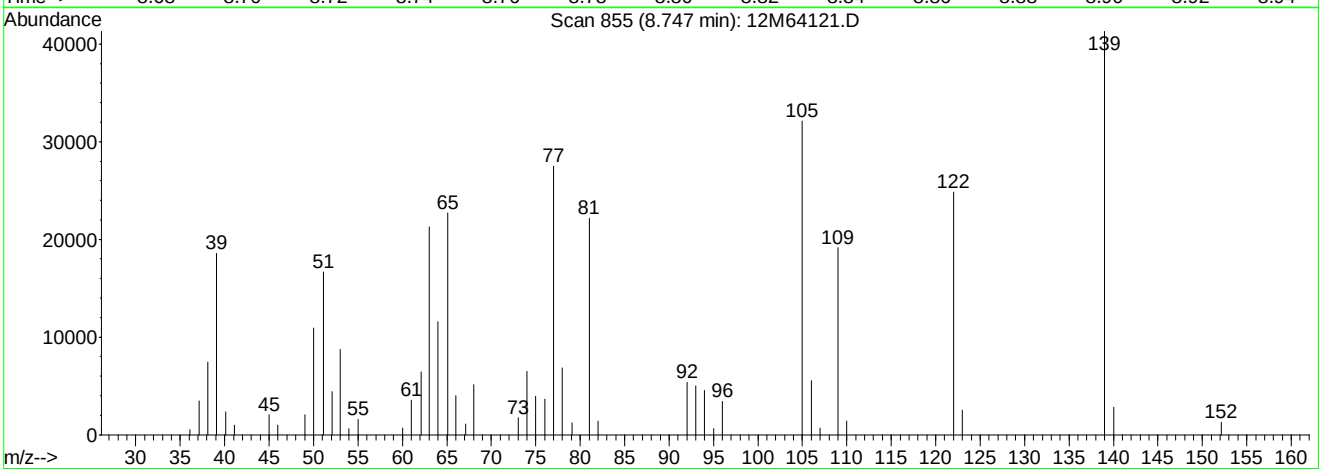
12M64121.D MEGAMIX.M Tue Aug 29 16:22:58 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\082917\12M64121.D Vial: 2
Acq On : 29 Aug 2017 9:47 am Operator: scb
Sample : WG627594-02 50PPM 8270 STD Inst : MSD12
Misc : 1,1 STD81744 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:23 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Multiple Level Calibration





TIC: 12M64121.D

(39) Benzoic Acid

8.75min 32.06ug/ml mint

response 58967

Ion	Exp%	Act%
105.00	100	100
122.00	54.20	61.34
77.00	53.80	65.55
0.00	0.00	0.00

12M64121.D MEGAMIX.M Tue Aug 29 17

Analyst: 08/30/2017 14:16 Supervisor: 08/30/2017 14:43

#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64122.D Vial: 3
Acq On : 29 Aug 2017 10:20 am Operator: scb
Sample : WG627620-01 50PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:44:52 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	169492	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.121	136	634658	40.0000	ug/mL	-0.037
6) Acenaphthene-d10	10.932	164	341649	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.546	188	670635	40.0000	ug/mL	-0.048

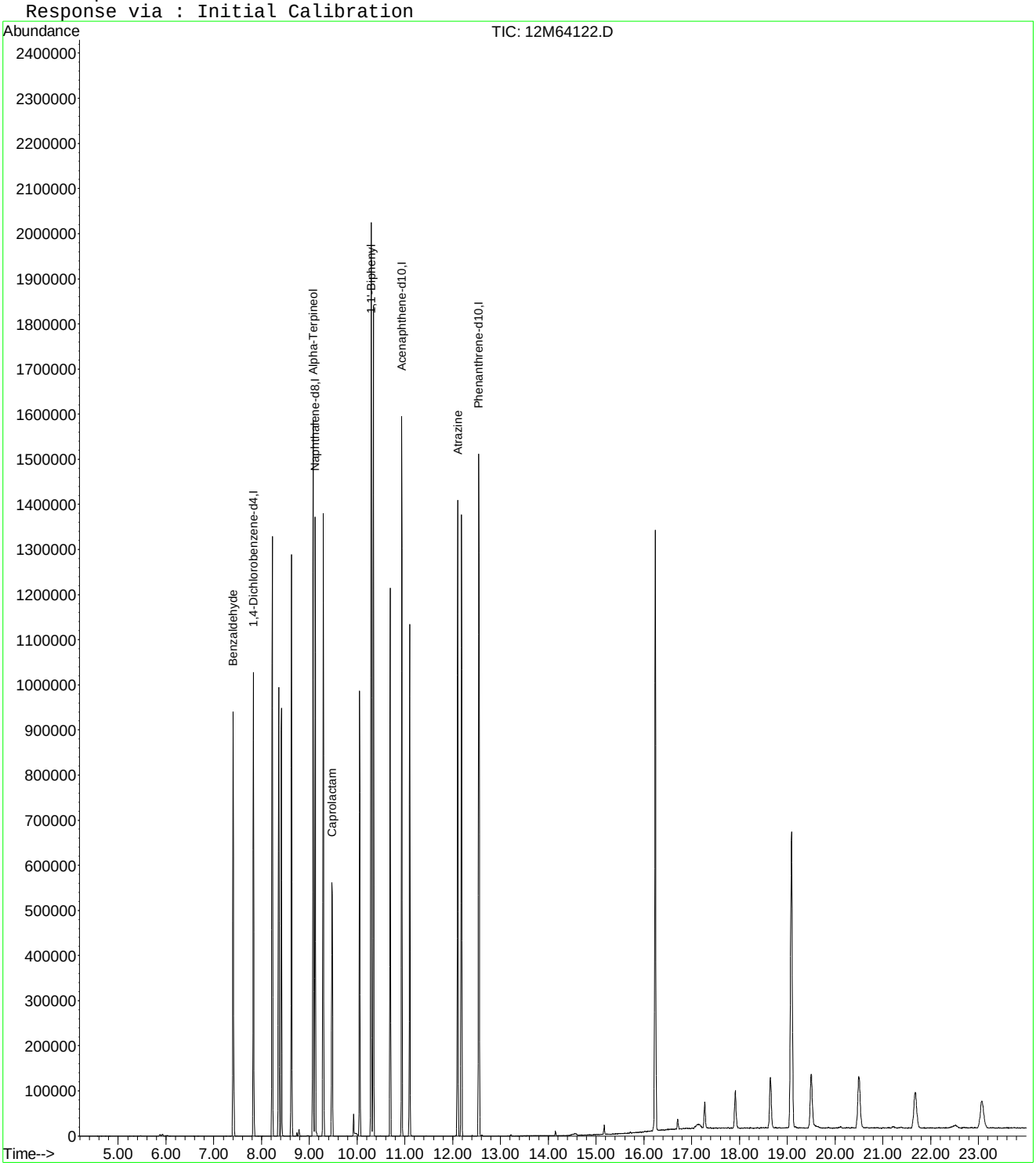
Target Compounds						Qvalue
2) Benzaldehyde	7.41	105	220283	51.8135	ug/L	97
4) Alpha-Terpineol	9.08	59	199515	52.9141	ug/L	97
5) Caprolactam	9.47	55	98412	55.6545	ug/L	94
7) 1,1'-Biphenyl	10.30	154	699957	50.6085	ug/L	99
9) Atrazine	12.10	200	198622	51.7677	ug/L	98

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

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64122.D Vial: 3
Acq On : 29 Aug 2017 10:20 am Operator: scb
Sample : WG627620-01 50PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:44 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64122.D Vial: 3
Acq On : 29 Aug 2017 10:20 am Operator: scb
Sample : WG627620-01 50PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	82	-0.04
2		Benzaldehyde	1.003	1.040	-3.7	85	-0.03
3	I	Naphthalene-d8	1.000	1.000	0.0	84	-0.04
4		Alpha-Terpineol	0.238	0.251	-5.5	88	-0.03
5		Caprolactam	0.111	0.124	-11.7	91	-0.04
6	I	Acenaphthene-d10	1.000	1.000	0.0	82	-0.04
7		1,1'-Biphenyl	1.619	1.639	-1.2	82	-0.03
8	I	Phenanthrene-d10	1.000	1.000	0.0	81	-0.05
9		Atrazine	0.229	0.237	-3.5	82	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
12M64122.D TCL.M Tue Aug 29 10:45:10 2017 Page 1

Evaluate Continuing Calibration Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64122.D Vial: 3
Acq On : 29 Aug 2017 10:20 am Operator: scb
Sample : WG627620-01 50PPM TCL/A-TERP STD Inst : MSD12
Misc : 1,1 STD81291 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Multiple Level Calibration

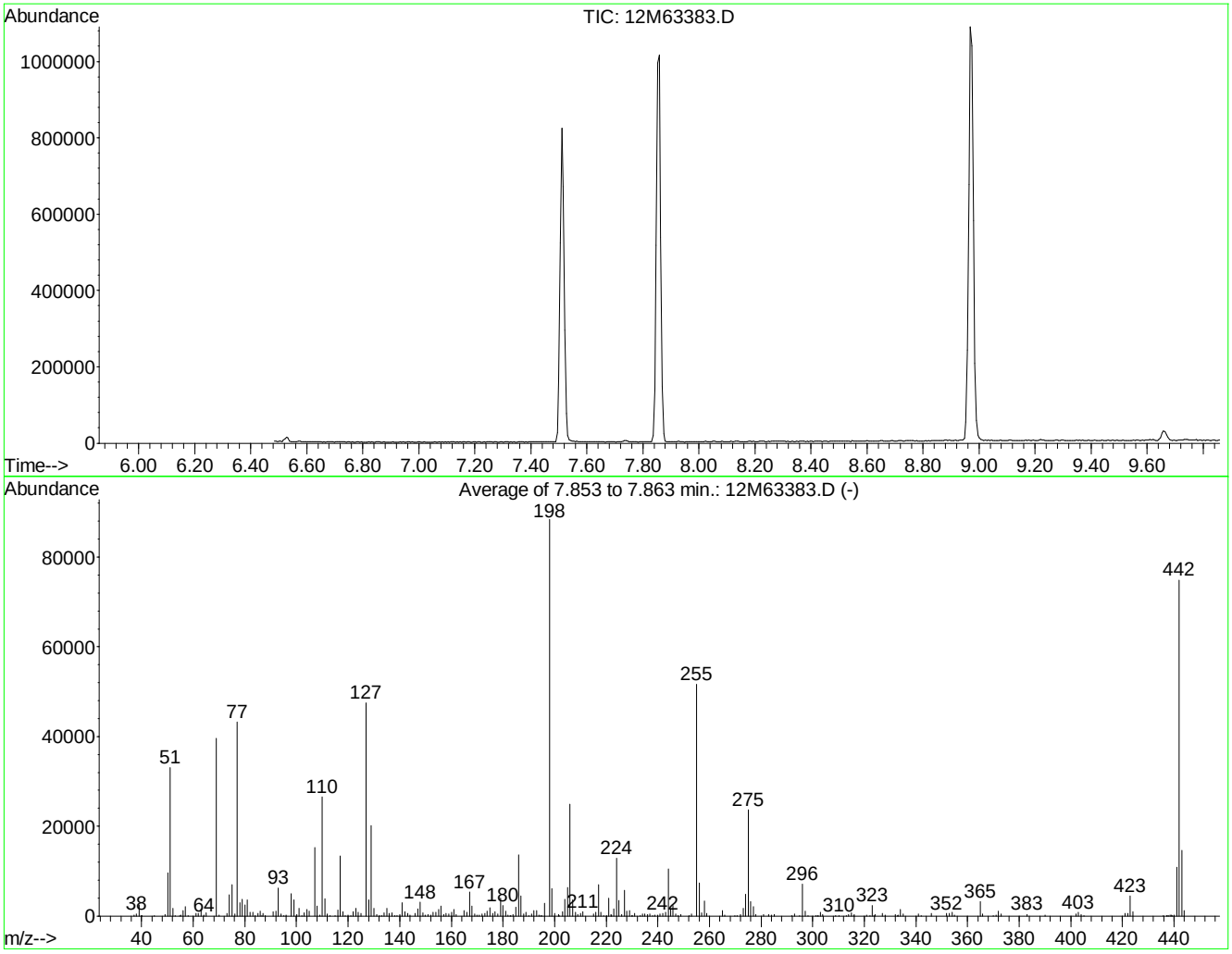
Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	82	-0.04
2		Benzaldehyde	50.000	51.814	-3.6	85	-0.03
3	I	Naphthalene-d8	40.000	40.000	0.0	84	-0.04
4		Alpha-Terpineol	50.000	52.914	-5.8	88	-0.03
5		Caprolactam	50.000	55.654	-11.3	91	-0.04
6	I	Acenaphthene-d10	40.000	40.000	0.0	82	-0.04
7		1,1'-Biphenyl	50.000	50.608	-1.2	82	-0.03
8	I	Phenanthrene-d10	40.000	40.000	0.0	81	-0.05
9		Atrazine	50.000	51.768	-3.5	82	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
12M64122.D TCL.M Tue Aug 29 10:45:09 2017 Page 1

2.2.1.5 Raw QC Data

Data File : I:\MSDCHEM\1\DATA\071417\12M63383.D Vial: 1
Acq On : 14 Jul 2017 4:06 pm Operator: SCB
Sample : WG621882-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP



AutoFind: Scans 257, 258, 259; Background Corrected with Scan 251

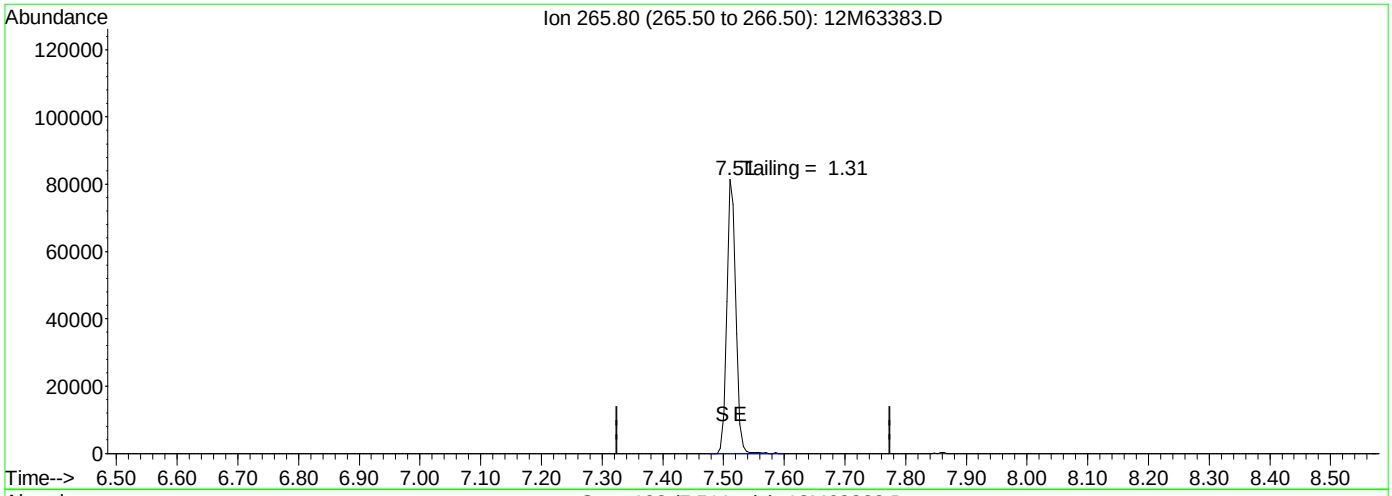
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.3	33025	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.8	39589	PASS
70	69	0.00	2	0.4	152	PASS
127	198	40	60	53.6	47445	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	88442	PASS
199	198	5	9	6.8	6044	PASS
275	198	10	30	26.7	23635	PASS
365	198	1	100	3.6	3201	PASS
441	443	0.01	100	74.5	10879	PASS
442	198	40	100	84.7	74920	PASS
443	442	17	23	19.5	14603	PASS

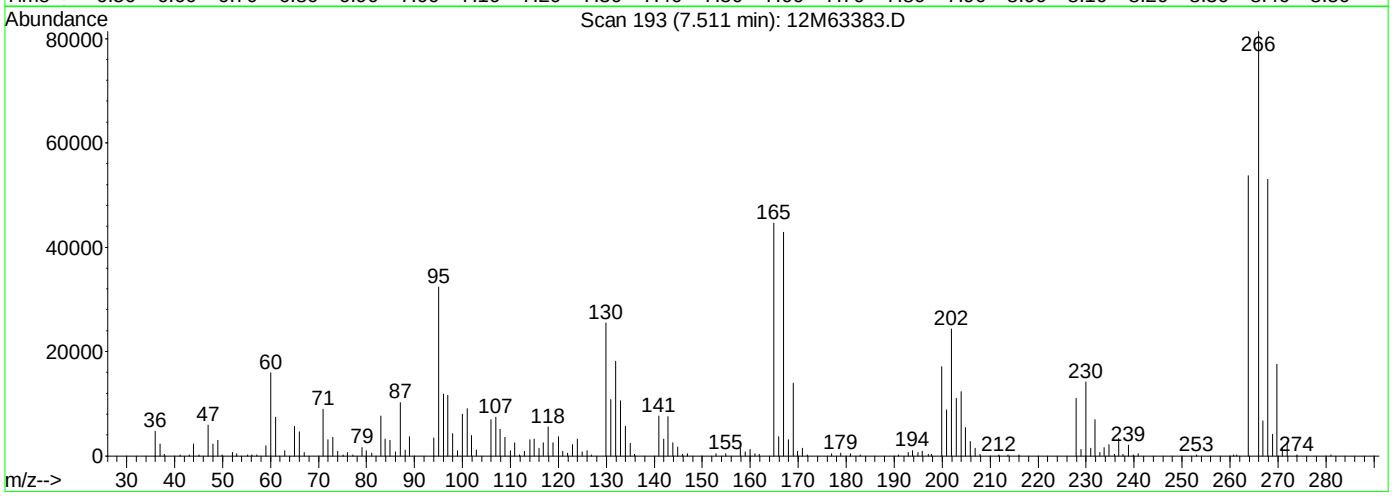
12M63383.D DFTPP.M Mon Jul 17 11:03:05 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\071417\12M63383.D Vial: 1
Acq On : 14 Jul 2017 4:06 pm Operator: SCB
Sample : WG621882-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 14 16:17 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M63383.D

(1) Pentachlorophenol

7.51min 0.00ug/ml

response 84234

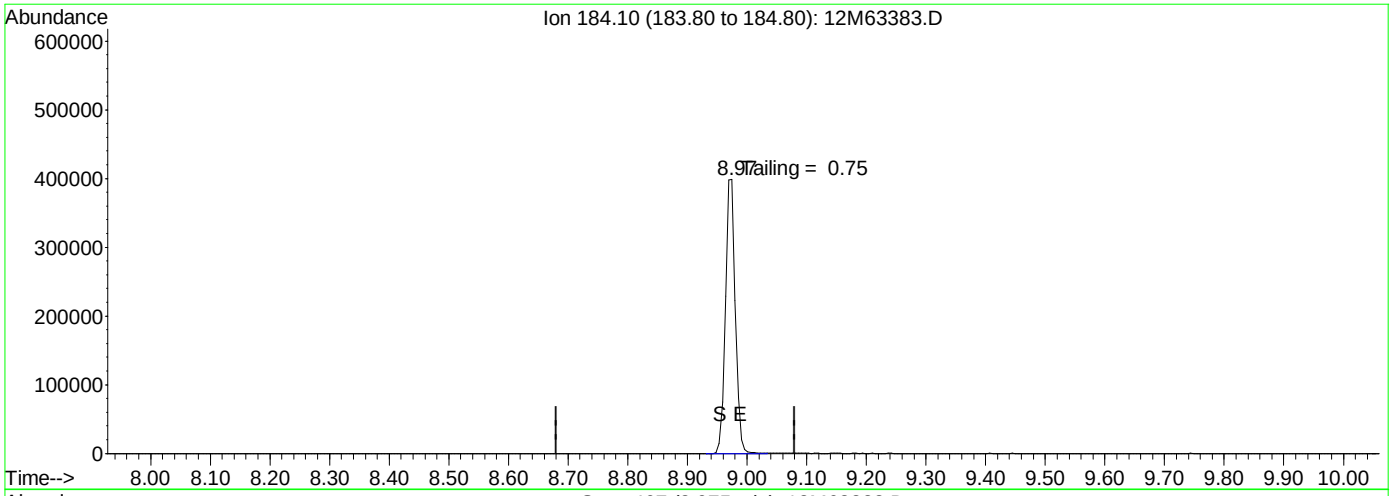
Ion	Exp%	Act%
265.80	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

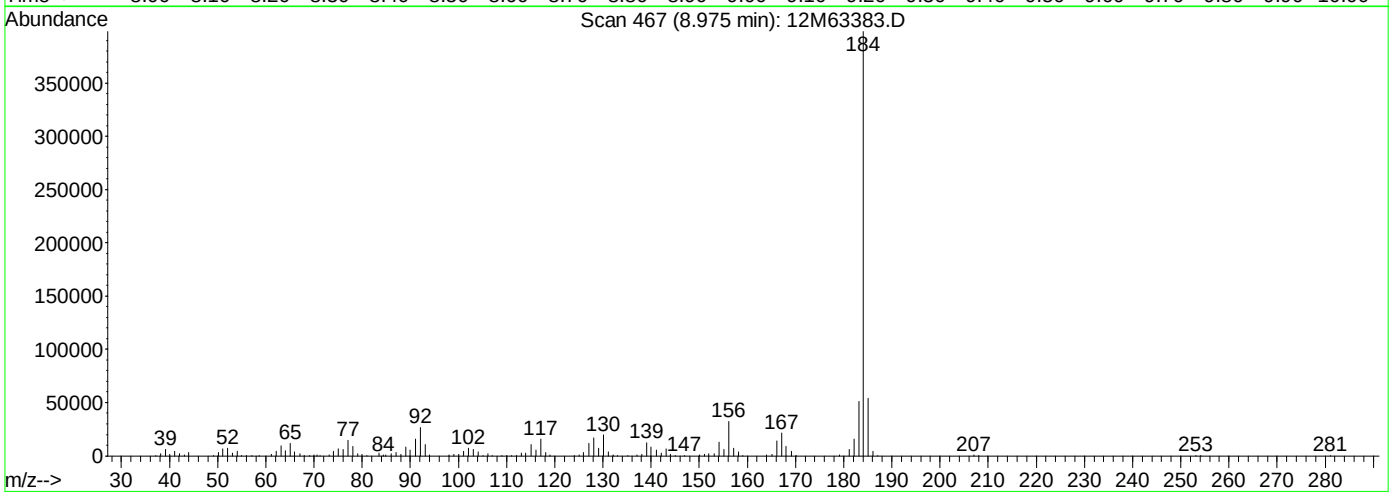
12M63383.D DFTPP.M Mon Jul 17 11:03:19 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\071417\12M63383.D Vial: 1
Acq On : 14 Jul 2017 4:06 pm Operator: SCB
Sample : WG621882-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 14 16:17 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M63383.D

(2) Benzidine

8.97min 0.00ug/ml

response 467165

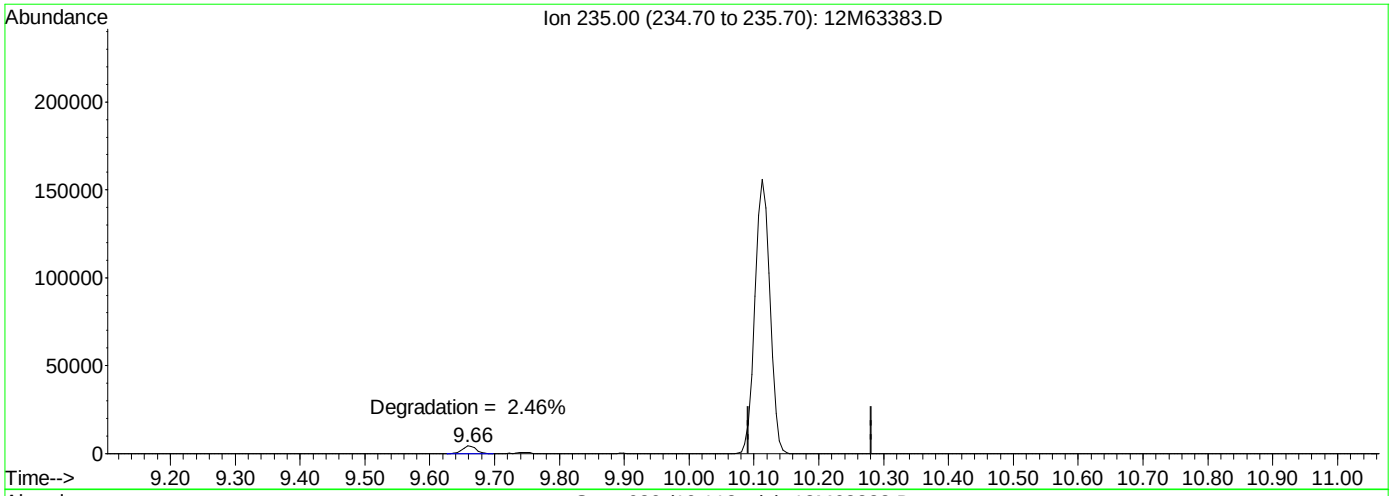
Ion	Exp%	Act%
184.10	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

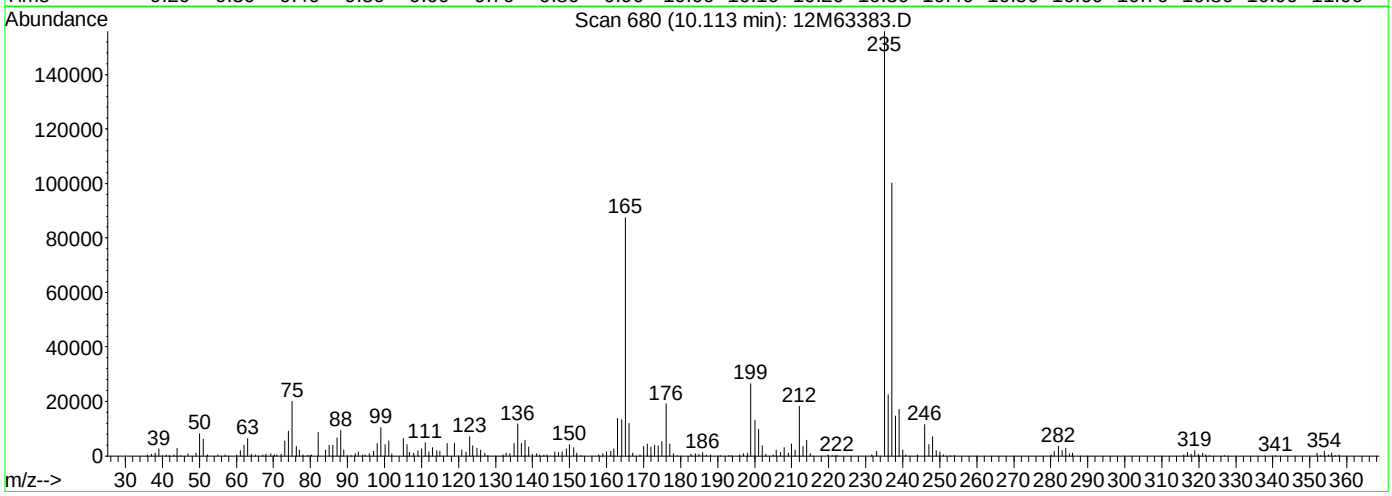
12M63383.D DFTPP.M Mon Jul 17 11:03:29 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\071417\12M63383.D Vial: 1
Acq On : 14 Jul 2017 4:06 pm Operator: SCB
Sample : WG621882-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 14 16:17 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M63383.D

(3) DDT

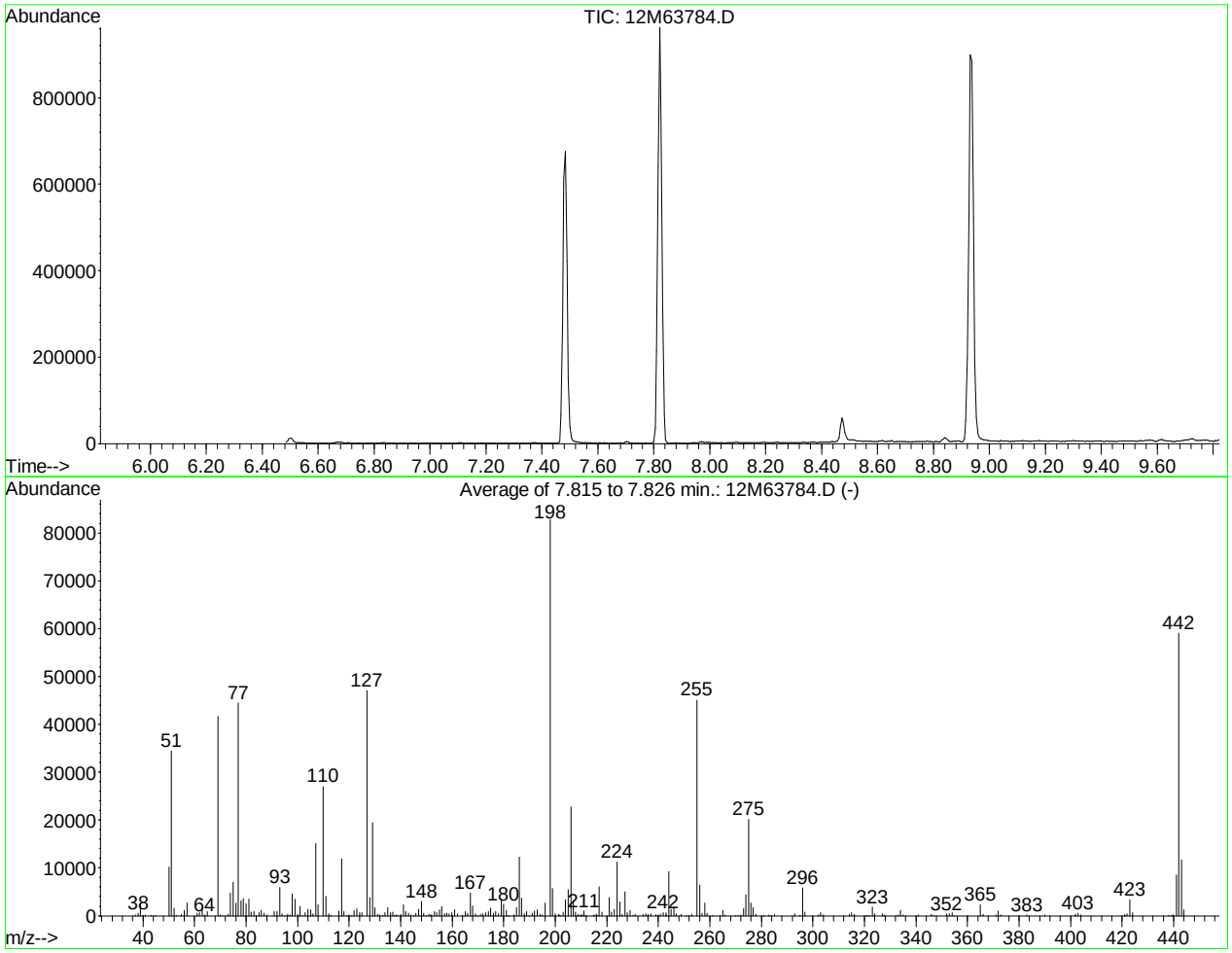
10.11min 0.00ug/ml

response 198949

Ion	Exp%	Act%
235.00	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

12M63383.D DFTPP.M Mon Jul 17 11:03:40 2017

Data File : I:\MSDCHEM\1\DATA\080317\12M63784.D Vial: 1
Acq On : 3 Aug 2017 9:00 am Operator: MES
Sample : WG624321-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP



AutoFind: Scans 250, 251, 252; Background Corrected with Scan 244

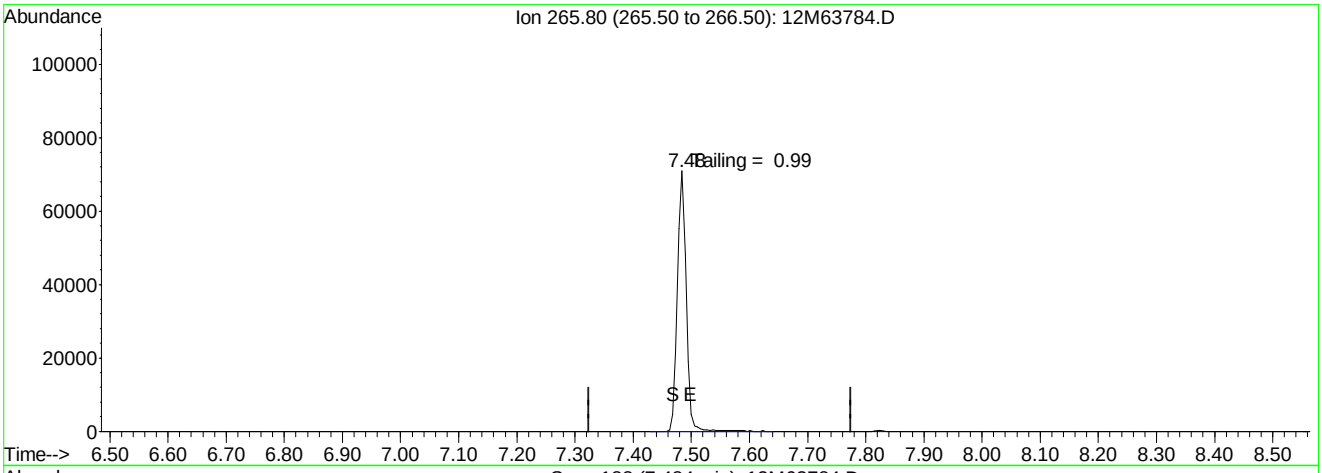
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	41.7	34533	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	50.4	41696	PASS
70	69	0.00	2	0.5	219	PASS
127	198	40	60	56.8	47008	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	82792	PASS
199	198	5	9	6.8	5652	PASS
275	198	10	30	24.4	20210	PASS
365	198	1	100	2.7	2252	PASS
441	443	0.01	100	72.7	8540	PASS
442	198	40	100	71.3	59042	PASS
443	442	17	23	19.9	11743	PASS

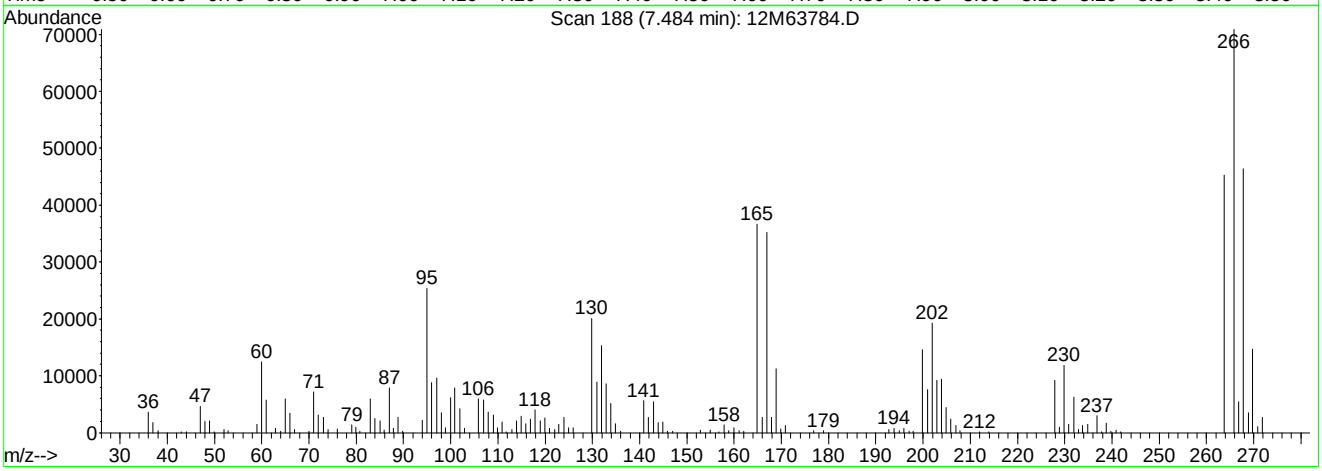
12M63784.D DFTPP.M Thu Aug 03 09:16:11 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63784.D Vial: 1
Acq On : 3 Aug 2017 9:00 am Operator: MES
Sample : WG624321-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 9:16 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M63784.D

(1) Pentachlorophenol

7.48min 0.00ug/ml

response 73992

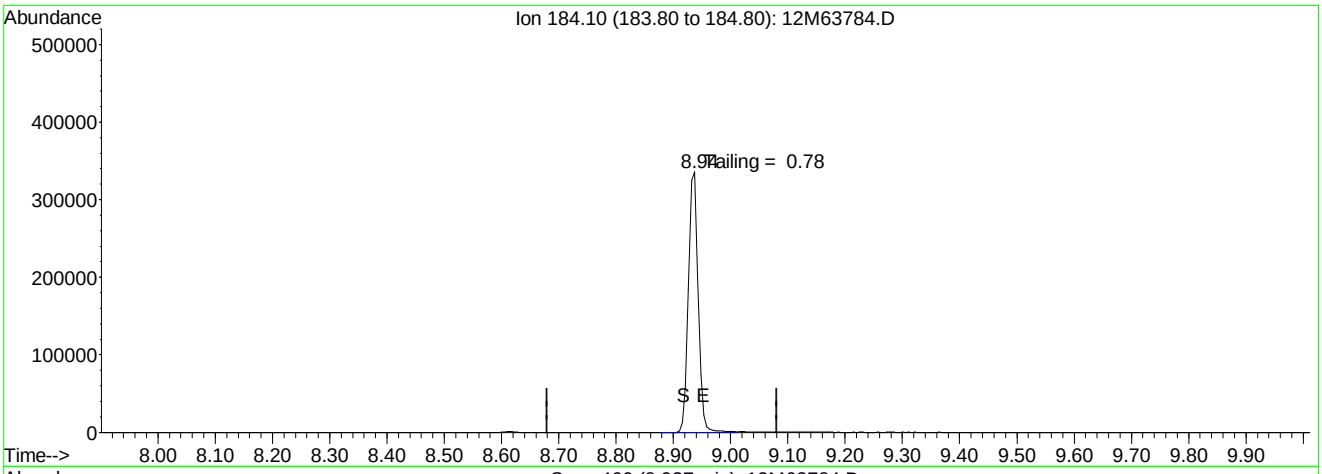
Ion	Exp%	Act%
265.80	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

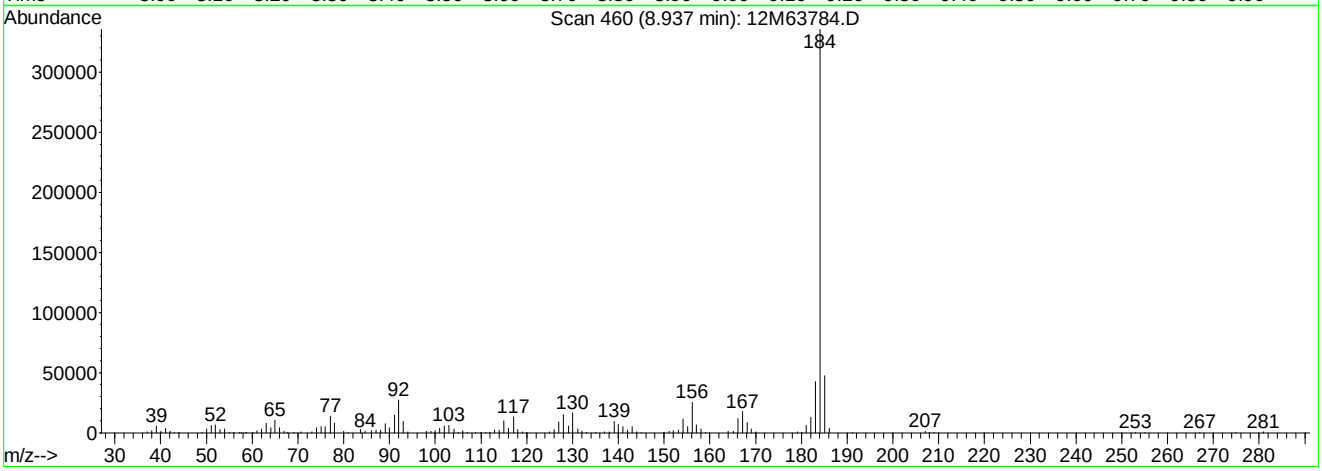
12M63784.D DFTPP.M Thu Aug 03 09:16:22 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63784.D Vial: 1
Acq On : 3 Aug 2017 9:00 am Operator: MES
Sample : WG624321-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 9:16 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M63784.D

(2) Benzidine

8.94min 0.00ug/ml

response 397912

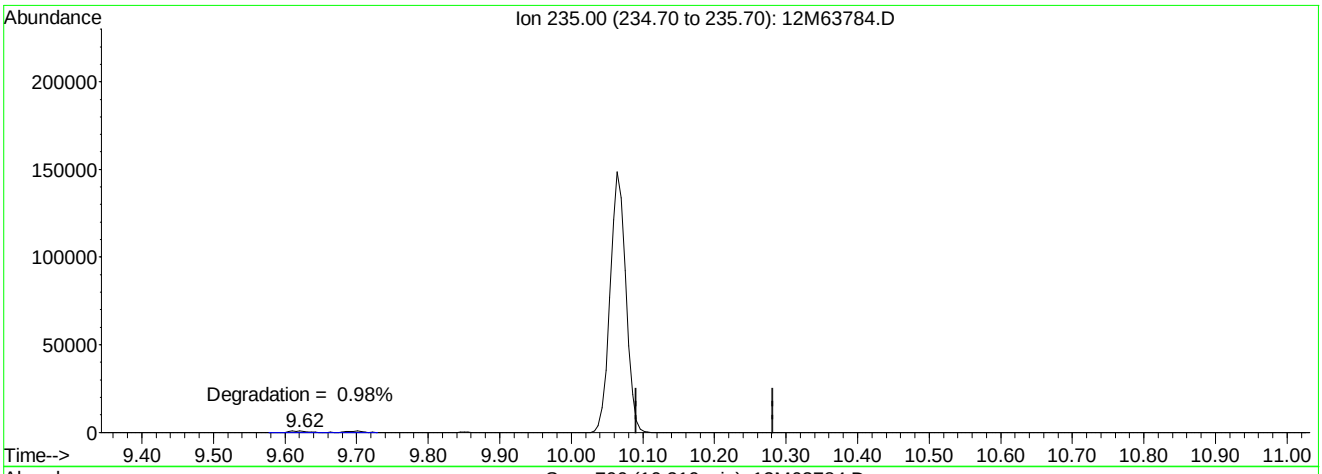
Ion	Exp%	Act%
184.10	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

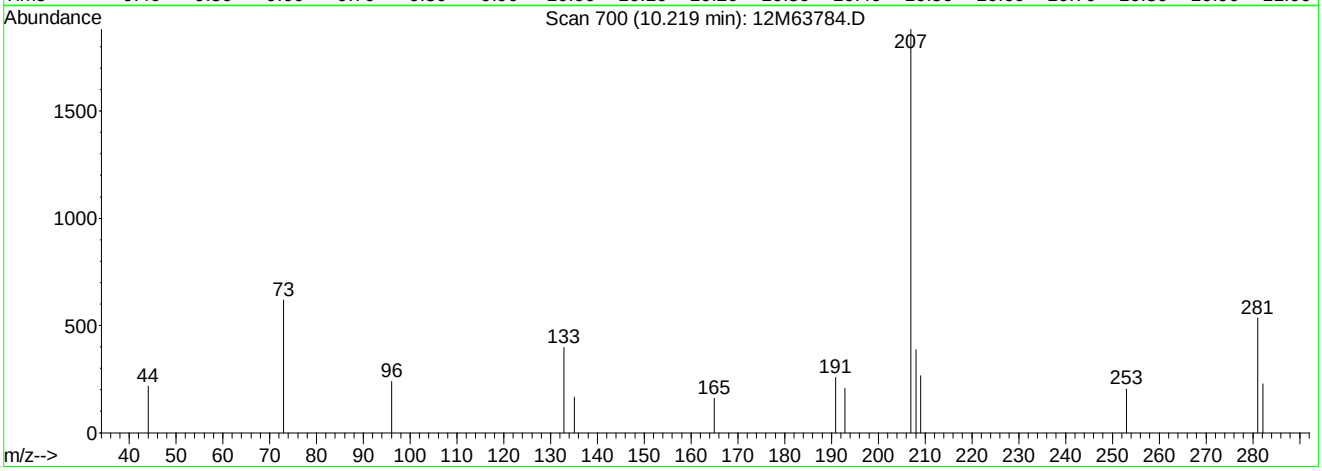
12M63784.D DFTPP.M Thu Aug 03 09:16:32 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\080317\12M63784.D Vial: 1
Acq On : 3 Aug 2017 9:00 am Operator: MES
Sample : WG624321-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD80383 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 3 9:16 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M63784.D

(3) DDT

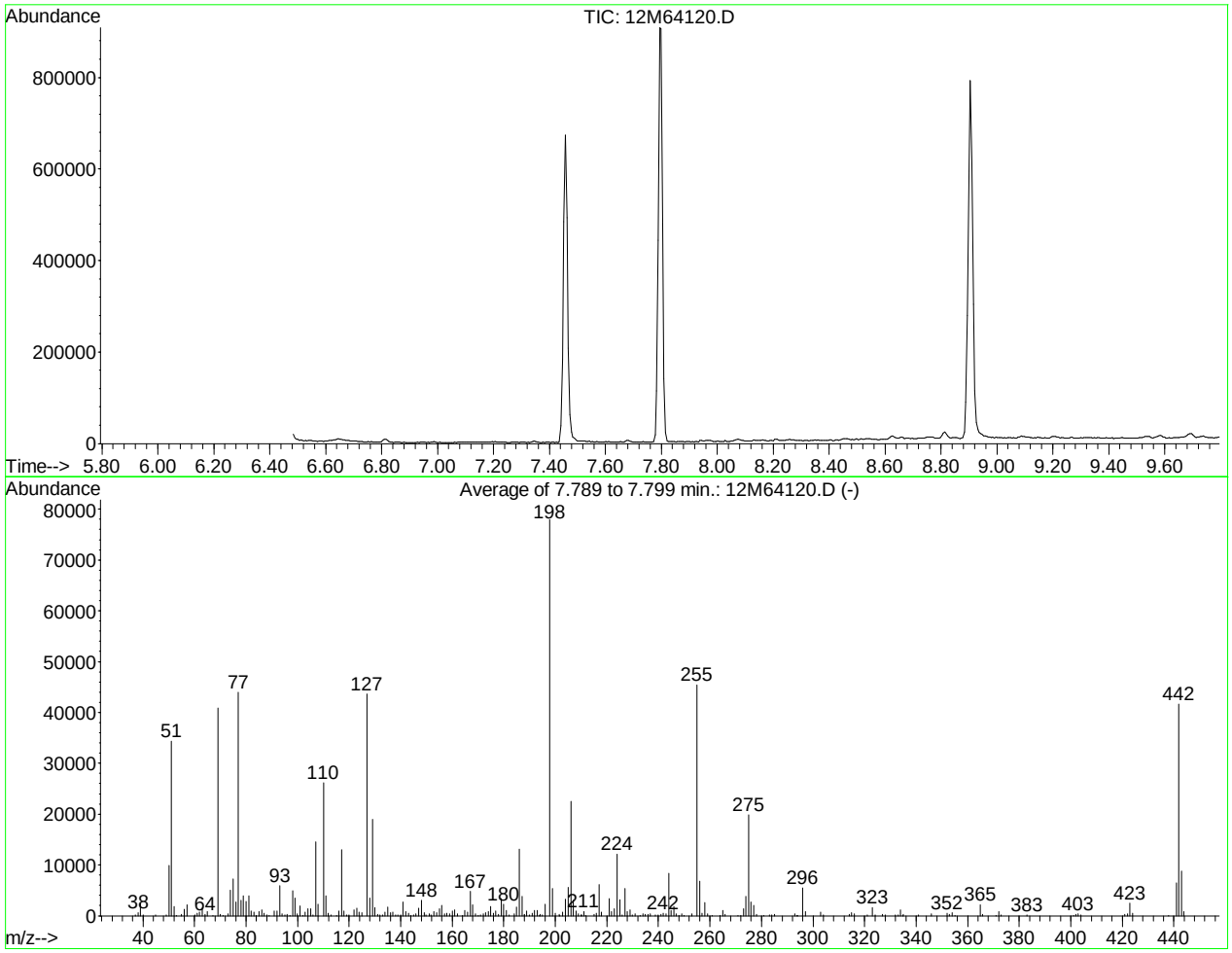
10.22min 0.00ug/ml

response 0

Ion	Exp%	Act%
235.00	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

12M63784.D DFTPP.M Thu Aug 03 09:16:42 2017

Data File : I:\MSDCHEM\1\DATA\082917\12M64120.D Vial: 1
Acq On : 29 Aug 2017 9:29 am Operator: scb
Sample : WG627594-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP



AutoFind: Scans 245, 246, 247; Background Corrected with Scan 240

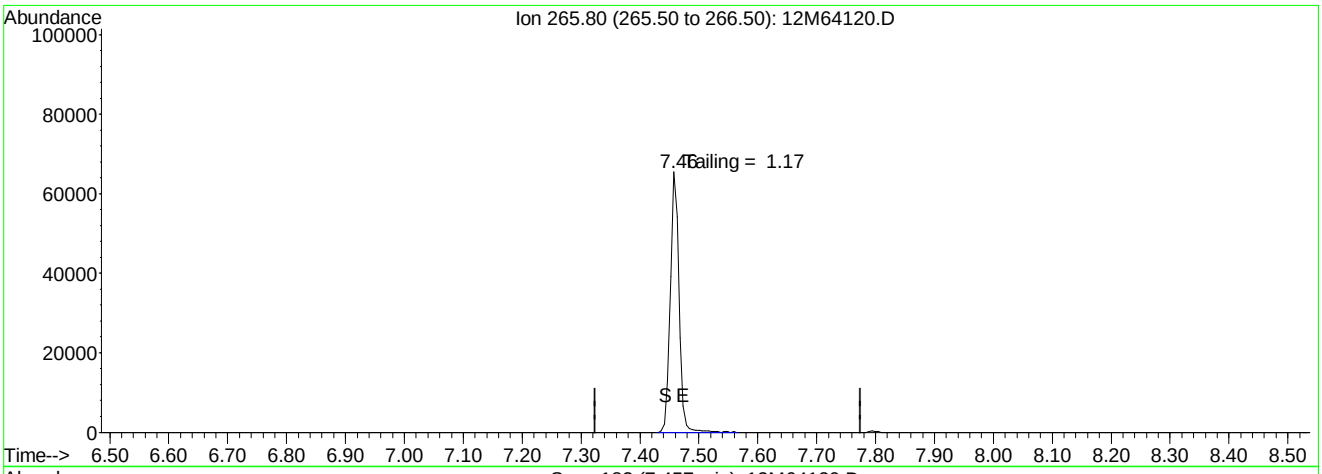
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	44.0	34301	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	52.5	40898	PASS
70	69	0.00	2	0.7	290	PASS
127	198	40	60	55.9	43610	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	77960	PASS
199	198	5	9	6.9	5385	PASS
275	198	10	30	25.5	19902	PASS
365	198	1	100	2.8	2204	PASS
441	443	0.01	100	74.0	6514	PASS
442	198	40	100	53.5	41683	PASS
443	442	17	23	21.1	8803	PASS

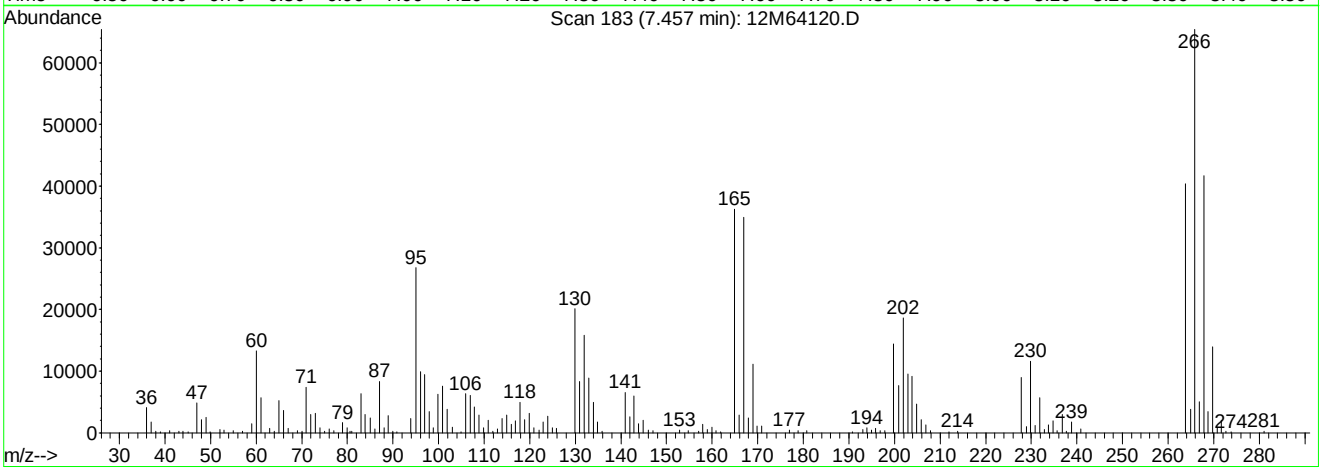
12M64120.D DFTPP.M Wed Aug 30 08:55:14 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\082917\12M64120.D Vial: 1
Acq On : 29 Aug 2017 9:29 am Operator: scb
Sample : WG627594-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:41 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M64120.D

(1) Pentachlorophenol

7.46min 0.00ug/ml

response 67543

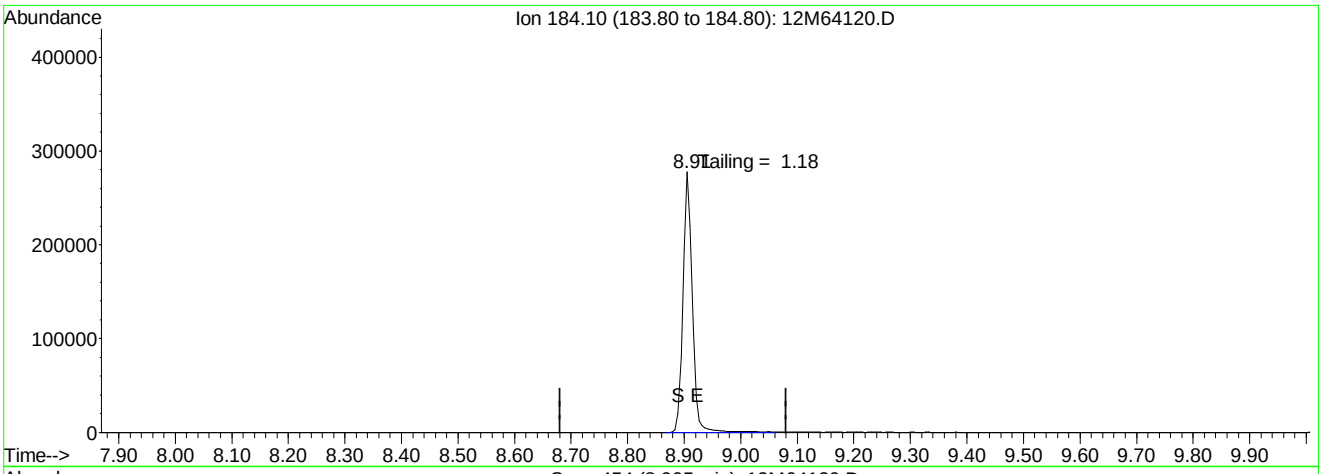
Ion	Exp%	Act%
265.80	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

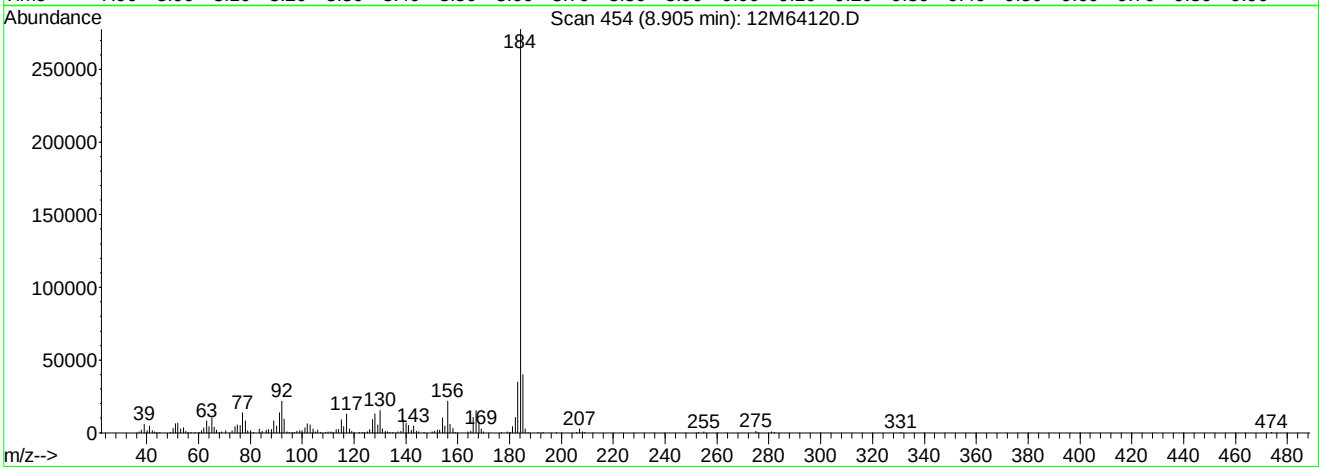
12M64120.D DFTPP.M Wed Aug 30 08:55:25 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\082917\12M64120.D Vial: 1
Acq On : 29 Aug 2017 9:29 am Operator: scb
Sample : WG627594-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:41 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M64120.D

(2) Benzidine

8.91min 0.00ug/ml

response 316172

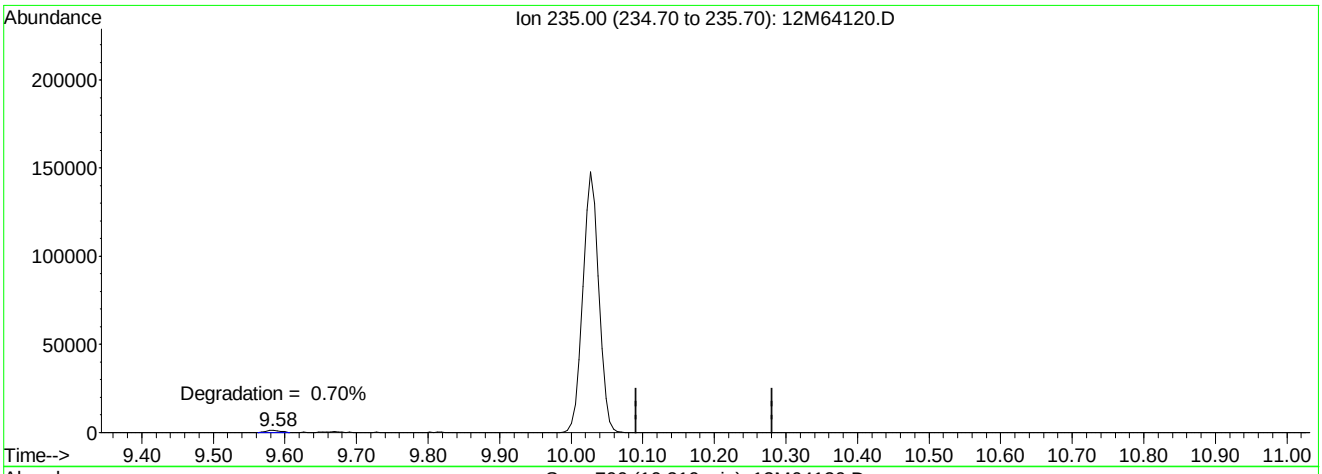
Ion	Exp%	Act%
184.10	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

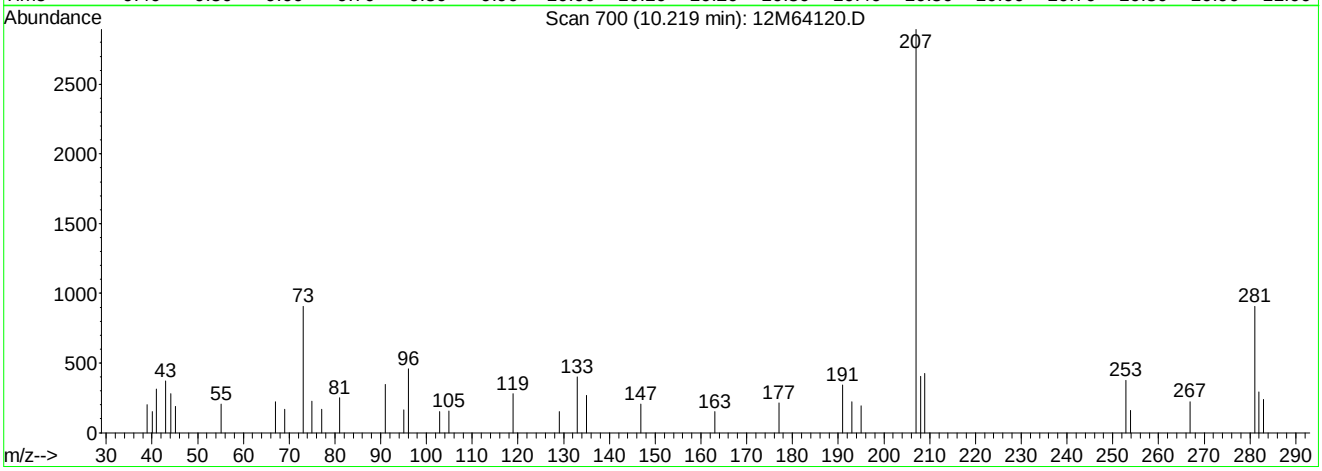
12M64120.D DFTPP.M Wed Aug 30 08:55:34 2017

Quantitation Report (Qedit)

Data File : I:\MSDCHEM\1\DATA\082917\12M64120.D Vial: 1
Acq On : 29 Aug 2017 9:29 am Operator: scb
Sample : WG627594-01 50PPM DFTPP STD Inst : MSD12
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 9:41 2017 Quant Results File: temp.res

Method : I:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Sat Jul 08 10:28:44 2017
Response via : Single Level Calibration





TIC: 12M64120.D

(3) DDT

10.22min 0.00ug/ml

response 0

Ion	Exp%	Act%
235.00	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

12M64120.D DFTPP.M Wed Aug 30 08:55:47 2017

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:53:05 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

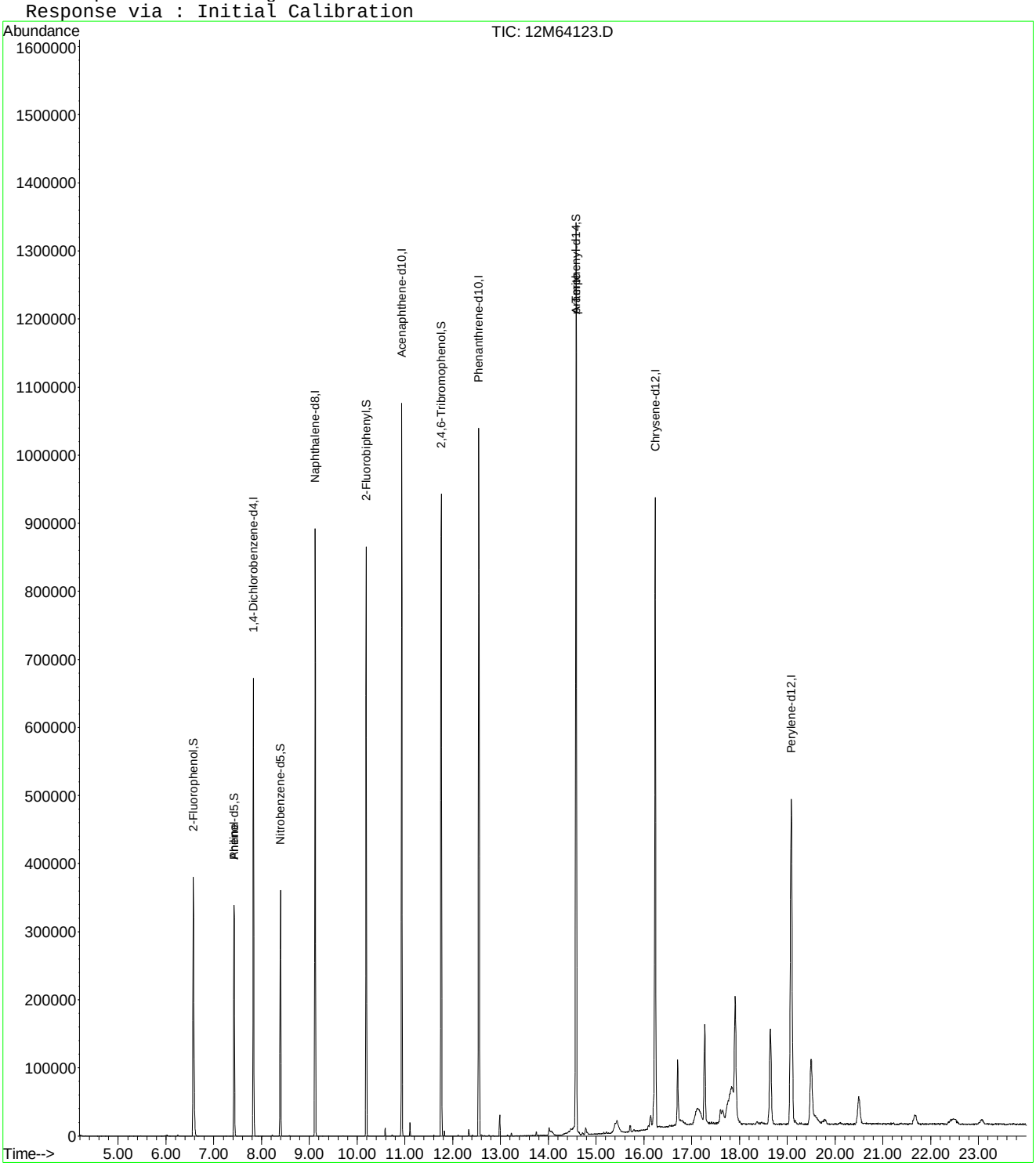
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	119921	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.121	136	449564	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.932	164	244750	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.546	188	481544	40.0000	ug/ml	-0.011
113) Chrysene-d12	16.237	240	480285	40.0000	ug/ml	-0.011
128) Perylene-d12	19.085	264	469558	40.0000	ug/ml	-0.016
System Monitoring Compounds						
8) 2-Fluorophenol	6.573	112	149533	40.9431110	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 40.94%			
12) Phenol-d5	7.423	99	131939	28.2567150	ug/ml	-0.01
Spiked Amount 100.000	Range 10 - 94		Recovery = 28.26%			
31) Nitrobenzene-d5	8.395	82	131221	29.2491932	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 58.50%			
59) 2-Fluorobiphenyl	10.190	172	283451	33.3577601	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 66.72%			
86) 2,4,6-Tribromophenol	11.760	330	121954	94.6025450	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 94.60%			
117) p-Terphenyl-d14	14.581	244	593025	57.3550881	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 114.71%			
Target Compounds						Qvalue
11) Aniline	7.43	66	8074	3.3221	ug/ml#	1
116) Aramite	14.59	185	1525	1.6595	ug/ml#	34

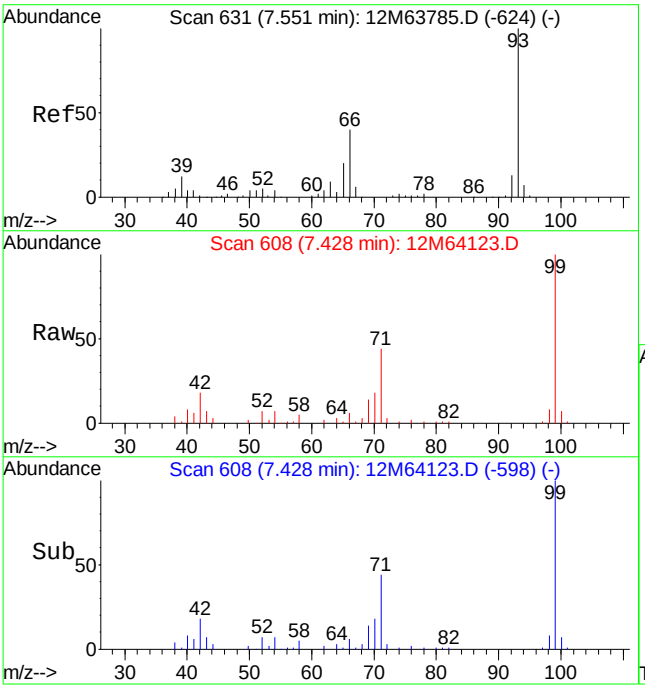
(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64123.D MEGAMIX.M Wed Aug 30 11:53:06 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:53 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration

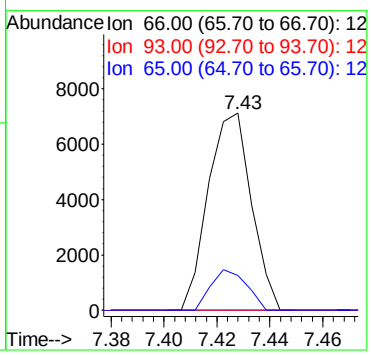


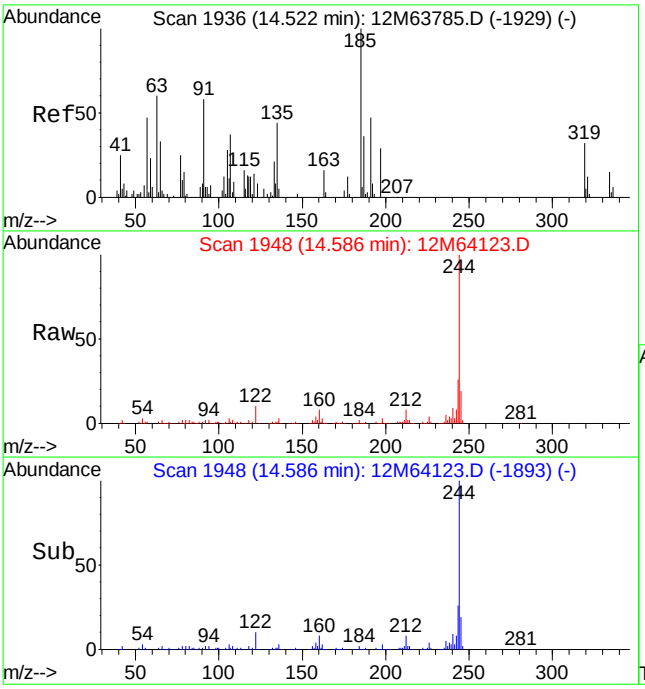


#11
Aniline
Concen: 3.3221 ug/ml
RT: 7.43 min Scan# 608
Delta R.T. -0.10 min
Lab File: 12M64123.D
Acq: 29 Aug 2017 10:52 am

Tgt Ion: 66 Resp: 8074

Ion	Ratio	Lower	Upper
66	100		
93	0.0	231.9	541.1#
65	17.0	48.5	113.1#

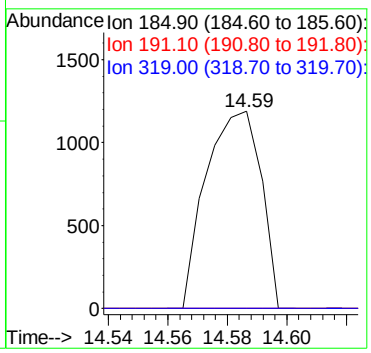




#116
Aramite
Concen: 1.6595 ug/ml
RT: 14.59 min Scan# 1948
Delta R.T. 0.10 min
Lab File: 12M64123.D
Acq: 29 Aug 2017 10:52 am

Tgt Ion:185 Resp: 1525

Ion	Ratio	Lower	Upper
185	100		
191	0.0	38.6	57.8#
319	0.0	25.8	38.6#



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:53:53 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	119921	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.121	136	449564	40.0000	ug/mL	-0.037
6) Acenaphthene-d10	10.932	164	244750	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.546	188	481544	40.0000	ug/mL	-0.048

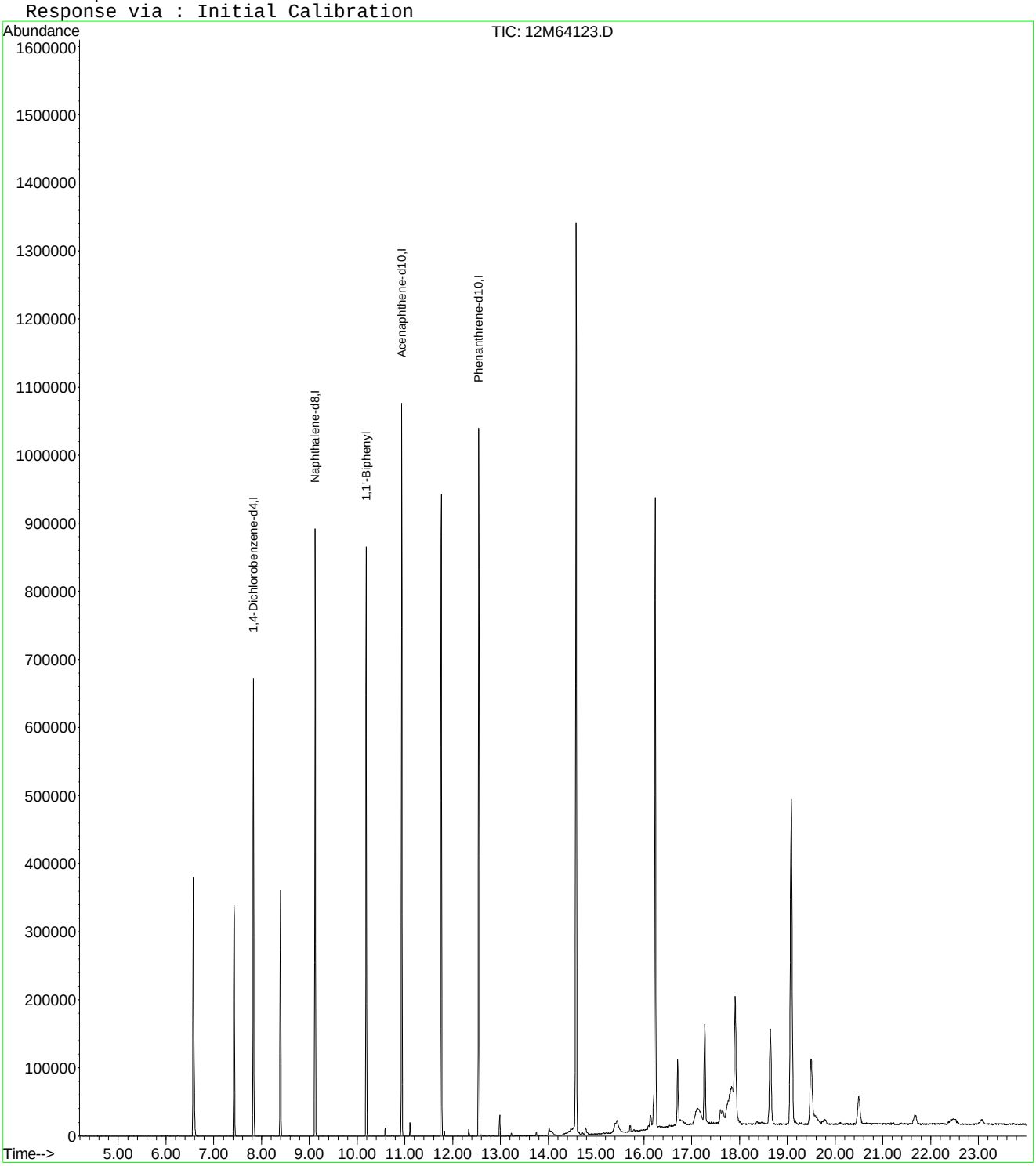
Target Compounds						Qvalue
7) 1,1'-Biphenyl	10.19	154	209	0.0211	ug/L	# 1

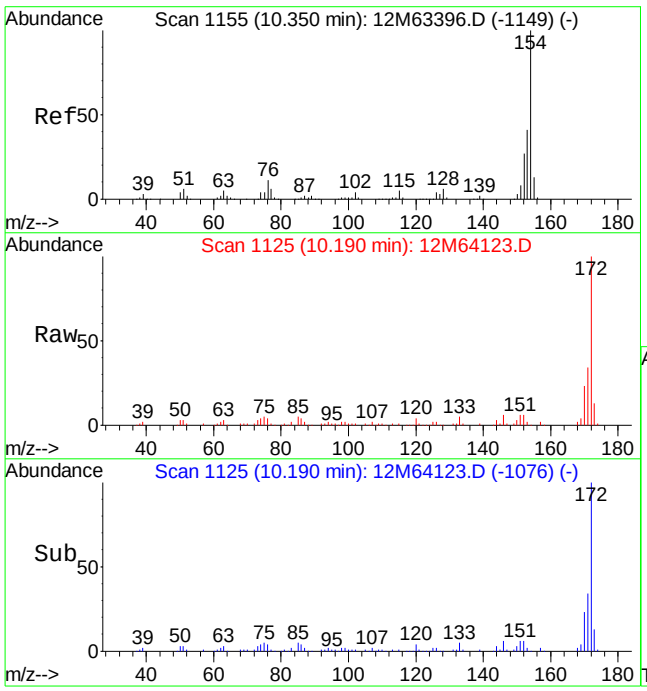
(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64123.D TCL.M Wed Aug 30 11:53:54 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:53 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration

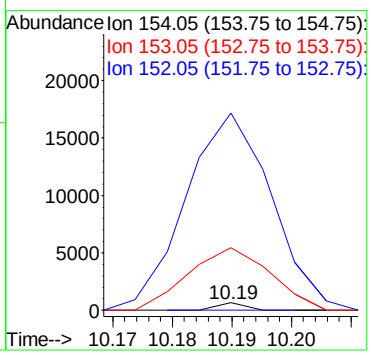




#7
1,1'-Biphenyl
Concen: 0.0211 ug/L
RT: 10.19 min Scan# 1125
Delta R.T. -0.14 min
Lab File: 12M64123.D
Acq: 29 Aug 2017 10:52 am

Tgt Ion:154 Resp: 209

Ion	Ratio	Lower	Upper
154	100		
153	2507.2	32.8	49.2#
152	8257.9	21.4	32.2#



LSC Area Percent Report

Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

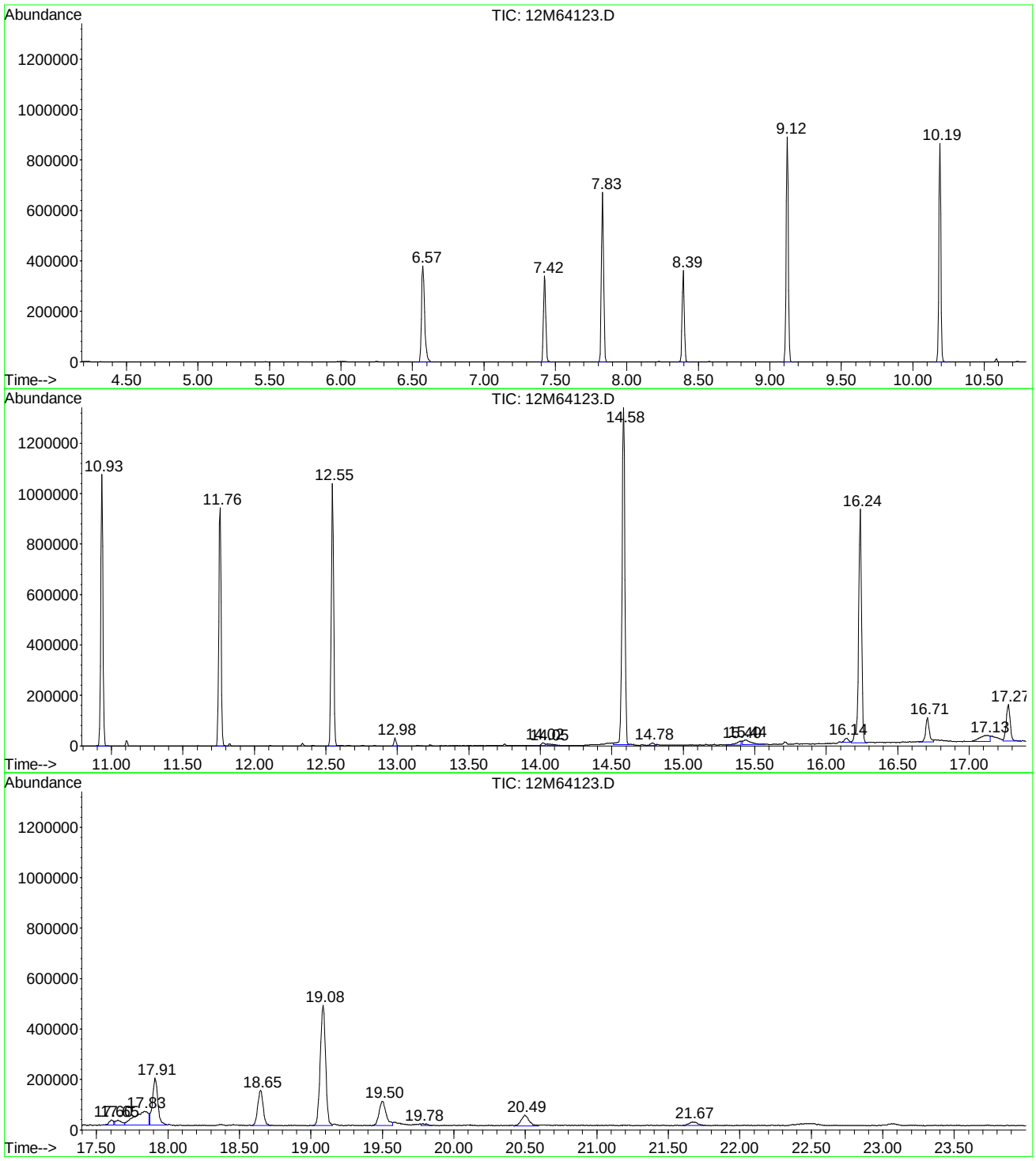
If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	6.573	442	448	460	rBB	380658	547983	30.05%	3.841%
2	7.423	602	607	616	rBB	339435	382105	20.95%	2.678%
3	7.829	677	683	690	rBB	672710	737991	40.47%	5.172%
4	8.395	781	789	796	rBB	361094	377549	20.70%	2.646%
5	9.121	919	925	932	rBB	892099	925173	50.73%	6.484%
6	10.190	1119	1125	1133	rBB	865463	834403	45.76%	5.848%
7	10.932	1256	1264	1271	rBB	1076460	1094593	60.02%	7.672%
8	11.760	1413	1419	1427	rBB	943307	1065434	58.42%	7.467%
9	12.546	1559	1566	1573	rBV	1039816	1209761	66.34%	8.479%
10	12.984	1644	1648	1653	rBB	31030	29233	1.60%	0.205%
11	14.020	1828	1842	1845	rBV3	12031	20473	1.12%	0.143%
12	14.052	1847	1848	1866	rVB3	7165	20333	1.11%	0.143%
13	14.581	1934	1947	1955	rVB	1336535	1823624	100.00%	12.781%
14	14.784	1979	1985	1990	rBV4	10479	18809	1.03%	0.132%
15	15.398	2082	2100	2101	rBV5	15478	38038	2.09%	0.267%
16	15.436	2103	2107	2131	rVB4	17638	65889	3.61%	0.462%
17	16.141	2232	2239	2244	rBV5	16445	33257	1.82%	0.233%
18	16.237	2245	2257	2265	rVB	925855	1359825	74.57%	9.531%
19	16.707	2334	2345	2353	rBV2	97394	167662	9.19%	1.175%
20	17.129	2403	2424	2427	rBV8	24275	117608	6.45%	0.824%
21	17.274	2444	2451	2466	rVB	144796	274333	15.04%	1.923%
22	17.605	2504	2513	2516	rBV5	20194	42334	2.32%	0.297%
23	17.648	2517	2521	2530	rVV6	19512	57131	3.13%	0.400%
24	17.835	2530	2556	2562	rVV6	53254	366646	20.11%	2.570%
25	17.909	2563	2570	2586	rVB	185601	475302	26.06%	3.331%
26	18.647	2697	2708	2721	rVB2	140594	368970	20.23%	2.586%
27	19.085	2777	2790	2802	rBV2	478131	1242945	68.16%	8.711%
28	19.501	2855	2868	2881	rBV3	96513	333483	18.29%	2.337%
29	19.779	2918	2920	2932	rVB8	8136	20208	1.11%	0.142%
30	20.495	3040	3054	3072	rBV4	41826	155028	8.50%	1.087%
31	21.670	3261	3274	3289	rVB10	14203	61794	3.39%	0.433%

Sum of corrected areas: 14267917

```
File       : I:\MSDCHEM\1\DATA\082917\12M64123.D
Operator   : scb
Acquired   : 29 Aug 2017  10:52 am using AcqMethod BNARUN
Instrument :   MSD12
Sample Name: WG627291-01 BLANK 8/28
Misc Info  : 1,1
Vial Number: 4
Quant File :MEGAMIX.RES (RTE Integrator)
```



Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

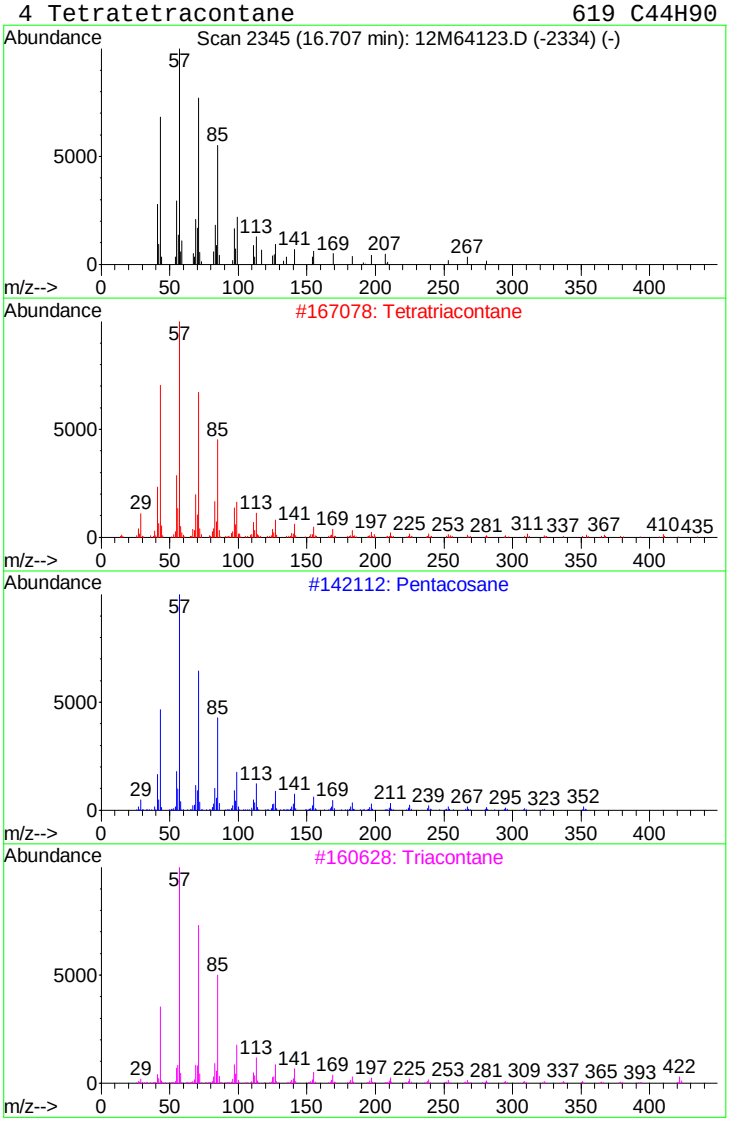
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

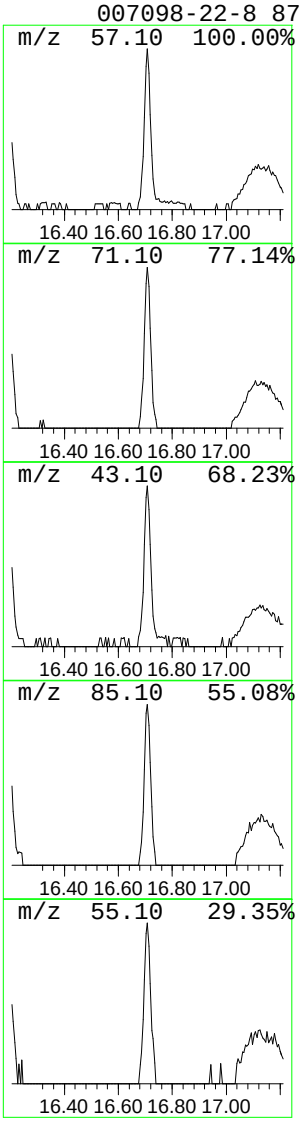
****

Peak Number 1 Tetratriacontane Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.71	4.93 ug/ml	167662	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetratriacontane	479	C34H70	014167-59-0	90
2	Pentacosane	352	C25H52	000629-99-2	90
3	Triacontane	422	C30H62	000638-68-6	87
4	Tetratetracontane	619	C44H90	007098-22-8	87





Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

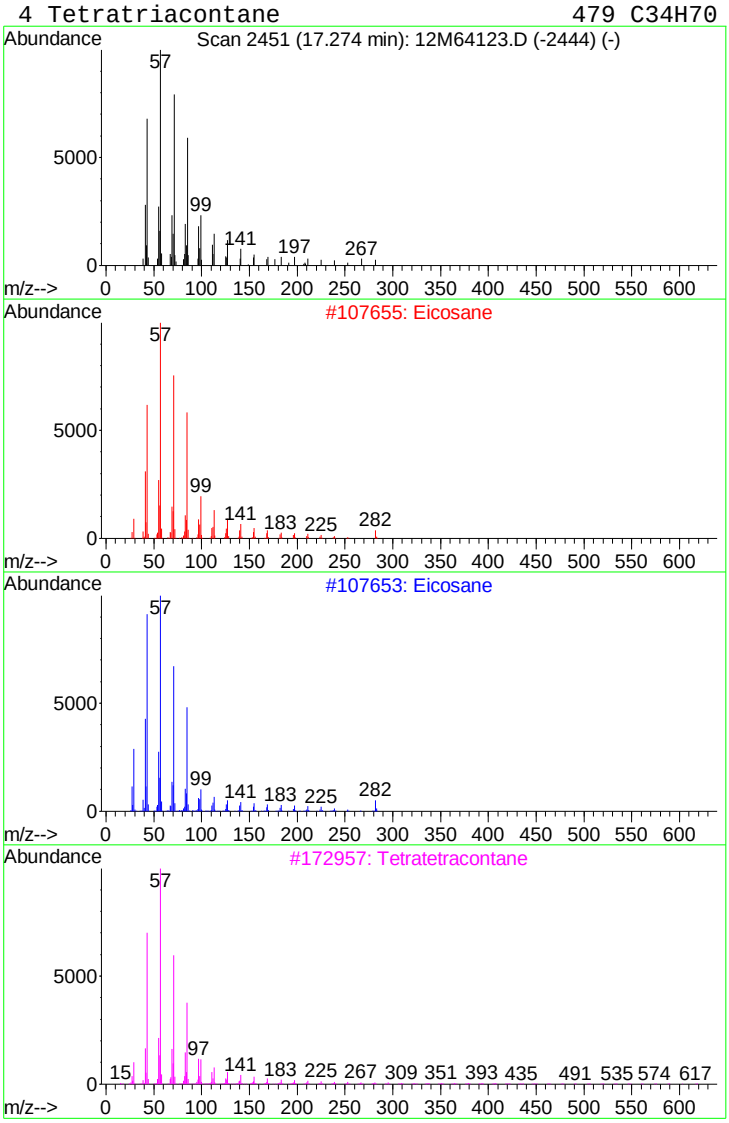
Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

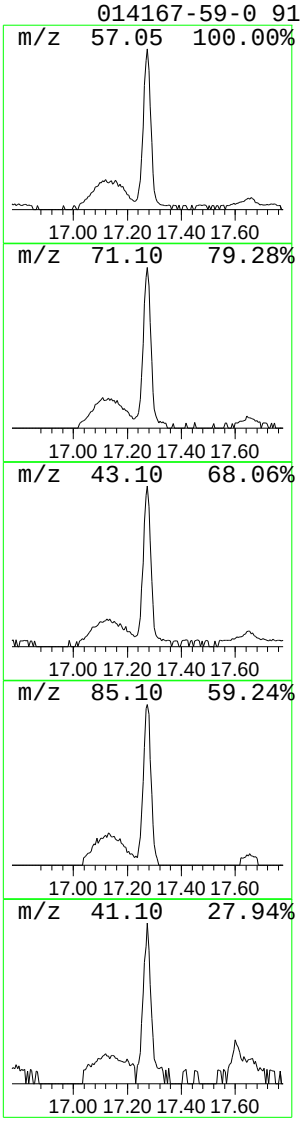
****

Peak Number 2 Eicosane Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.27	8.07 ug/ml	274333	Chrysene-d12	16.24

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	96
2	Eicosane	282	C20H42	000112-95-8	95
3	Tetratetracontane	619	C44H90	007098-22-8	91
4	Tetratriacontane	479	C34H70	014167-59-0	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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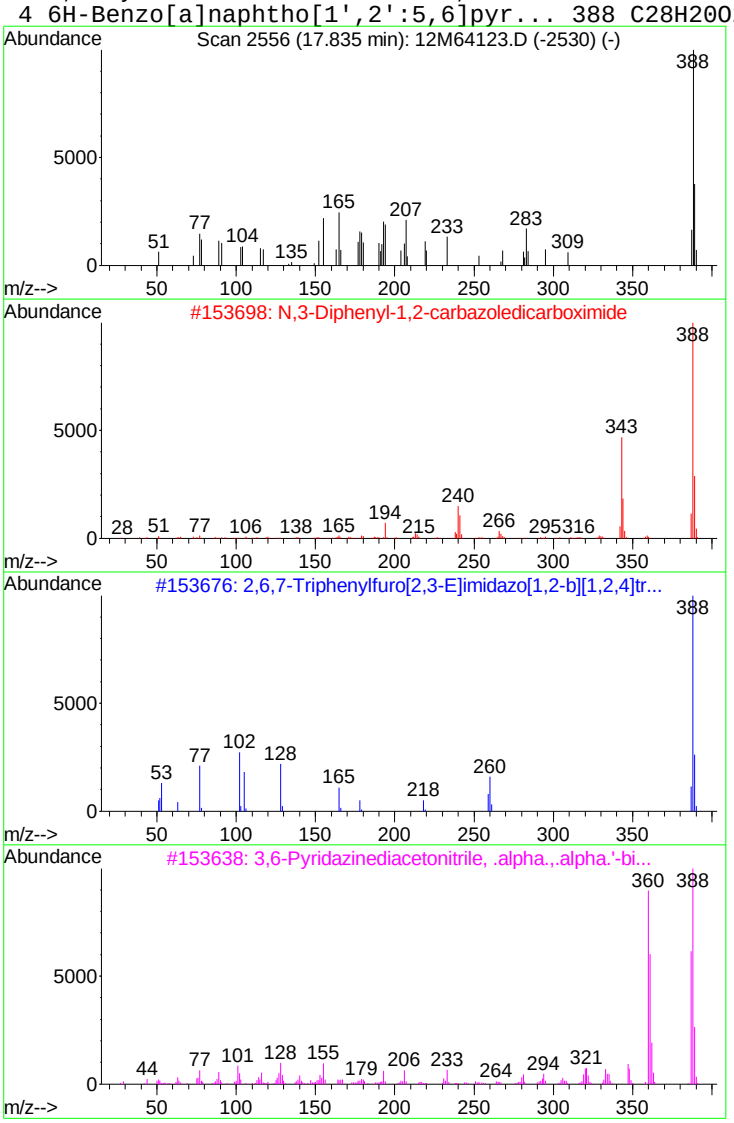
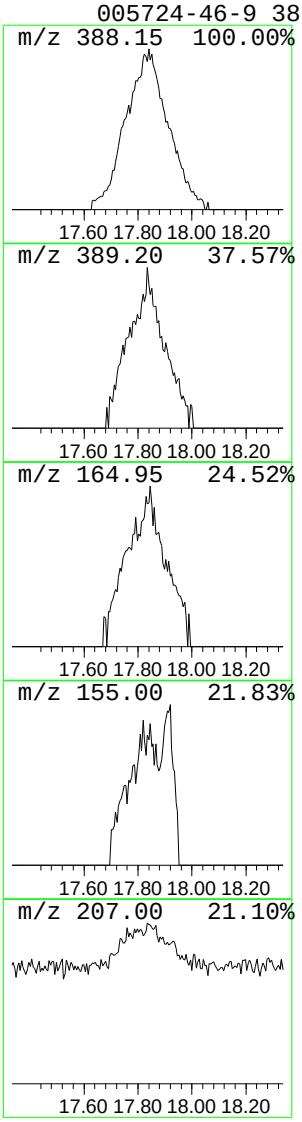
Peak Number 3 N,3-Diphenyl-1,2-carbazoled... Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.83	11.80 ug/ml	366646	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	N,3-Diphenyl-1,2-carbazoledicarb...	388	C26H16N2O2	022315-13-5	47
2	2,6,7-Triphenylfuro[2,3-E]imidaz...	388	C25H16N4O	214475-32-8	43
3	3,6-Pyridazinediacetonitrile, .a...	388	C24H16N6	134882-07-8	43
4	6H-Benzo[a]naphtho[1',2':5,6]pyr...	388	C28H20O2	005724-46-9	38





Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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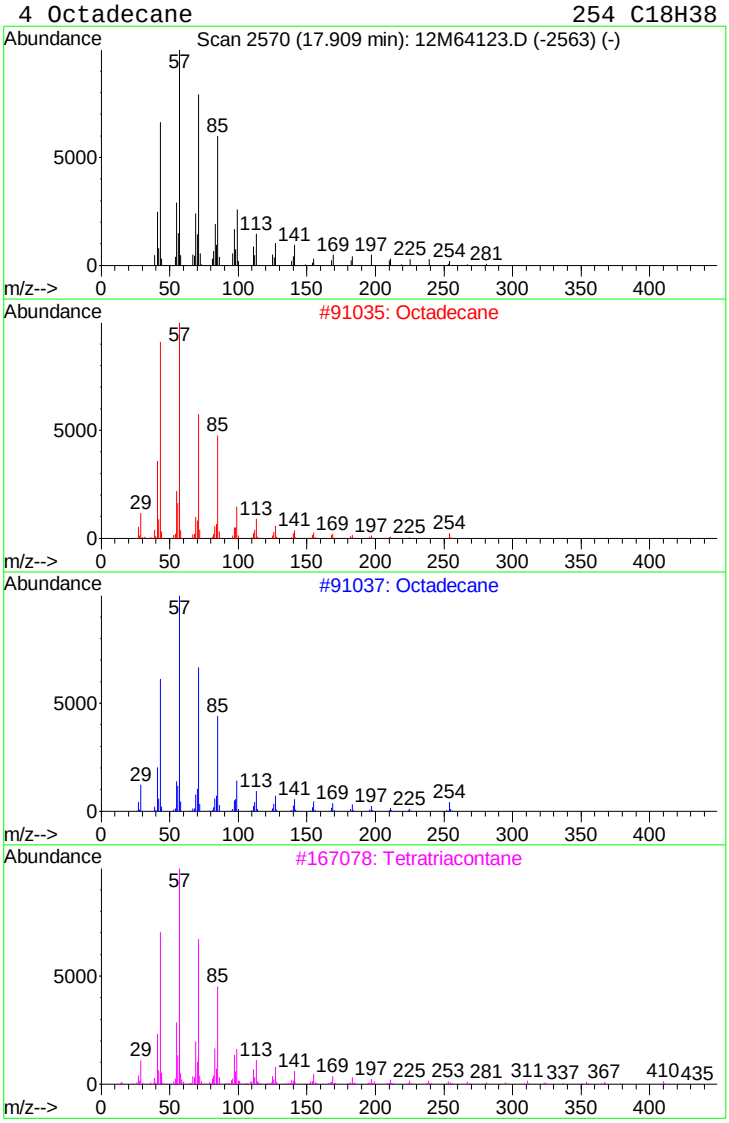
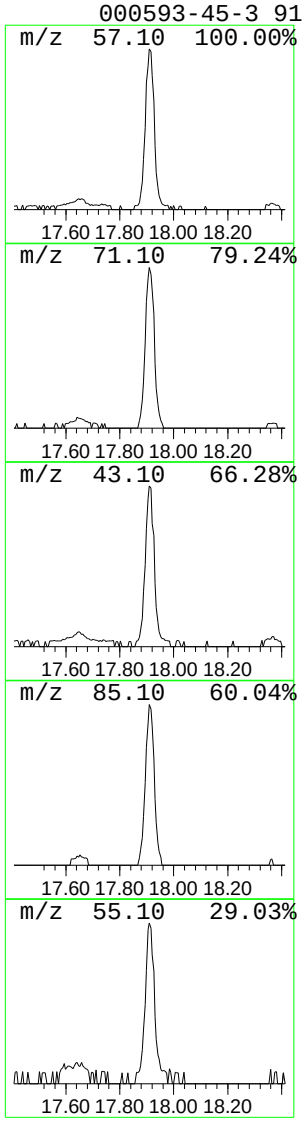
Peak Number 4 Octadecane Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.91	15.30 ug/ml	475302	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Octadecane	254	C18H38	000593-45-3	93
2	Octadecane	254	C18H38	000593-45-3	93
3	Tetratriacontane	479	C34H70	014167-59-0	91
4	Octadecane	254	C18H38	000593-45-3	91





Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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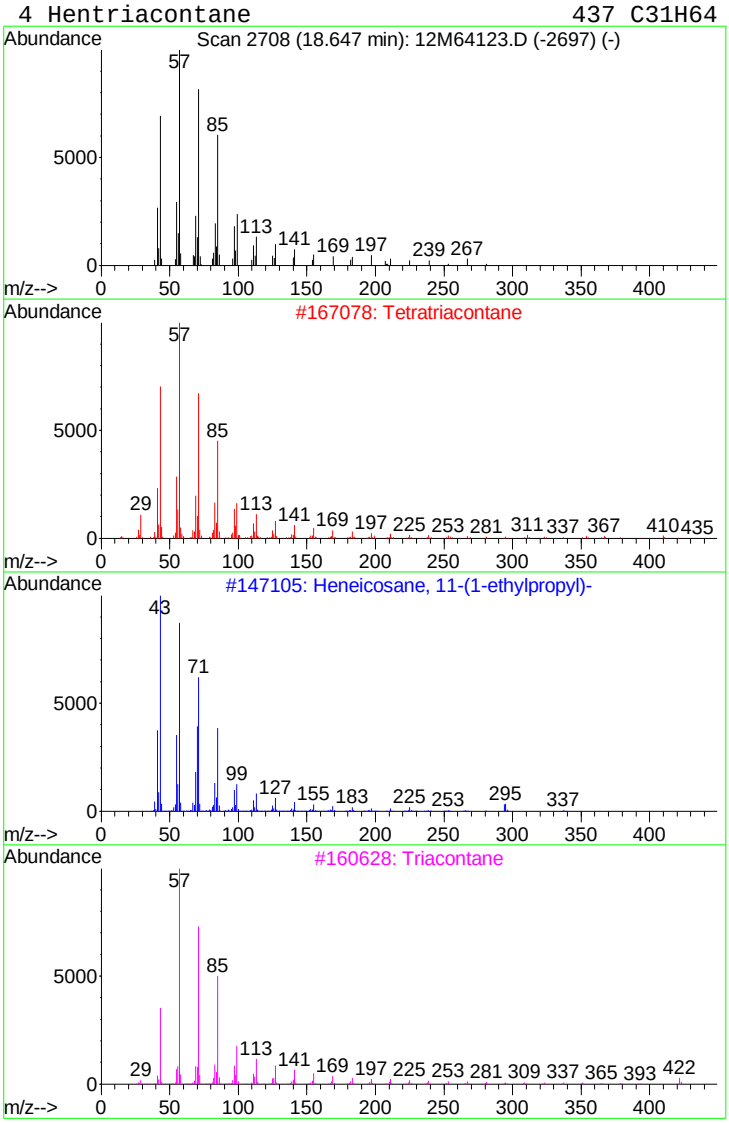
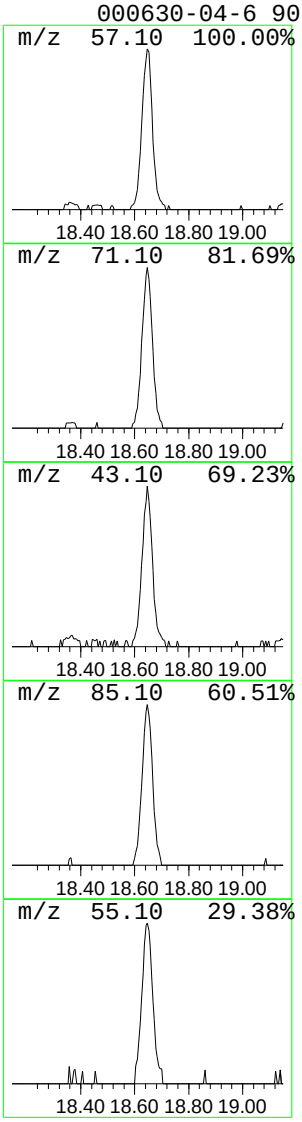
Peak Number 5 Tetratriacontane Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.65	11.87 ug/ml	368970	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetratriacontane	479	C34H70	014167-59-0	91
2	Heneicosane, 11-(1-ethylpropyl)-	366	C26H54	055282-11-6	91
3	Triacontane	422	C30H62	000638-68-6	90
4	Hentriacontane	437	C31H64	000630-04-6	90





Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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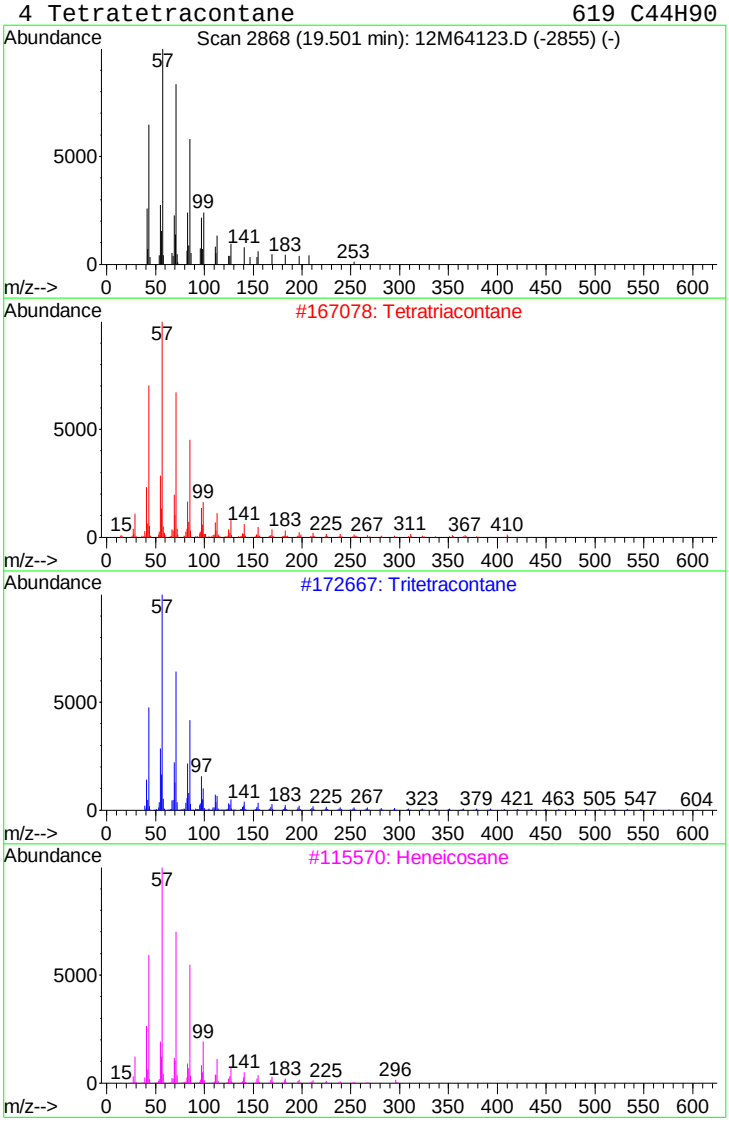
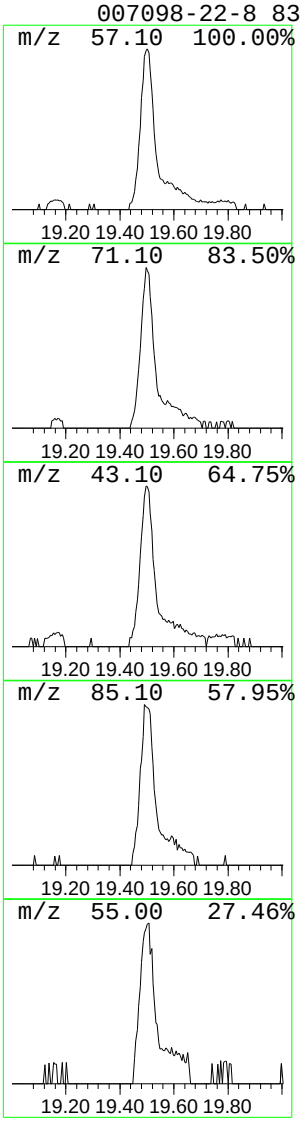
Peak Number 6 Tetratriacontane Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
19.50	10.73 ug/ml	333483	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetratriacontane	479	C34H70	014167-59-0	90
2	Tritetracontane	605	C43H88	007098-21-7	87
3	Heneicosane	296	C21H44	000629-94-7	83
4	Tetratetracontane	619	C44H90	007098-22-8	83





Data File : I:\MSDCHEM\1\DATA\082917\12M64123.D Vial: 4
Acq On : 29 Aug 2017 10:52 am Operator: scb
Sample : WG627291-01 BLANK 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Library : I:\DATABASE\NIST02.L

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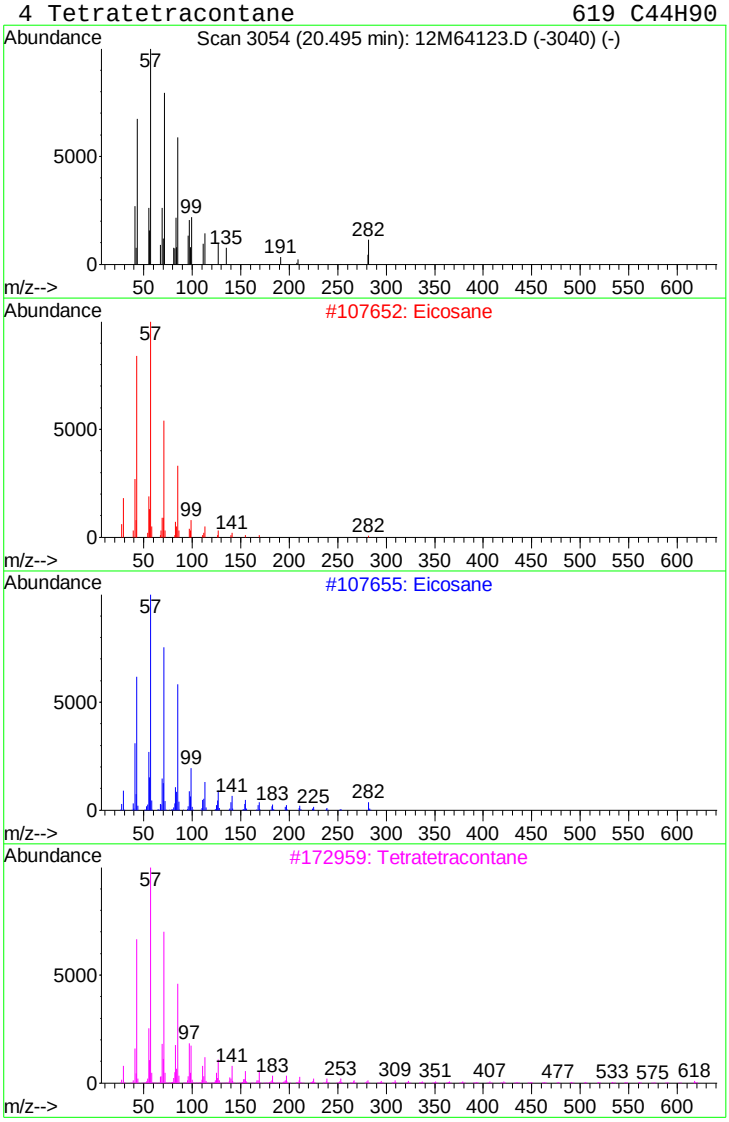
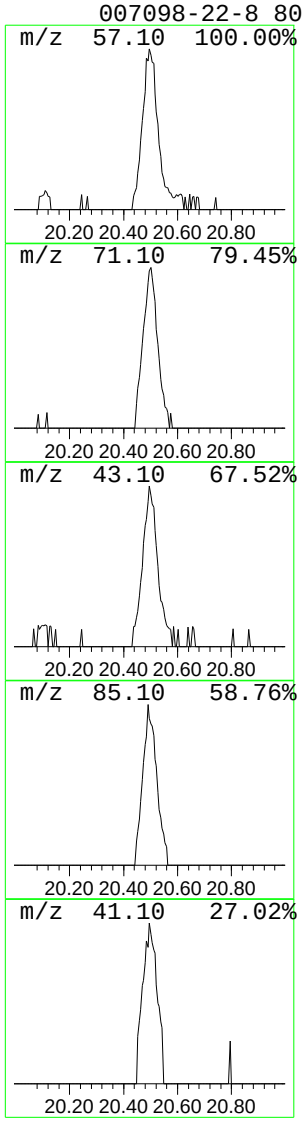
Peak Number 7 Eicosane Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.50	4.99 ug/ml	155028	Perylene-d12	19.08

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	93
2	Eicosane	282	C20H42	000112-95-8	87
3	Tetratetracontane	619	C44H90	007098-22-8	86
4	Tetratetracontane	619	C44H90	007098-22-8	80





Tentatively Identified Compound (LSC) summary

Operator ID: scb Date Acquired: 29 Aug 2017 10:52 am
Data File: I:\MSDCHEM\1\DATA\082917\12M64123.D
Name: WG627291-01 BLANK 8/28
Misc: 1,1
Method: I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title: OVD MSS01 8270/625 ICAL 08/3/17
Library Searched: I:\DATABASE\NIST02.L

					Internal Standard			
TIC Top Hit name	RT	EstConc	Units	Response	#	RT	Resp	Conc
Tetratriacontane	16.71	4.9	ug/ml	167662	5	16.24	1359830	40.0
Eicosane	17.27	8.1	ug/ml	274333	5	16.24	1359830	40.0
N,3-Diphenyl-1,2-...	17.83	11.8	ug/ml	366646	6	19.08	1242950	40.0
Octadecane	17.91	15.3	ug/ml	475302	6	19.08	1242950	40.0
Tetratriacontane	18.65	11.9	ug/ml	368970	6	19.08	1242950	40.0
Tetratriacontane	19.50	10.7	ug/ml	333483	6	19.08	1242950	40.0
Eicosane	20.50	5.0	ug/ml	155028	6	19.08	1242950	40.0

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64124.D Vial: 5
Acq On : 29 Aug 2017 11:25 am Operator: scb
Sample : WG627291-02 LCS 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27:10 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.828	152	120438	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.121	136	460416	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.932	164	254221	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.551	188	509325	40.0000	ug/ml	0.000
113) Chrysene-d12	16.242	240	491117	40.0000	ug/ml	0.000
128) Perylene-d12	19.090	264	488466	40.0000	ug/ml	-0.011
System Monitoring Compounds						
8) 2-Fluorophenol	6.573	112	208590	56.8681347	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 56.87%			
12) Phenol-d5	7.428	99	186781	39.8302365	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 39.83%			
31) Nitrobenzene-d5	8.395	82	207334	45.1255174	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 90.25%			
59) 2-Fluorobiphenyl	10.190	172	427270	48.4097195	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 96.82%			
86) 2,4,6-Tribromophenol	11.760	330	154603	115.4611730	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 115.46%			
117) p-Terphenyl-d14	14.581	244	663563	62.7617677	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 125.52%			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.67	88	33504	21.2622	ug/ml	94
3) n-Nitrosodimethylamine	5.13	74	53543	24.5308	ug/ml	97
4) Pyridine	5.16	79	40668	10.1922	ug/ml	95
5) 2-Picoline	5.99	93	91650	21.2400	ug/ml	100
6) n-Nitrosomethylethylamine	6.11	88	67989	39.1179	ug/ml#	90
7) Methyl Methanesulfonate	6.41	80	89402	32.1059	ug/ml	99
9) n-Nitrosodiethylamine	6.81	102	73228	39.8929	ug/ml	99
10) Ethyl Methanesulfonate	7.07	79	115572	39.7480	ug/ml	98
11) Aniline	7.52	66	72346	29.6392	ug/ml	51
13) Phenol	7.44	94	92217	19.3481	ug/ml	91
14) bis(2-Chloroethyl)ether	7.54	63	104482	37.2732	ug/ml#	35
15) Pentachloroethane	7.56	167	38174	24.0068	ug/ml	97
16) 2-Chlorophenol	7.65	128	148019	36.9576	ug/ml	98
17) 1,3-Dichlorobenzene	7.80	146	102980	23.4839	ug/ml	99
18) 1,4-Dichlorobenzene	7.84	146	109525	24.5692	ug/ml	100
19) Benzyl Alcohol	7.94	108	104012	40.7820	ug/ml	96
20) 1,2-Dichlorobenzene	8.04	146	113053	26.6761	ug/ml	99
21) 2-Methylphenol	8.04	107	132293	38.6379	ug/ml	95
22) bis(2-Chloroisopropyl)ethe	8.08	45	122527	36.1009	ug/ml	97
23) 3-,4-Methylphenol	8.16	107	176057	40.6681	ug/ml	94
24) n-Nitrosopyrrolidine	8.22	100	84637	45.5554	ug/ml	97
25) n-Nitrosodipropylamine	8.22	70	136618	45.8998	ug/ml	99
26) Acetophenone	8.22	105	496166	84.5661	ug/ml	99
27) n-Nitrosomorpholine	8.22	56	102920	44.6437	ug/ml	98
28) o-Toluidine	8.27	106	216632	33.7769	ug/ml	99
29) Hexachloroethane	8.36	117	39203	20.9244	ug/ml	95
32) Nitrobenzene	8.42	77	193331	42.4928	ug/ml	95
33) n-Nitrosopiperidine	8.56	114	82424	41.8939	ug/ml	95
34) Isophorone	8.63	82	407558	51.6145	ug/ml	99
35) 2-Nitrophenol	8.74	139	90237	41.8167	ug/ml	98
36) 2,4-Dimethylphenol	8.70	122	158039	43.9559	ug/ml	95
38) bis(2-Chloroethoxy)methane	8.80	93	195141	31.4011	ug/ml	90
39) Benzoic Acid	8.74	105	22488	19.6910	ug/ml#	51

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64124.D Vial: 5
Acq On : 29 Aug 2017 11:25 am Operator: scb
Sample : WG627291-02 LCS 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27:10 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40)	2,4-Dichlorophenol	8.96	162	147186	45.0389	ug/ml	100
41)	a,a-Dimethylphenethylamine	8.97	58	41111	5.3630	ug/ml#	82
42)	1,2,4-Trichlorobenzene	9.06	180	107282	28.3866	ug/ml	98
43)	Naphthalene	9.14	128	418291	34.2101	ug/ml#	98
44)	4-Chloroaniline	9.17	65	74651	44.1823	ug/ml	63
45)	2,6-Dichlorophenol	9.20	162	146110	48.5892	ug/ml	99
46)	Hexachloropropene	9.26	213	70052	25.0380	ug/ml	98
47)	Hexachlorobutadiene	9.29	225	60266	27.5353	ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.48	84	158521	42.8978	ug/ml	90
49)	p-Phenylenediamine	9.61	108	15440	5.6051	ug/ml#	1
50)	4-Chloro-3-Methylphenol	9.61	107	193611	47.4849	ug/ml	98
51)	Safrole	9.70	162	113418	35.9850	ug/ml	97
52)	2-Methylnaphthalene	9.83	142	294989	35.5374	ug/ml	100
53)	1-Methylnaphthalene	9.95	142	317694	41.8438	ug/ml	99
55)	1,2,4,5-Tetrachlorobenzene	10.05	216	145164	35.8906	ug/ml	99
56)	Hexachlorocyclopentadiene	10.05	237	44968	24.5033	ug/ml	99
57)	2,4,6-Trichlorophenol	10.12	196	123243	46.4780	ug/ml	99
58)	2,4,5-Trichlorophenol	10.17	196	132646	47.8327	ug/ml	100
60)	Isosafrole	10.23	162	324711	101.2380	ug/ml	98
61)	2-Chloronaphthalene	10.34	162	359872	44.5606	ug/ml	98
62)	1-Chloronaphthalene	10.38	162	271460	35.0203	ug/ml	100
63)	2-Nitroaniline	10.44	65	127896	49.0116	ug/ml	98
64)	1,4-Naphthoquinone	10.50	158	139387	63.4807	ug/ml	99
65)	Dimethylphthalate	10.60	163	492280	52.3845	ug/ml	100
66)	1,3-Dinitrobenzene	10.65	168	74818	46.7682	ug/ml	99
67)	2,6-Dinitrotoluene	10.69	165	106518	48.7582	ug/ml	98
68)	Acenaphthylene	10.78	152	555160	43.4614	ug/ml	100
69)	3-Nitroaniline	10.85	138	102871	45.9025	ug/ml	99
70)	2,4-Dinitrophenol	10.95	184	66773	50.2851	ug/ml	82
71)	Acenaphthene	10.96	154	381557	46.7813	ug/ml	99
72)	4-Nitrophenol	10.96	65	55477	27.3149	ug/ml	94
73)	2,4-Dinitrotoluene	11.10	165	148864	49.5906	ug/ml	99
74)	Pentachlorobenzene	11.15	250	157676	48.3326	ug/ml	98
75)	Dibenzofuran	11.12	168	517080	45.0120	ug/ml	98
76)	2,3,4,6-Tetrachlorophenol	11.27	232	113097	47.3686	ug/ml	98
77)	1-Naphthylamine	11.20	143	320536	39.8280	ug/ml	100
78)	2-Naphthylamine	11.27	143	321305	38.9232	ug/ml	99
79)	Diethylphthalate	11.30	149	488849	50.4848	ug/ml	99
80)	Thionazin	11.48	107	10568	6.6751	ug/ml#	1
81)	Fluorene	11.48	166	471417	48.3516	ug/ml	100
82)	4-Chlorophenyl Phenyl Ethe	11.43	204	209843	43.4346	ug/ml	99
83)	4-Nitroaniline	11.49	138	123675	49.5805	ug/ml	97
84)	5-Nitro-o-Toluidine	11.48	152	148213	52.5672	ug/ml	96
85)	1,2-Diphenylhydrazine	11.60	77	471570	47.1960	ug/ml	99
88)	4,6-Dinitro-2-Methylphenol	11.53	198	94881	47.4454	ug/ml#	68
89)	Diphenylamine/n-Nitrosodip	11.55	169	826105	97.0180	ug/ml	98
91)	Sym-Trinitrobenzene	11.84	75	118104	36.3613	ug/ml	99
92)	Diallate	11.87	86	301370	83.6876	ug/ml	85
93)	Phenacetin	11.86	108	279041	52.2698	ug/ml	94
95)	4-Bromophenyl Phenyl Ether	11.96	248	126421	47.3440	ug/ml	98
96)	Hexachlorobenzene	12.18	284	138170	49.8215	ug/ml	98
97)	Dimethoate	12.10	87	9151	2.6948	ug/ml#	17
98)	4-Aminobiphenyl	12.26	169	346740	34.5011	ug/ml	100
99)	Pentachlorophenol	12.36	266	95999	54.6409	ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64124.D Vial: 5
Acq On : 29 Aug 2017 11:25 am Operator: scb
Sample : WG627291-02 LCS 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27:10 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

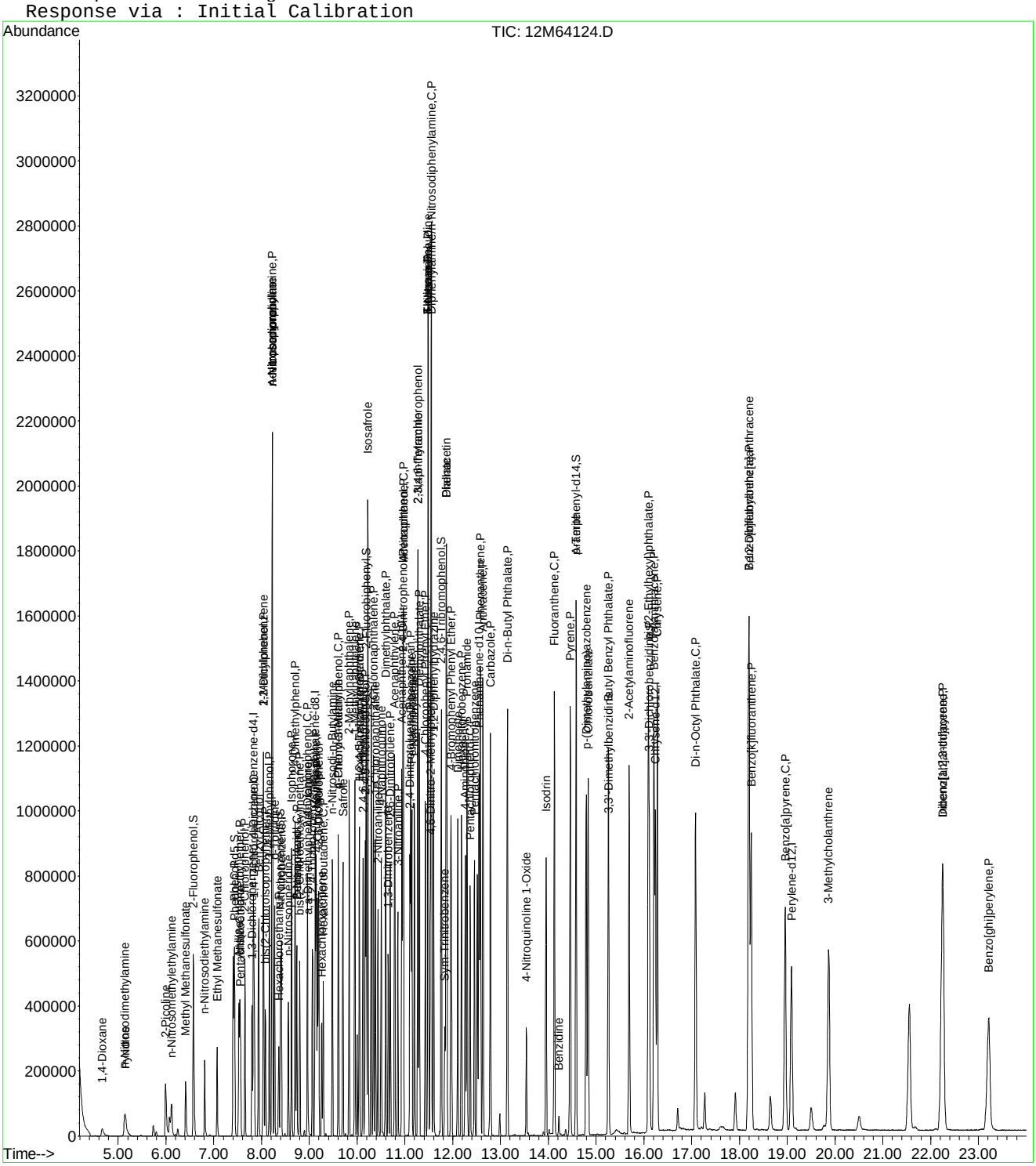
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
100)	Pronamide	12.30	173	229620	52.3628	ug/ml	99
101)	Pentachloronitrobenzene	12.45	237	72978	57.3075	ug/ml	96
103)	Phenanthrene	12.58	178	674263	47.9641	ug/ml	99
104)	Anthracene	12.63	178	675813	46.1962	ug/ml	99
105)	Carbazole	12.79	167	637090	50.5222	ug/ml	100
107)	Di-n-Butyl Phthalate	13.14	149	881621	52.8099	ug/ml	99
109)	4-Nitroquinoline 1-Oxide	13.54	190	40976	40.5922	ug/ml	96
111)	Isodrin	13.96	193	79444	49.3691	ug/ml	98
112)	Fluoranthene	14.13	202	752497	48.4920	ug/ml	99
114)	Benzidine	14.22	184	38649	6.3093	ug/ml	100
115)	Pyrene	14.46	202	766960	49.9513	ug/ml	99
116)	Aramite	14.58	185	1916	2.0390	ug/ml#	34
118)	p-(Dimethylamino)azobenzen	14.79	225	171039	56.7725	ug/ml	93
119)	Chlorobenzilate	14.83	251	245427	58.3381	ug/ml	95
121)	Butyl Benzyl Phthalate	15.25	149	391417	50.7864	ug/ml	100
122)	3,3'-Dimethylbenzidine	15.27	212	70092	5.2759	ug/ml#	90
123)	2-Acetylaminofluorene	15.69	181	361413	55.8516	ug/ml	99
124)	bis(2-Ethylhexyl)phthalate	16.09	149	555949	56.1966	ug/ml	99
125)	3,3'-Dichlorobenzidine	16.11	252	265383	53.1618	ug/ml	98
126)	Benzo[a]anthracene	16.21	228	759638	52.2651	ug/ml	100
127)	Chrysene	16.28	228	730094	55.3640	ug/ml	100
129)	Di-n-Octyl Phthalate	17.08	149	918256	50.3728	ug/ml	100
130)	7,12-Dimethylbenz[a]anthra	18.20	256	390720	52.2615	ug/ml	94
131)	Benzo[b]fluoranthene	18.20	252	869573	53.4006	ug/ml	98
132)	Benzo[k]fluoranthene	18.25	252	703976	51.5252	ug/ml	99
133)	Benzo[a]pyrene	18.96	252	692525	51.4569	ug/ml	99
134)	3-Methylcholanthrene	19.86	268	398327	56.9846	ug/ml	98
135)	Indeno[1,2,3-cd]pyrene	22.25	276	816085	55.3182	ug/ml	97
136)	Dibenz[ah]anthracene	22.25	278	679763	54.0184	ug/ml	98
137)	Benzo[ghi]perylene	23.21	276	622978	53.2037	ug/ml	97

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

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64124.D Vial: 5
Acq On : 29 Aug 2017 11:25 am Operator: scb
Sample : WG627291-02 LCS 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64124.D Vial: 5
Acq On : 29 Aug 2017 11:25 am Operator: scb
Sample : WG627291-02 LCS 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54:08 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.828	152	120438	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.121	136	460416	40.0000	ug/mL	-0.037
6) Acenaphthene-d10	10.932	164	254221	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.551	188	509325	40.0000	ug/mL	-0.043

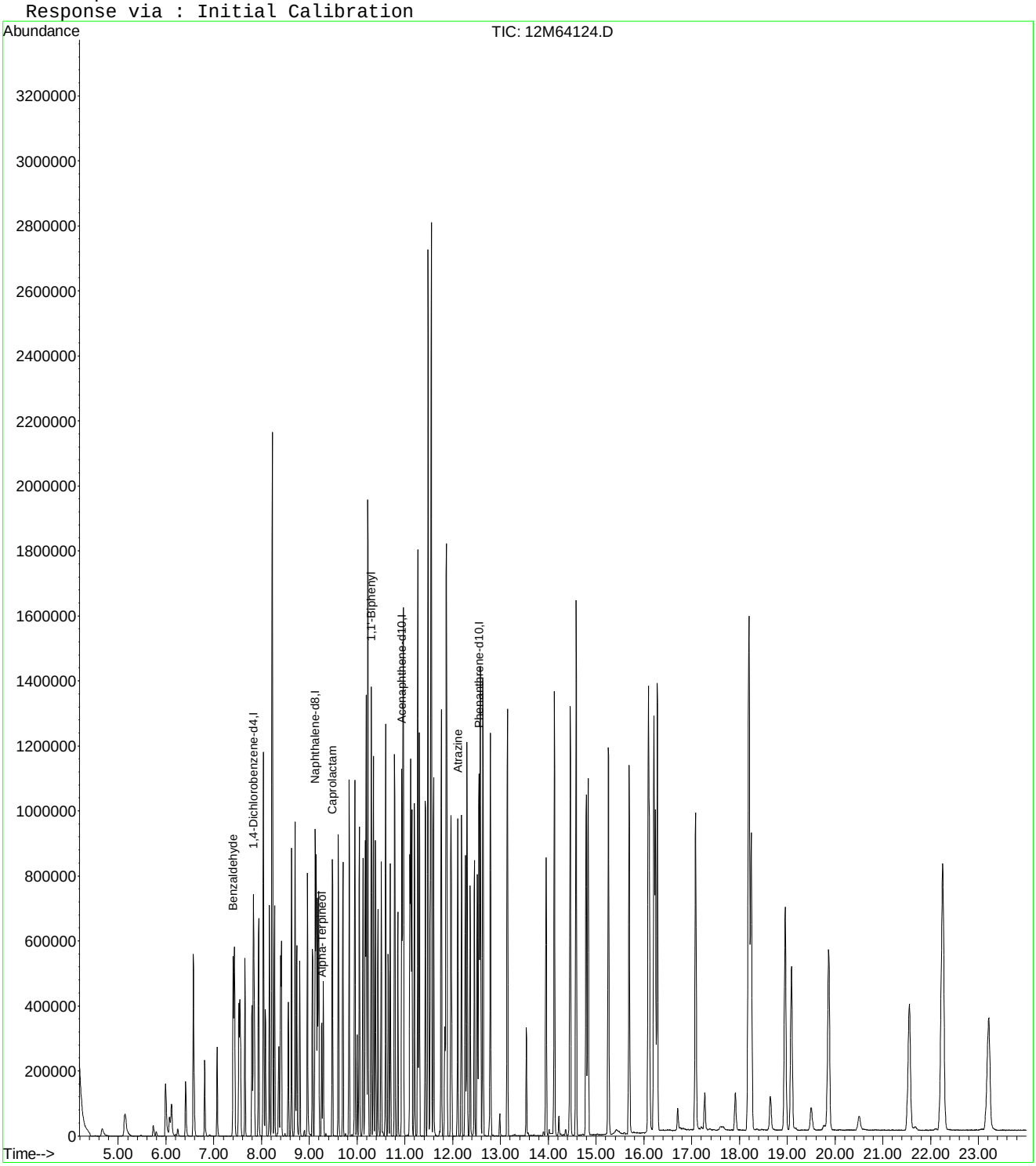
Target Compounds						Qvalue
2) Benzaldehyde	7.41	105	126577	41.8989	ug/L	96
4) Alpha-Terpineol	9.25	59	1943	0.7103	ug/L #	1
5) Caprolactam	9.48	55	35939	28.0161	ug/L #	71
7) 1,1'-Biphenyl	10.30	154	452567	43.9748	ug/L	99
9) Atrazine	12.11	200	147959	50.7766	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64124.D TCL.M Wed Aug 30 11:54:08 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64124.D Vial: 5
Acq On : 29 Aug 2017 11:25 am Operator: scb
Sample : WG627291-02 LCS 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64125.D Vial: 6
Acq On : 29 Aug 2017 11:57 am Operator: scb
Sample : WG627291-03 LCS2 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27:13 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	115841	40.0000	ug/ml	0.000
30) Naphthalene-d8	9.121	136	448895	40.0000	ug/ml	0.000
54) Acenaphthene-d10	10.932	164	249347	40.0000	ug/ml	0.000
87) Phenanthrene-d10	12.551	188	494827	40.0000	ug/ml	0.000
113) Chrysene-d12	16.243	240	499030	40.0000	ug/ml	0.000
128) Perylene-d12	19.090	264	486700	40.0000	ug/ml	-0.011
System Monitoring Compounds						
8) 2-Fluorophenol	6.573	112	225843	64.0152389	ug/ml	0.00
Spiked Amount 100.000	Range 21 - 100		Recovery = 64.02%			
12) Phenol-d5	7.428	99	196393	43.5419054	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 94		Recovery = 43.54%			
31) Nitrobenzene-d5	8.395	82	224500	50.1156829	ug/ml	0.00
Spiked Amount 50.000	Range 35 - 114		Recovery = 100.23%			
59) 2-Fluorobiphenyl	10.190	172	436689	50.4440205	ug/ml	0.00
Spiked Amount 50.000	Range 43 - 116		Recovery = 100.89%			
86) 2,4,6-Tribromophenol	11.760	330	160163	121.9516045	ug/ml	0.00
Spiked Amount 100.000	Range 10 - 123		Recovery = 121.95%			
117) p-Terphenyl-d14	14.581	244	667412	62.1248465	ug/ml	0.00
Spiked Amount 50.000	Range 33 - 141		Recovery = 124.25%			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.67	88	35532	23.4441	ug/ml	95
3) n-Nitrosodimethylamine	5.13	74	57886	27.5730	ug/ml	99
4) Pyridine	5.15	79	90553	23.5950	ug/ml	96
5) 2-Picoline	5.99	93	133750	32.2269	ug/ml	99
6) n-Nitrosomethylethylamine	6.11	88	76118	45.5329	ug/ml#	91
7) Methyl Methanesulfonate	6.41	80	95457	35.6408	ug/ml	99
9) n-Nitrosodiethylamine	6.81	102	79406	44.9752	ug/ml	100
10) Ethyl Methanesulfonate	7.07	79	128982	46.1204	ug/ml	96
11) Aniline	7.52	66	104595	44.5517	ug/ml	98
13) Phenol	7.44	94	100534	21.9301	ug/ml	89
14) bis(2-Chloroethyl)ether	7.54	63	119854	44.4539	ug/ml	95
15) Pentachloroethane	7.56	167	38652	25.2720	ug/ml	99
16) 2-Chlorophenol	7.65	128	154960	40.2260	ug/ml	95
17) 1,3-Dichlorobenzene	7.80	146	101997	24.1828	ug/ml	98
18) 1,4-Dichlorobenzene	7.84	146	109855	25.6212	ug/ml	99
19) Benzyl Alcohol	7.94	108	110610	45.0900	ug/ml	91
20) 1,2-Dichlorobenzene	8.04	146	115393	28.3088	ug/ml	98
21) 2-Methylphenol	8.04	107	142902	43.3927	ug/ml	94
22) bis(2-Chloroisopropyl)ethe	8.08	45	135142	41.3978	ug/ml	96
23) 3-,4-Methylphenol	8.17	107	188909	45.3685	ug/ml	94
24) n-Nitrosopyrrolidine	8.22	100	94969	53.1450	ug/ml	94
25) n-Nitrosodipropylamine	8.22	70	155863	54.4436	ug/ml	99
26) Acetophenone	8.22	105	545579	96.6781	ug/ml	99
27) n-Nitrosomorpholine	8.22	56	117306	52.9032	ug/ml	98
28) o-Toluidine	8.27	106	252784	40.9777	ug/ml	98
29) Hexachloroethane	8.36	117	40773	22.6260	ug/ml	99
32) Nitrobenzene	8.42	77	210903	47.5447	ug/ml	93
33) n-Nitrosopiperidine	8.56	114	87372	45.5486	ug/ml	90
34) Isophorone	8.63	82	446834	58.0409	ug/ml	99
35) 2-Nitrophenol	8.74	139	91678	43.5749	ug/ml	93
36) 2,4-Dimethylphenol	8.70	122	172640	49.2493	ug/ml	94
38) bis(2-Chloroethoxy)methane	8.80	93	210106	34.6769	ug/ml	90
39) Benzoic Acid	8.70	105	7549	11.8343	ug/ml#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64125.D Vial: 6
Acq On : 29 Aug 2017 11:57 am Operator: scb
Sample : WG627291-03 LCS2 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27:13 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40)	2,4-Dichlorophenol	8.96	162	153818	48.2763	ug/ml	99
41)	a,a-Dimethylphenethylamine	8.97	58	174690	23.3734	ug/ml#	91
42)	1,2,4-Trichlorobenzene	9.06	180	107810	29.2585	ug/ml	100
43)	Naphthalene	9.14	128	423944	35.5623	ug/ml#	98
44)	4-Chloroaniline	9.17	65	85569	51.9439	ug/ml	60
45)	2,6-Dichlorophenol	9.20	162	149567	51.0153	ug/ml	100
46)	Hexachloropropene	9.26	213	70065	25.6854	ug/ml	99
47)	Hexachlorobutadiene	9.29	225	59862	28.0527	ug/ml	99
48)	n-Nitrosodi-n-Butylamine	9.48	84	177436	49.2488	ug/ml	91
50)	4-Chloro-3-Methylphenol	9.61	107	209091	52.5976	ug/ml	99
51)	Safrole	9.70	162	115987	37.7446	ug/ml	94
52)	2-Methylnaphthalene	9.83	142	300541	37.1355	ug/ml	99
53)	1-Methylnaphthalene	9.95	142	330812	44.6899	ug/ml	97
55)	1,2,4,5-Tetrachlorobenzene	10.05	216	146860	37.0197	ug/ml	99
56)	Hexachlorocyclopentadiene	10.05	237	46234	25.5667	ug/ml	98
57)	2,4,6-Trichlorophenol	10.13	196	127455	49.0060	ug/ml	99
58)	2,4,5-Trichlorophenol	10.17	196	137226	50.4515	ug/ml	99
60)	Isosafrole	10.23	162	342940	109.0114	ug/ml	99
61)	2-Chloronaphthalene	10.34	162	374919	47.3313	ug/ml	100
62)	1-Chloronaphthalene	10.38	162	276253	36.3352	ug/ml	99
63)	2-Nitroaniline	10.44	65	141782	55.3949	ug/ml	95
64)	1,4-Naphthoquinone	10.51	158	144579	67.1323	ug/ml	97
65)	Dimethylphthalate	10.60	163	526908	57.1653	ug/ml	100
66)	1,3-Dinitrobenzene	10.65	168	78563	50.0691	ug/ml	91
67)	2,6-Dinitrotoluene	10.69	165	112016	52.2772	ug/ml	94
68)	Acenaphthylene	10.78	152	586947	46.8481	ug/ml	100
69)	3-Nitroaniline	10.85	138	109339	49.7423	ug/ml	95
70)	2,4-Dinitrophenol	10.95	184	32762	29.4273	ug/ml#	1
71)	Acenaphthene	10.96	154	389709	48.7148	ug/ml	96
72)	4-Nitrophenol	10.96	65	58632	29.4326	ug/ml	95
73)	2,4-Dinitrotoluene	11.10	165	162924	55.3353	ug/ml	97
74)	Pentachlorobenzene	11.15	250	168856	52.7714	ug/ml	97
75)	Dibenzofuran	11.12	168	553408	49.1161	ug/ml	100
76)	2,3,4,6-Tetrachlorophenol	11.27	232	121101	51.7123	ug/ml	98
77)	1-Naphthylamine	11.20	143	380391	48.1891	ug/ml	100
78)	2-Naphthylamine	11.27	143	412103	50.8984	ug/ml	98
79)	Diethylphthalate	11.30	149	518558	54.5997	ug/ml	99
80)	Thionazin	11.48	107	10600	6.8262	ug/ml#	1
81)	Fluorene	11.48	166	491181	51.3635	ug/ml	99
82)	4-Chlorophenyl Phenyl Ethe	11.43	204	226252	47.7464	ug/ml	98
83)	4-Nitroaniline	11.49	138	132555	54.1792	ug/ml	96
84)	5-Nitro-o-Toluidine	11.48	152	157358	56.9017	ug/ml	93
85)	1,2-Diphenylhydrazine	11.60	77	476662	48.6382	ug/ml	98
88)	4,6-Dinitro-2-Methylphenol	11.54	198	97802	50.0384	ug/ml	72
89)	Diphenylamine/n-Nitrosodip	11.55	169	888029	107.3460	ug/ml	98
91)	Sym-Trinitrobenzene	11.84	75	112986	35.8256	ug/ml	96
92)	Diallate	11.87	86	281172	80.3664	ug/ml#	80
93)	Phenacetin	11.86	108	266692	51.4203	ug/ml	92
95)	4-Bromophenyl Phenyl Ether	11.96	248	134343	51.7848	ug/ml	94
96)	Hexachlorobenzene	12.18	284	151608	56.2687	ug/ml	95
97)	Dimethoate	12.10	87	8331	2.5252	ug/ml#	39
98)	4-Aminobiphenyl	12.26	169	446603	45.7396	ug/ml	100
99)	Pentachlorophenol	12.36	266	80394	48.0836	ug/ml	98
100)	Pronamide	12.30	173	235532	55.2847	ug/ml	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64125.D Vial: 6
Acq On : 29 Aug 2017 11:57 am Operator: scb
Sample : WG627291-03 LCS2 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27:13 2017 Quant Results File: MEGAMIX.RES

Quant Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

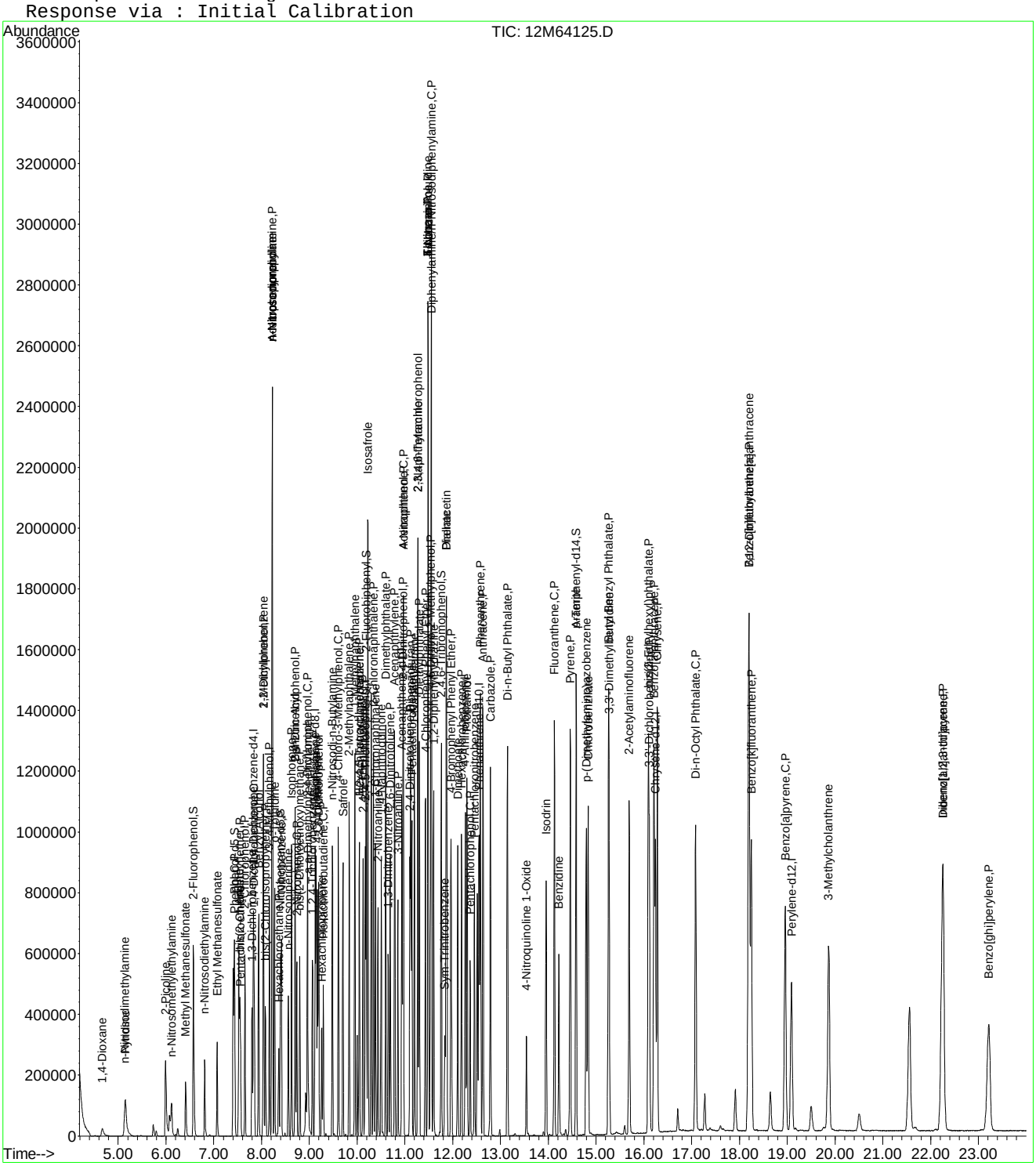
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
101) Pentachloronitrobenzene	12.45	237	73649	59.5289 ug/ml	96
103) Phenanthrene	12.58	178	704998	51.6198 ug/ml	100
104) Anthracene	12.63	178	713983	50.2353 ug/ml	99
105) Carbazole	12.79	167	663179	54.1320 ug/ml	98
107) Di-n-Butyl Phthalate	13.14	149	894119	55.1278 ug/ml	100
109) 4-Nitroquinoline 1-Oxide	13.54	190	49571	48.8778 ug/ml	91
111) Isodrin	13.96	193	83961	53.7048 ug/ml	98
112) Fluoranthene	14.13	202	797630	52.9064 ug/ml	99
114) Benzidine	14.22	184	335534	53.9061 ug/ml	100
115) Pyrene	14.46	202	824134	52.8239 ug/ml	99
116) Aramite	14.58	185	1843	1.9302 ug/ml#	34
118) p-(Dimethylamino)azobenzen	14.79	225	187396	61.2155 ug/ml	82
119) Chlorobenzilate	14.83	251	263978	61.7527 ug/ml	89
121) Butyl Benzyl Phthalate	15.26	149	407451	52.0285 ug/ml	95
122) 3,3'-Dimethylbenzidine	15.28	212	433639	32.1230 ug/ml	98
123) 2-Acetylaminofluorene	15.69	181	376761	57.3002 ug/ml	98
124) bis(2-Ethylhexyl)phthalate	16.09	149	565933	56.2987 ug/ml	99
125) 3,3'-Dichlorobenzidine	16.11	252	315040	62.1084 ug/ml	99
126) Benzo[a]anthracene	16.21	228	817792	55.3741 ug/ml	100
127) Chrysene	16.29	228	790077	58.9626 ug/ml	99
129) Di-n-Octyl Phthalate	17.08	149	957343	52.7076 ug/ml	98
130) 7,12-Dimethylbenz[a]anthra	18.20	256	423799	56.8918 ug/ml	94
131) Benzo[b]fluoranthene	18.20	252	937005	57.7504 ug/ml	98
132) Benzo[k]fluoranthene	18.25	252	764538	56.1609 ug/ml	99
133) Benzo[a]pyrene	18.96	252	747536	55.7459 ug/ml	98
134) 3-Methylcholanthrene	19.86	268	432564	62.1070 ug/ml	97
135) Indeno[1,2,3-cd]pyrene	22.26	276	877636	59.7063 ug/ml	97
136) Dibenz[ah]anthracene	22.26	278	730552	58.2651 ug/ml	98
137) Benzo[ghi]perylene	23.21	276	661733	56.7185 ug/ml	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64125.D MEGAMIX.M Tue Aug 29 16:27:14 2017 Page 3

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64125.D Vial: 6
Acq On : 29 Aug 2017 11:57 am Operator: scb
Sample : WG627291-03 LCS2 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 16:27 2017 Quant Results File: MEGAMIX.RES

Method : I:\MSDCHEM\1\METHODS\MEGAMIX.M (RTE Integrator)
Title : OVD MSS01 8270/625 ICAL 08/3/17
Last Update : Mon Aug 21 08:23:38 2017
Response via : Initial Calibration



12M64125.D MEGAMIX.M Tue Aug 29 16:27:15 2017 Page 4

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64125.D Vial: 6
Acq On : 29 Aug 2017 11:57 am Operator: scb
Sample : WG627291-03 LCS2 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54:09 2017 Quant Results File: TCL.RES

Quant Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration
DataAcq Meth : BNARUN

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.829	152	115841	40.0000	ug/mL	-0.037
3) Naphthalene-d8	9.121	136	448895	40.0000	ug/mL	-0.037
6) Acenaphthene-d10	10.932	164	249347	40.0000	ug/mL	-0.037
8) Phenanthrene-d10	12.551	188	494827	40.0000	ug/mL	-0.043

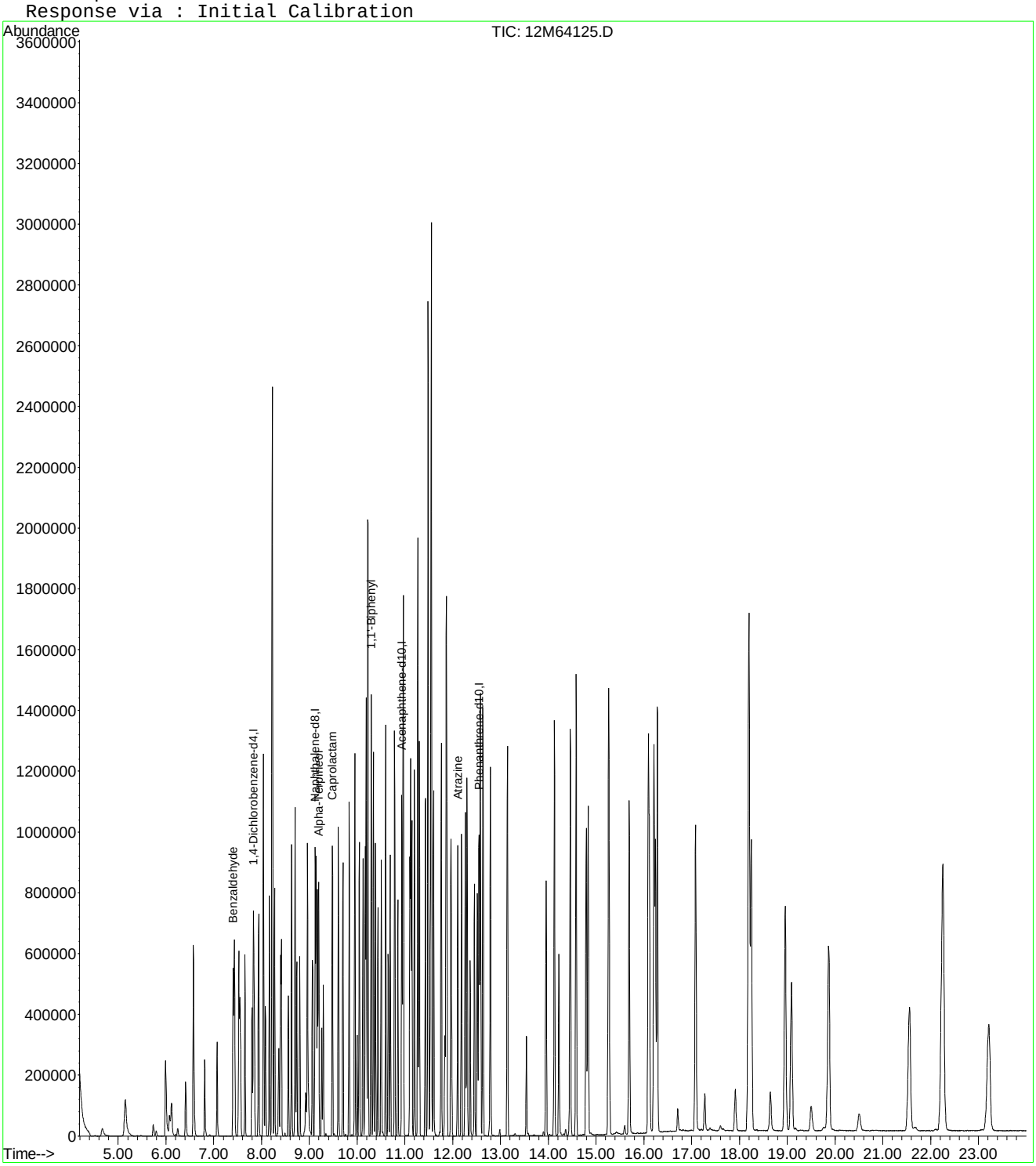
Target Compounds						Qvalue
2) Benzaldehyde	7.41	105	125982	43.3568	ug/L	93
4) Alpha-Terpineol	9.20	59	163	0.0611	ug/L #	1
5) Caprolactam	9.48	55	39368	31.4768	ug/L #	68
7) 1,1'-Biphenyl	10.30	154	471905	46.7501	ug/L	99
9) Atrazine	12.10	200	155194	54.8200	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed
12M64125.D TCL.M Wed Aug 30 11:54:09 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : I:\MSDCHEM\1\DATA\082917\12M64125.D Vial: 6
Acq On : 29 Aug 2017 11:57 am Operator: scb
Sample : WG627291-03 LCS2 8/28 Inst : MSD12
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 30 11:54 2017 Quant Results File: TCL.RES

Method : I:\MSDCHEM\1\METHODS\TCL.M (RTE Integrator)
Title : OVD MSS01 827-TCL INITIAL CALIBRATION 07/14/17
Last Update : Thu Jul 27 11:09:54 2017
Response via : Initial Calibration



2.2.2 Semivolatiles GC/MS Data (827-PAHL)

2.2.2.1 Summary Data

Login Number: L17081305
Department: Semivolatiles
Analyst: Lacey Hendershot

METHOD

Preparation 3510C

Analysis SW-846 8270 SIM

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

SAMPLES

Samples: All acceptance criteria were met.

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

Narrative ID: 128800
Approved By: Mary Schilling

Certificate of Analysis

Sample #: L17081305-14 | **PrePrep Method:** N/A | **Instrument:** HPMS7
Client ID: MW09R-082317 | **Prep Method:** 3510C | **Prep Date:** 08/25/2017 15:02
Matrix: Water | **Analytical Method:** 8270D_SIM | **Cal Date:** 08/23/2017 18:40
Workgroup #: WG627420 | **Analyst:** LJH | **Run Date:** 08/28/2017 14:49
Collect Date: 08/23/2017 14:40 | **Dilution:** 1 | **File ID:** 7M70192
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
2-Methylnaphthalene	91-57-6		U	0.0575	0.0287
Acenaphthene	83-32-9		U	0.0575	0.0287
Acenaphthylene	208-96-8		U	0.0575	0.0287
Anthracene	120-12-7		U	0.0575	0.0287
Benzo(a)anthracene	56-55-3		U	0.0575	0.0287
Benzo(a)pyrene	50-32-8		U	0.0575	0.0287
Benzo(b)fluoranthene	205-99-2		U	0.0575	0.0287
Benzo(g,h,i)perylene	191-24-2		U	0.0575	0.0287
Benzo(k)fluoranthene	207-08-9		U	0.0575	0.0287
Chrysene	218-01-9		U	0.0575	0.0287
Dibenzo(a,h)anthracene	53-70-3		U	0.0575	0.0287
Fluoranthene	206-44-0		U	0.0575	0.0287
Fluorene	86-73-7		U	0.0575	0.0287
Indeno(1,2,3-cd)pyrene	193-39-5		U	0.0575	0.0287
Naphthalene	91-20-3	0.0406	J	0.0575	0.0287
Phenanthrene	85-01-8		U	0.0575	0.0287
Pyrene	129-00-0		U	0.0575	0.0287

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2-Fluorobiphenyl	61.4	43	116	
Nitrobenzene-d5	81.4	35	114	
p-Terphenyl-d14	87.6	33	141	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16 | **PrePrep Method:** N/A | **Instrument:** HPMS7
Client ID: DUP-GW-082317-2 | **Prep Method:** 3510C | **Prep Date:** 08/25/2017 15:02
Matrix: Water | **Analytical Method:** 8270D_SIM | **Cal Date:** 08/23/2017 18:40
Workgroup #: WG627420 | **Analyst:** LJH | **Run Date:** 08/28/2017 15:16
Collect Date: 08/23/2017 09:30 | **Dilution:** 1 | **File ID:** 7M70193
Sample Tag: 01 | **Units:** ug/L

Analyte	CAS #	Result	Qual	RL	MDL
2-Methylnaphthalene	91-57-6		U	0.0526	0.0263

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Acenaphthene	83-32-9		U	0.0526	0.0263
Acenaphthylene	208-96-8		U	0.0526	0.0263
Anthracene	120-12-7		U	0.0526	0.0263
Benzo(a)anthracene	56-55-3		U	0.0526	0.0263
Benzo(a)pyrene	50-32-8		U	0.0526	0.0263
Benzo(b)fluoranthene	205-99-2		U	0.0526	0.0263
Benzo(g,h,i)perylene	191-24-2		U	0.0526	0.0263
Benzo(k)fluoranthene	207-08-9		U	0.0526	0.0263
Chrysene	218-01-9		U	0.0526	0.0263
Dibenzo(a,h)anthracene	53-70-3		U	0.0526	0.0263
Fluoranthene	206-44-0		U	0.0526	0.0263
Fluorene	86-73-7		U	0.0526	0.0263
Indeno(1,2,3-cd)pyrene	193-39-5		U	0.0526	0.0263
Naphthalene	91-20-3	0.0317	J	0.0526	0.0263
Phenanthrene	85-01-8		U	0.0526	0.0263
Pyrene	129-00-0		U	0.0526	0.0263

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2-Fluorobiphenyl	53.5	43	116	
Nitrobenzene-d5	66.6	35	114	
p-Terphenyl-d14	88.8	33	141	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-19
Client ID: MW19-082317
Matrix: Water
Workgroup #: WG627420
Collect Date: 08/23/2017 15:35
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 8270D_SIM
Analyst: LJH
Dilution: 1
Units: ug/L

Instrument: HPMS7
Prep Date: 08/25/2017 15:02
Cal Date: 08/23/2017 18:40
Run Date: 08/28/2017 15:42
File ID: 7M70194

Analyte	CAS #	Result	Qual	RL	MDL
2-Methylnaphthalene	91-57-6		U	0.0500	0.0250
Acenaphthene	83-32-9		U	0.0500	0.0250
Acenaphthylene	208-96-8		U	0.0500	0.0250
Anthracene	120-12-7		U	0.0500	0.0250
Benzo(a)anthracene	56-55-3		U	0.0500	0.0250
Benzo(a)pyrene	50-32-8		U	0.0500	0.0250
Benzo(b)fluoranthene	205-99-2		U	0.0500	0.0250
Benzo(g,h,i)perylene	191-24-2		U	0.0500	0.0250
Benzo(k)fluoranthene	207-08-9		U	0.0500	0.0250

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Chrysene	218-01-9		U	0.0500	0.0250
Dibenzo(a,h)anthracene	53-70-3		U	0.0500	0.0250
Fluoranthene	206-44-0	0.118		0.0500	0.0250
Fluorene	86-73-7		U	0.0500	0.0250
Indeno(1,2,3-cd)pyrene	193-39-5		U	0.0500	0.0250
Naphthalene	91-20-3	0.0381	J	0.0500	0.0250
Phenanthrene	85-01-8		U	0.0500	0.0250
Pyrene	129-00-0	0.0866		0.0500	0.0250

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2-Fluorobiphenyl	47.9	43	116	
Nitrobenzene-d5	65.9	35	114	
p-Terphenyl-d14	81.7	33	141	

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

2.2.2.2 QC Summary Data

Example 8270 Calculations

1.0 Calculating the Response Factor (RF) from the initial calibration (ICAL) data:

RF = [(Ax) (Cis)] / [(Ais) (Cx)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured:	1261197
Cis = Concentration of the specific internal standard (ug/mL)	40
Ais = Area of the characteristic ion of the specific internal standard	608044
Cx = Concentration of the compound in the standard being measured (ug/mL)	50
RF = Calculated Response Factor	**1.65935**

2.0 Calculating the concentration (C) of a compound in water using the data from the prep log and quantitation report: *

Cx = [(Ax) (Cis) (Vf) (D)] / [(Ais) (RF) (Vi)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured	367250
Cis = Concentration of the specific internal standard (ug/mL)	40
Vf = Final volume of sample extract from prep log (mL)	1
D = Dilution factor for sample as a multiplier (10x = 10)	1
Ais = Area of the characteristic ion of the specific internal standard	511641
RF = Average RF from the ICAL	1.65935
Vi = Initial volume of sample extracted from prep log (mL)	1021
Cx = Concentration of the compound in the sample being measured (ug/mL)	0.016947
Cx = Concentration of the compound in the sample being measured (ug/L)	**16.947**

3.0 Calculating the concentration (C) of a compound in soil using the data from the prep log and quantitation report: *

Cx = [(Ax) (Cis) (Vf) (D)] / [(Ais) (RF) (Wi)]

where:	Example
Ax = Area of the characteristic ion for the compound being measured	367250
Cis = Concentration of the specific internal standard (ug/mL)	40
Vf = Final volume of sample extract from prep log (mL)	1
D = Dilution factor for sample as a multiplier (10x = 10)	1
Ais = Area of the characteristic ion of the specific internal standard	511641
RF = Average RF from the ICAL	1.65935
Wi = Initial weight of sample extracted (g) from prep log	30
Cx = Concentration of the compound in the sample being measured (ug/g)	0.576763
Cx = Concentration of the compound in the sample being measured (ug/kg)	**576.7627**

Dry weight correction:

Percent solids (PCT_S)	50
Cd = (Cx) (100)/PCT_S	**1153.525** ug/kg

* Concentrations appearing on the instrument quantitation reports are on-column results and do not take into account initial volume, final volume, and the dilution factor.

4.0 Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve plot

b = intercept from curve plot

Step 2: Calculate y from Quantitation Report

y = 16790/784838 = 0.02139

Step 3: Solve for x

x = (y - b)/m = [(0.02139 -(- 0.0435)]/ 0.0783 = 0.829

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.829) = 20.72 ug/L

Example Spreadsheet Calculation:

Slope from curve, m:	0.0783	
Intercept from curve, b:	-0.0435	
Area of analyte, Ax:	16790	
Area of Internal Standard , Ais:	784484	
Concentration of IS, Cis	25.00	ug/L
Response Ratio (y) :	0.021403	
Amount Ratio:	0.828897	
Concentration (Cx):	20.72241	ug/L

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a(c - y)\right)}}{2a}$$ (Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**0.0259**	
Value of B from plot:	**0.0596**	
Value of C from plot:	**-0.0165**	
Area of analyte from quantitation report:	**203233**	
Area of IS from quantiation report:	**1425653**	
Response ratio, y:	**0.142554**	
C - y:	**-0.15905**	
Root 1 - Computed amount ratio , X1:	**-3.88278**	
Root 2 - Computed amount ratio , X2:	**1.581623**	use this solution
Concentration of IS, Cis:	**40.00**	
Concentration of analyte, Cx:	**63.26**	ug/L

Microbac Laboratories Inc.
Sample Extract Log

Workgroup: WG627146
Analyst: CPD
Spike Analyst: CPD
Method: 3510C
Run Date: 08/25/2017 15:02
SOP: EXA01 Revision 19
Spike Witness: AC
Surr Solution: STD81997

METHYLENE CHLORIDE Lot #: COA19844
Na2SO4, Anhydrous, Granular Lot #: COA19759

	SAMPLE #	Type	Reference	pH	Prod	Init Amnt	Surr Amnt	Spike Amnt	Spike Sol	Final Vol	Color
1	L17081208-01	SAMP		N	625-PAHL	1000 mL	.25 mL			1 mL	Colored
2	L17081305-14	SAMP		N	827-PAHL	870 mL	.25 mL			1 mL	Transparent
3	L17081305-16	SAMP		N	827-PAHL	950 mL	.25 mL			1 mL	Transparent
4	L17081305-19	SAMP		N	827-PAHL	1000 mL	.25 mL			1 mL	Transparent
5	L17081324-03	SAMP		N	827-PAHL	890 mL	.25 mL			1 mL	Transparent
6	L17081324-08	RS02		N	827-PAHL	950 mL	.25 mL			1 mL	Transparent
7	L17081324-09	MS02	L17081324-08	N	827-PAHL	930 mL	.25 mL	1 mL	STD82773	1 mL	Transparent
8	L17081324-10	SD02	L17081324-08	N	827-PAHL	910 mL	.25 mL	1 mL	STD82773	1 mL	Transparent
9	L17081324-11	SAMP		N	827-PAHL	950 mL	.25 mL			1 mL	Transparent
10	L17081324-12	SAMP		N	827-PAHL	960 mL	.25 mL			1 mL	Transparent
11	WG627146-01	BLANK		N	827-PAHL	1000 mL	.25 mL			1 mL	Transparent
12	WG627146-02	LCS		N	827-PAHL	1000 mL	.25 mL	1 mL	STD82773	1 mL	Transparent
13	WG627146-03	REF	L17081324-08	N	827-PAHL	950 mL	.25 mL			1 mL	Transparent
14	WG627146-04	MS	L17081324-08	N	827-PAHL	930 mL	.25 mL	1 mL	STD82773	1 mL	Transparent
15	WG627146-05	MSD	L17081324-08	N	827-PAHL	910 mL	.25 mL	1 mL	STD82773	1 mL	Transparent

pH 0-13 Lot#209314
TV1P5

L17081208-01	RE-EXT IN HOLD

Analyst: _____

Reviewer: _____

EXTRACT - Modified 10/22/2008
PDF ID: 5450387
Report generated: 08/28/2017 09:17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS7 Dataset: 082317
Analyst1: LJH Analyst2: NA
Method: 8270L SOP: MSS03 Rev: 14
Method: OVAP SOP: MSS03 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:
Eluent ID#:

Workgroups: Column 1 ID: RXI-5MS Column 2 ID: NA
WG627017 (ICAL)
Internal STD: STD83480 Surrogate STD: NA Calibration STD
CCV STD: STD83209 LCS STD: MS/MSD STD:

Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	7M70160	BAKE OUT				08/23/17 14:35
2	7M70161	WG627001-01 5PPM DFTPP	1	1	STD83235	08/23/17 15:00
3	7M70162	WG627001-02 1PPM PAHL STD	1	1	STD83209	08/23/17 15:16
4	7M70163	WG627017-01 1PPM PAHL STD	1	1	STD83209	08/23/17 15:58
5	7M70164	WG627017-02 10PPM PAHL STD	1	1	STD83209	08/23/17 16:25
6	7M70165	WG627017-03 5PPM PAHL STD	1	1	STD83209	08/23/17 16:52
7	7M70166	WG627017-04 2.5PPM PAHL STD	1	1	STD83209	08/23/17 17:19
8	7M70167	WG627017-05 0.5PPM PAHL STD	1	1	STD83209	08/23/17 17:46
9	7M70168	WG627017-06 0.05 PPM PAHL STD	1	1	STD83209	08/23/17 18:13
10	7M70169	WG627017-07 0.1 PPM PAHL STD	1	1	STD83209	08/23/17 18:40
11	7M70170	WG627017-08 1PPM ALT PAHL STD	1	1	STD80988	08/23/17 19:06

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3				
	WG627001-02 1PPM PAHL STD failed high for Nitrobenzene-d5. Run curve.			

Page: 1 Approved: 24-AUG-17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS7 Dataset: 082817
Analyst1: LJH Analyst2: NA
Method: 8270L SOP: MSS03 Rev: 14
Method: OVAP SOP: MSS03 Rev: 0

Maintenance Log ID: Syringe Filter Lot#:
Eluent ID#:

Workgroups: Column 1 ID: RXI-5MS Column 2 ID: NA
WG627420
Internal STD: STD83574 Surrogate STD: NA Calibration STD
CCV STD: STD83209 LCS STD: MS/MSD STD:

Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	7M70186	BAKE OUT				08/28/17 11:56
2	7M70187	WG627455-01 5PPM DFTPP	1	1	STD83235	08/28/17 12:21
3	7M70188	WG627455-02 1PPM PAHL STD	1	1	STD83209	08/28/17 12:46
4	7M70189	WG627146-01 BLANK 827-PAHL	1	1		08/28/17 13:14
5	7M70190	WG627146-02 LCS 827-PAHL	1	1		08/28/17 13:40
6	7M70191	L17081208-01 RE	2	1		08/28/17 14:22
7	7M70192	L17081305-14 827-PAHL	1	1		08/28/17 14:49
8	7M70193	L17081305-16 827-PAHL	1	1		08/28/17 15:16
9	7M70194	L17081305-19 827-PAHL	1	1		08/28/17 15:42
10	7M70195	L17081324-03	1	1		08/28/17 16:09
11	7M70196	L17081324-08 REF	2	1		08/28/17 16:36
12	7M70197	L17081324-09 MS	2	1		08/28/17 17:03
13	7M70198	L17081324-10 MSD	2	1		08/28/17 17:30
14	7M70199	L17081324-11	1	1		08/28/17 17:57
15	7M70200	L17081324-12	1	1		08/28/17 18:23
16	7M70201	BAKE OUT	1	1		08/28/17 18:50
17	7M70202	BAKE OUT	1	1		08/28/17 19:17

Comments

Seq.	Rerun	Dil.	Reason	Analytes
6				
	L17081208-01 RE one low base surrogate.			

Page: 1 Approved: 29-AUG-17

Microbac Laboratories Inc.

Data Checklist

Date: 23-AUG-2017
Analyst: LJH
Analyst: NA
Method: 8270L
Instrument: HPMS7
Curve Workgroup: WG627001
Runlog ID: 84152
Analytical Workgroups: NA

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	X
Endrin/DDT breakdown (8081/MS)	X
Pentachlorophenol/benzidine tailing (MS)	X
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	X
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	X
Continuing calibration blank (CCB) (IC)	NA
Special standards	NA
Blanks	NA
TCL hits	NA
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	NA
Recoveries	NA
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	NA
TCL hits	NA
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	LJH
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MES

Primary Reviewer: 24-AUG-2017
Secondary Reviewer: 24-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-24-2017 11:07:33

Microbac Laboratories Inc.

Data Checklist

Date: 28-AUG-2017
Analyst: LJH
Analyst: NA
Method: 8270L
Instrument: HPMS7
Curve Workgroup: NA
Runlog ID: 84246
Analytical Workgroups: L17081208, -1305, -1324

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	X
Endrin/DDT breakdown (8081/MS)	X
Pentachlorophenol/benzidine tailing (MS)	X
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	X
Continuing calibration blank (CCB) (IC)	NA
Special standards	NA
Blanks	X
TCL hits	X
Surrogate recoveries	X
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	X
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	X
Surrogate recoveries	X
Internal standard areas (MS)	X
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	LJH
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MES

Primary Reviewer:
29-AUG-2017

Secondary Reviewer:
29-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-29-2017 14:27:52

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8270D_SIM AAB#: WG627420

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
MW09R-082317	14	08/23/17					08/25/2017	2	7		08/28/17	3	40	
DUP-GW-082317-2	16	08/23/17					08/25/2017	2.2	7		08/28/17	3	40	
MW19-082317	19	08/23/17					08/25/2017	2	7		08/28/17	3	40	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5453047
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L17081305
Instrument Id: HPMS7
Workgroup (AAB#): WG627420

Method: 8270L
CAL ID: HPMS7-23-AUG-17
Matrix: Water

Sample Number	Dilution	Tag	1	2	3
L17081305-14	1.00	01	61.4	81.4	87.6
L17081305-16	1.00	01	53.5	66.6	88.8
L17081305-19	1.00	01	47.9	65.9	81.7
WG627146-01	1.00	01	59.6	67.2	85.8
WG627146-02	1.00	01	61.0	67.0	86.8

Surrogates	Surrogate Limits		
1 - 2-Fluorobiphenyl	43	-	116
2 - Nitrobenzene-d5	35	-	114
3 - p-Terphenyl-d14	33	-	141

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 5453056
Report generated: 08/29/2017 15:02

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number:	L17081305	Work Group:	WG627420
Blank File ID:	7M70189	Blank Sample ID:	WG627146-01
Prep Date:	08/25/17 15:02	Instrument ID:	HPMS7
Analyzed Date:	08/28/17 13:14	Method:	8270D_SIM
Analyst:	LJH		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627146-02	7M70190	08/28/17 13:40	01
MW09R-082317	L17081305-14	7M70192	08/28/17 14:49	01
DUP-GW-082317-2	L17081305-16	7M70193	08/28/17 15:16	01
MW19-082317	L17081305-19	7M70194	08/28/17 15:42	01

Report Name: BLANK_SUMMARY
PDF File ID: 5453048
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/25/17 15:02 Sample ID: WG627146-01
Instrument ID: HPMS7 Run Date: 08/28/17 13:14 Prep Method: 3510C
File ID: 7M70189 Analyst: LJH Method: 8270D SIM
Workgroup (AAB#): WG627420 Matrix: Water Units: ug/L
Contract #: Cal ID: HPMS7-23-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
2-Methylnaphthalene	0.0250	0.0500	0.0250	1	U
Acenaphthene	0.0250	0.0500	0.0250	1	U
Acenaphthylene	0.0250	0.0500	0.0250	1	U
Anthracene	0.0250	0.0500	0.0250	1	U
Benzo(a)anthracene	0.0250	0.0500	0.0250	1	U
Benzo(a)pyrene	0.0250	0.0500	0.0250	1	U
Benzo(b)fluoranthene	0.0250	0.0500	0.0250	1	U
Benzo(g,h,i)perylene	0.0250	0.0500	0.0250	1	U
Benzo(k)fluoranthene	0.0250	0.0500	0.0250	1	U
Chrysene	0.0250	0.0500	0.0250	1	U
Dibenzo(a,h)anthracene	0.0250	0.0500	0.0250	1	U
Fluoranthene	0.0250	0.0500	0.0250	1	U
Fluorene	0.0250	0.0500	0.0250	1	U
Indeno(1,2,3-cd)pyrene	0.0250	0.0500	0.0250	1	U
Naphthalene	0.0250	0.0500	0.0250	1	U
Phenanthrene	0.0250	0.0500	0.0250	1	U
Pyrene	0.0250	0.0500	0.0250	1	U

Surrogates	% Recovery	Surrogate Limits			Qualifier
2-Fluorobiphenyl	59.6	43	-	116	PASS
Nitrobenzene-d5	67.2	35	-	114	PASS
p-Terphenyl-d14	85.8	33	-	141	PASS

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5453049
29-AUG-2017 15:02

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627146-02
Instrument ID: HPMS7 Run Time: 13:40 Prep Method: 3510C
File ID: 7M70190 Analyst: LJH Method: 8270D SIM
Workgroup (AAB#): WG627420 Matrix: Water Units: ug/L
QC Key: WATERLOO Lot#: STD82773 Cal ID: HPMS7-23-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
2-Methylnaphthalene	1.00	0.676	67.6	30 - 105	
Acenaphthene	1.00	0.709	70.9	30 - 110	
Acenaphthylene	1.00	0.647	64.7	30 - 115	
Anthracene	1.00	0.764	76.4	30 - 130	
Benzo(a)anthracene	1.00	1.09	109	50 - 150	
Benzo(a)pyrene	1.00	1.04	104	50 - 140	
Benzo(b)fluoranthene	1.00	1.09	109	40 - 150	
Benzo(g,h,i)perylene	1.00	0.741	74.1	30 - 150	
Benzo(k)fluoranthene	1.00	1.00	100	40 - 150	
Chrysene	1.00	1.01	101	45 - 145	
Dibenzo(a,h)anthracene	1.00	0.823	82.3	25 - 155	
Fluoranthene	1.00	1.00	100	40 - 150	
Fluorene	1.00	0.736	73.6	30 - 120	
Indeno(1,2,3-cd)pyrene	1.00	0.986	98.6	35 - 150	
Naphthalene	1.00	0.656	65.6	30 - 100	
Phenanthrene	1.00	0.809	80.9	30 - 130	
Pyrene	1.00	1.01	101	50 - 150	

Surrogates	% Recovery	Surrogate Limits	Qualifier
2-Fluorobiphenyl	61.0	43 - 116	PASS
Nitrobenzene-d5	67.0	35 - 114	PASS
p-Terphenyl-d14	86.8	33 - 141	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 5453058
Report generated: 08/29/2017 15:02

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L17081305
Instrument: HPMS7
Analyst: LJH
Workgroup: WG627017

Tune ID: WG627017-09
Run Date: 08/23/2017
Run Time: 15:00
File ID: 7M70161
Cal ID: HPMS7 - 23-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	43.3	33192	PASS
68.0	69.0	0	2.00	0.820	292	PASS
69.0	198	0	100	46.5	35620	PASS
70.0	69.0	0	2.00	1.32	469	PASS
127	198	40.0	60.0	56.0	42909	PASS
197	198	0	1.00	0	0	PASS
198	198	100	100	100	76666	PASS
199	198	5.00	9.00	7.02	5382	PASS
275	198	10.0	30.0	23.0	17664	PASS
365	198	1.00	100	2.38	1826	PASS
441	443	0.0100	100	83.0	5843	PASS
442	198	40.0	100	46.6	35715	PASS
443	442	17.0	23.0	19.7	7040	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG627017-01	STD-CCV	01	08/23/2017 15:58	
WG627017-02	STD	01	08/23/2017 16:25	
WG627017-03	STD	01	08/23/2017 16:52	
WG627017-04	STD	01	08/23/2017 17:19	
WG627017-05	STD	01	08/23/2017 17:46	
WG627017-06	STD	01	08/23/2017 18:13	
WG627017-07	STD	01	08/23/2017 18:40	
WG627017-08	SSCV	01	08/23/2017 19:06	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5453053
Report generated 08/30/2017 08:45

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L17081305
Instrument: HPMS7
Analyst: LJH
Workgroup: WG627455

Tune ID: WG627455-01
Run Date: 08/28/2017
Run Time: 12:21
File ID: 7M70187
Cal ID: HPMS7 - 23-AUG-17

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	39.9	27813	PASS
68.0	69.0	0	2.00	0.677	202	PASS
69.0	198	0	100	42.8	29838	PASS
70.0	69.0	0	2.00	1.49	446	PASS
127	198	40.0	60.0	53.8	37512	PASS
197	198	0	1.00	0	0	PASS
198	198	100	100	100	69704	PASS
199	198	5.00	9.00	6.68	4654	PASS
275	198	10.0	30.0	23.7	16532	PASS
365	198	1.00	100	2.66	1851	PASS
441	443	0.0100	100	84.1	5978	PASS
442	198	40.0	100	53.3	37122	PASS
443	442	17.0	23.0	19.1	7105	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG627455-02	CCV	01	08/28/2017 12:46	
WG627146-01	BLANK	01	08/28/2017 13:14	
WG627146-02	LCS	01	08/28/2017 13:40	
L17081305-14	MW09R-082317	01	08/28/2017 14:49	
L17081305-16	DUP-GW-082317-2	01	08/28/2017 15:16	
L17081305-19	MW19-082317	01	08/28/2017 15:42	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 5453053
Report generated 08/30/2017 08:45

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L17081305
Analytical Method: 8270D_SIM
ICAL Workgroup: WG627017
Instrument ID: HPMS7
Initial Calibration Date: 23-AUG-17 18:40
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Acenaphthene	CCC	1.322	3.60		
Benzo[a]pyrene	CCC	1.195	4.90		
Fluoranthene	CCC	1.224	3.48		
2-Methylnaphthalene		0.6888	2.34		
Acenaphthylene		2.139	9.49		
Anthracene		1.125	4.38		
Benzo[a]anthracene		1.150	2.60		
Benzo[b]fluoranthene		1.272	4.69		
Benzo[ghi]perylene		1.212	4.23		
Benzo[k]fluoranthene		1.268	3.38		
Chrysene		1.168	6.18		
Dibenz[ah]anthracene		1.162	3.94		
Fluorene		1.451	4.18		
Indeno[1,2,3-cd]pyrene		1.425	3.27		
Naphthalene		1.040	4.16		
Phenanthrene		1.167	4.93		
Pyrene		1.314	2.91		

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5453051
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D SIM
Instrument ID: HPMS7
Initial Calibration Date: 23-AUG-17 18:40
Column ID: F

Analyte	WG627017-01			WG627017-02			WG627017-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Acenaphthene	1.00	123599.000	1.307	10.0	1126661.00	1.267	5.00	527894.000	1.368
Benzo[a]pyrene	1.00	219859.000	1.140	10.0	1948451.00	1.222	5.00	891357.000	1.256
Fluoranthene	1.00	235645.000	1.260	10.0	2028183.00	1.168	5.00	938034.000	1.239
2-Methylnaphthalene	1.00	127200.000	0.6881	10.0	1170269.00	0.6618	5.00	516417.000	0.6838
Acenaphthylene	1.00	212499.000	2.247	10.0	1933292.00	2.173	5.00	871742.000	2.259
Anthracene	1.00	217420.000	1.163	10.0	1905490.00	1.097	5.00	874030.000	1.154
Benzo[a]anthracene	1.00	231036.000	1.143	10.0	1981892.00	1.106	5.00	918587.000	1.152
Benzo[b]fluoranthene	1.00	226037.000	1.172	10.0	1984096.00	1.244	5.00	934813.000	1.317
Benzo[ghi]perylene	1.00	216597.000	1.123	10.0	1906641.00	1.196	5.00	860624.000	1.213
Benzo[k]fluoranthene	1.00	231205.000	1.198	10.0	1974287.00	1.238	5.00	883807.000	1.245
Chrysene	1.00	228843.000	1.133	10.0	1914150.00	1.068	5.00	892470.000	1.119
Dibenz[ah]anthracene	1.00	211273.000	1.095	10.0	1913368.00	1.200	5.00	855125.000	1.205
Fluorene	1.00	140888.000	1.490	10.0	1265977.00	1.423	5.00	571255.000	1.480
Indeno[1,2,3-cd]pyrene	1.00	260655.000	1.351	10.0	2333306.00	1.463	5.00	1046227.00	1.474
Naphthalene	1.00	190787.000	1.032	10.0	1721578.00	0.9736	5.00	765164.000	1.013
Phenanthrene	1.00	216250.000	1.156	10.0	1857943.00	1.070	5.00	855583.000	1.130
Pyrene	1.00	266202.000	1.317	10.0	2250008.00	1.255	5.00	1027647.00	1.288

INT_CAL - Modified 03/06/2008
PDF File ID: 5453051
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D SIM

Instrument ID: HPMS7
Initial Calibration Date: 23-AUG-17 18:40
Column ID: F

Analyte	WG627017-04			WG627017-05			WG627017-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Acenaphthene	2.50	262518.000	1.391	0.500	50213.0000	1.343	0.0500	5146.00000	1.313
Benzo[a]pyrene	2.50	438525.000	1.269	0.500	81283.0000	1.206	0.0500	7569.00000	1.158
Fluoranthene	2.50	470361.000	1.272	0.500	92001.0000	1.253	0.0500	8653.00000	1.200
2-Methylnaphthalene	2.50	256095.000	0.6963	0.500	51285.0000	0.6985	0.0500	5146.00000	0.7129
Acenaphthylene	2.50	431443.000	2.286	0.500	83085.0000	2.222	0.0500	8143.00000	2.078
Anthracene	2.50	438405.000	1.185	0.500	84302.0000	1.148	0.0500	7689.00000	1.067
Benzo[a]anthracene	2.50	457444.000	1.170	0.500	88735.0000	1.157	0.0500	8871.00000	1.198
Benzo[b]fluoranthene	2.50	462285.000	1.337	0.500	87896.0000	1.304	0.0500	8533.00000	1.306
Benzo[ghi]perylene	2.50	423567.000	1.225	0.500	81773.0000	1.213	0.0500	8478.00000	1.297
Benzo[k]fluoranthene	2.50	440935.000	1.276	0.500	87438.0000	1.297	0.0500	8636.00000	1.322
Chrysene	2.50	454075.000	1.161	0.500	91138.0000	1.188	0.0500	9531.00000	1.288
Dibenz[ah]anthracene	2.50	416868.000	1.206	0.500	78597.0000	1.166	0.0500	7534.00000	1.153
Fluorene	2.50	284885.000	1.509	0.500	56305.0000	1.506	0.0500	5437.00000	1.387
Indeno[1,2,3-cd]pyrene	2.50	506501.000	1.465	0.500	95727.0000	1.420	0.0500	9272.00000	1.419
Naphthalene	2.50	380596.000	1.035	0.500	77675.0000	1.058	0.0500	8042.00000	1.114
Phenanthrene	2.50	431761.000	1.167	0.500	87740.0000	1.195	0.0500	9004.00000	1.249
Pyrene	2.50	515132.000	1.317	0.500	104236.000	1.359	0.0500	10090.0000	1.363

INT_CAL - Modified 03/06/2008
PDF File ID: 5453051
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 8270D SIM
Instrument ID: HPMS7
Initial Calibration Date: 23-AUG-17 18:40
Column ID: F

Analyte	WG627017-07		
	CONC	RESP	RF
Acenaphthene	0.100	9386.00000	1.268
Benzo[a]pyrene	0.100	13916.0000	1.116
Fluoranthene	0.100	16087.0000	1.173
2-Methylnaphthalene	0.100	9391.00000	0.6804
Acenaphthylene	0.100	12628.0000	1.706
Anthracene	0.100	14564.0000	1.062
Benzo[a]anthracene	0.100	15855.0000	1.126
Benzo[b]fluoranthene	0.100	15296.0000	1.227
Benzo[ghi]perylene	0.100	15163.0000	1.216
Benzo[k]fluoranthene	0.100	16196.0000	1.299
Chrysene	0.100	17187.0000	1.221
Dibenz[ah]anthracene	0.100	13826.0000	1.109
Fluorene	0.100	10060.0000	1.359
Indeno[1,2,3-cd]pyrene	0.100	17213.0000	1.381
Naphthalene	0.100	14530.0000	1.053
Phenanthrene	0.100	16516.0000	1.205
Pyrene	0.100	18292.0000	1.300

INT_CAL - Modified 03/06/2008
PDF File ID: 5453051
Report generated 08/29/2017 15:02

Response Factor Report hpms7

Method   : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title   : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
Curve: WG627017
Calibration Files
0.1   =7M70169.D   0.5   =7M70167.D   1   =7M70163.D
2.5   =7M70166.D   5   =7M70165.D   10   =7M70164.D

		Compound	0.1	0.5	1	2.5	5	10	Avg	%RSD
1)	I	Naphthalene-d8	ISTD							
2)	S	Nitrobenzene-d5	0.286	0.323	0.348	0.353	0.361	0.367	0.335	9.21
3)	P	Naphthalene	1.053	1.058	1.032	1.035	1.013	0.974	1.040	4.16
4)	P	2-Methylnaphthale	0.680	0.699	0.688	0.696	0.684	0.662	0.689	2.34
5)		1-Methylnaphthale	0.641	0.659	0.646	0.655	0.642	0.618	0.648	2.60
6)	I	Acenaphthene-d10	ISTD							
7)	S	2-Fluorobiphenyl	1.505	1.610	1.553	1.563	1.530	1.478	1.542	2.78
8)	P	Acenaphthylene	1.706	2.222	2.247	2.286	2.259	2.173	2.139	9.49
9)	C,P	Acenaphthene	1.268	1.343	1.307	1.391	1.368	1.266	1.322	3.60
10)	P	Fluorene	1.359	1.506	1.490	1.509	1.480	1.423	1.451	4.18
11)	I	Phenanthrene-d10	ISTD							
12)	P	Phenanthrene	1.205	1.195	1.156	1.167	1.130	1.070	1.167	4.93
13)	P	Anthracene	1.062	1.148	1.163	1.185	1.154	1.097	1.125	4.37
14)	C,P	Fluoranthene	1.173	1.253	1.260	1.272	1.239	1.168	1.224	3.48
15)	I	Chrysene-d12	ISTD							
16)	P	Pyrene	1.300	1.359	1.317	1.317	1.288	1.255	1.314	2.91
17)	S	p-Terphenyl-d14	0.890	0.905	0.858	0.876	0.857	0.830	0.880	4.24
18)	P	Benzo[a]anthracen	1.126	1.157	1.143	1.170	1.151	1.106	1.150	2.60
19)	P	Chrysene	1.221	1.188	1.132	1.162	1.119	1.068	1.168	6.18
20)	I	Perylene-d12	ISTD							
21)	P	Benzo[b]fluoranth	1.227	1.304	1.172	1.337	1.317	1.244	1.272	4.69
22)	P	Benzo[k]fluoranth	1.299	1.297	1.198	1.275	1.245	1.238	1.268	3.37
23)	C,P	Benzo[a]pyrene	1.116	1.205	1.140	1.268	1.256	1.222	1.195	4.90
24)	P	Indeno[1,2,3-cd]p	1.381	1.420	1.351	1.465	1.474	1.463	1.425	3.27
25)	P	Dibenz[ah]anthrac	1.109	1.166	1.095	1.206	1.205	1.200	1.162	3.94
26)	P	Benzo[ghi]perylen	1.216	1.213	1.122	1.225	1.213	1.196	1.212	4.23

(#) = Out of Range ### Number of calibration levels exceeded format ###

SIMPAHL.M   Thu Aug 24 09:01:30 2017

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 08/23/2017 Sample ID: WG627017-08
Instrument ID: HPMS7 Run Time: 19:06 Method: 8270D_SIM
File ID: 7M70170 Analyst: LJH QC Key: WATERLOO
ICal Workgroup: WG627017 Cal ID: HPMS7 - 23-AUG-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Acenaphthene	CCC	1000	1020	ug/L	1.35	2.20	25	
Benzo[a]pyrene	CCC	1000	1050	ug/L	1.25	5.00	25	
Fluoranthene	CCC	1000	1050	ug/L	1.28	5.00	25	
2-Methylnaphthalene		1000	1060	ug/L	0.733	6.40	25	
Acenaphthylene		1000	994	ug/L	2.13	0.600	25	
Anthracene		1000	1070	ug/L	1.21	7.10	25	
Benzo[a]anthracene		1000	1030	ug/L	1.19	3.10	25	
Benzo[b]fluoranthene		1000	1090	ug/L	1.39	9.50	25	
Benzo[ghi]perylene		1000	1050	ug/L	1.27	4.80	25	
Benzo[k]fluoranthene		1000	1070	ug/L	1.35	6.70	25	
Chrysene		1000	1050	ug/L	1.22	4.60	25	
Dibenz[ah]anthracene		1000	1050	ug/L	1.22	4.90	25	
Fluorene		1000	1000	ug/L	1.45	0.100	25	
Indeno[1,2,3-cd]pyrene		1000	1050	ug/L	1.49	4.50	25	
Naphthalene		1000	1050	ug/L	1.09	5.20	25	
Phenanthrene		1000	1030	ug/L	1.21	3.40	25	
Pyrene		1000	1030	ug/L	1.36	3.40	25	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5453052
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627455-02
Instrument ID: HPMS7 Run Time: 12:46 Method: 8270D_SIM
File ID: 7M70188 Analyst: LJH QC Key: WATERLOO
Workgroup (AAB#): WG627420 Cal ID: HPMS7 - 23-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Acenaphthene	CCC	1000	931	ug/L	1.23	6.95	20	
Benzo[a]pyrene	CCC	1000	960	ug/L	1.15	4.02	20	
Fluoranthene	CCC	1000	1040	ug/L	1.27	3.98	20	
2-Methylnaphthalene		1000	1010	ug/L	0.693	0.560	20	
Acenaphthylene		1000	990	ug/L	2.12	0.980	20	
Anthracene		1000	1030	ug/L	1.16	3.18	20	
Benzo[a]anthracene		1000	1010	ug/L	1.16	1.12	20	
Benzo[b]fluoranthene		1000	939	ug/L	1.19	6.11	20	
Benzo[ghi]perylene		1000	939	ug/L	1.14	6.13	20	
Benzo[k]fluoranthene		1000	923	ug/L	1.17	7.75	20	
Chrysene		1000	975	ug/L	1.14	2.50	20	
Dibenz[ah]anthracene		1000	946	ug/L	1.10	5.36	20	
Fluorene		1000	961	ug/L	1.39	3.91	20	
Indeno[1,2,3-cd]pyrene		1000	952	ug/L	1.36	4.85	20	
Naphthalene		1000	997	ug/L	1.04	0.280	20	
Phenanthrene		1000	994	ug/L	1.16	0.620	20	
Pyrene		1000	991	ug/L	1.30	0.870	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 5453054
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L17081305
Instrument ID: HPMS7
Workgroup (AAB#): WG627420

CCV Number: WG627455-02
CAL ID: HPMS7-23-AUG-17
Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3	IS-4	IS-5
WG627455-02	NA	NA	90189	178839	163331	174472	165539
Upper Limit	NA	NA	180378	357678	326662	348944	331078
Lower Limit	NA	NA	45095	89420	81666	87236	82770
L17081305-14	1.00	01	88231	175837	163049	161202	174521
L17081305-16	1.00	01	79738	159570	149691	144746	158688
L17081305-19	1.00	01	87362	162976	152844	148526	157973
WG627146-01	1.00	01	78100	157252	150305	146194	152607
WG627146-02	1.00	01	82208	166068	158060	153513	160556

IS-1 - Acenaphthene-d10
IS-2 - Chrysene-d12
IS-3 - Naphthalene-d8
IS-4 - Perylene-d12
IS-5 - Phenanthrene-d10

Underline = Response outside limits

INTERNAL_STD - Modified 03/06/2008
PDF File ID: 5453055
Report generated 08/29/2017 15:02

Microbac Laboratories Inc.

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L17081305 CCV Number: WG627455-02
Instrument ID: HPMS7 CAL ID: HPMS7-23-AUG-17
Workgroup (AAB#): WG627420 Matrix: WATER

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3	IS-4	IS-5
WG627455-02	NA	NA	8.43	13.65	6.23	16.02	10.28
Upper Limit	NA	NA	8.93	14.15	6.73	16.52	10.78
Lower Limit	NA	NA	7.93	13.15	5.73	15.52	9.78
L17081305-14	1.00	01	8.43	13.65	6.24	16.01	10.29
L17081305-16	1.00	01	8.43	13.65	6.24	16.01	10.29
L17081305-19	1.00	01	8.43	13.65	6.23	16.01	10.29
WG627146-01	1.00	01	8.43	13.65	6.23	16.01	10.29
WG627146-02	1.00	01	8.43	13.65	6.23	16.01	10.29

IS-1 - Acenaphthene-d10
IS-2 - Chrysene-d12
IS-3 - Naphthalene-d8
IS-4 - Perylene-d12
IS-5 - Phenanthrene-d10

Underline = Response outside limits

INTERNAL_STD_RT - Modified 03/06/2008
PDF File ID: 5453057
Report generated 08/29/2017 15:02

2.2.2.3 Sample Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70192.D Vial: 6
Acq On : 28 Aug 2017 2:49 pm Operator: LJH
Sample : L17081305-14 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:10:50 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

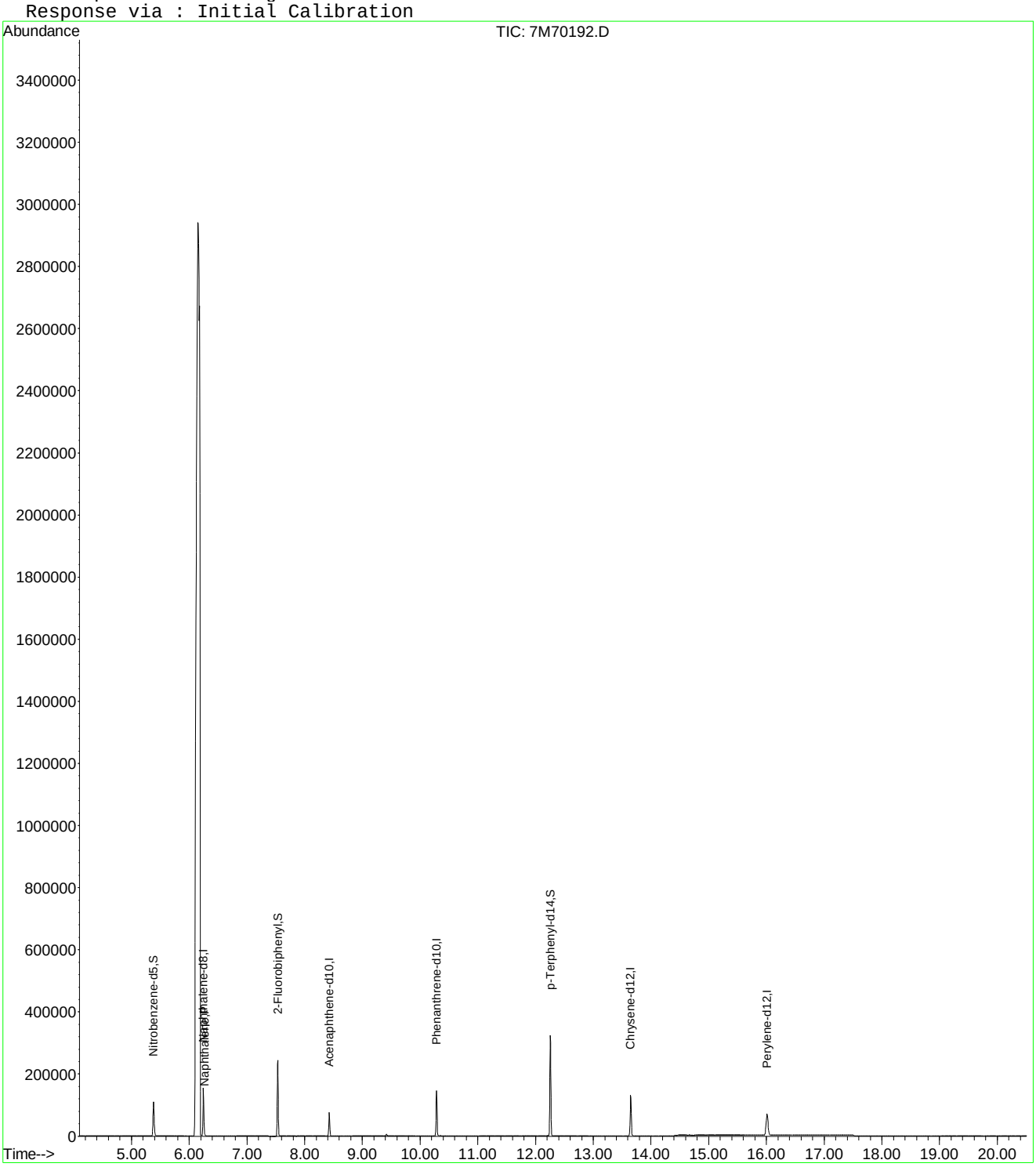
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.24	136	163049m	1.00	ug/ml	0.01
6) Acenaphthene-d10	8.43	164	88231	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	174521	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	175837	1.00	ug/ml	0.00
20) Perylene-d12	16.01	264	161202	1.00	ug/ml	-0.02
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	111047	2.04	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 81.60%			
7) 2-Fluorobiphenyl	7.54	172	208843	1.54	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 61.60%			
17) p-Terphenyl-d14	12.26	244	338668	2.19	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 87.60%			
Target Compounds						Qvalue
3) Naphthalene	6.27	128	5989	0.0353	ug/ml	98

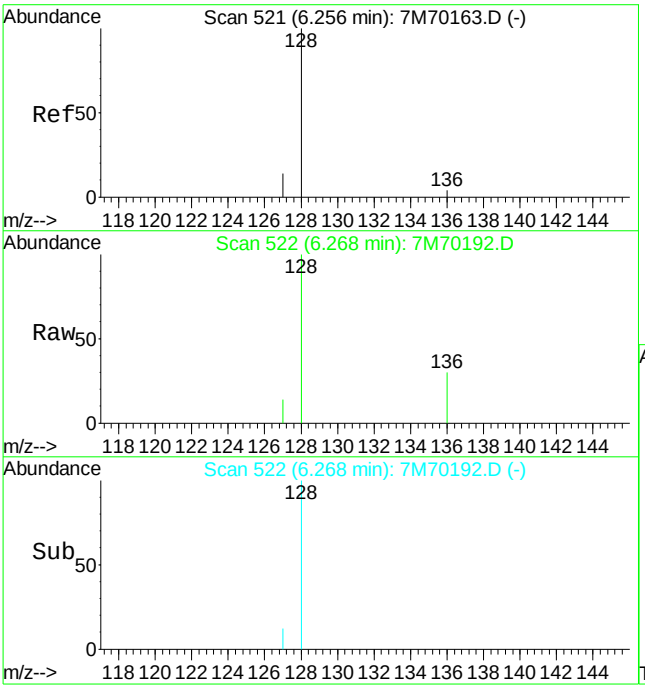
(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70192.D Vial: 6
Acq On : 28 Aug 2017 2:49 pm Operator: LJH
Sample : L17081305-14 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:11 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration

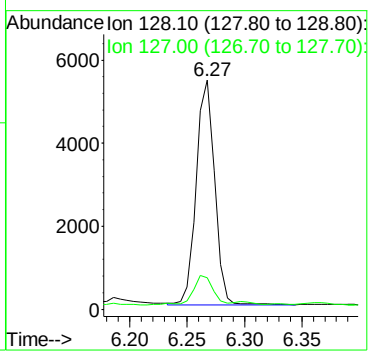




#3
Naphthalene
Concen: 0.04 ug/ml
RT: 6.27 min Scan# 522
Delta R.T. 0.01 min
Lab File: 7M70192.D
Acq: 28 Aug 2017 2:49 pm

Tgt Ion:128 Resp: 5989

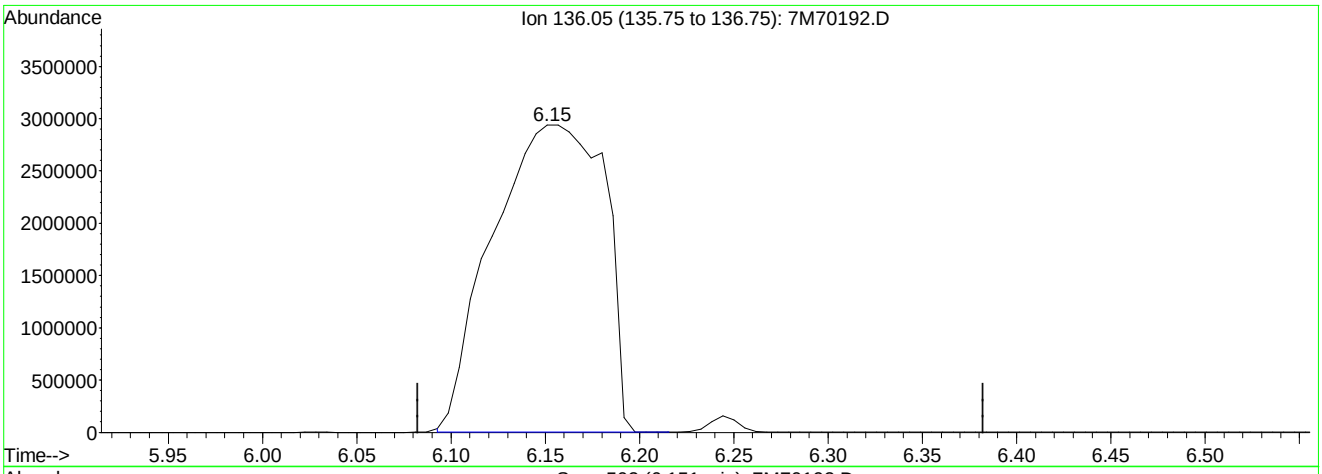
Ion	Ratio	Lower	Upper
128	100		
127	14.3	8.0	18.6



Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70192.D Vial: 6
Acq On : 28 Aug 2017 2:49 pm Operator: LJH
Sample : L17081305-14 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:10 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration



TIC: 7M70192.D

(1) Naphthalene-d8 (I)

6.15min 1.00ug/ml

response 12114637

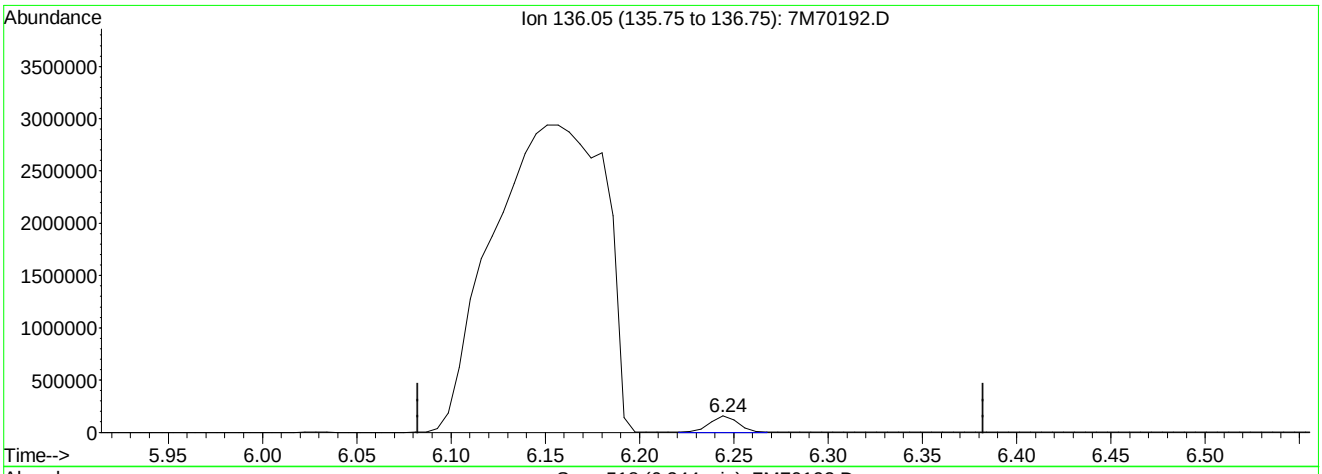
Ion	Exp%	Act%
136.05	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

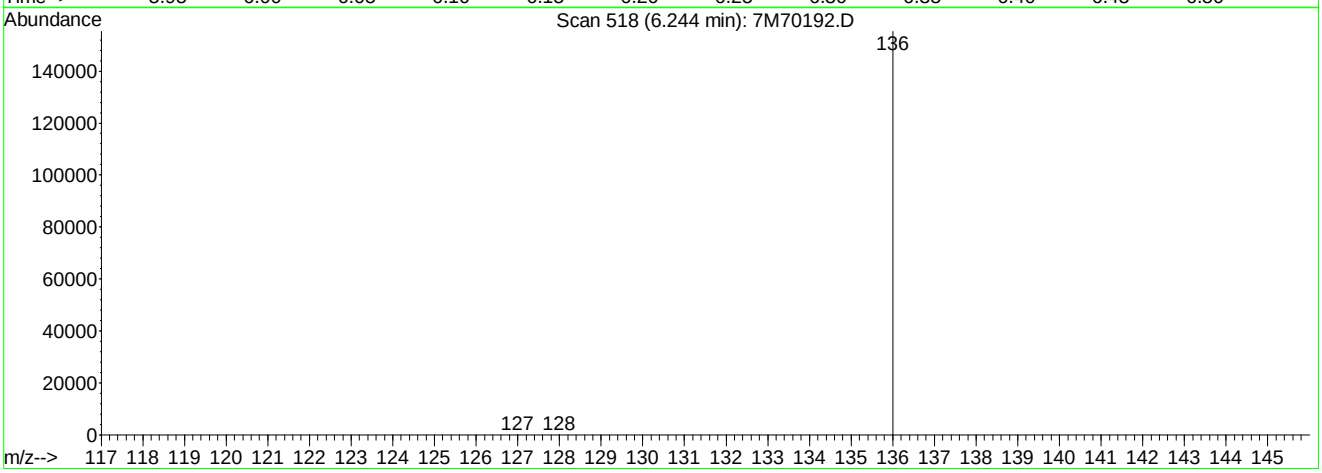
7M70192.D SIMPAHL.M Tue Aug 29 11:11:02 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70192.D Vial: 6
Acq On : 28 Aug 2017 2:49 pm Operator: LJH
Sample : L17081305-14 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:11 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration





TIC: 7M70192.D

(1) Naphthalene-d8 (I)

6.24min 1.00ug/ml mint

response 163049

Ion	Exp%	Act%
136.05	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

7M70192.D SIMPAHL.M Tue Aug 29 2017

Analyst: 08/29/2017 12:03 Supervisor: 08/29/2017 14:12

#1 - Data system fails to select correct peak

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70193.D Vial: 7
Acq On : 28 Aug 2017 3:16 pm Operator: LJH
Sample : L17081305-16 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:56:35 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

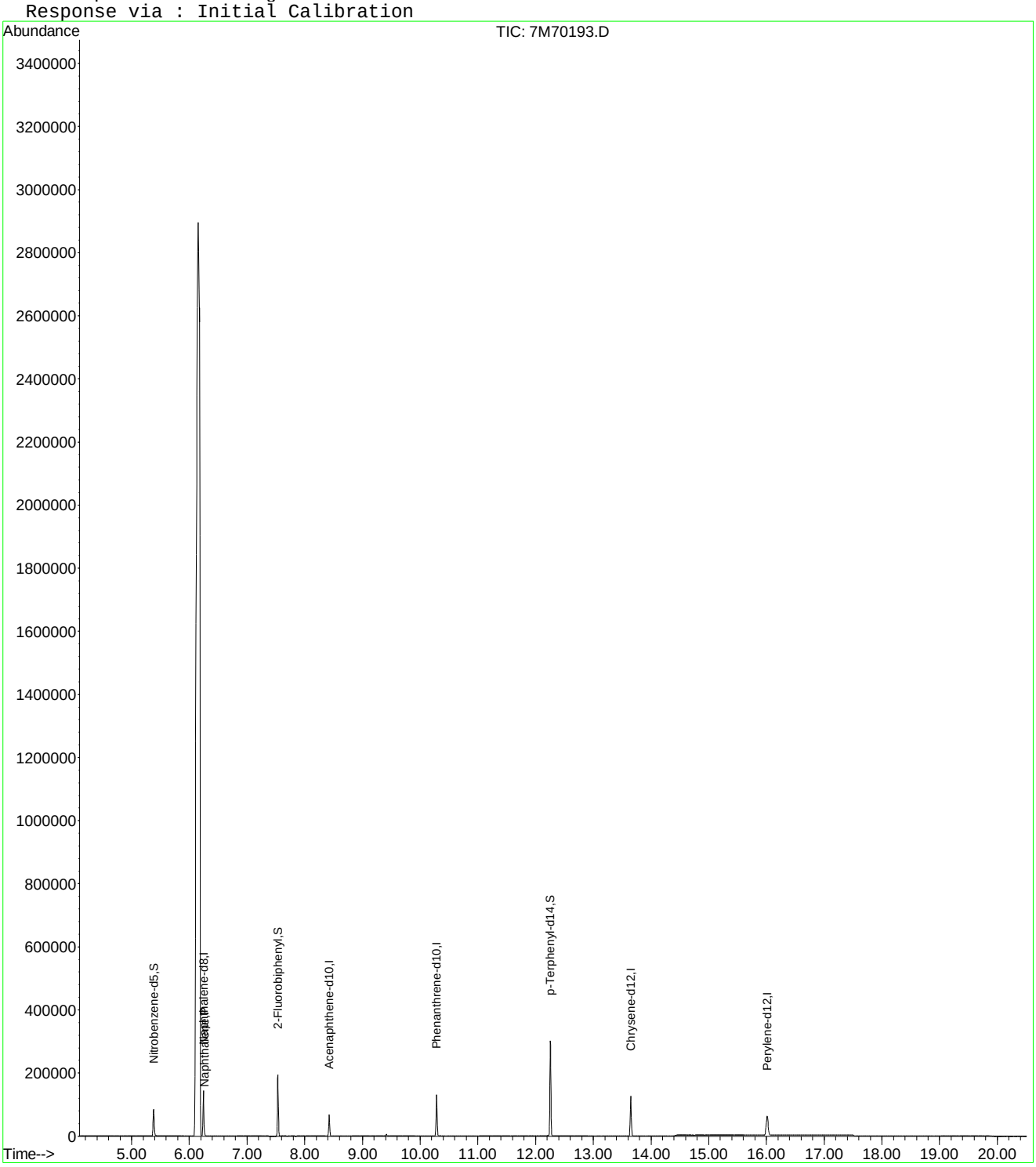
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.24	136	149691m	1.00	ug/ml	0.01
6) Acenaphthene-d10	8.43	164	79738	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	158688	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	159570	1.00	ug/ml	0.00
20) Perylene-d12	16.01	264	144746	1.00	ug/ml	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	83466	1.67	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 66.80%			
7) 2-Fluorobiphenyl	7.54	172	164380	1.34	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 53.60%			
17) p-Terphenyl-d14	12.26	244	311805	2.22	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 88.80%			
Target Compounds						Qvalue
3) Naphthalene	6.27	128	4688	0.0301	ug/ml	98

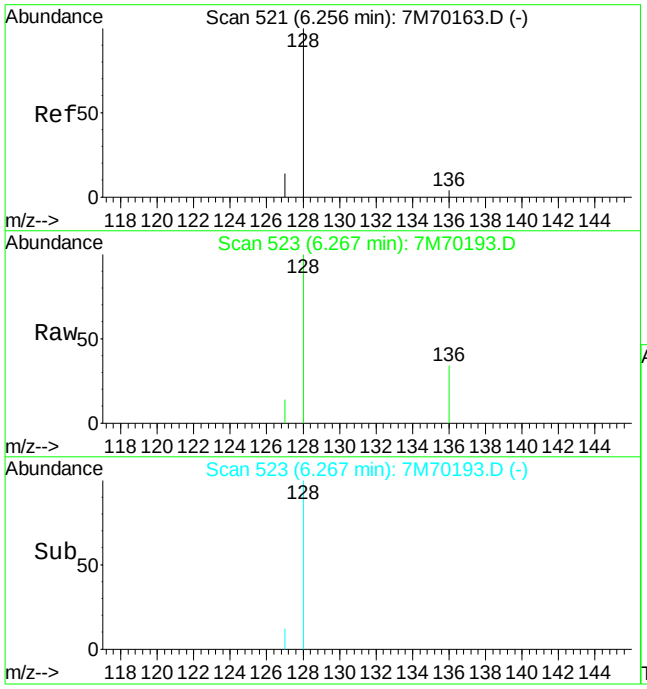
(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70193.D Vial: 7
Acq On : 28 Aug 2017 3:16 pm Operator: LJH
Sample : L17081305-16 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:11 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration

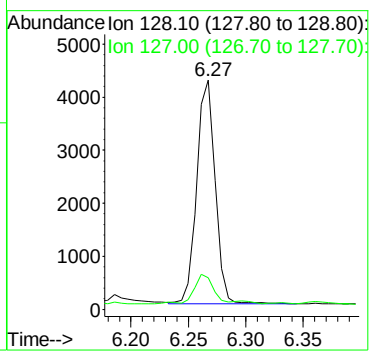




#3
Naphthalene
Concen: 0.03 ug/ml
RT: 6.27 min Scan# 523
Delta R.T. 0.01 min
Lab File: 7M70193.D
Acq: 28 Aug 2017 3:16 pm

Tgt Ion:128 Resp: 4688

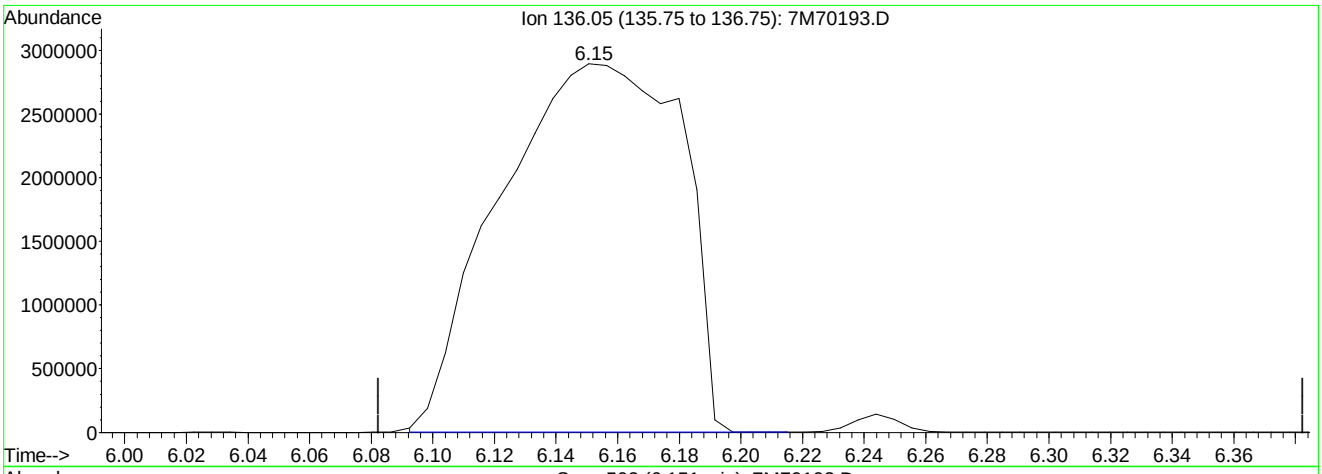
Ion	Ratio	Lower	Upper
128	100		
127	13.9	8.0	18.6

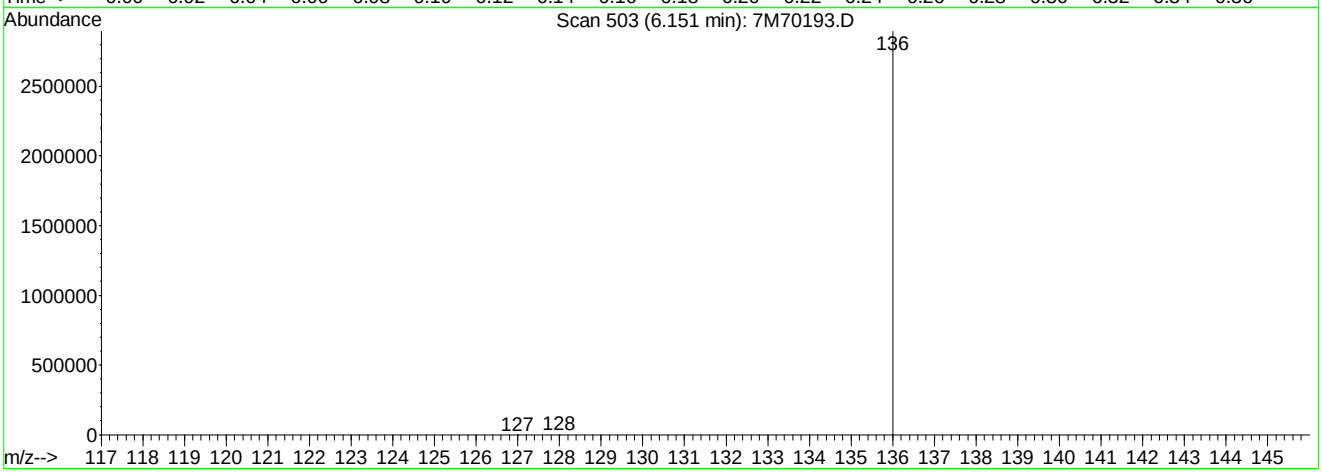


Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70193.D Vial: 7
Acq On : 28 Aug 2017 3:16 pm Operator: LJH
Sample : L17081305-16 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 10:56 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration





TIC: 7M70193.D

(1) Naphthalene-d8 (I)

6.15min 1.00ug/ml

response 11831245

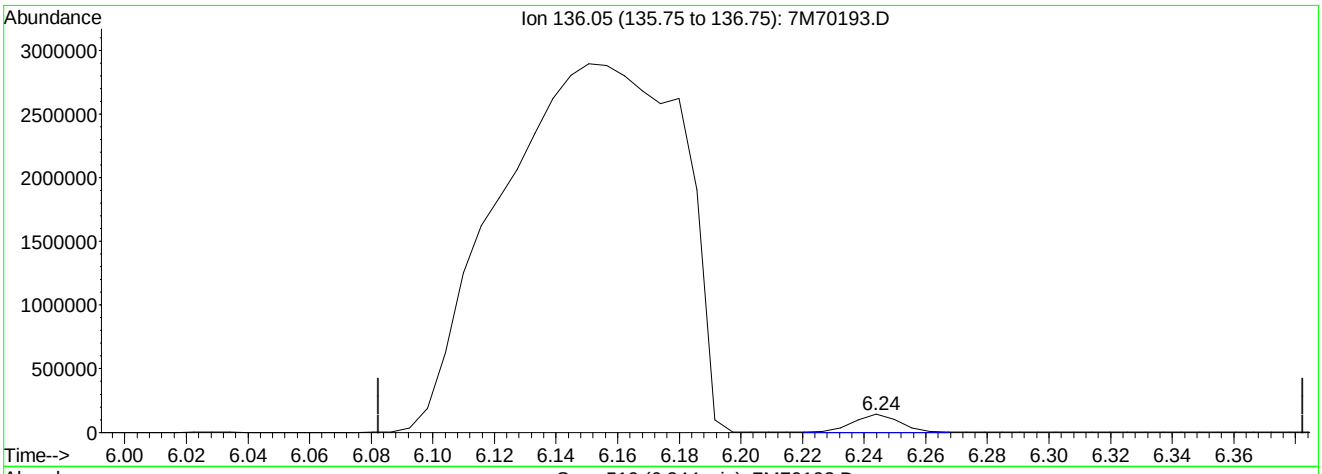
Ion	Exp%	Act%
136.05	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

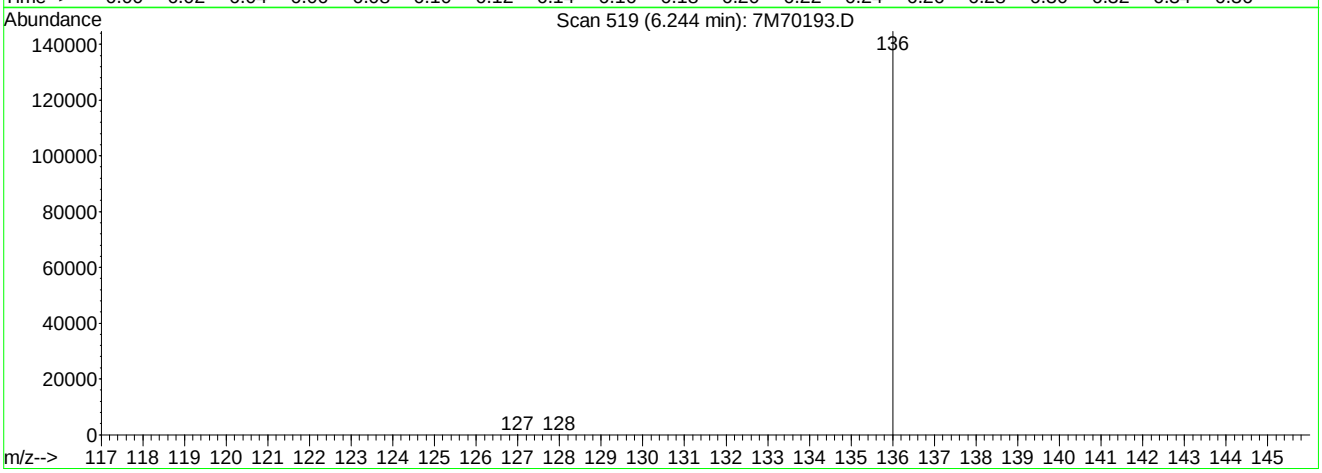
7M70193.D SIMPAHL.M Tue Aug 29 11:11:36 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70193.D Vial: 7
Acq On : 28 Aug 2017 3:16 pm Operator: LJH
Sample : L17081305-16 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:11 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration





TIC: 7M70193.D

(1) Naphthalene-d8 (I)

6.24min 1.00ug/ml mint

response 149691

Ion	Exp%	Act%
136.05	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

7M70193.D SIMPAHL.M Tue Aug 29 2017

Analyst: 08/29/2017 12:03 Supervisor: 08/29/2017 14:12

#1 - Data system fails to select correct peak

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70194.D Vial: 8
Acq On : 28 Aug 2017 3:42 pm Operator: LJH
Sample : L17081305-19 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:15:41 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

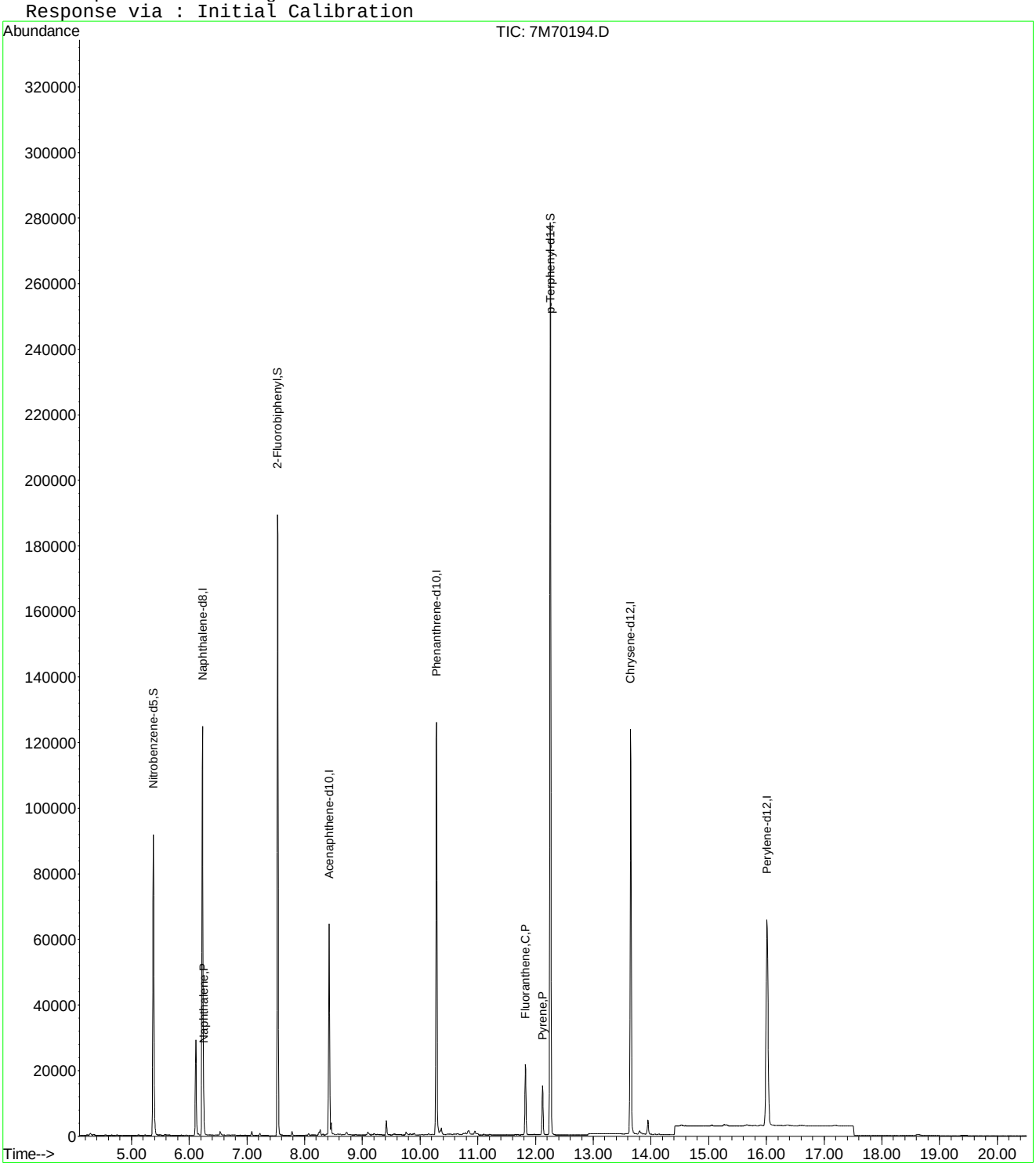
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	152844	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	87362	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	157973	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	162976	1.00	ug/ml	0.00
20) Perylene-d12	16.01	264	148526	1.00	ug/ml	-0.02
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	84236	1.65	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 66.00%			
7) 2-Fluorobiphenyl	7.54	172	161293	1.20	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 48.00%			
17) p-Terphenyl-d14	12.26	244	292842	2.04	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 81.60%			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	6059	0.0381	ug/ml	98
14) Fluoranthene	11.82	202	22779	0.1179	ug/ml	100
16) Pyrene	12.12	202	18538	0.0866	ug/ml	97

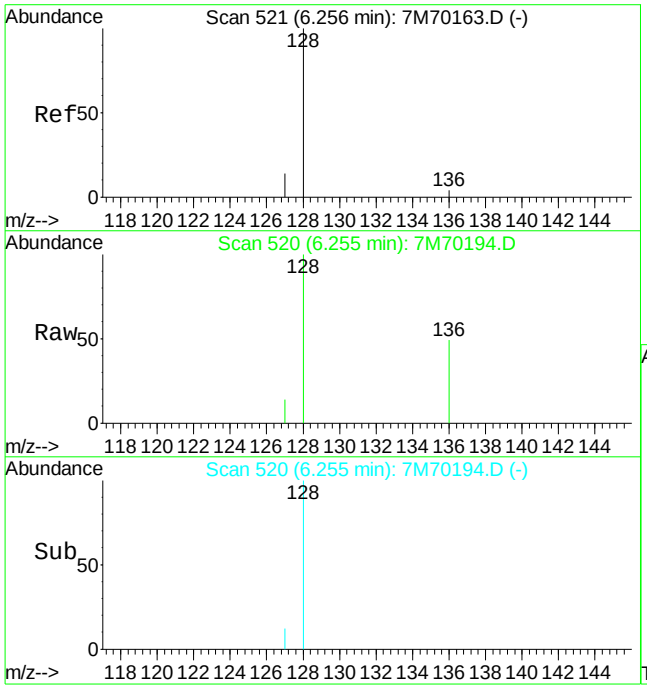
(#) = qualifier out of range (m) = manual integration
7M70194.D SIMPAHL.M Tue Aug 29 11:15:42 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70194.D Vial: 8
Acq On : 28 Aug 2017 3:42 pm Operator: LJH
Sample : L17081305-19 Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:15 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration

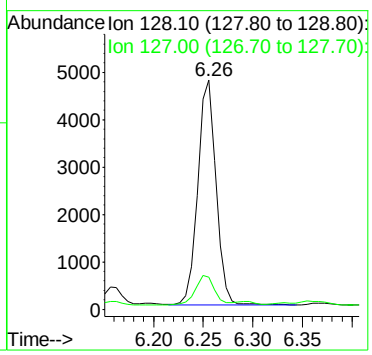


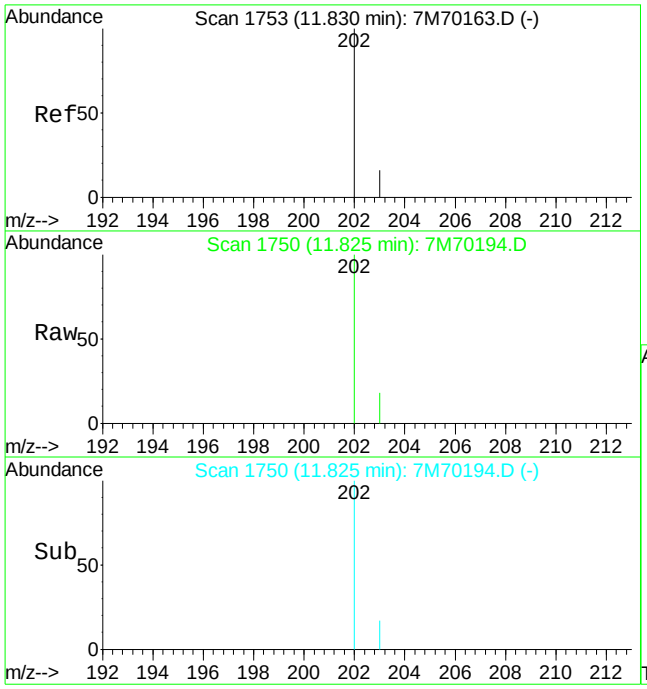


#3
Naphthalene
Concen: 0.04 ug/ml
RT: 6.26 min Scan# 520
Delta R.T. 0.00 min
Lab File: 7M70194.D
Acq: 28 Aug 2017 3:42 pm

Tgt Ion:128 Resp: 6059

Ion	Ratio	Lower	Upper
128	100		
127	14.1	8.0	18.6

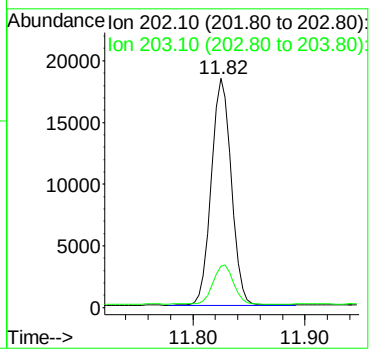


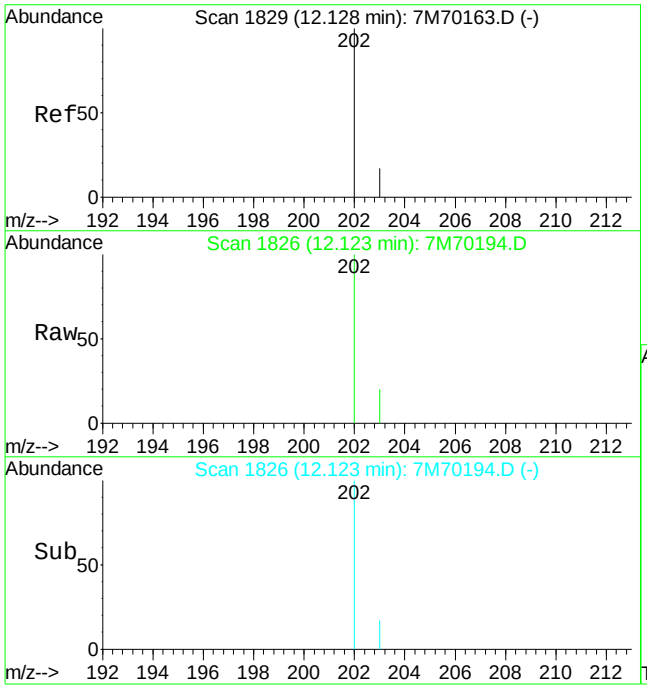


#14
Fluoranthene
Concen: 0.12 ug/ml
RT: 11.82 min Scan# 1750
Delta R.T. -0.00 min
Lab File: 7M70194.D
Acq: 28 Aug 2017 3:42 pm

Tgt Ion:202 Resp: 22779

Ion	Ratio	Lower	Upper
202	100		
203	17.7	10.6	24.8

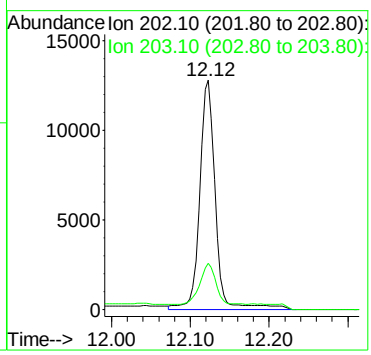




#16
Pyrene
Concen: 0.09 ug/ml
RT: 12.12 min Scan# 1826
Delta R.T. -0.00 min
Lab File: 7M70194.D
Acq: 28 Aug 2017 3:42 pm

Tgt Ion:202 Resp: 18538

Ion	Ratio	Lower	Upper
202	100		
203	17.1	11.0	25.8



2.2.2.4 Standards Data

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70163.D Vial: 2
Acq On : 23 Aug 2017 3:58 pm Operator: LJH
Sample : WG627017-01 1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:00:59 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

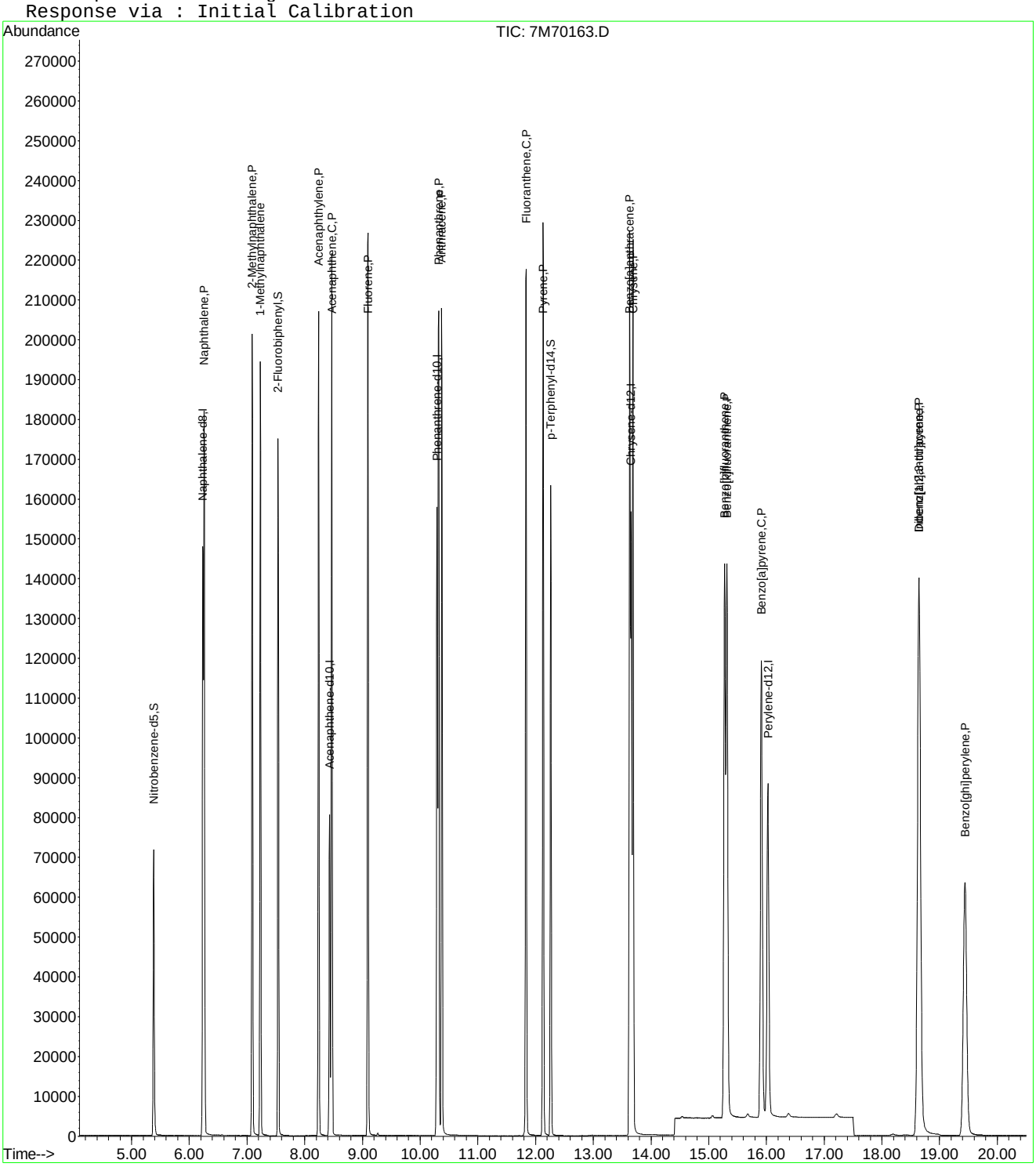
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	184858	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	94579	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	187008	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	202061	1.00	ug/ml	0.00
20) Perylene-d12	16.03	264	192936	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	64247	1.04	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 41.60%			
7) 2-Fluorobiphenyl	7.54	172	146853	1.01	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 40.40%#			
17) p-Terphenyl-d14	12.26	244	173561	0.98	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 39.20%			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	190787	0.9926	ug/ml	100
4) 2-Methylnaphthalene	7.09	142	127200	0.9989	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	119383	0.9974	ug/ml	100
8) Acenaphthylene	8.24	152	212499	1.0506	ug/ml	100
9) Acenaphthene	8.47	154	123599	0.9883	ug/ml	100
10) Fluorene	9.10	166	140888	1.0269	ug/ml	100
12) Phenanthrene	10.32	178	216250	0.9906	ug/ml	100
13) Anthracene	10.37	178	217420	1.0333	ug/ml	100
14) Fluoranthene	11.83	202	235645	1.0299	ug/ml	100
16) Pyrene	12.13	202	266202	1.0025	ug/ml	100
18) Benzo[a]anthracene	13.63	228	231036	0.9941	ug/ml	100
19) Chrysene	13.69	228	228843	0.9695	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	226037	0.9208	ug/ml	100
22) Benzo[k]fluoranthene	15.31	252	231205	0.9452	ug/ml	100
23) Benzo[a]pyrene	15.91	252	219859	0.9535	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.64	276	260655	0.9482	ug/ml	100
25) Dibenz[ah]anthracene	18.64	278	211273	0.9424	ug/ml	100
26) Benzo[ghi]perylene	19.44	276	216597	0.9264	ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70163.D Vial: 2
Acq On : 23 Aug 2017 3:58 pm Operator: LJH
Sample : WG627017-01 1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:00 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70164.D Vial: 3
Acq On : 23 Aug 2017 4:25 pm Operator: LJH
Sample : WG627017-02 10PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:01 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

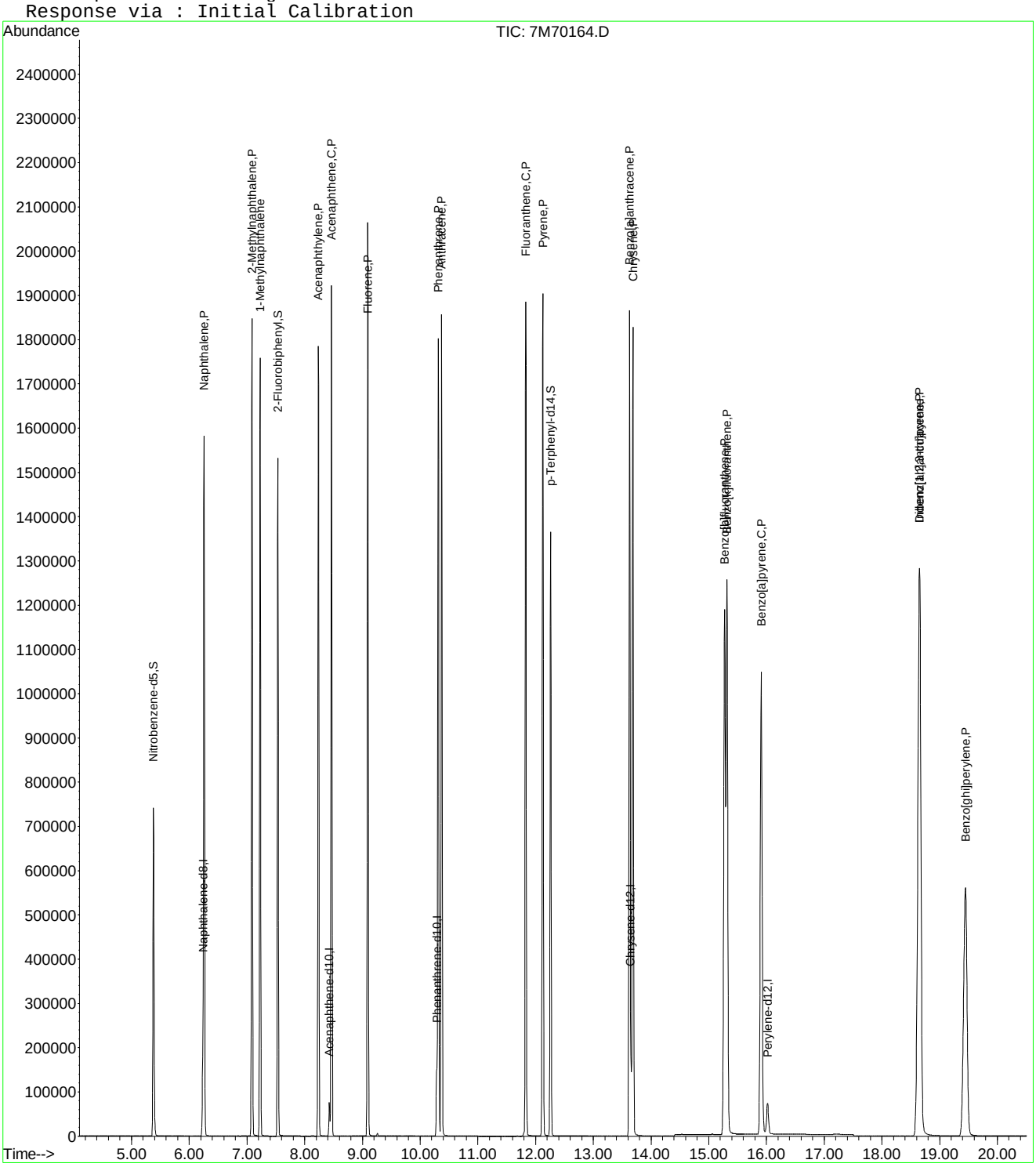
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	176829	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	88961	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	173667	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	179268	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	159454	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	649450	10.97	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 438.80%#			
7) 2-Fluorobiphenyl	7.53	172	1314405	9.58	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 383.20%#			
17) p-Terphenyl-d14	12.26	244	1487432	9.43	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 377.20%#			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	1721578	9.3631	ug/ml	98
4) 2-Methylnaphthalene	7.09	142	1170269	9.6076	ug/ml	99
5) 1-Methylnaphthalene	7.23	142	1093313	9.5486	ug/ml	99
8) Acenaphthylene	8.24	152	1933292	10.1617	ug/ml	98
9) Acenaphthene	8.47	154	1126661	9.5780	ug/ml	99
10) Fluorene	9.09	166	1265977	9.8101	ug/ml	100
12) Phenanthrene	10.31	178	1857943	9.1644	ug/ml	98
13) Anthracene	10.37	178	1905490	9.7517	ug/ml	98
14) Fluoranthene	11.83	202	2028183	9.5450	ug/ml	98
16) Pyrene	12.13	202	2250008	9.5507	ug/ml	98
18) Benzo[a]anthracene	13.63	228	1981892	9.6118	ug/ml	98
19) Chrysene	13.69	228	1914150	9.1402	ug/ml	98
21) Benzo[b]fluoranthene	15.27	252	1984096	9.7792	ug/ml	99
22) Benzo[k]fluoranthene	15.32	252	1974287	9.7658	ug/ml	98
23) Benzo[a]pyrene	15.91	252	1948451	10.2242	ug/ml	99
24) Indeno[1,2,3-cd]pyrene	18.65	276	2333306	10.2708	ug/ml	97
25) Dibenz[ah]anthracene	18.65	278	1913368	10.3272	ug/ml	98
26) Benzo[ghi]perylene	19.45	276	1906641	9.8672	ug/ml	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70164.D Vial: 3
Acq On : 23 Aug 2017 4:25 pm Operator: LJH
Sample : WG627017-02 10PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



7M70164.D SIMPAHL.M Thu Aug 24 09:01:02 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70165.D Vial: 4
Acq On : 23 Aug 2017 4:52 pm Operator: LJH
Sample : WG627017-03 5PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:02 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

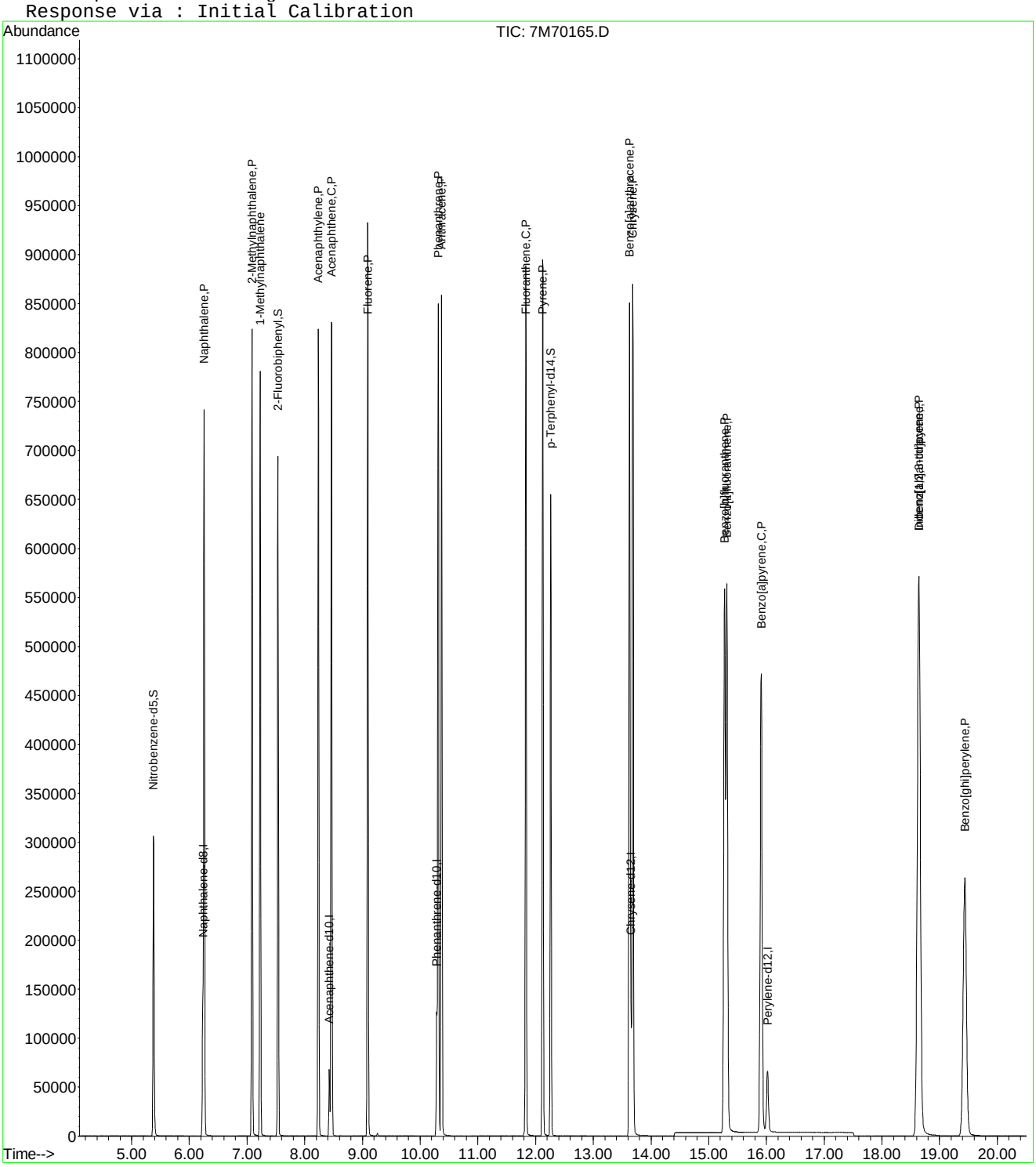
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	151050	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	77177	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	151442	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	159553	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	141933	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	272881	5.40	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 216.00%#			
7) 2-Fluorobiphenyl	7.54	172	590379	4.96	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 198.40%#			
17) p-Terphenyl-d14	12.26	244	684056	4.87	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 194.80%#			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	765164	4.8717	ug/ml	99
4) 2-Methylnaphthalene	7.08	142	516417	4.9632	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	484742	4.9561	ug/ml	100
8) Acenaphthylene	8.24	152	871742	5.2816	ug/ml	99
9) Acenaphthene	8.47	154	527894	5.1730	ug/ml	95
10) Fluorene	9.09	166	571255	5.1026	ug/ml	100
12) Phenanthrene	10.31	178	855583	4.8395	ug/ml	99
13) Anthracene	10.37	178	874030	5.1295	ug/ml	99
14) Fluoranthene	11.83	202	938034	5.0624	ug/ml	99
16) Pyrene	12.12	202	1027647	4.9011	ug/ml	100
18) Benzo[a]anthracene	13.63	228	918587	5.0054	ug/ml	99
19) Chrysene	13.68	228	892470	4.7882	ug/ml	99
21) Benzo[b]fluoranthene	15.27	252	934813	5.1763	ug/ml	97
22) Benzo[k]fluoranthene	15.31	252	883807	4.9114	ug/ml	96
23) Benzo[a]pyrene	15.91	252	891357	5.2546	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.64	276	1046227	5.1738	ug/ml	97
25) Dibenz[ah]anthracene	18.64	278	855125	5.1852	ug/ml	98
26) Benzo[ghi]perylene	19.44	276	860624	5.0037	ug/ml	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70165.D Vial: 4
Acq On : 23 Aug 2017 4:52 pm Operator: LJH
Sample : WG627017-03 5PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70166.D Vial: 5
Acq On : 23 Aug 2017 5:19 pm Operator: LJH
Sample : WG627017-04 2.5PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:04 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

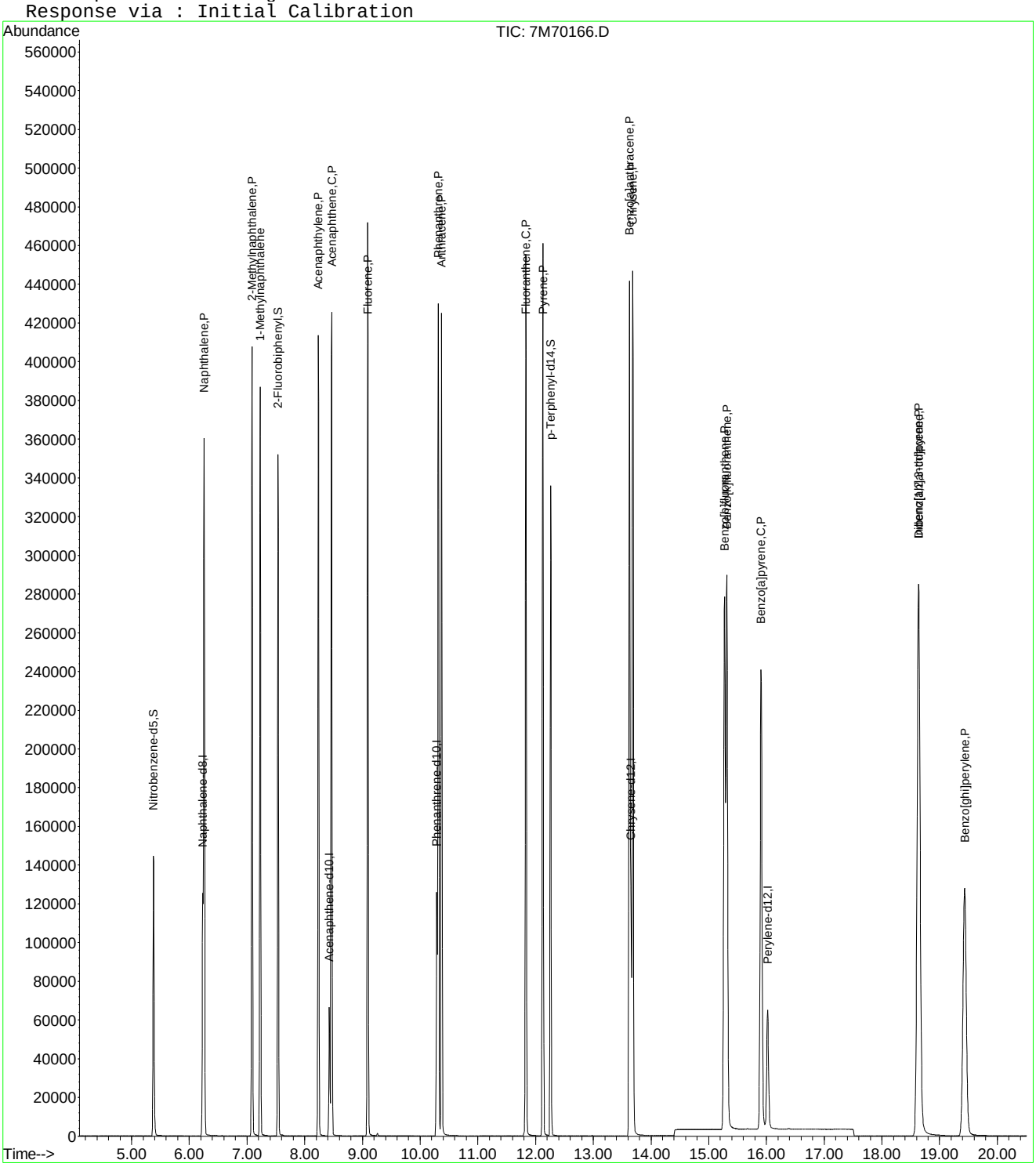
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	147112	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	75509	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	147947	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	156435	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	138282	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	129910	2.64	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 105.60%			
7) 2-Fluorobiphenyl	7.54	172	295062	2.53	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 101.20%			
17) p-Terphenyl-d14	12.26	244	342768	2.49	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 99.60%			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	380596	2.4881	ug/ml	100
4) 2-Methylnaphthalene	7.08	142	256095	2.5272	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	240796	2.5278	ug/ml	100
8) Acenaphthylene	8.24	152	431443	2.6717	ug/ml	100
9) Acenaphthene	8.47	154	262518	2.6293	ug/ml	95
10) Fluorene	9.09	166	284885	2.6009	ug/ml	100
12) Phenanthrene	10.31	178	431761	2.4999	ug/ml	100
13) Anthracene	10.37	178	438405	2.6337	ug/ml	100
14) Fluoranthene	11.83	202	470361	2.5984	ug/ml	100
16) Pyrene	12.13	202	515132	2.5058	ug/ml	100
18) Benzo[a]anthracene	13.62	228	457444	2.5423	ug/ml	100
19) Chrysene	13.68	228	454075	2.4847	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	462285	2.6274	ug/ml	97
22) Benzo[k]fluoranthene	15.31	252	440935	2.5150	ug/ml	96
23) Benzo[a]pyrene	15.90	252	438525	2.6534	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.63	276	506501	2.5709	ug/ml	96
25) Dibenz[ah]anthracene	18.63	278	416868	2.5945	ug/ml	98
26) Benzo[ghi]perylene	19.43	276	423567	2.5276	ug/ml	100

(#) = qualifier out of range (m) = manual integration
7M70166.D SIMPAHL.M Thu Aug 24 09:01:05 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70166.D Vial: 5
Acq On : 23 Aug 2017 5:19 pm Operator: LJH
Sample : WG627017-04 2.5PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70167.D Vial: 6
Acq On : 23 Aug 2017 5:46 pm Operator: LJH
Sample : WG627017-05 0.5PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:06 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

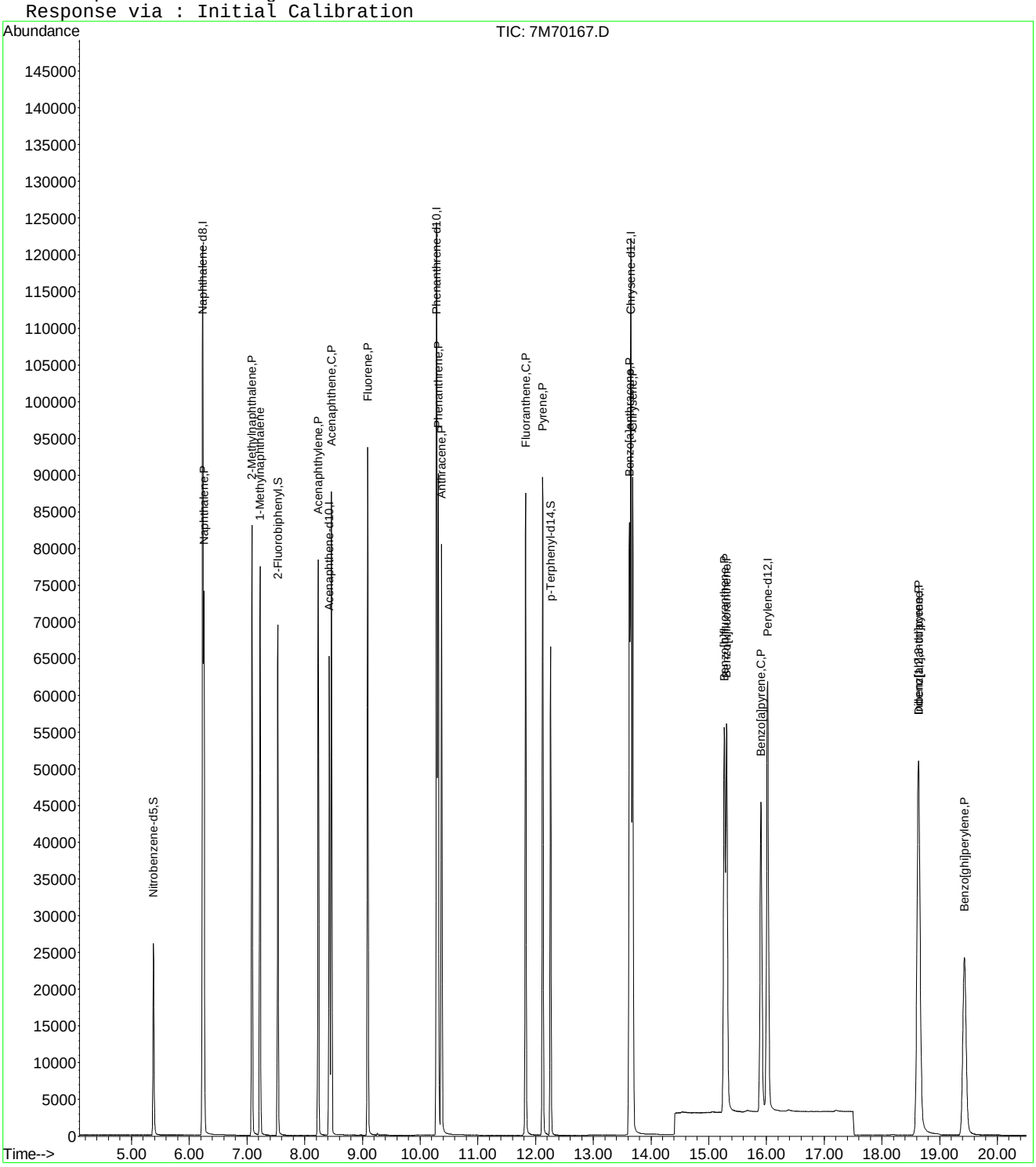
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	146835	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	74778	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	146906	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	153439	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	134856	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	23681	0.48	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 19.20%#			
7) 2-Fluorobiphenyl	7.54	172	60192	0.52	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 20.80%#			
17) p-Terphenyl-d14	12.26	244	69407	0.51	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 20.40%#			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	77675	0.5087	ug/ml	100
4) 2-Methylnaphthalene	7.09	142	51285	0.5070	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	48361	0.5086	ug/ml	100
8) Acenaphthylene	8.23	152	83085	0.5195	ug/ml	99
9) Acenaphthene	8.47	154	50213	0.5078	ug/ml	100
10) Fluorene	9.09	166	56305	0.5191	ug/ml	100
12) Phenanthrene	10.31	178	87740	0.5116	ug/ml	100
13) Anthracene	10.37	178	84302	0.5100	ug/ml	100
14) Fluoranthene	11.83	202	92001	0.5118	ug/ml	100
16) Pyrene	12.12	202	104236	0.5169	ug/ml	100
18) Benzo[a]anthracene	13.63	228	88735	0.5028	ug/ml	100
19) Chrysene	13.68	228	91138	0.5085	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	87896	0.5122	ug/ml	100
22) Benzo[k]fluoranthene	15.31	252	87438	0.5114	ug/ml	100
23) Benzo[a]pyrene	15.90	252	81283	0.5043	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.63	276	95727	0.4982	ug/ml	99
25) Dibenz[ah]anthracene	18.63	278	78597	0.5016	ug/ml	99
26) Benzo[ghi]perylene	19.43	276	81773	0.5004	ug/ml	100

(#) = qualifier out of range (m) = manual integration
7M70167.D SIMPAHL.M Thu Aug 24 09:01:06 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70167.D Vial: 6
Acq On : 23 Aug 2017 5:46 pm Operator: LJH
Sample : WG627017-05 0.5PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70168.D Vial: 7
Acq On : 23 Aug 2017 6:13 pm Operator: LJH
Sample : WG627017-06 0.05PPM PAHL ST Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:07 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

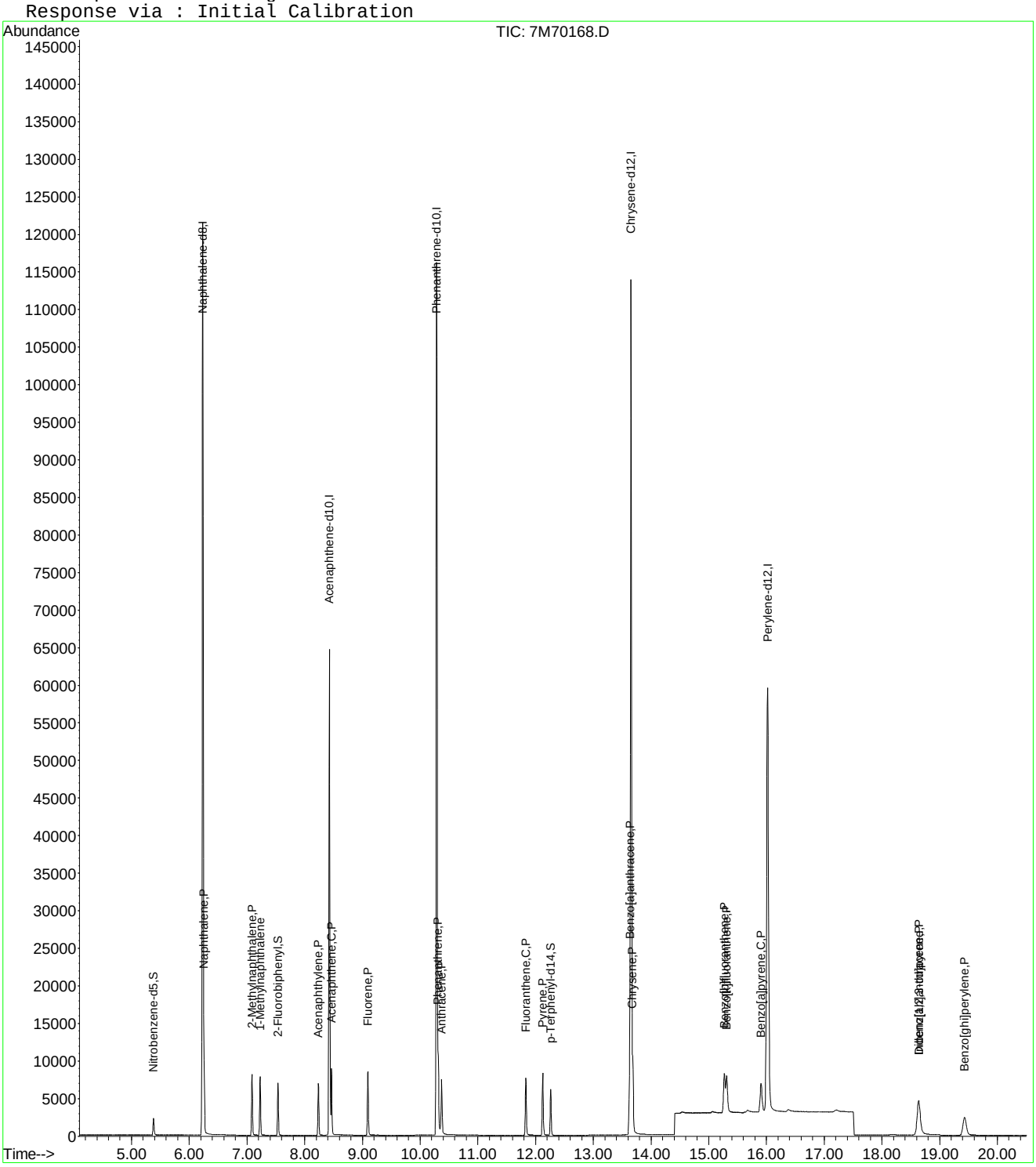
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	144364	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	78379	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.28	188	144177	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	148050	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	130689	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	2201	0.05	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 2.00%#			
7) 2-Fluorobiphenyl	7.54	172	6095	0.05	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 2.00%#			
17) p-Terphenyl-d14	12.26	244	6988	0.05	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 2.00%#			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	8042	0.0536	ug/ml	99
4) 2-Methylnaphthalene	7.09	142	5146	0.0517	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	4850	0.0519	ug/ml	100
8) Acenaphthylene	8.23	152	8143	0.0486	ug/ml	92
9) Acenaphthene	8.47	154	5146	0.0497	ug/ml	98
10) Fluorene	9.09	166	5437	0.0478	ug/ml	100
12) Phenanthrene	10.31	178	9004	0.0535	ug/ml	99
13) Anthracene	10.37	178	7689	0.0474	ug/ml	100
14) Fluoranthene	11.83	202	8653	0.0491	ug/ml	99
16) Pyrene	12.12	202	10090	0.0519	ug/ml	95
18) Benzo[a]anthracene	13.63	228	8871	0.0521	ug/ml	98
19) Chrysene	13.68	228	9531	0.0551	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	8533	0.0513	ug/ml	100
22) Benzo[k]fluoranthene	15.31	252	8636	0.0521	ug/ml	97
23) Benzo[a]pyrene	15.90	252	7569	0.0485	ug/ml	96
24) Indeno[1,2,3-cd]pyrene	18.64	276	9272	0.0498	ug/ml	99
25) Dibenz[ah]anthracene	18.64	278	7534	0.0496	ug/ml	100
26) Benzo[ghi]perylene	19.43	276	8478	0.0535	ug/ml	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70168.D Vial: 7
Acq On : 23 Aug 2017 6:13 pm Operator: LJH
Sample : WG627017-06 0.05PPM PAHL ST Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70169.D Vial: 8
Acq On : 23 Aug 2017 6:40 pm Operator: LJH
Sample : WG627017-07 0.1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:09 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

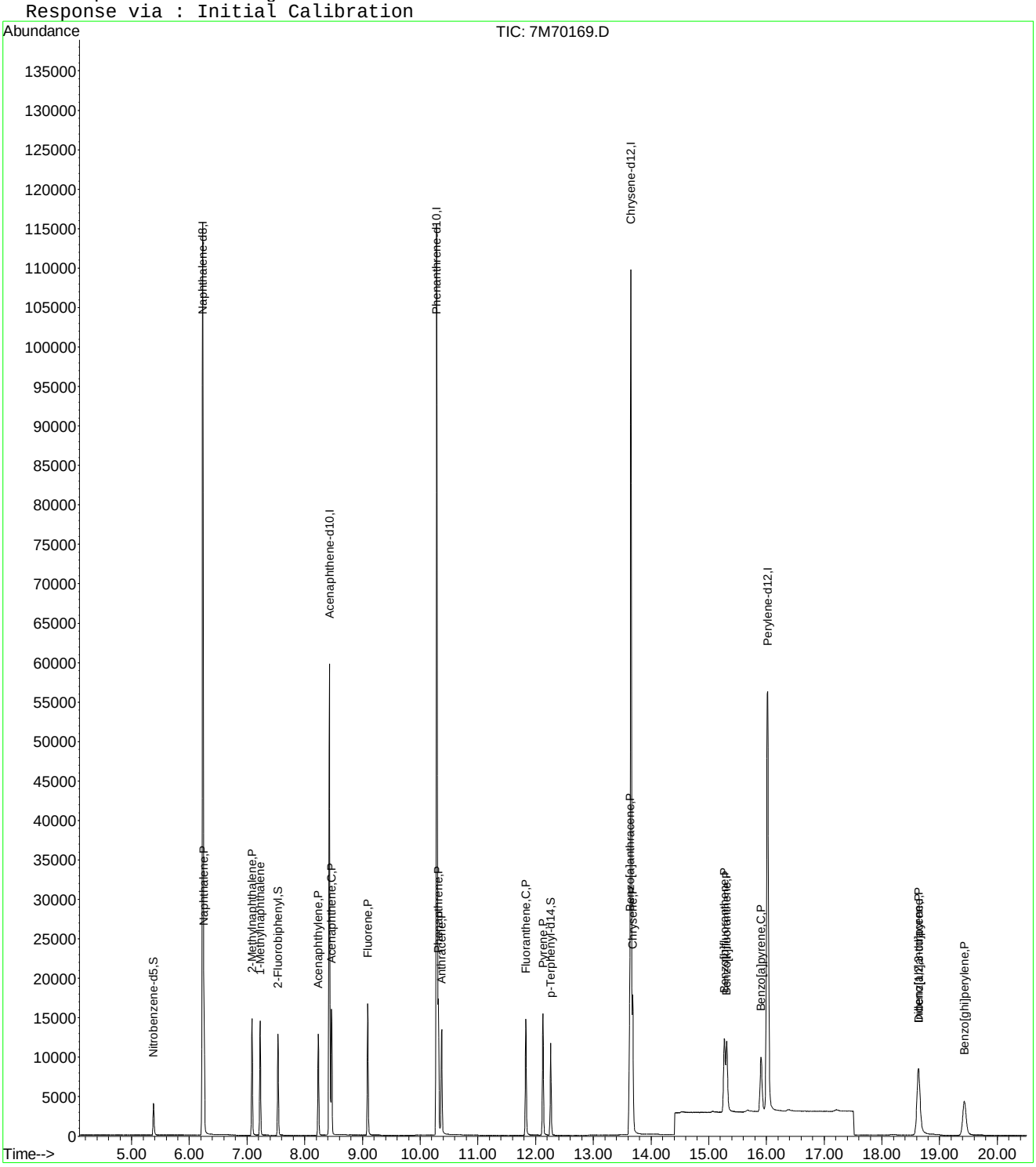
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	138024	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	74035	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	137098	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	140753	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	124661	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	3945	0.09	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 3.60%#			
7) 2-Fluorobiphenyl	7.54	172	11144	0.10	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 4.00%#			
17) p-Terphenyl-d14	12.26	244	12521	0.10	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 4.00%#			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	14530	0.1012	ug/ml	100
4) 2-Methylnaphthalene	7.08	142	9391	0.0988	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	8851	0.0990	ug/ml	100
8) Acenaphthylene	8.24	152	12628	0.0798	ug/ml	99
9) Acenaphthene	8.46	154	9386	0.0959	ug/ml	98
10) Fluorene	9.09	166	10060	0.0937	ug/ml	100
12) Phenanthrene	10.31	178	16516	0.1032	ug/ml	99
13) Anthracene	10.37	178	14564	0.0944	ug/ml	99
14) Fluoranthene	11.83	202	16087	0.0959	ug/ml	99
16) Pyrene	12.12	202	18292	0.0989	ug/ml	96
18) Benzo[a]anthracene	13.63	228	15855	0.0979	ug/ml	99
19) Chrysene	13.68	228	17187	0.1045	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	15296	0.0964	ug/ml	99
22) Benzo[k]fluoranthene	15.31	252	16196	0.1025	ug/ml	99
23) Benzo[a]pyrene	15.90	252	13916	0.0934	ug/ml	98
24) Indeno[1,2,3-cd]pyrene	18.63	276	17213	0.0969	ug/ml	100
25) Dibenz[ah]anthracene	18.63	278	13826	0.0955	ug/ml	99
26) Benzo[ghi]perylene	19.43	276	15163	0.1004	ug/ml	100

(#) = qualifier out of range (m) = manual integration
7M70169.D SIMPAHL.M Thu Aug 24 11:12:07 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70169.D Vial: 8
Acq On : 23 Aug 2017 6:40 pm Operator: LJH
Sample : WG627017-07 0.1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



7M70169.D SIMPAHL.M Thu Aug 24 11:12:07 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70170.D Vial: 9
Acq On : 23 Aug 2017 7:06 pm Operator: LJH
Sample : WG627017-08 1PPM ALT PAHL STD Inst : hpms7
Misc : 1,1 STD80988 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 09:01:11 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

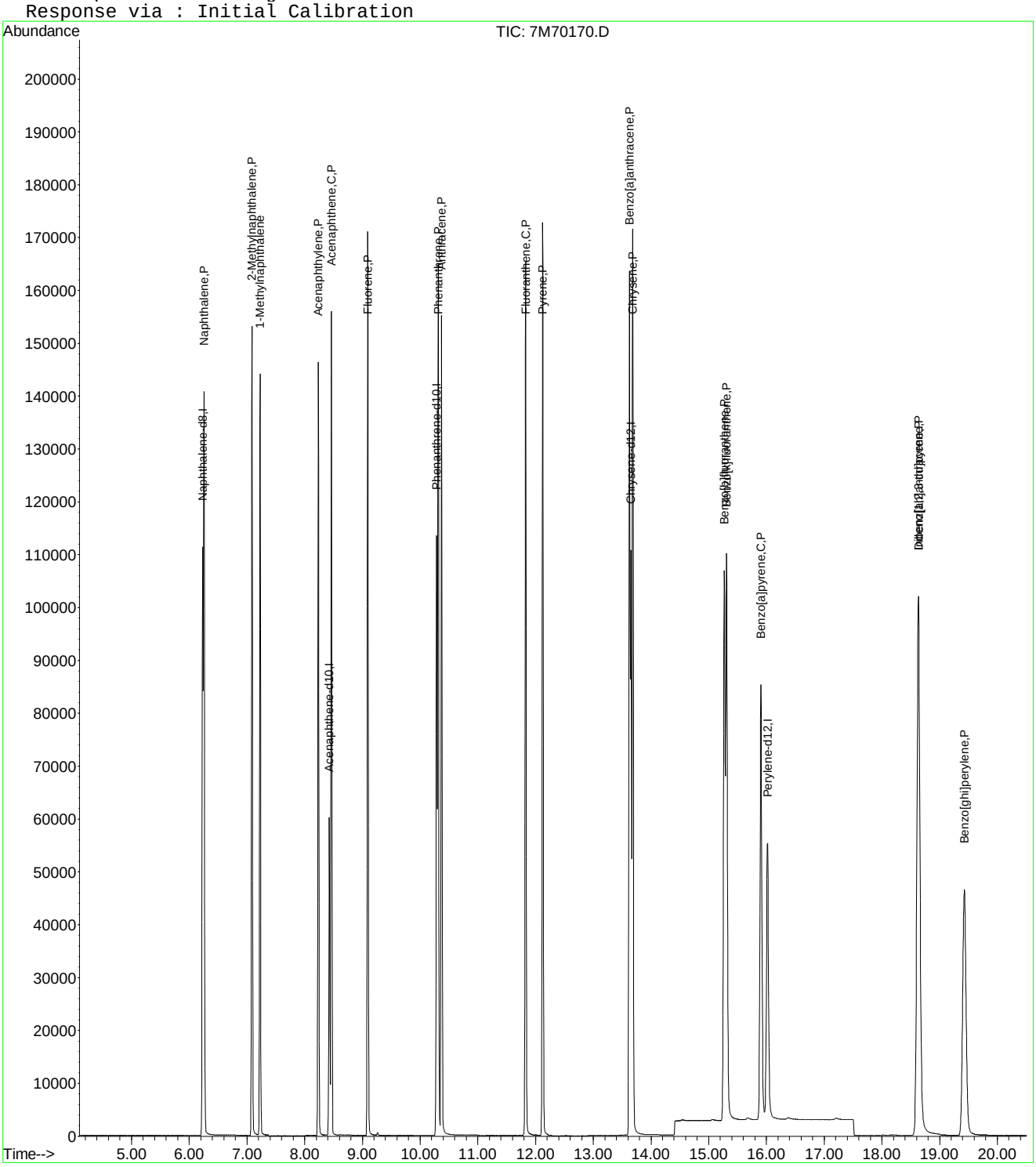
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	133725	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	72590	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	133994	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	141449	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	124318	1.00	ug/ml	0.00
System Monitoring Compounds						
2) Nitrobenzene-d5	5.39	82	15	0.00	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 0.00%#			
7) 2-Fluorobiphenyl	7.54	172	11	0.00	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 0.00%#			
17) p-Terphenyl-d14	12.26	244	341	0.00	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 0.00%#			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	146334	1.0524	ug/ml	100
4) 2-Methylnaphthalene	7.09	142	98020	1.0641	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	90589	1.0462	ug/ml	100
8) Acenaphthylene	8.24	152	154286	0.9938	ug/ml	100
9) Acenaphthene	8.47	154	98121	1.0223	ug/ml	94
10) Fluorene	9.09	166	105412	1.0011	ug/ml	100
12) Phenanthrene	10.31	178	161787	1.0343	ug/ml	100
13) Anthracene	10.37	178	161467	1.0710	ug/ml	100
14) Fluoranthene	11.83	202	172170	1.0502	ug/ml	99
16) Pyrene	12.12	202	192241	1.0342	ug/ml	99
18) Benzo[a]anthracene	13.62	228	167720	1.0309	ug/ml	100
19) Chrysene	13.68	228	172909	1.0464	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	173136	1.0945	ug/ml	97
22) Benzo[k]fluoranthene	15.31	252	168215	1.0672	ug/ml	97
23) Benzo[a]pyrene	15.90	252	155982	1.0498	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.63	276	185122	1.0452	ug/ml	98
25) Dibenz[ah]anthracene	18.63	278	151493	1.0488	ug/ml	99
26) Benzo[ghi]perylene	19.43	276	157810	1.0475	ug/ml	100

(#) = qualifier out of range (m) = manual integration
7M70170.D SIMPAHL.M Thu Aug 24 09:01:12 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082317\7M70170.D Vial: 9
Acq On : 23 Aug 2017 7:06 pm Operator: LJH
Sample : WG627017-08 1PPM ALT PAHL STD Inst : hpms7
Misc : 1,1 STD80988 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 24 9:01 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\082317\7M70170.D Vial: 9
Acq On : 23 Aug 2017 7:06 pm Operator: LJH
Sample : WG627017-08 1PPM ALT PAHL STD Inst : hpms7
Misc : 1,1 STD80988 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Naphthalene-d8	1.000	1.000	0.0	72	0.00
2	S	Nitrobenzene-d5	0.335	0.000	100.0#	0#	0.00
3	P	Naphthalene	1.040	1.094	-5.2	77	0.00
4	P	2-Methylnaphthalene	0.689	0.733	-6.4	77	0.00
5		1-Methylnaphthalene	0.648	0.677	-4.5	76	0.00
6	I	Acenaphthene-d10	1.000	1.000	0.0	77	0.00
7	S	2-Fluorobiphenyl	1.542	0.000	100.0#	0#	0.00
8	P	Acenaphthylene	2.139	2.125	0.7	73	0.00
9	C,P	Acenaphthene	1.322	1.352	-2.3	79	0.00
10	P	Fluorene	1.451	1.452	-0.1	75	0.00
11	I	Phenanthrene-d10	1.000	1.000	0.0	72	0.00
12	P	Phenanthrene	1.167	1.207	-3.4	75	0.00
13	P	Anthracene	1.125	1.205	-7.1	74	0.00
14	C,P	Fluoranthene	1.224	1.285	-5.0	73	0.00
15	I	Chrysene-d12	1.000	1.000	0.0	70	0.00
16	P	Pyrene	1.314	1.359	-3.4	72	0.00
17	S	p-Terphenyl-d14	0.880	0.002	99.8#	0#	0.00
18	P	Benzo[a]anthracene	1.150	1.186	-3.1	73	0.00
19	P	Chrysene	1.168	1.222	-4.6	76	0.00
20	I	Perylene-d12	1.000	1.000	0.0	64	0.00
21	P	Benzo[b]fluoranthene	1.272	1.393	-9.5	77	0.00
22	P	Benzo[k]fluoranthene	1.268	1.353	-6.7	73	0.00
23	C,P	Benzo[a]pyrene	1.195	1.255	-5.0	71	0.00
24	P	Indeno[1,2,3-cd]pyrene	1.425	1.489	-4.5	71	0.00
25	P	Dibenz[ah]anthracene	1.162	1.219	-4.9	72	0.00
26	P	Benzo[ghi]perylene	1.212	1.269	-4.7	73	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
7M70170.D SIMPAHL.M Thu Aug 24 10:22:08 2017 Page 1

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\082317\7M70170.D Vial: 9
Acq On : 23 Aug 2017 7:06 pm Operator: LJH
Sample : WG627017-08 1PPM ALT PAHL STD Inst : hpms7
Misc : 1,1 STD80988 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Naphthalene-d8	1.000	1.000	0.0	72	0.00
2	S	Nitrobenzene-d5	1.000	0.000	100.0#	0	0.00
3	P	Naphthalene	1.000	1.052	-5.2	77	0.00
4	P	2-Methylnaphthalene	1.000	1.064	-6.4	77	0.00
5		1-Methylnaphthalene	1.000	1.046	-4.6	76	0.00
6	I	Acenaphthene-d10	1.000	1.000	0.0	77	0.00
7	S	2-Fluorobiphenyl	1.000	0.000	100.0#	0	0.00
8	P	Acenaphthylene	1.000	0.994	0.6	73	0.00
9	C,P	Acenaphthene	1.000	1.022	-2.2	79	0.00
10	P	Fluorene	1.000	1.001	-0.1	75	0.00
11	I	Phenanthrene-d10	1.000	1.000	0.0	72	0.00
12	P	Phenanthrene	1.000	1.034	-3.4	75	0.00
13	P	Anthracene	1.000	1.071	-7.1	74	0.00
14	C,P	Fluoranthene	1.000	1.050	-5.0	73	0.00
15	I	Chrysene-d12	1.000	1.000	0.0	70	0.00
16	P	Pyrene	1.000	1.034	-3.4	72	0.00
17	S	p-Terphenyl-d14	1.000	0.003	99.7#	0	0.00
18	P	Benzo[a]anthracene	1.000	1.031	-3.1	73	0.00
19	P	Chrysene	1.000	1.046	-4.6	76	0.00
20	I	Perylene-d12	1.000	1.000	0.0	64	0.00
21	P	Benzo[b]fluoranthene	1.000	1.095	-9.5	77	0.00
22	P	Benzo[k]fluoranthene	1.000	1.067	-6.7	73	0.00
23	C,P	Benzo[a]pyrene	1.000	1.050	-5.0	71	0.00
24	P	Indeno[1,2,3-cd]pyrene	1.000	1.045	-4.5	71	0.00
25	P	Dibenz[ah]anthracene	1.000	1.049	-4.9	72	0.00
26	P	Benzo[ghi]perylene	1.000	1.048	-4.8	73	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
7M70170.D SIMPAHL.M Thu Aug 24 10:21:57 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70188.D Vial: 2
Acq On : 28 Aug 2017 12:46 pm Operator: LJH
Sample : WG627455-02 1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 13:08:21 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

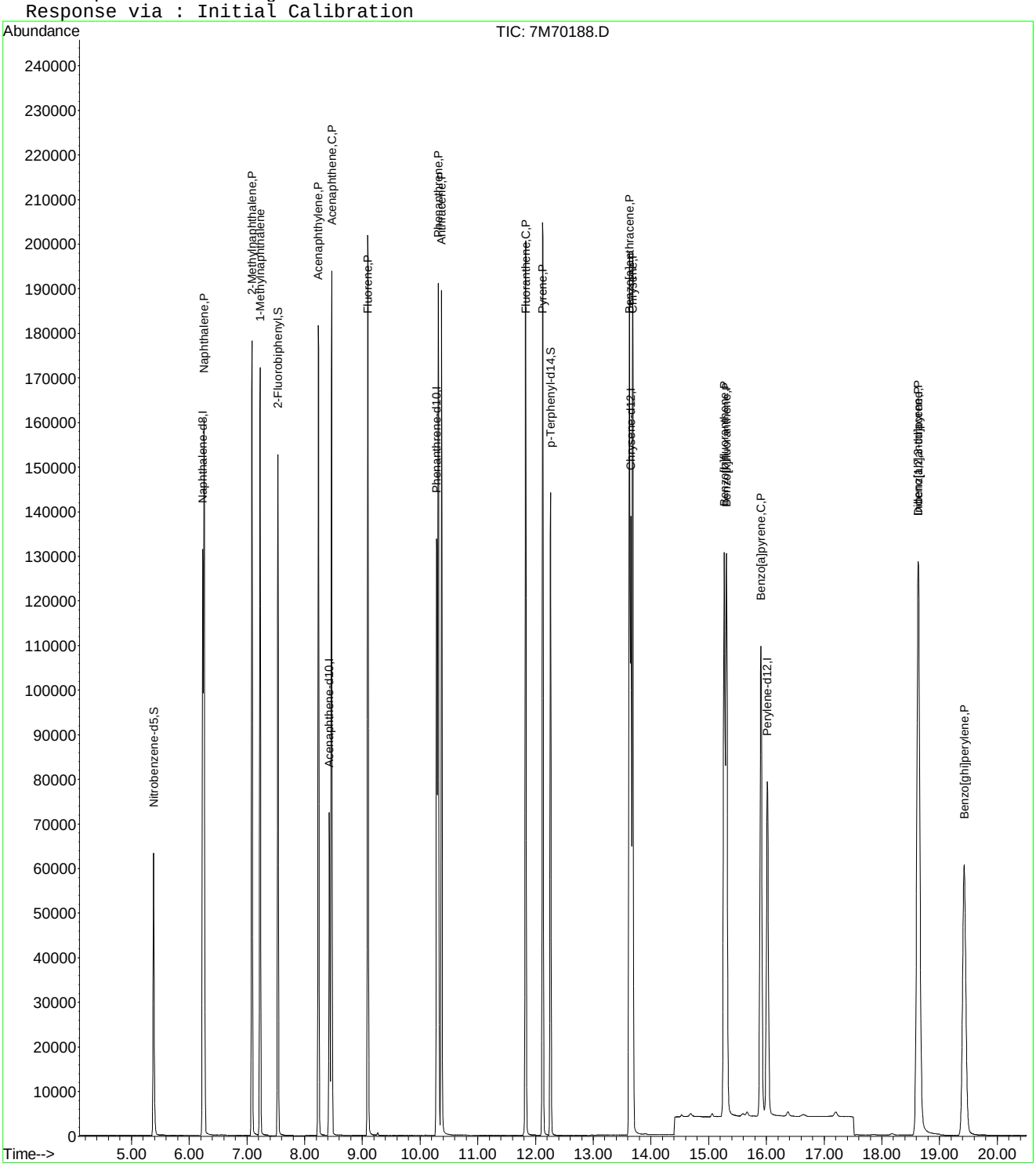
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	163331	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	90189	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.28	188	165539	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	178839	1.00	ug/ml	0.00
20) Perylene-d12	16.02	264	174472	1.00	ug/ml	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	59819	1.09	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 43.60%			
7) 2-Fluorobiphenyl	7.54	172	131349	0.94	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 37.60%#			
17) p-Terphenyl-d14	12.26	244	152813	0.97	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 38.80%			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	169357	0.9972	ug/ml	100
4) 2-Methylnaphthalene	7.09	142	113143	1.0056	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	106700	1.0089	ug/ml	100
8) Acenaphthylene	8.24	152	190989	0.9902	ug/ml	100
9) Acenaphthene	8.47	154	110965	0.9305	ug/ml	99
10) Fluorene	9.10	166	125710	0.9609	ug/ml	100
12) Phenanthrene	10.31	178	192046	0.9938	ug/ml	99
13) Anthracene	10.37	178	192183	1.0318	ug/ml	100
14) Fluoranthene	11.83	202	210603	1.0398	ug/ml	100
16) Pyrene	12.12	202	232974	0.9913	ug/ml	100
18) Benzo[a]anthracene	13.62	228	207997	1.0112	ug/ml	100
19) Chrysene	13.68	228	203703	0.9750	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	208435	0.9389	ug/ml	97
22) Benzo[k]fluoranthene	15.31	252	204068	0.9225	ug/ml	100
23) Benzo[a]pyrene	15.90	252	200136	0.9598	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.63	276	236511	0.9515	ug/ml	99
25) Dibenz[ah]anthracene	18.63	278	191858	0.9464	ug/ml	99
26) Benzo[ghi]perylene	19.43	276	198473	0.9387	ug/ml	100

(#) = qualifier out of range (m) = manual integration
7M70188.D SIMPAHL.M Mon Aug 28 13:09:40 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70188.D Vial: 2
Acq On : 28 Aug 2017 12:46 pm Operator: LJH
Sample : WG627455-02 1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 28 13:08 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



7M70188.D SIMPAHL.M Mon Aug 28 13:09:41 2017 Page 2

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\082817\7M70188.D Vial: 2
Acq On : 28 Aug 2017 12:46 pm Operator: LJH
Sample : WG627455-02 1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Naphthalene-d8	1.000	1.000	0.0	88	0.00
2	S	Nitrobenzene-d5	0.335	0.366	-9.3	93	0.00
3	P	Naphthalene	1.040	1.037	0.3	89	0.00
4	P	2-Methylnaphthalene	0.689	0.693	-0.6	89	0.00
5		1-Methylnaphthalene	0.648	0.653	-0.8	89	0.00
6	I	Acenaphthene-d10	1.000	1.000	0.0	95	0.00
7	S	2-Fluorobiphenyl	1.542	1.456	5.6	89	0.00
8	P	Acenaphthylene	2.139	2.118	1.0	90	0.00
9	C,P	Acenaphthene	1.322	1.230	7.0	90	0.00
10	P	Fluorene	1.451	1.394	3.9	89	0.00
11	I	Phenanthrene-d10	1.000	1.000	0.0	89	0.00
12	P	Phenanthrene	1.167	1.160	0.6	89	0.00
13	P	Anthracene	1.125	1.161	-3.2	88	0.00
14	C,P	Fluoranthene	1.224	1.272	-3.9	89	0.00
15	I	Chrysene-d12	1.000	1.000	0.0	89	0.00
16	P	Pyrene	1.314	1.303	0.8	88	0.00
17	S	p-Terphenyl-d14	0.880	0.854	3.0	88	0.00
18	P	Benzo[a]anthracene	1.150	1.163	-1.1	90	0.00
19	P	Chrysene	1.168	1.139	2.5	89	0.00
20	I	Perylene-d12	1.000	1.000	0.0	90	-0.01
21	P	Benzo[b]fluoranthene	1.272	1.195	6.1	92	0.00
22	P	Benzo[k]fluoranthene	1.268	1.170	7.7	88	0.00
23	C,P	Benzo[a]pyrene	1.195	1.147	4.0	91	0.00
24	P	Indeno[1,2,3-cd]pyrene	1.425	1.356	4.8	91	-0.01
25	P	Dibenz[ah]anthracene	1.162	1.100	5.3	91	-0.01
26	P	Benzo[ghi]perylene	1.212	1.138	6.1	92	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
7M70188.D SIMPAHL.M Mon Aug 28 13:08:53 2017 Page 1

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\082817\7M70188.D Vial: 2
Acq On : 28 Aug 2017 12:46 pm Operator: LJH
Sample : WG627455-02 1PPM PAHL STD Inst : hpms7
Misc : 1,1 STD83209 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Multiple Level Calibration

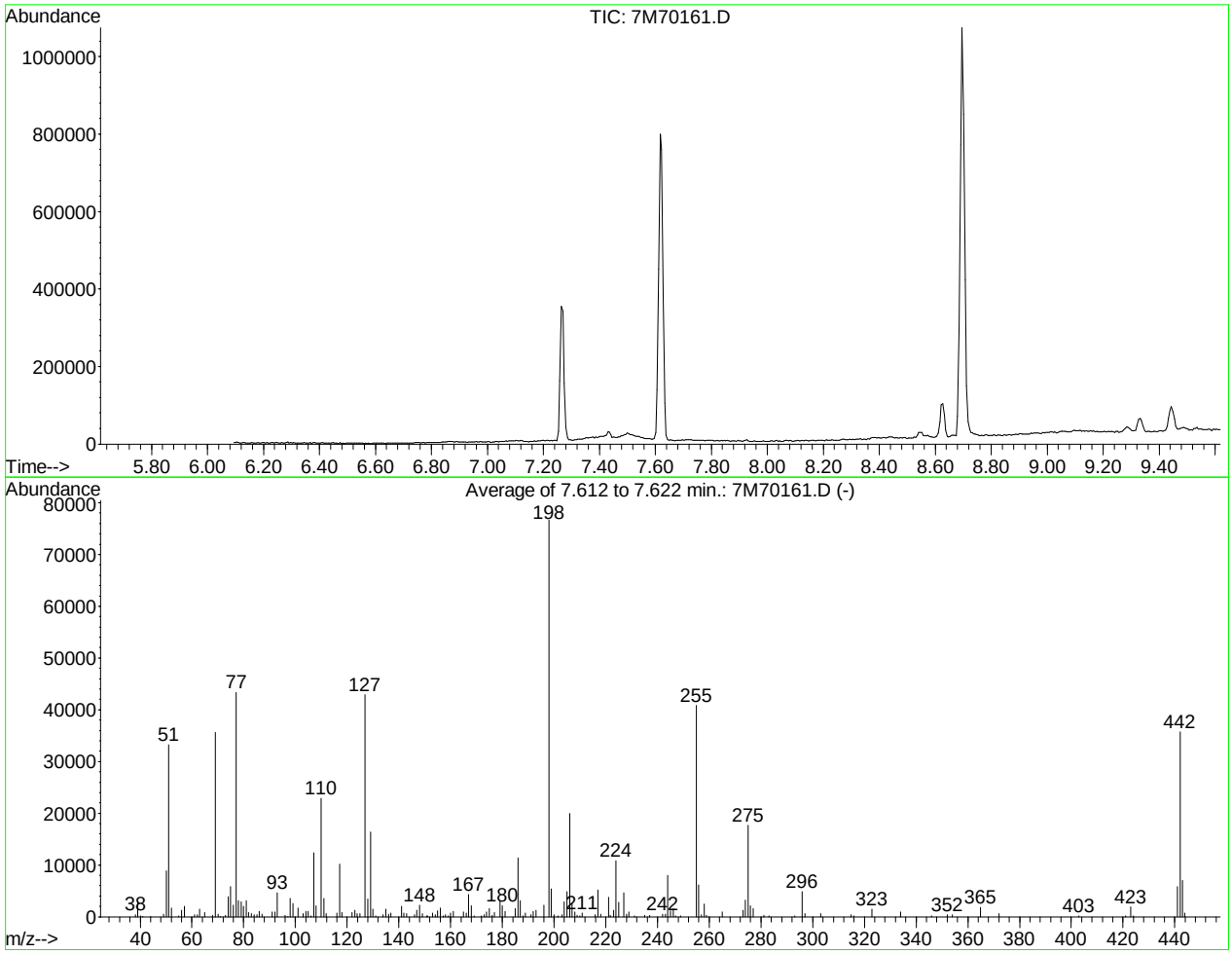
Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Naphthalene-d8	1.000	1.000	0.0	88	0.00
2	S	Nitrobenzene-d5	1.000	1.094	-9.4	93	0.00
3	P	Naphthalene	1.000	0.997	0.3	89	0.00
4	P	2-Methylnaphthalene	1.000	1.006	-0.6	89	0.00
5		1-Methylnaphthalene	1.000	1.009	-0.9	89	0.00
6	I	Acenaphthene-d10	1.000	1.000	0.0	95	0.00
7	S	2-Fluorobiphenyl	1.000	0.945	5.5	89	0.00
8	P	Acenaphthylene	1.000	0.990	1.0	90	0.00
9	C,P	Acenaphthene	1.000	0.930	7.0	90	0.00
10	P	Fluorene	1.000	0.961	3.9	89	0.00
11	I	Phenanthrene-d10	1.000	1.000	0.0	89	0.00
12	P	Phenanthrene	1.000	0.994	0.6	89	0.00
13	P	Anthracene	1.000	1.032	-3.2	88	0.00
14	C,P	Fluoranthene	1.000	1.040	-4.0	89	0.00
15	I	Chrysene-d12	1.000	1.000	0.0	89	0.00
16	P	Pyrene	1.000	0.991	0.9	88	0.00
17	S	p-Terphenyl-d14	1.000	0.971	2.9	88	0.00
18	P	Benzo[a]anthracene	1.000	1.011	-1.1	90	0.00
19	P	Chrysene	1.000	0.975	2.5	89	0.00
20	I	Perylene-d12	1.000	1.000	0.0	90	-0.01
21	P	Benzo[b]fluoranthene	1.000	0.939	6.1	92	0.00
22	P	Benzo[k]fluoranthene	1.000	0.923	7.7	88	0.00
23	C,P	Benzo[a]pyrene	1.000	0.960	4.0	91	0.00
24	P	Indeno[1,2,3-cd]pyrene	1.000	0.951	4.9	91	-0.01
25	P	Dibenz[ah]anthracene	1.000	0.946	5.4	91	-0.01
26	P	Benzo[ghi]perylene	1.000	0.939	6.1	92	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
7M70188.D SIMPAHL.M Mon Aug 28 13:08:51 2017 Page 1

2.2.2.5 Raw QC Data

Data File : C:\MSDCHEM\1\DATA\082317\7M70161.D Vial: 1
Acq On : 23 Aug 2017 3:00 pm Operator: LJH
Sample : WG627017-09 5PPM DFTPP Inst : hpms7
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17



AutoFind: Scans 285, 286, 287; Background Corrected with Scan 280

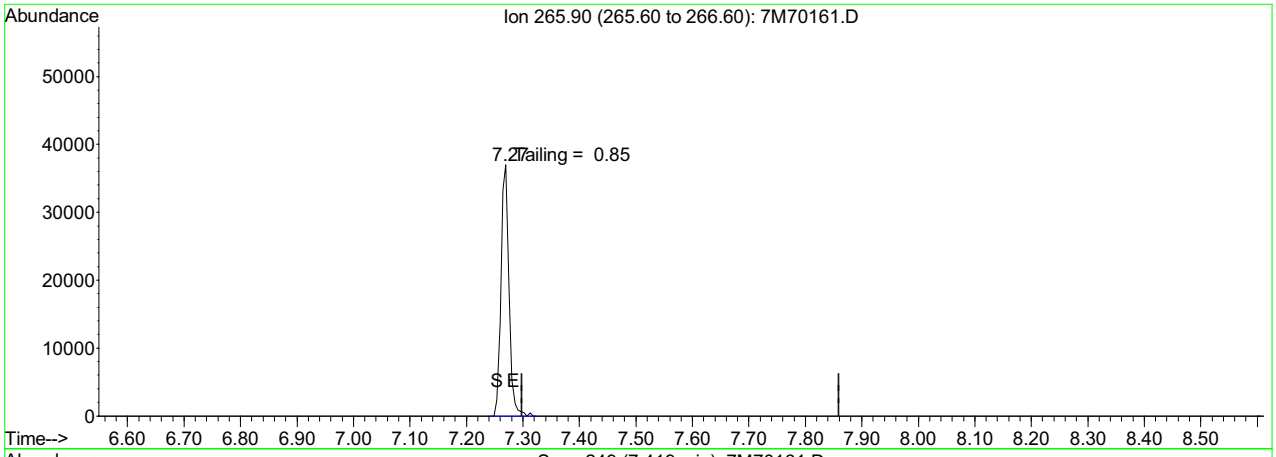
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	43.3	33192	PASS
68	69	0.00	2	0.8	292	PASS
69	198	0.00	100	46.5	35620	PASS
70	69	0.00	2	1.3	469	PASS
127	198	40	60	56.0	42909	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	76666	PASS
199	198	5	9	7.0	5382	PASS
275	198	10	30	23.0	17664	PASS
365	198	1	100	2.4	1826	PASS
441	443	0.01	100	83.0	5843	PASS
442	198	40	100	46.6	35715	PASS
443	442	17	23	19.7	7040	PASS

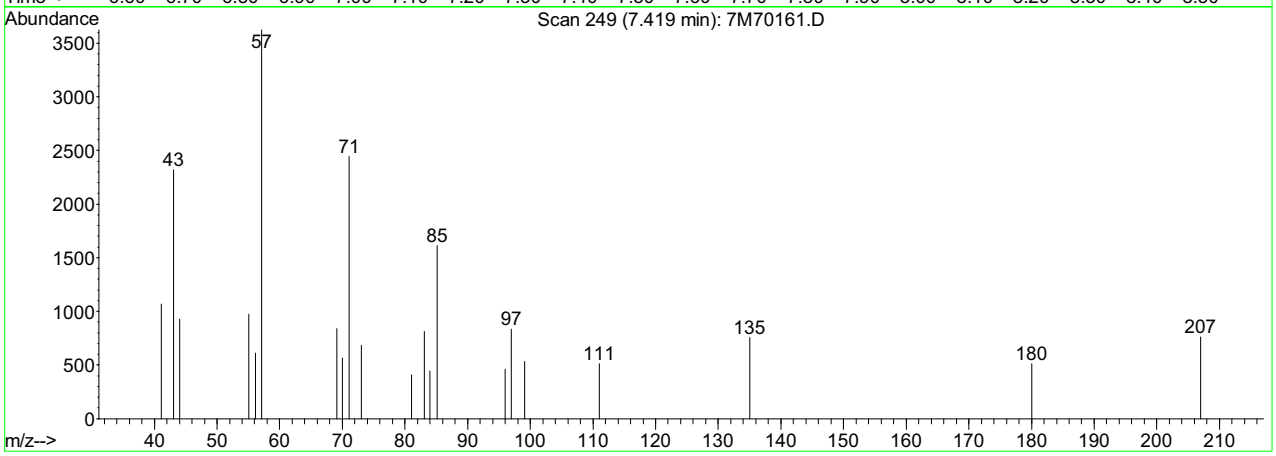
7M70161.D SIMPAHL.M Wed Aug 30 08:42:38 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082317\7M70161.D Vial: 1
Acq On : 23 Aug 2017 3:00 pm : Operator: LJH
Sample WG627017-09 5PPM DFTPP : Inst : hpms7
Misc 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 23 15:11 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Fri Mar 17 11:43:44 2017
Response via : Single Level Calibration





TIC: 7M70161.D

(1) Pentachlorophenol

7.42min 0.00

response 0

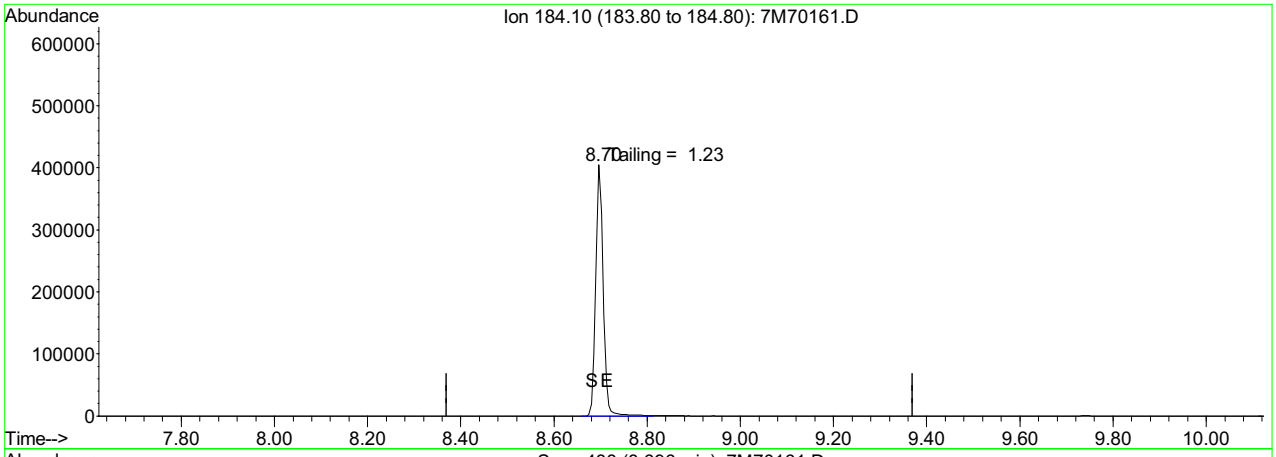
Ion	Exp%	Act%
265.90	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

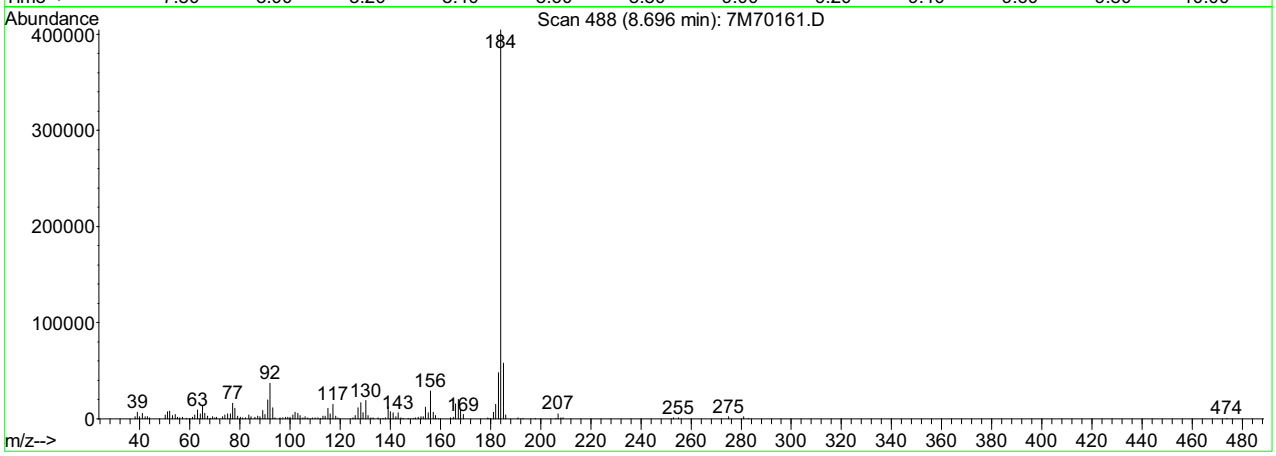
7M70161.D DFTPP.M Thu Aug 24 10:25:02 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082317\7M70161.D Vial: 1
Acq On : 23 Aug 2017 3:00 pm : Operator: LJH
Sample WG627017-09 5PPM DFTPP : Inst : hpms7
Misc 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 23 15:11 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Fri Mar 17 11:43:44 2017
Response via : Single Level Calibration





TIC: 7M70161.D

(2) Benzidine

8.70min 0.00

response 447879

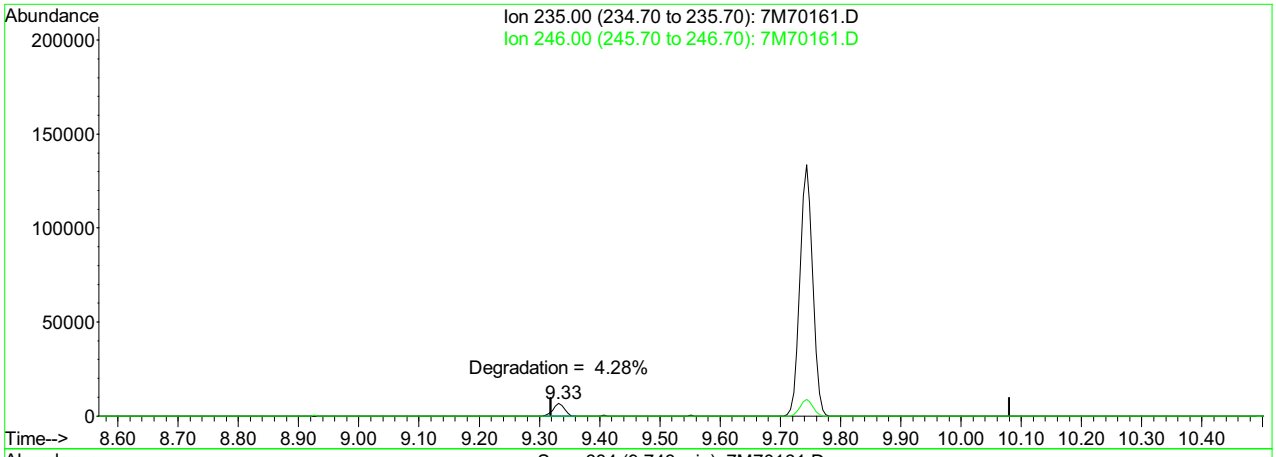
Ion	Exp%	Act%
184.10	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

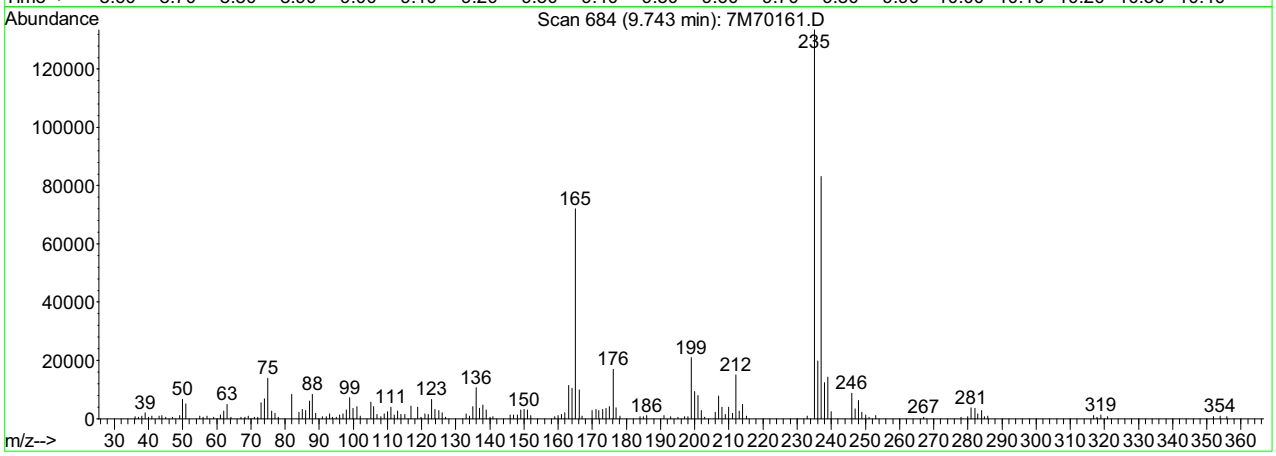
7M70161.D DFTPP.M Thu Aug 24 10:25:11 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082317\7M70161.D Vial: 1
Acq On : 23 Aug 2017 3:00 pm : Operator: LJH
Sample WG627017-09 5PPM DFTPP : Inst : hpms7
Misc 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 23 15:11 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Fri Mar 17 11:43:44 2017
Response via : Single Level Calibration





TIC: 7M70161.D

(3) DDT

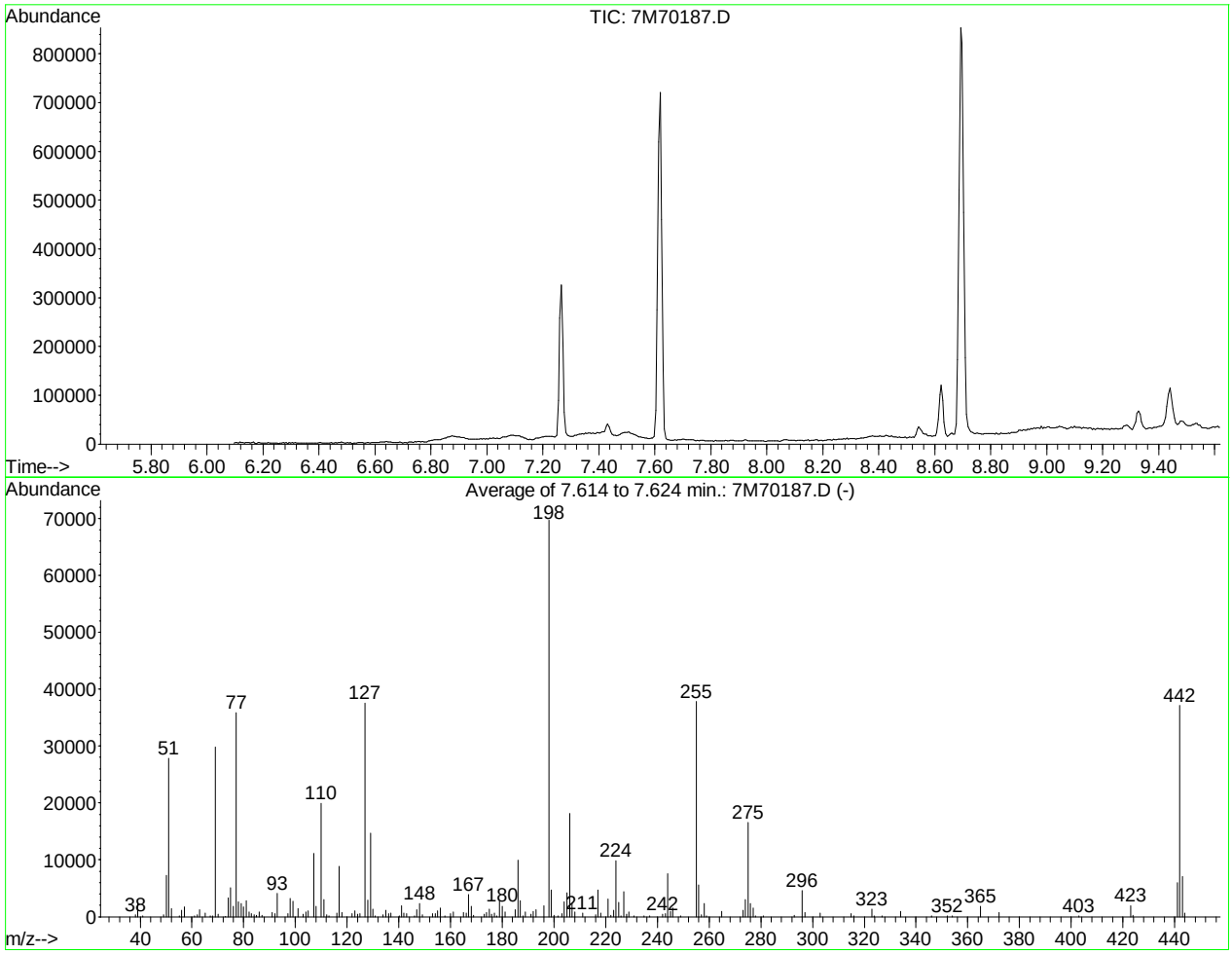
9.74min 0.00

response 196351

Ion	Exp%	Act%
235.00	100	100
246.00	8.00	6.48
0.00	0.00	0.00
0.00	0.00	0.00

7M70161.D DFTPP.M Thu Aug 24 10:25:22 2017

Data File : C:\MSDCHEM\1\DATA\082817\7M70187.D Vial: 1
Acq On : 28 Aug 2017 12:21 pm Operator: LJH
Sample : WG627455-01 5PPM DFTPP Inst : hpms7
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP



AutoFind: Scans 285, 286, 287; Background Corrected with Scan 279

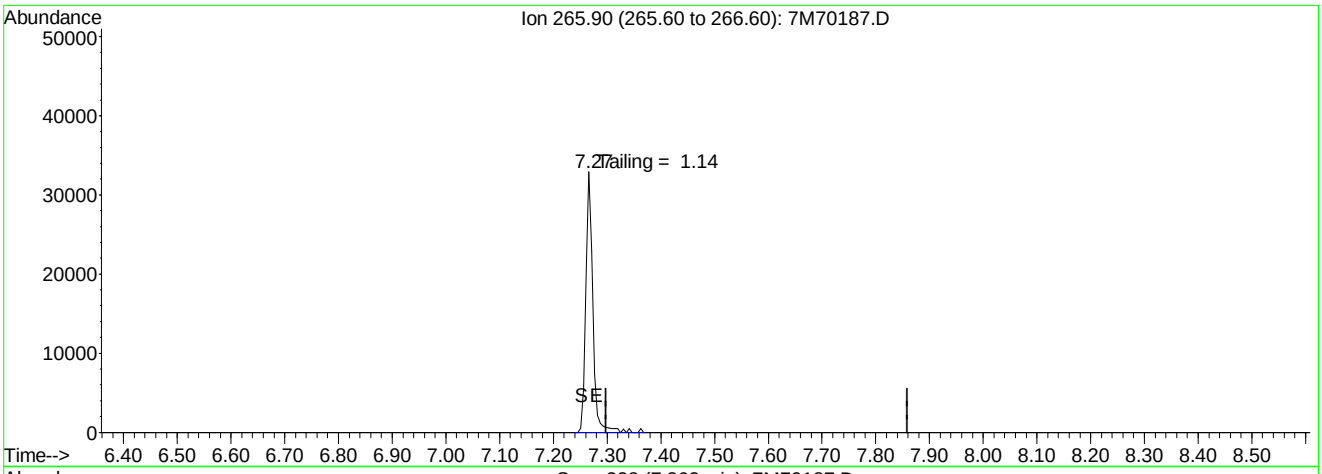
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	39.9	27813	PASS
68	69	0.00	2	0.7	202	PASS
69	198	0.00	100	42.8	29838	PASS
70	69	0.00	2	1.5	446	PASS
127	198	40	60	53.8	37512	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	69704	PASS
199	198	5	9	6.7	4654	PASS
275	198	10	30	23.7	16532	PASS
365	198	1	100	2.7	1851	PASS
441	443	0.01	100	84.1	5978	PASS
442	198	40	100	53.3	37122	PASS
443	442	17	23	19.1	7105	PASS

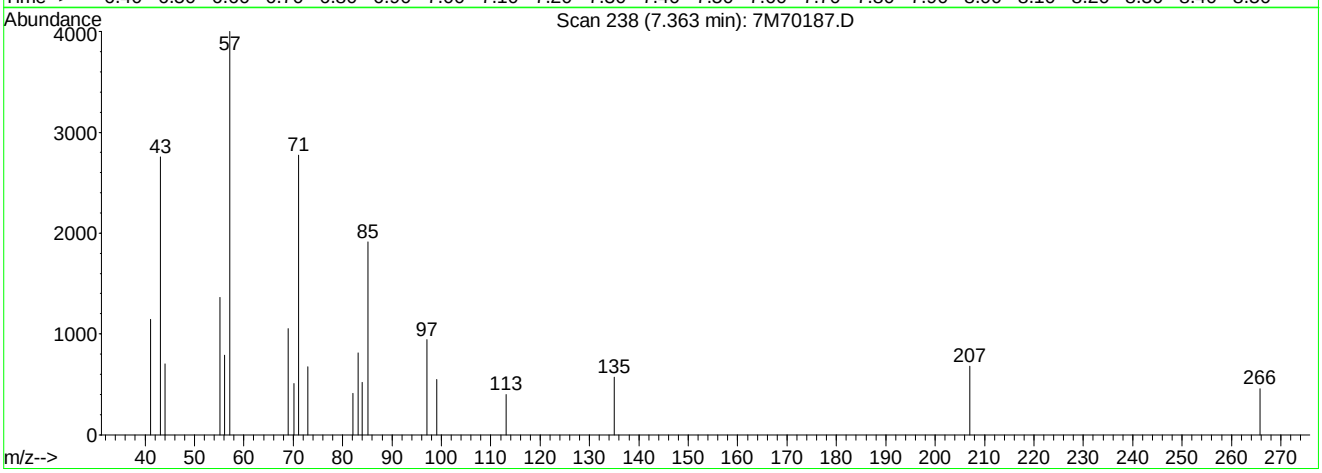
7M70187.D DFTPP.M Mon Aug 28 13:10:02 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70187.D Vial: 1
Acq On : 28 Aug 2017 12:21 pm Operator: LJH
Sample : WG627455-01 5PPM DFTPP Inst : hpms7
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 28 12:44 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Fri Mar 17 11:43:44 2017
Response via : Single Level Calibration





TIC: 7M70187.D

(1) Pentachlorophenol

7.36min 0.00

response 147

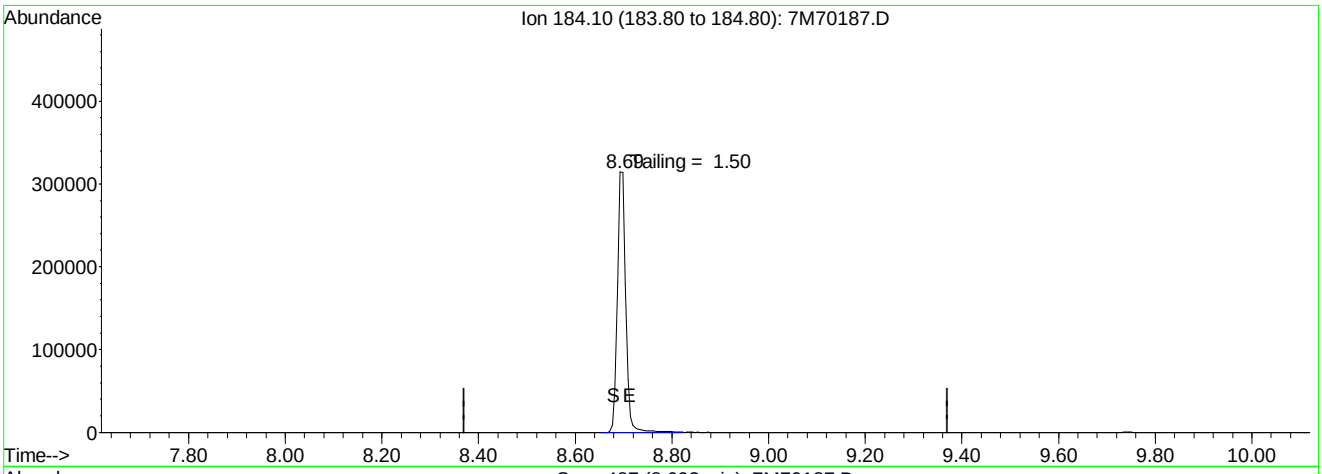
Ion	Exp%	Act%
265.90	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

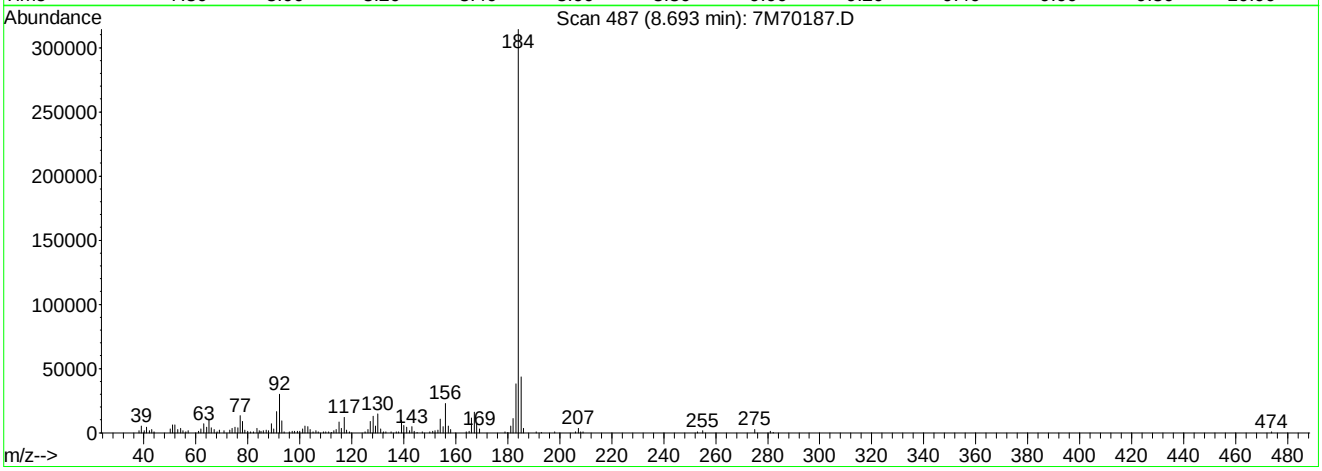
7M70187.D DFTPP.M Mon Aug 28 13:10:16 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70187.D Vial: 1
Acq On : 28 Aug 2017 12:21 pm Operator: LJH
Sample : WG627455-01 5PPM DFTPP Inst : hpms7
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 28 12:44 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Fri Mar 17 11:43:44 2017
Response via : Single Level Calibration





TIC: 7M70187.D

(2) Benzidine

8.69min 0.00

response 375926

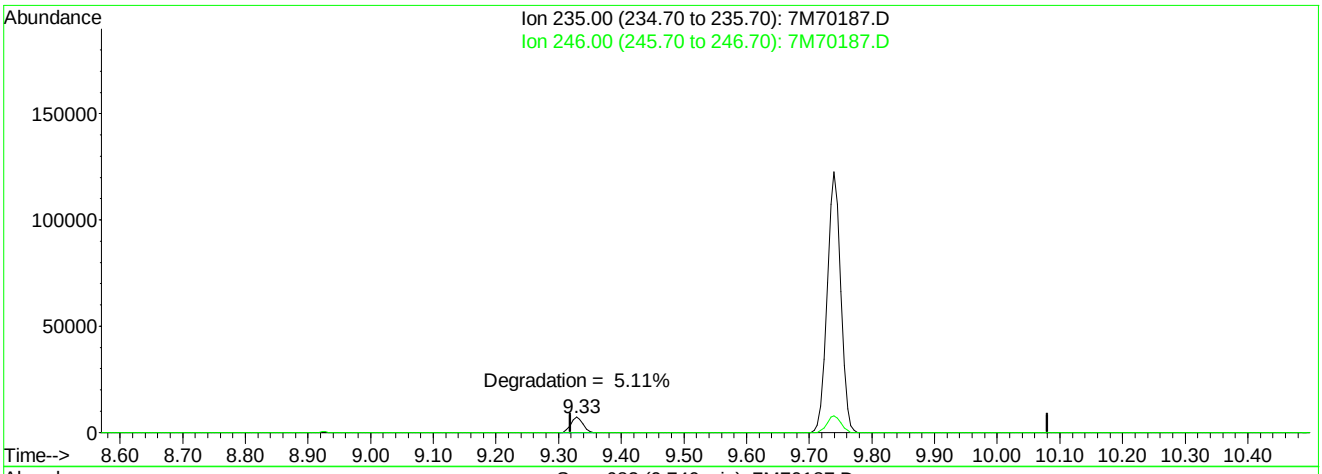
Ion	Exp%	Act%
184.10	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

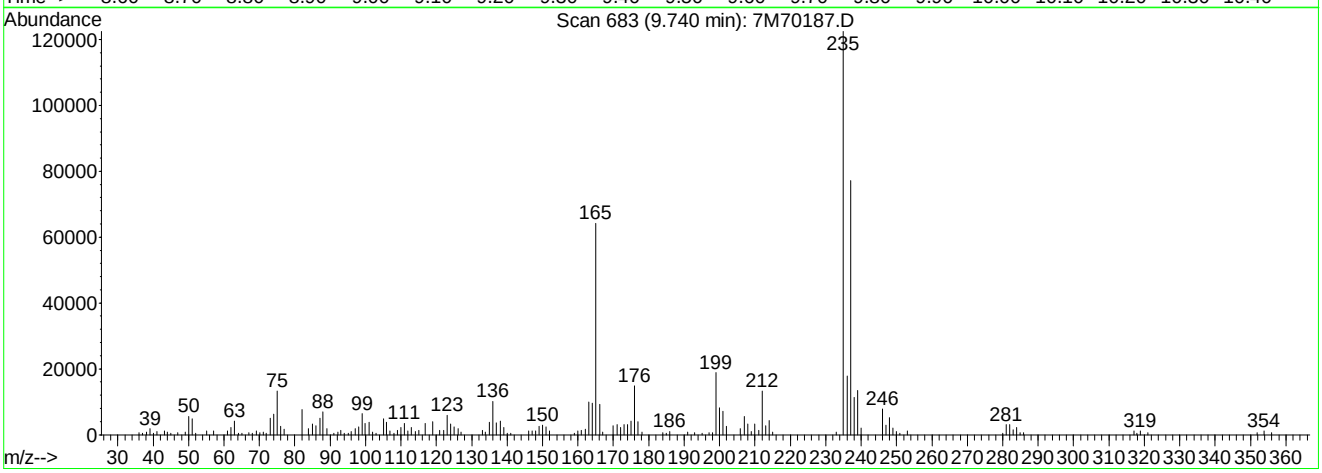
7M70187.D DFTPP.M Mon Aug 28 13:10:23 2017

Quantitation Report (Qedit)

Data File : C:\MSDCHEM\1\DATA\082817\7M70187.D Vial: 1
Acq On : 28 Aug 2017 12:21 pm Operator: LJH
Sample : WG627455-01 5PPM DFTPP Inst : hpms7
Misc : 1,1 STD83235 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Aug 28 12:44 2017 Quant Results File: temp.res

Method : C:\MSDCHEM\1\METHODS\DFTPP.M (RTE Integrator)
Title : DFTPP
Last Update : Fri Mar 17 11:43:44 2017
Response via : Single Level Calibration





TIC: 7M70187.D

(3) DDT

9.74min 0.00

response 183152

Ion	Exp%	Act%
235.00	100	100
246.00	8.00	6.38#
0.00	0.00	0.00
0.00	0.00	0.00

7M70187.D DFTPP.M Mon Aug 28 13:10:33 2017

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70189.D Vial: 3
Acq On : 28 Aug 2017 1:14 pm Operator: LJH
Sample : WG627146-01 BLANK 827-PAHL Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:15:37 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

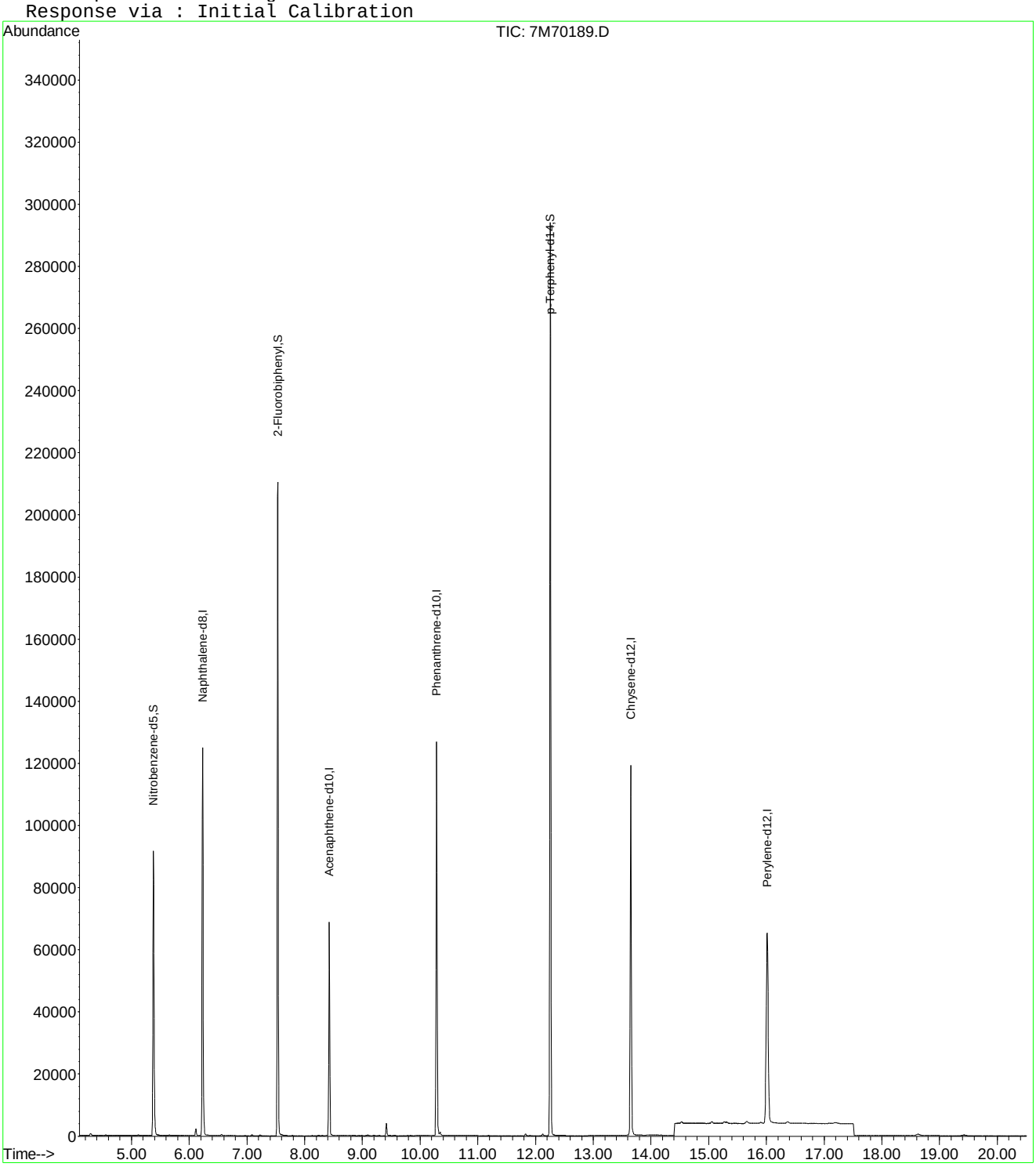
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	150305	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	78100	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	152607	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	157252	1.00	ug/ml	0.00
20) Perylene-d12	16.01	264	146194	1.00	ug/ml	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	84498	1.68	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 67.20%			
7) 2-Fluorobiphenyl	7.54	172	179562	1.49	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 59.60%			
17) p-Terphenyl-d14	12.26	244	296985	2.15	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 86.00%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70189.D Vial: 3
Acq On : 28 Aug 2017 1:14 pm Operator: LJH
Sample : WG627146-01 BLANK 827-PAHL Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:15 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



7M70189.D SIMPAHL.M Tue Aug 29 11:15:38 2017 Page 2

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70190.D Vial: 4
Acq On : 28 Aug 2017 1:40 pm Operator: LJH
Sample : WG627146-02 LCS 827-PAHL Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:16:08 2017 Quant Results File: SIMPAHL.RES

Quant Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration
DataAcq Meth : PAHRUN

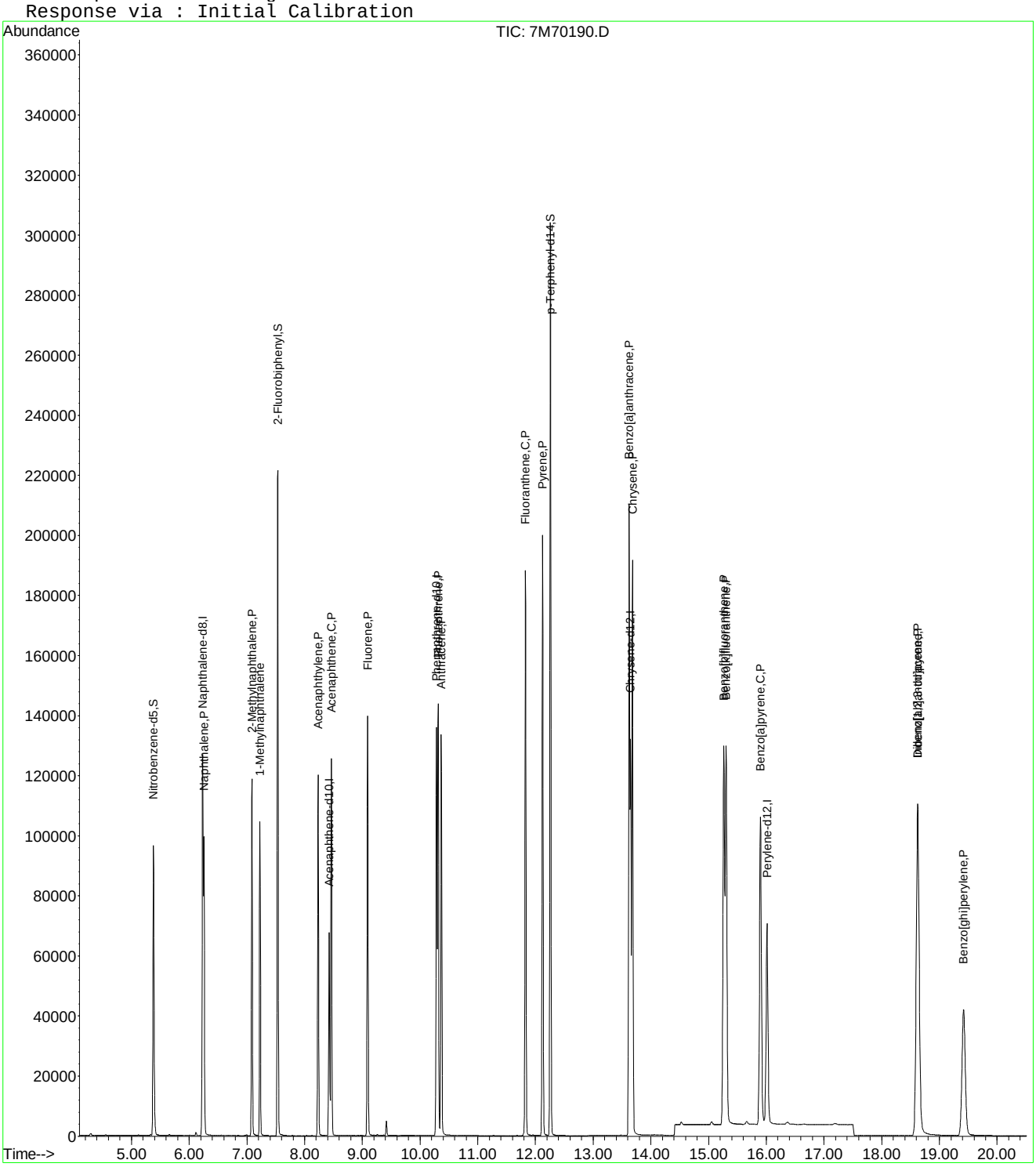
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	6.23	136	158060	1.00	ug/ml	0.00
6) Acenaphthene-d10	8.43	164	82208	1.00	ug/ml	0.00
11) Phenanthrene-d10	10.29	188	160556	1.00	ug/ml	0.00
15) Chrysene-d12	13.65	240	166068	1.00	ug/ml	0.00
20) Perylene-d12	16.01	264	153513	1.00	ug/ml	-0.01
System Monitoring Compounds						
2) Nitrobenzene-d5	5.38	82	88544	1.67	ug/ml	0.00
Spiked Amount 2.500	Range 35 - 114		Recovery = 66.80%			
7) 2-Fluorobiphenyl	7.54	172	193300	1.52	ug/ml	0.00
Spiked Amount 2.500	Range 43 - 116		Recovery = 60.80%			
17) p-Terphenyl-d14	12.26	244	317158	2.17	ug/ml	0.00
Spiked Amount 2.500	Range 33 - 141		Recovery = 86.80%			
Target Compounds						Qvalue
3) Naphthalene	6.26	128	107830	0.6561	ug/ml	100
4) 2-Methylnaphthalene	7.09	142	73630	0.6763	ug/ml	100
5) 1-Methylnaphthalene	7.23	142	65303	0.6381	ug/ml	100
8) Acenaphthylene	8.23	152	113794	0.6473	ug/ml	99
9) Acenaphthene	8.46	154	77070	0.7090	ug/ml	93
10) Fluorene	9.09	166	87760	0.7359	ug/ml	100
12) Phenanthrene	10.31	178	151599	0.8088	ug/ml	100
13) Anthracene	10.37	178	137932	0.7635	ug/ml	100
14) Fluoranthene	11.83	202	196775	1.0017	ug/ml	100
16) Pyrene	12.12	202	220550	1.0106	ug/ml	100
18) Benzo[a]anthracene	13.62	228	208937	1.0938	ug/ml	100
19) Chrysene	13.68	228	196626	1.0135	ug/ml	100
21) Benzo[b]fluoranthene	15.27	252	213298	1.0920	ug/ml	97
22) Benzo[k]fluoranthene	15.30	252	194990	1.0018	ug/ml	97
23) Benzo[a]pyrene	15.90	252	190168	1.0365	ug/ml	100
24) Indeno[1,2,3-cd]pyrene	18.62	276	215589	0.9857	ug/ml	98
25) Dibenz[ah]anthracene	18.62	278	146772	0.8228	ug/ml	92
26) Benzo[ghi]perylene	19.42	276	137759	0.7405	ug/ml	100

(#) = qualifier out of range (m) = manual integration
7M70190.D SIMPAHL.M Tue Aug 29 11:16:08 2017 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\082817\7M70190.D Vial: 4
Acq On : 28 Aug 2017 1:40 pm Operator: LJH
Sample : WG627146-02 LCS 827-PAHL Inst : hpms7
Misc : 1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 29 11:16 2017 Quant Results File: SIMPAHL.RES

Method : C:\MSDCHEM\1\METHODS\SIMPAHL.M (RTE Integrator)
Title : OVD MSS03 SIMPAHL ICAL 08/23/17
Last Update : Thu Aug 24 08:58:21 2017
Response via : Initial Calibration



7M70190.D SIMPAHL.M Tue Aug 29 11:16:09 2017 Page 2

2.3 Metals Data

2.3.1 Metals I C P Data

2.3.1.1 Summary Data

Login Number: L17081305
Department: Metals
Analyst: Kerri Buck

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6010

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG627458 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: WG627458 - Client samples 03, 05, 08, 10, 12, 14, and 16 required dilution analysis in order to obtain a result for sodium within the linear range.

Narrative ID: 128772
Approved By: Kim Rhodes

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 16:47
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** T4.082817.164702
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5	1.89		0.200	0.100
Calcium, Total	7440-70-2	35.6		0.500	0.250
Iron, Total	7439-89-6	2.21		0.100	0.0500
Magnesium, Total	7439-95-4	6.71		0.500	0.250
Manganese, Total	7439-96-5	0.0811		0.0100	0.00500
Potassium, Total	7440-09-7	4.82		1.00	0.500
Silica, Calculated as SiO2		18.2		2.14	1.07
Silicon, Total	7440-21-3	8.48		1.00	0.500
Sodium, Total	7440-23-5	172		0.500	0.250

Sample #: L17081305-02 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 16:50
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** T4.082817.165042
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.0205		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 16:54
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** T4.082817.165423
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5	0.120	J	0.200	0.100
Calcium, Total	7440-70-2	73.8		0.500	0.250

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Iron, Total	7439-89-6	0.0929	J	0.100	0.0500
Magnesium, Total	7439-95-4	14.8		0.500	0.250
Manganese, Total	7439-96-5	0.0160		0.0100	0.00500
Potassium, Total	7440-09-7	15.1		1.00	0.500
Silica, Calculated as SiO2		69.2		2.14	1.07
Silicon, Total	7440-21-3	32.3		1.00	0.500

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:18
Collect Date: 08/23/2017 10:58 **Dilution:** 5 **File ID:** T4.082917.151827
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	1110		2.50	1.25

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-04 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 16:58
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** T4.082817.165810
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.00886	J	0.0100	0.00500

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:01
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** T4.082817.170159
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	68.7		0.500	0.250
Iron, Total	7439-89-6	0.0713	J	0.100	0.0500
Magnesium, Total	7439-95-4	14.7		0.500	0.250
Manganese, Total	7439-96-5	0.0102		0.0100	0.00500
Potassium, Total	7440-09-7	15.7		1.00	0.500

E	Semiquantitative result (out of calibration range)
J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:22
Collect Date: 08/23/2017 09:00 **Dilution:** 5 **File ID:** T4.082917.152212
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	1130		2.50	1.25

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-06 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:05
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** T4.082817.170548
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.00915	J	0.0100	0.00500

J	The analyte was positively identified, but the quantitation was below the RL.

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:24
Collect Date: 08/23/2017 10:35 **Dilution:** 1 **File ID:** T4.082817.172404
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5	0.854		0.400	0.200
Calcium, Total	7440-70-2	3.63		1.00	0.500
Iron, Total	7439-89-6	1.34		0.200	0.100
Magnesium, Total	7439-95-4	4.34		1.00	0.500
Manganese, Total	7439-96-5	0.0148	J	0.0200	0.0100
Potassium, Total	7440-09-7	11.7		2.00	1.00
Silica, Calculated as SiO2		20.1		4.28	2.14
Silicon, Total	7440-21-3	9.40		2.00	1.00

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:25
Collect Date: 08/23/2017 10:35 **Dilution:** 5 **File ID:** T4.082917.152555
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	2260		5.00	2.50

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-09 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:27
Collect Date: 08/23/2017 10:35 **Dilution:** 1 **File ID:** T4.082817.172751
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5	0.845		0.400	0.200

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Iron, Dissolved	7439-89-6	1.27		0.200	0.100
Manganese, Dissolved	7439-96-5		U	0.0200	0.0100

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:31
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** T4.082817.173138
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	72.9		0.500	0.250
Iron, Total	7439-89-6	0.581		0.100	0.0500
Magnesium, Total	7439-95-4	16.1		0.500	0.250
Manganese, Total	7439-96-5	0.0585		0.0100	0.00500
Potassium, Total	7440-09-7	10.5		1.00	0.500
Silica, Calculated as SiO2		20.5		2.14	1.07
Silicon, Total	7440-21-3	9.60		1.00	0.500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:29
Collect Date: 08/23/2017 12:40 **Dilution:** 2 **File ID:** T4.082917.152940
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	495		1.00	0.500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-11 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:35
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** T4.082817.173527
Sample Tag: 01 **Units:** mg/L

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	0.484		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.0605		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:39
Collect Date: 08/23/2017 13:55 **Dilution:** 1 **File ID:** T4.082817.173916
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	6.35		0.500	0.250
Iron, Total	7439-89-6	0.115		0.100	0.0500
Magnesium, Total	7439-95-4	9.21		0.500	0.250
Manganese, Total	7439-96-5	0.0210		0.0100	0.00500
Potassium, Total	7440-09-7	2.64		1.00	0.500
Silica, Calculated as SiO2		12.8		2.14	1.07
Silicon, Total	7440-21-3	5.99		1.00	0.500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:33
Collect Date: 08/23/2017 13:55 **Dilution:** 5 **File ID:** T4.082917.153324
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	675		2.50	1.25

J	The analyte was positively identified, but the quantitation was below the RL.
U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-13 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:43
Collect Date: 08/23/2017 13:55 **Dilution:** 1 **File ID:** T4.082817.174306
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6		U	0.100	0.0500
Manganese, Dissolved	7439-96-5	0.0199		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:46
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** T4.082817.174654
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	270		0.500	0.250
Iron, Total	7439-89-6	4.10		0.100	0.0500
Magnesium, Total	7439-95-4	94.2		0.500	0.250
Manganese, Total	7439-96-5	0.577		0.0100	0.00500
Potassium, Total	7440-09-7	9.22		1.00	0.500

E	Semiquantitative result (out of calibration range)
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:37
Collect Date: 08/23/2017 14:40 **Dilution:** 5 **File ID:** T4.082917.153709
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	624		2.50	1.25

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-15 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:50
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** T4.082817.175042
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	3.41		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.489		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-2 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:54
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** T4.082817.175429
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	280		0.500	0.250
Iron, Total	7439-89-6	4.32		0.100	0.0500
Magnesium, Total	7439-95-4	97.3		0.500	0.250
Manganese, Total	7439-96-5	0.598		0.0100	0.00500
Potassium, Total	7440-09-7	9.55		1.00	0.500

E	Semiquantitative result (out of calibration range)
U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-2 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/29/2017 14:25
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/29/2017 15:40
Collect Date: 08/23/2017 09:30 **Dilution:** 5 **File ID:** T4.082917.154053
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	647		2.50	1.25

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #: L17081305-17 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: DUP-GW-082317-2 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 17:58
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** T4.082817.175818
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	3.59		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.502		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-19 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW19-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 18:09
Collect Date: 08/23/2017 15:35 **Dilution:** 1 **File ID:** T4.082817.180914
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Total	7429-90-5		U	0.200	0.100
Calcium, Total	7440-70-2	128		0.500	0.250
Iron, Total	7439-89-6	2.40		0.100	0.0500
Magnesium, Total	7439-95-4	42.1		0.500	0.250
Manganese, Total	7439-96-5	0.631		0.0100	0.00500
Potassium, Total	7440-09-7	1.48		1.00	0.500
Sodium, Total	7440-23-5	102		0.500	0.250

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-20 **PrePrep Method:** N/A **Instrument:** ICP-THERMO4
Client ID: MW19-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:16
Matrix: Water **Analytical Method:** 6010C **Cal Date:** 08/28/2017 11:39
Workgroup #: WG627458 **Analyst:** KKB **Run Date:** 08/28/2017 18:12
Collect Date: 08/23/2017 15:35 **Dilution:** 1 **File ID:** T4.082817.181256
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Aluminum, Dissolved	7429-90-5		U	0.200	0.100
Iron, Dissolved	7439-89-6	0.696		0.100	0.0500
Manganese, Dissolved	7439-96-5	0.433		0.0100	0.00500

U	Not detected at or above adjusted sample detection limit.

2.3.1.2 QC Summary Data

Example 6010 Calculations
Thermo Scientific iCAP

1.0 Initial Calibration (ICAL) Parameters
For a multi-point calibration, the system performs linear regression from data consisting of a blank and four standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup:	WG627371	**SOP:**	ME407 Revison 19
Analyst:	ERP	**Spike Solution:**	STD83370
Spike Analyst:	ERP	**Spike Witness:**	VC
Run Date:	08/28/2017 07:16	**HNO3 Lot #:**	COA19940
Method:	3015A	**HCL Lot #:**	COA19849
Balance:	BAL019	**40 & 50 ML. DIGESTION TU**	COA19932
Instrument:	MW-1	**ICP FILTERS LOT#r7ha2443**	RGT40684
Instrument Start:	08/28/2017 07:38		

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG627371-02	BLANK	1	40 mL	50 mL	205.213 g	205.207 g		
2	WG627371-03	LCS	1	40 mL	50 mL	210.334 g	210.328 g	5 mL	
3	L17081305-01	SAMP	1	40 mL	50 mL	203.653 g	203.628 g		09/07/17
4	L17081305-02	SAMP	1	40 mL	50 mL	204.129 g	204.11 g		09/07/17
5	L17081305-03	SAMP	1	40 mL	50 mL	205.046 g	205.031 g		09/07/17
6	L17081305-04	SAMP	1	40 mL	50 mL	204.876 g	204.854 g		09/07/17
7	L17081305-05	SAMP	1	40 mL	50 mL	208.246 g	208.218 g		09/07/17
8	L17081305-06	SAMP	1	40 mL	50 mL	204.702 g	204.678 g		09/07/17
9	L17081305-08	SAMP	1	20 mL	50 mL	207.408 g	207.387 g		09/07/17
10	L17081305-09	SAMP	1	20 mL	50 mL	203.784 g	203.762 g		09/07/17
11	L17081305-10	SAMP	1	40 mL	50 mL	203.359 g	203.337 g		09/07/17
12	L17081305-11	SAMP	1	40 mL	50 mL	205.621 g	205.601 g		09/07/17
13	L17081305-12	SAMP	1	40 mL	50 mL	204.58 g	204.562 g		09/07/17
14	L17081305-13	SAMP	1	40 mL	50 mL	203.348 g	203.327 g		09/07/17
15	L17081305-14	SAMP	1	40 mL	50 mL	204.517 g	204.499 g		09/07/17
16	L17081305-15	SAMP	1	40 mL	50 mL	206.317 g	206.297 g		09/07/17
17	L17081305-16	SAMP	1	40 mL	50 mL	205.293 g	205.283 g		09/07/17
18	L17081305-17	SAMP	1	40 mL	50 mL	207.221 g	207.206 g		09/07/17
19	L17081305-19	SAMP	1	40 mL	50 mL	204.504 g	204.492 g		09/07/17
20	WG627371-01	REF	1	40 mL	50 mL	207.199 g	207.19 g		
21	L17081305-20	SAMP	1	40 mL	50 mL	207.199 g	207.19 g		09/07/17
22	L17081314-01	SAMP	1	40 mL	50 mL	206.176 g	206.16 g		09/01/17
23	WG627371-04	MS	1	40 mL	50 mL	211.648 g	211.627 g	5 mL	
24	WG627371-05	MSD	1	40 mL	50 mL	211.505 g	211.488 g	5 mL	

L17081305-08	reduced volume due to matrix , filtered digestate
L17081305-09	reduced volume due to matrix , filtered digestate
L17081314-01	filtered digestate

Analyst: Erin Potter

Reviewer: Vicki Collins

MW_DIG - Modified 09/30/2009
PDF ID: 5449986
Report generated: 08/28/2017 08:13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 082817T4.1
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD83373 ICV Std: STD83372 Post Spike: STD83126
ICSA: STD83125 ICSAB: STD83467 Int. Std: RGT40895
CCV: STD83374 LLCCV: COA19621 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 627342,627086,627457,627458

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	T4.082817.112453	WG627494-01	Calibration Point		1		08/28/17 11:24
2	T4.082817.112840	WG627494-02	Calibration Point		1		08/28/17 11:28
3	T4.082817.113228	WG627494-03	Calibration Point		1		08/28/17 11:32
4	T4.082817.113615	WG627494-04	Calibration Point		1		08/28/17 11:36
5	T4.082817.113945	WG627494-05	Calibration Point		1		08/28/17 11:39
6	T4.082817.114312	WG627494-06	Initial Calibration Verification		1		08/28/17 11:43
7	T4.082817.114909	WG627494-07	Initial Calib Blank		1		08/28/17 11:49
8	T4.082817.115254	WG627494-08	Low Level Initial Calibration V		1		08/28/17 11:52
9	T4.082817.115636	WG627494-09	Low Level Initial Calibration V		1		08/28/17 11:56
10	T4.082817.120017	WG627494-10	LLICV		1		08/28/17 12:00
11	T4.082817.120358	WG627494-11	Interference Check		1		08/28/17 12:03
12	T4.082817.120738	WG627494-12	Interference Check		1		08/28/17 12:07
13	T4.082817.121108	WG627494-13	CCV		1		08/28/17 12:11
14	T4.082817.121434	WG627494-14	CCB		1		08/28/17 12:14
15	T4.082817.121817	L17081200-02	PZ101-GW-082117		10		08/28/17 12:18
16	T4.082817.122200	L17081200-04	PZ104-GW-082117		10		08/28/17 12:22
17	T4.082817.122542	L17081200-06	PZ105-GW-082117		10		08/28/17 12:25
18	T4.082817.122924	WG627342-01	Post Digestion Spike		10	L17081200-06	08/28/17 12:29
19	T4.082817.123251	WG627342-02	Serial Dilution		50	L17081200-06	08/28/17 12:32
20	T4.082817.123633	L17081200-07	BSUMP-SW-082117	40/50	20		08/28/17 12:36
21	T4.082817.124014	L17081200-08	BSUMP-SW-082117	40/50	5		08/28/17 12:40
22	T4.082817.124407	L17081212-08	MW21-082217	20/50	10		08/28/17 12:44
23	T4.082817.125246	L17081264-01	H7H0602-02	40/50	5		08/28/17 12:52
24	T4.082817.125634	WG627494-15	CCV		1		08/28/17 12:56
25	T4.082817.125959	WG627494-16	CCB		1		08/28/17 12:59
26	T4.082817.130352	L17081200-02	PZ101-GW-082117	40/50	20		08/28/17 13:03
27	T4.082817.130735	L17081200-04	PZ104-GW-082117	40/50	20		08/28/17 13:07
28	T4.082817.131118	L17081200-06	PZ105-GW-082117	40/50	20		08/28/17 13:11
29	T4.082817.131501	WG627342-01	Post Digestion Spike		20	L17081200-06	08/28/17 13:15
30	T4.082817.131830	WG627342-02	Serial Dilution		100	L17081200-06	08/28/17 13:18
31	T4.082817.132213	L17081200-07	BSUMP-SW-082117	40/50	50		08/28/17 13:22
32	T4.082817.132554	WG627494-17	CCV		1		08/28/17 13:25
33	T4.082817.132919	WG627494-18	CCB		1		08/28/17 13:29
34	T4.082817.133303	WG627050-01	Reference Sample		5	L17081212-02	08/28/17 13:33

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 082817T4.1
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD83373 ICV Std: STD83372 Post Spike: STD83126
ICSA: STD83125 ICSAB: STD83467 Int. Std: RGT40895
CCV: STD83374 LLCCV: COA19621 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 627342,627086,627457,627458

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	T4.082817.133644	WG627050-07	Matrix Spike	40/50	5	L17081212-02	08/28/17 13:36
36	T4.082817.134023	WG627050-08	Matrix Spike Duplica	40/50	5	L17081212-02	08/28/17 13:40
37	T4.082817.134401	WG627494-19	CCV		1		08/28/17 13:44
38	T4.082817.134726	WG627494-20	CCB		1		08/28/17 13:47
39	T4.082817.135109	WG627494-21	LLCCV		1		08/28/17 13:51
40	T4.082817.135453	WG627494-22	Low Level Continuing Calibra		1		08/28/17 13:54
41	T4.082817.135834	WG627494-23	Low Level Continuing Calibra		1		08/28/17 13:58
42	T4.082817.143921	WG627378-02	Method/Prep Blank	40/50	1		08/28/17 14:39
43	T4.082817.144305	WG627378-03	Laboratory Control S	40/50	1		08/28/17 14:43
44	T4.082817.144635	L17081312-01	45-10-16 P1	40/50	1		08/28/17 14:46
45	T4.082817.145015	L17081312-02	45-10-16 975-S1	40/50	1		08/28/17 14:50
46	T4.082817.145357	L17081312-03	45-10-16 S5/S7	40/50	1		08/28/17 14:53
47	T4.082817.145737	L17081312-04	45-10-16 S7	40/50	1		08/28/17 14:57
48	T4.082817.150119	L17081312-05	45-10-16 S6	40/50	1		08/28/17 15:01
49	T4.082817.150500	L17081312-06	45-10-16 S27	40/50	1		08/28/17 15:05
50	T4.082817.150841	WG627494-24	CCV		1		08/28/17 15:08
51	T4.082817.151206	WG627494-25	CCB		1		08/28/17 15:12
52	T4.082817.151549	L17081312-07	45-10-16 S8	40/50	1		08/28/17 15:15
53	T4.082817.151930	L17081312-08	45-10-16 S17	40/50	1		08/28/17 15:19
54	T4.082817.152312	L17081312-09	45-10-16 S10	40/50	1		08/28/17 15:23
55	T4.082817.152653	L17081312-10	45-10-16 S11/S10	40/50	1		08/28/17 15:26
56	T4.082817.153034	L17081312-11	45-10-16 S24	40/50	1		08/28/17 15:30
57	T4.082817.153415	L17081312-12	45-10-16 S25	40/50	1		08/28/17 15:34
58	T4.082817.153756	L17081312-13	45-10-16 S26	40/50	1		08/28/17 15:37
59	T4.082817.154137	L17081312-14	45-11-15.03 S1	40/50	1		08/28/17 15:41
60	T4.082817.154518	L17081356-01	18108-L01-WQ-W0024	40/50	1		08/28/17 15:45
61	T4.082817.154903	L17081356-02	51103-D01-WQ-W0007	40/50	1		08/28/17 15:49
62	T4.082817.155247	WG627494-26	CCV		1		08/28/17 15:52
63	T4.082817.155612	WG627494-27	CCB		1		08/28/17 15:56
64	T4.082817.155956	L17081356-03	51711-B01-WQ-W0002	40/50	1		08/28/17 15:59
65	T4.082817.160340	WG627378-01	Reference Sample		1	L17081356-04	08/28/17 16:03
66	T4.082817.160726	WG627457-01	Post Digestion Spike		1	L17081356-04	08/28/17 16:07
67	T4.082817.161055	WG627457-02	Serial Dilution		5	L17081356-04	08/28/17 16:10
68	T4.082817.161438	WG627378-04	Matrix Spike	40/50	1	L17081356-04	08/28/17 16:14

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 082817T4.1
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

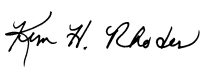
Calibration Std: STD83373 ICV Std: STD83372 Post Spike: STD83126
ICSA: STD83125 ICSAB: STD83467 Int. Std: RGT40895
CCV: STD83374 LLCCV: COA19621 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 627342,627086,627457,627458

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
69	T4.082817.161807	WG627378-05	Matrix Spike Duplica	40/50	1	L17081356-04	08/28/17 16:18
70	T4.082817.162136	WG627494-28	CCV		1		08/28/17 16:21
71	T4.082817.162501	WG627494-29	CCB		1		08/28/17 16:25
72	T4.082817.162844	WG627494-30	Low Level Continuing Calibra		1		08/28/17 16:28
73	T4.082817.163227	WG627494-31	Low Level Continuing Calibra		1		08/28/17 16:32
74	T4.082817.163608	WG627494-32	LLCCV		1		08/28/17 16:36
75	T4.082817.163949	WG627371-02	Method/Prep Blank	40/50	1		08/28/17 16:39
76	T4.082817.164333	WG627371-03	Laboratory Control S	40/50	1		08/28/17 16:43
77	T4.082817.164702	L17081305-01	PZ06-082317	40/50	1		08/28/17 16:47
78	T4.082817.165042	L17081305-02	PZ06-082317	40/50	1		08/28/17 16:50
79	T4.082817.165423	L17081305-03	PZ04-082317	40/50	1		08/28/17 16:54
80	T4.082817.165810	L17081305-04	PZ04-082317	40/50	1		08/28/17 16:58
81	T4.082817.170159	L17081305-05	DUP-GW-082317-1	40/50	1		08/28/17 17:01
82	T4.082817.170548	L17081305-06	DUP-GW-082317-1	40/50	1		08/28/17 17:05
83	T4.082817.170937	WG627458-01	Post Digestion Spike		1	L17081305-06	08/28/17 17:09
84	T4.082817.171315	WG627458-02	Serial Dilution		5	L17081305-06	08/28/17 17:13
85	T4.082817.171656	WG627494-33	CCV		1		08/28/17 17:16
86	T4.082817.172020	WG627494-34	CCB		1		08/28/17 17:20
87	T4.082817.172404	L17081305-08	MW31-082317	20/50	1		08/28/17 17:24
88	T4.082817.172751	L17081305-09	MW31-082317	20/50	1		08/28/17 17:27
89	T4.082817.173138	L17081305-10	MW30-082317	40/50	1		08/28/17 17:31
90	T4.082817.173527	L17081305-11	MW30-082317	40/50	1		08/28/17 17:35
91	T4.082817.173916	L17081305-12	MW11S-082317	40/50	1		08/28/17 17:39
92	T4.082817.174306	L17081305-13	MW11S-082317	40/50	1		08/28/17 17:43
93	T4.082817.174654	L17081305-14	MW09R-082317	40/50	1		08/28/17 17:46
94	T4.082817.175042	L17081305-15	MW09R-082317	40/50	1		08/28/17 17:50
95	T4.082817.175429	L17081305-16	DUP-GW-082317-2	40/50	1		08/28/17 17:54
96	T4.082817.175818	L17081305-17	DUP-GW-082317-2	40/50	1		08/28/17 17:58
97	T4.082817.180206	WG627494-35	CCV		1		08/28/17 18:02
98	T4.082817.180530	WG627494-36	CCB		1		08/28/17 18:05
99	T4.082817.180914	L17081305-19	MW19-082317	40/50	1		08/28/17 18:09
100	T4.082817.181256	WG627371-01	Reference Sample		1	L17081305-20	08/28/17 18:12
101	T4.082817.181636	WG627371-04	Matrix Spike	40/50	1	L17081305-20	08/28/17 18:16
102	T4.082817.182005	WG627371-05	Matrix Spike Duplica	40/50	1	L17081305-20	08/28/17 18:20

Page: 3 Approved: August 29, 2017



Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 082817T4.1
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD83373 ICV Std: STD83372 Post Spike: STD83126
ICSA: STD83125 ICSAB: STD83467 Int. Std: RGT40895
CCV: STD83374 LLCCV: COA19621 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 627342,627086,627457,627458

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
103	T4.082817.182335	L17081314-01	59-10-1.25 W1	40/50	1		08/28/17 18:23
104	T4.082817.182712	WG627494-37	Interference Check		1		08/28/17 18:27
105	T4.082817.183052	WG627494-38	Interference Check		1		08/28/17 18:30
106	T4.082817.183421	WG627494-39	CCV		1		08/28/17 18:34
107	T4.082817.183746	WG627494-40	CCB		1		08/28/17 18:37
108	T4.082817.184129	WG627494-41	Low Level Continuing Calibra		1		08/28/17 18:41
109	T4.082817.184512	WG627494-42	LLCCV		1		08/28/17 18:45
110	T4.082817.184854	WG627494-43	LLCCV		1		08/28/17 18:48

Page: 4 Approved: August 29, 2017

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 082917T4.2
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

Calibration Std: STD83373 ICV Std: STD83372 Post Spike: STD83126
ICSA: STD83620 ICSAB: STD83467 Int. Std: RGT40895
CCV: STD83374 LLCCV: COA19621 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 627458,627342,627650

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	T4.082917.141020	WG627770-01	Calibration Point		1		08/29/17 14:10
2	T4.082917.141407	WG627770-02	Calibration Point		1		08/29/17 14:14
3	T4.082917.141755	WG627770-03	Calibration Point		1		08/29/17 14:17
4	T4.082917.142143	WG627770-04	Calibration Point		1		08/29/17 14:21
5	T4.082917.142511	WG627770-05	Calibration Point		1		08/29/17 14:25
6	T4.082917.142839	WG627770-06	Initial Calibration Verification		1		08/29/17 14:28
7	T4.082917.143600	WG627770-07	Initial Calib Blank		1		08/29/17 14:36
8	T4.082917.143948	WG627770-08	Low Level Initial Calibration V		1		08/29/17 14:39
9	T4.082917.144333	WG627770-09	Interference Check		1		08/29/17 14:43
10	T4.082917.144717	WG627770-10	Interference Check		1		08/29/17 14:47
11	T4.082917.145051	WG627770-11	CCV		1		08/29/17 14:50
12	T4.082917.145419	WG627770-12	CCB		1		08/29/17 14:54
13	T4.082917.151827	L17081305-03	PZ04-082317	40/50	1		08/29/17 15:18
14	T4.082917.152212	L17081305-05	DUP-GW-082317-1	40/50	1		08/29/17 15:22
15	T4.082917.152555	L17081305-08	MW31-082317	20/50	1		08/29/17 15:25
16	T4.082917.152940	L17081305-10	MW30-082317	40/50	1		08/29/17 15:29
17	T4.082917.153324	L17081305-12	MW11S-082317	40/50	1		08/29/17 15:33
18	T4.082917.153709	L17081305-14	MW09R-082317	40/50	1		08/29/17 15:37
19	T4.082917.154053	L17081305-16	DUP-GW-082317-2	40/50	1		08/29/17 15:40
20	T4.082917.154436	L17081307-23	SW5A-336-14	40/50	1		08/29/17 15:44
21	T4.082917.154824	WG627342-03	Post Digestion Spike		1	L17081307-23	08/29/17 15:48
22	T4.082917.155156	WG627342-04	Serial Dilution		5	L17081307-23	08/29/17 15:51
23	T4.082917.155544	WG627770-13	CCV		1		08/29/17 15:55
24	T4.082917.155912	WG627770-14	CCB		1		08/29/17 15:59
25	T4.082917.160301	WG627770-15	LLCCV		1		08/29/17 16:03
26	T4.082917.160647	WG627770-16	LLCCV		1		08/29/17 16:06
27	T4.082917.161035	WG627770-17	Low Level Continuing Calibra		1		08/29/17 16:10
28	T4.082917.161421	WG627573-02	Method/Prep Blank	40/50	1		08/29/17 16:14
29	T4.082917.161808	WG627573-03	Laboratory Control S	40/50	1		08/29/17 16:18
30	T4.082917.162140	WG627573-04	Filter Blank		1		08/29/17 16:21
31	T4.082917.162528	WG627396-01	Fluid Blank 1		1		08/29/17 16:25
32	T4.082917.162915	WG627396-02	Fluid Blank 2		1		08/29/17 16:29
33	T4.082917.163303	L17081311-01	RHL_DINSMORE_22-01-01	40/50	1		08/29/17 16:33
34	T4.082917.163647	L17081311-02	RHL_DINSMORE_22-01-01	40/50	1		08/29/17 16:36

Page: 1 Approved: August 31, 2017

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO4 Dataset: 082917T4.2
Analyst1: KKB Analyst2: N/A
Method: 200.7/6010B/6010C SOP: ME600G Rev: 8
Maintenance Log ID:

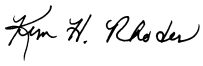
Calibration Std: STD83373 ICV Std: STD83372 Post Spike: STD83126
ICSA: STD83620 ICSAB: STD83467 Int. Std: RGT40895
CCV: STD83374 LLCCV: COA19621 Tuning Sol :
Stannous : Hydroxylamine :

Workgroups: 627458,627342,627650

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	T4.082917.164032	L17081326-01	FRN SALTCAKE	5/50	1		08/29/17 16:40
36	T4.082917.164427	WG627650-01	Post Digestion Spike		1	L17081326-01	08/29/17 16:44
37	T4.082917.164808	WG627650-02	Serial Dilution		5	L17081326-01	08/29/17 16:48
38	T4.082917.165154	WG627770-18	CCV		1		08/29/17 16:51
39	T4.082917.165523	WG627770-19	CCB		1		08/29/17 16:55
40	T4.082917.165911	L17081326-02	FRN FURNACE BAGHOUSE	5/50	1		08/29/17 16:59
41	T4.082917.170256	L17081326-03	FRN MILL FINES (SCREW 1	5/50	1		08/29/17 17:02
42	T4.082917.170649	L17081326-04	FRN MILL FINES (SCREW 8	5/50	1		08/29/17 17:06
43	T4.082917.171040	L17081364-01	17H1552-11	5/50	1		08/29/17 17:10
44	T4.082917.171423	L17081405-01	CBF-Q1-3	5/50	1		08/29/17 17:14
45	T4.082917.171809	WG627573-01	Reference Sample		1	L17081405-03	08/29/17 17:18
46	T4.082917.172155	WG627573-05	Matrix Spike	5/50	1	L17081405-03	08/29/17 17:21
47	T4.082917.172527	WG627573-06	Matrix Spike Duplica	5/50	1	L17081405-03	08/29/17 17:25
48	T4.082917.172859	L17081406-04	2017-TRENCH-WC	5/50	1		08/29/17 17:28
49	T4.082917.173245	L17081460-01	INS-WL01-082514	40/50	1		08/29/17 17:32
50	T4.082917.173629	WG627770-20	CCV		1		08/29/17 17:36
51	T4.082917.173956	WG627770-21	CCB		1		08/29/17 17:39
52	T4.082917.174346	L17081464-01	INS-WL02-082517	40/50	1		08/29/17 17:43
53	T4.082917.174727	L17081466-01	INS-WL03-082517	40/50	1		08/29/17 17:47
54	T4.082917.175109	L17081469-01	27-1-8 W1	40/50	1		08/29/17 17:51
55	T4.082917.175452	WG627770-22	Interference Check		1		08/29/17 17:54
56	T4.082917.175835	WG627770-23	Interference Check		1		08/29/17 17:58
57	T4.082917.180211	WG627770-24	CCV		1		08/29/17 18:02
58	T4.082917.180540	WG627770-25	CCB		1		08/29/17 18:05

 Approved: August 31, 2017



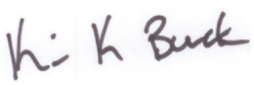
Microbac Laboratories Inc.

Data Checklist

Date: 28-AUG-2017
Analyst: KKB
Analyst: NA
Method: 6010B/6010C/200.7
Instrument: ICP-THERMO4
Curve Workgroup: 627494
Runlog ID: 84223
Analytical Workgroups: 627342,627086,627457,627458

STD ID#s on Runlog	X
Calibration/Linearity	X
ICV/CCV	X
ICV RSD < 3% (EPA 200.7 only)	
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	X
Client Forms	X
Level X	
Level 3	1200
Level 4	1212,1356,1305
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	KKB
Secondary Reviewer	KHR
Comments	

Primary Reviewer:
29-AUG-2017



Secondary Reviewer:
29-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-29-2017 11:51:54

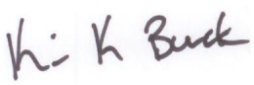
Microbac Laboratories Inc.

Data Checklist

Date: 29-AUG-2017
Analyst: KKB
Analyst: NA
Method: 6010B/6010C/200.7
Instrument: ICP-THERMO4
Curve Workgroup: 627770
Runlog ID: 84259
Analytical Workgroups: 627458,627342,627650

STD ID#s on Runlog	X
Calibration/Linearity	X
ICV/CCV	X
ICV RSD < 3% (EPA 200.7 only)	
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	X
Client Forms	X
Level X	
Level 3	1460,1464,1466
Level 4	1305,1406
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	KKB
Secondary Reviewer	KHR
Comments	

Primary Reviewer:
30-AUG-2017



Secondary Reviewer:
31-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-31-2017 08:34:04

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6010C AAB#: WG627458

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/28/2017	4.9	180		08/28/17	5.3	180	
PZ06-082317	02	08/23/17					08/28/2017	4.9	180		08/28/17	5.3	180	
PZ04-082317	03	08/23/17					08/28/2017	4.8	180		08/28/17	5.2	180	
PZ04-082317	03	08/23/17					08/28/2017	4.8	180		08/29/17	6.2	180	
PZ04-082317	04	08/23/17					08/28/2017	4.8	180		08/28/17	5.3	180	
DUP-GW-082317-1	05	08/23/17					08/28/2017	4.9	180		08/28/17	5.3	180	
DUP-GW-082317-1	05	08/23/17					08/28/2017	4.9	180		08/29/17	6.3	180	
DUP-GW-082317-1	06	08/23/17					08/28/2017	4.9	180		08/28/17	5.3	180	
MW31-082317	08	08/23/17					08/28/2017	4.9	180		08/29/17	6.2	180	
MW31-082317	08	08/23/17					08/28/2017	4.9	180		08/28/17	5.3	180	
MW31-082317	09	08/23/17					08/28/2017	4.9	180		08/28/17	5.3	180	
MW30-082317	10	08/23/17					08/28/2017	4.8	180		08/29/17	6.1	180	
MW30-082317	10	08/23/17					08/28/2017	4.8	180		08/28/17	5.2	180	
MW30-082317	11	08/23/17					08/28/2017	4.8	180		08/28/17	5.2	180	
MW11S-082317	12	08/23/17					08/28/2017	4.7	180		08/29/17	6.1	180	
MW11S-082317	12	08/23/17					08/28/2017	4.7	180		08/28/17	5.2	180	
MW11S-082317	13	08/23/17					08/28/2017	4.7	180		08/28/17	5.2	180	
MW09R-082317	14	08/23/17					08/28/2017	4.7	180		08/29/17	6	180	
MW09R-082317	14	08/23/17					08/28/2017	4.7	180		08/28/17	5.1	180	
MW09R-082317	15	08/23/17					08/28/2017	4.7	180		08/28/17	5.1	180	
DUP-GW-082317-2	16	08/23/17					08/28/2017	4.9	180		08/29/17	6.3	180	
DUP-GW-082317-2	16	08/23/17					08/28/2017	4.9	180		08/28/17	5.4	180	
DUP-GW-082317-2	17	08/23/17					08/28/2017	4.9	180		08/28/17	5.4	180	
MW19-082317	19	08/23/17					08/28/2017	4.7	180		08/28/17	5.1	180	
MW19-082317	20	08/23/17					08/28/2017	4.7	180		08/28/17	5.1	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5452846
Report generated 08/30/2017 09:49

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627458
Blank File ID: T4.082817.163949
Blank Sample ID: WG627371-02
Prep Date: 08/28/17 07:16
Instrument ID: ICP-THERMO4
Analyzed Date: 08/28/17 16:39
Method: 6010C
Analyst: KKB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627371-03	T4.082817.164333	08/28/17 16:43	01
PZ06-082317	L17081305-01	T4.082817.164702	08/28/17 16:47	01
PZ06-082317	L17081305-02	T4.082817.165042	08/28/17 16:50	01
PZ04-082317	L17081305-03	T4.082817.165423	08/28/17 16:54	01
PZ04-082317	L17081305-04	T4.082817.165810	08/28/17 16:58	01
DUP-GW-082317-1	L17081305-05	T4.082817.170159	08/28/17 17:01	01
DUP-GW-082317-1	L17081305-06	T4.082817.170548	08/28/17 17:05	01
MW31-082317	L17081305-08	T4.082817.172404	08/28/17 17:24	01
MW31-082317	L17081305-09	T4.082817.172751	08/28/17 17:27	01
MW30-082317	L17081305-10	T4.082817.173138	08/28/17 17:31	01
MW30-082317	L17081305-11	T4.082817.173527	08/28/17 17:35	01
MW11S-082317	L17081305-12	T4.082817.173916	08/28/17 17:39	01
MW11S-082317	L17081305-13	T4.082817.174306	08/28/17 17:43	01
MW09R-082317	L17081305-14	T4.082817.174654	08/28/17 17:46	01
MW09R-082317	L17081305-15	T4.082817.175042	08/28/17 17:50	01
DUP-GW-082317-2	L17081305-16	T4.082817.175429	08/28/17 17:54	01
DUP-GW-082317-2	L17081305-17	T4.082817.175818	08/28/17 17:58	01
MW19-082317	L17081305-19	T4.082817.180914	08/28/17 18:09	01
MW19-082317	L17081305-20	T4.082817.181256	08/28/17 18:12	01
PZ04-082317	L17081305-03	T4.082917.151827	08/29/17 15:18	DL01
DUP-GW-082317-1	L17081305-05	T4.082917.152212	08/29/17 15:22	DL01
MW31-082317	L17081305-08	T4.082917.152555	08/29/17 15:25	DL01
MW30-082317	L17081305-10	T4.082917.152940	08/29/17 15:29	DL01
MW11S-082317	L17081305-12	T4.082917.153324	08/29/17 15:33	DL01
MW09R-082317	L17081305-14	T4.082917.153709	08/29/17 15:37	DL01
DUP-GW-082317-2	L17081305-16	T4.082917.154053	08/29/17 15:40	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 5452847
Report generated 08/30/2017 09:58

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/28/17 07:16 Sample ID: WG627371-02
Instrument ID: ICP-THERMO4 Run Date: 08/28/17 16:39 Prep Method: 3015A
File ID: T4.082817.163949 Analyst: KKB Method: 6010C
Workgroup (AAB#): WG627458 Matrix: Water Units: mg/L
Contract #: Cal ID: ICP-TH-28-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Aluminum, Total	0.100	0.200	0.100	1	U
Calcium, Total	0.250	0.500	0.250	1	U
Iron, Total	0.0500	0.100	0.0993	1	J
Magnesium, Total	0.250	0.500	0.250	1	U
Manganese, Total	0.00500	0.0100	0.00500	1	U
Potassium, Total	0.500	1.00	0.500	1	U
Silica, Calculated as SiO2	1.07	2.14	1.07	1	U
Silicon, Total	0.500	1.00	0.500	1	U
Sodium, Total	0.250	0.500	0.250	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5452848
30-AUG-2017 09:50

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627371-03
Instrument ID: ICP-THERMO4 Run Time: 16:43 Prep Method: 3015A
File ID: T4.082817.164333 Analyst: KKB Method: 6010C
Workgroup (AAB#): WG627458 Matrix: Water Units: mg/L
QC Key: WATERLOO Lot#: STD83370 Cal ID: ICP-TH-28-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Aluminum, Total	6.25	6.50	104	85 - 115	
Calcium, Total	6.25	6.41	103	85 - 115	
Iron, Total	2.50	2.49	99.6	85 - 115	
Magnesium, Total	6.25	6.39	102	85 - 115	
Manganese, Total	0.313	0.316	101	85 - 115	
Potassium, Total	31.3	31.9	102	85 - 115	
Silicon, Total	3.13	3.09	99.0	85 - 115	
Sodium, Total	31.3	31.8	102	85 - 115	

LCS - Modified 03/06/2008
PDF File ID: 5452849
Report generated: 08/30/2017 09:50

Microbac Laboratories Inc.
MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L17081305 Cal ID:ICP-THERMO4- Worknum:WG627458
Instrument ID:ICP-THERMO4 Contract #: Method:6010C
Parent ID:WG627371-01 File ID:T4.082817.181256 Dil:1 Matrix:WATER
Sample ID:WG627371-04 MS File ID:T4.082817.181636 Dil:1 Units:mg/L
Sample ID:WG627371-05 MSD File ID:T4.082817.182005 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Aluminum, Dissolved	ND	6.25	6.16	98.5	6.25	5.98	95.6	2.92	85 - 115	20	
Calcium, Dissolved	124	6.25	133	145	6.25	129	80.9	3.04	85 - 115	20	*
Iron, Dissolved	0.696	2.50	3.13	97.4	2.50	3.05	94.0	2.73	85 - 115	20	
Magnesium, Dissolved	40.4	6.25	47.8	118	6.25	46.1	91.6	3.54	85 - 115	20	*
Manganese, Dissolved	0.433	0.313	0.752	102	0.313	0.725	93.2	3.76	85 - 115	20	
Potassium, Dissolved	1.71	31.3	33.8	103	31.3	32.9	99.7	2.71	85 - 115	20	
Silicon, Dissolved	9.59	3.13	13.0	110	3.13	12.6	96.5	3.30	85 - 115	20	
Sodium, Dissolved	102	31.3	136	108	31.3	132	95.1	3.11	85 - 115	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011
PDF File ID: 5452850
Report generated 08/30/2017 09:50

Microbac Laboratories Inc.
Serial Dilution Report

Login: L17081305 **Worknum:** WG627458
Instrument: ICP-THERMO4 **Method:** 6010C
Serial Dil: WG627458-02 **File ID:** T4.082817.171315 **Dil:** 5 **Units:** ug/L
Sample: L17081305-06 **File ID:** T4.082817.170548 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Aluminum	51.3		65.2		27.20	E
Calcium	57300		57000		0.66	
Iron	0.150	X	ND	U		
Magnesium	11700		12000		2.59	
Manganese	7.32		11.1		51.00	E
Potassium	12100		13100		8.52	
Silicon	25700		25600		0.30	
Sodium	784000		870000		10.90	E

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 25 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 25 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5452844
08/30/2017 09:50

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L17081305 **Worknum:** WG627458
Instrument ID: ICP-THERMO4 **Method:** 6010C
Post Spike ID: WG627458-01 **File ID:** T4.082817.170937 **Dil:** 1 **Units:** ug/L
Sample ID: L17081305-06 **File ID:** T4.082817.170548 **Dil:** 1 **Matrix:** Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ALUMINUM	4690		0	U	5000	93.8	75 - 125	
CALCIUM	56400		57300		5000	96.3	75 - 125	
IRON	1930		0	U	2000	96.6	75 - 125	
MAGNESIUM	15300		11700		5000	95.7	75 - 125	
MANGANESE	250		7.32	F	250	97.2	75 - 125	
POTASSIUM	36400		12100		25000	102.0	75 - 125	
SILICON	25700		25700		2500	101.0	75 - 125	
SODIUM	730000		784000		25000	95.5	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 5452845
Report generated: 08/30/2017 09:50

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L17081305**	Workgroup (AAB#):	**WG627458**
Analytical Method:	**6010C**	Instrument ID:	**ICP-THERMO4**
ICAL Worknum:	**WG627494**	Initial Calibration Date:	**28-AUG-2017 11:39**

	WG627494-01		WG627494-02		WG627494-03		WG627494-04		WG627494-05			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ALUMINUM	0	0.00157	.1	0.00228	.2	0.00309	10	0.0883	20	0.172	.999942	
CALCIUM	0	-0.000230	.1	0.00166	.2	0.00252	10	0.234	20	0.470	.999808	
IRON	0	0.000110	.04	0.000470	.08	0.00128	4	0.0667	8	0.134	.999839	
MAGNESIUM	0	-0.000320	NA	NA	.2	0.000420	10	0.0416	20	0.0839	.999977	
MANGANESE	0	0.00139	.005	0.00223	.01	0.00294	.5	0.0834	1	0.166	.9998	
POTASSIUM	0	0.00741	.5	0.0217	1	0.0338	50	1.49	100	2.97	.999913	
SILICON	0	0.000300	.05	0.00131	.1	0.00224	5	0.117	10	0.237	.999973	
SODIUM	0	-0.0329	.5	-0.00185	1	0.0379	50	4.25	100	8.55	.999985	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5452853
Report generated: 30-AUG-2017 09:50

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L17081305**	Workgroup (AAB#):	**WG627458**
Analytical Method:	**6010C**	Instrument ID:	**ICP-THERMO4**
ICAL Worknum:	**WG627770**	Initial Calibration Date:	**29-AUG-2017 14:25**

	WG627770-01		WG627770-02		WG627770-03		WG627770-04		WG627770-05			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ALUMINUM	0	0.00152	.1	0.00226	.2	0.00297	10	0.0904	20	0.176	.999957	
CALCIUM	0	-0.000820	.1	0.00166	.2	0.00313	10	0.247	20	0.495	.99992	
IRON	0	-0.0000300	.04	0.000800	.08	0.00136	4	0.0692	8	0.137	.999473	
MAGNESIUM	0	0.0000300	NA	NA	.2	0.000540	10	0.0441	20	0.0881	.999795	
MANGANESE	0	0.00143	.005	0.00208	.01	0.00280	.5	0.0883	1	0.173	.999982	
POTASSIUM	0	0.00696	.5	0.0199	1	0.0330	50	1.56	100	3.12	.999993	
SILICON	0	0.000350	.05	0.00128	.1	0.00222	5	0.118	10	0.239	.999978	
SODIUM	0	-0.0361	.5	0.00406	1	0.0363	50	4.42	100	8.85	.999976	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5452853
Report generated: 30-AUG-2017 09:50

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-07
Instrument ID: ICP-THERMO4 Run Time: 11:49 Method: 6010C
File ID: T4.082817.114909 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG627458 Cal ID: ICP-THERI - 28-AUG-17
Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
ALUMINUM	.08	.16	.08	U
CALCIUM	.2	.4	.2	U
IRON	.04	.08	.04	U
MAGNESIUM	.2	.4	.2	U
MANGANESE	.004	.008	.004	U
POTASSIUM	.4	.8	.4	U
SILICON	.4	.8	.4	U
SODIUM	.2	.4	.2	U

ICB - Modified 07/14/2009
PDF File ID: 5452855
Report generated 08/30/2017 09:50

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-07
Instrument ID: ICP-THERMO4 Run Time: 14:36 Method: 6010C
File ID: T4.082917.143600 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG627458 Cal ID: ICP-THERI - 29-AUG-17
Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
ALUMINUM	.08	.16	.08	U
CALCIUM	.2	.4	.2	U
IRON	.04	.08	.04	U
MAGNESIUM	.2	.4	.2	U
MANGANESE	.004	.008	.004	U
POTASSIUM	.4	.8	.4	U
SILICON	.4	.8	.4	U
SODIUM	.2	.4	.2	U

ICB - Modified 07/14/2009
PDF File ID: 5452855
Report generated 08/30/2017 09:50

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-14

Instrument ID: ICP-THERMO4 Run Time: 12:14 Method: 6010C

File ID: T4.082817.121434 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-29

Instrument ID: ICP-THERMO4 Run Time: 16:25 Method: 6010C

File ID: T4.082817.162501 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-34

Instrument ID: ICP-THERMO4 Run Time: 17:20 Method: 6010C

File ID: T4.082817.172020 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-36

Instrument ID: ICP-THERMO4 Run Time: 18:05 Method: 6010C

File ID: T4.082817.180530 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-40

Instrument ID: ICP-THERMO4 Run Time: 18:37 Method: 6010C

File ID: T4.082817.183746 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-12

Instrument ID: ICP-THERMO4 Run Time: 14:54 Method: 6010C

File ID: T4.082917.145419 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-14

Instrument ID: ICP-THERMO4 Run Time: 15:59 Method: 6010C

File ID: T4.082917.155912 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-21

Instrument ID: ICP-THERMO4 Run Time: 17:39 Method: 6010C

File ID: T4.082917.173956 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-25

Instrument ID: ICP-THERMO4 Run Time: 18:05 Method: 6010C

File ID: T4.082917.180540 Analyst: KKB Units: mg/L

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.0800	0.160	0.0800	U
Calcium	0.200	0.400	0.200	U
Iron	0.0400	0.0800	0.0400	U
Magnesium	0.200	0.400	0.200	U
Manganese	0.00400	0.00800	0.00400	U
Potassium	0.400	0.800	0.400	U
Silicon	0.400	0.800	0.400	U
Sodium	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5452858
Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-06
Instrument ID: ICP-THERMO4 Run Time: 11:43 Method: 6010C
File ID: T4.082817.114312 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17
QC Key: WATERLOO

Analyte		Expected	Found	%REC	LIMITS	Q
Aluminum		10	10.2	102	90 - 110	
Calcium		10	10.1	101	90 - 110	
Iron		4	4.00	100	90 - 110	
Magnesium		10	10.3	103	90 - 110	
Manganese		.5	0.509	102	90 - 110	
Potassium		50	50.5	101	90 - 110	
Silicon		5	5.00	100	90 - 110	
Sodium		50	50.4	101	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5452854
Report generated 08/30/2017 09:50

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-06
Instrument ID: ICP-THERMO4 Run Time: 14:28 Method: 6010C
File ID: T4.082917.142839 Analyst: KKB Units: mg/L
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17
QC Key: WATERLOO

Analyte		Expected	Found	%REC	LIMITS	Q
Aluminum		10	10.1	101	90 - 110	
Calcium		10	10.0	100	90 - 110	
Iron		4	3.96	99.1	90 - 110	
Magnesium		10	10.1	101	90 - 110	
Manganese		.5	0.511	102	90 - 110	
Potassium		50	50.0	100	90 - 110	
Silicon		5	5.00	100	90 - 110	
Sodium		50	49.8	99.6	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5452854
Report generated 08/30/2017 09:50

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-13

Instrument ID: ICP-THERMO4 Run Time: 12:11 Method: 6010C

File ID: T4.082817.121108 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	10.2	mg/L	102	90 - 110		
Iron		4.00	4.08	mg/L	102	90 - 110		
Magnesium		10.0	10.2	mg/L	102	90 - 110		
Manganese		0.500	0.509	mg/L	102	90 - 110		
Potassium		50.0	50.8	mg/L	102	90 - 110		
Silicon		5.00	5.09	mg/L	102	90 - 110		
Sodium		50.0	50.9	mg/L	102	90 - 110		

* Exceeds LIMITS Criteria

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-28

Instrument ID: ICP-THERMO4 Run Time: 16:21 Method: 6010C

File ID: T4.082817.162136 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	9.98	mg/L	99.8	90 - 110		
Iron		4.00	3.98	mg/L	99.5	90 - 110		
Magnesium		10.0	10.1	mg/L	101	90 - 110		
Manganese		0.500	0.499	mg/L	99.7	90 - 110		
Potassium		50.0	50.5	mg/L	101	90 - 110		
Silicon		5.00	5.01	mg/L	100	90 - 110		
Sodium		50.0	50.2	mg/L	100	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-33
Instrument ID: ICP-THERMO4 Run Time: 17:16 Method: 6010C
File ID: T4.082817.171656 Analyst: KKB QC Key: WATERLOO
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	10.0	mg/L	100	90 - 110		
Iron		4.00	3.91	mg/L	97.6	90 - 110		
Magnesium		10.0	10.1	mg/L	101	90 - 110		
Manganese		0.500	0.496	mg/L	99.2	90 - 110		
Potassium		50.0	50.7	mg/L	101	90 - 110		
Silicon		5.00	5.02	mg/L	100	90 - 110		
Sodium		50.0	49.9	mg/L	99.8	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 5452857
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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-35
Instrument ID: ICP-THERMO4 Run Time: 18:02 Method: 6010C
File ID: T4.082817.180206 Analyst: KKB QC Key: WATERLOO
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	9.99	mg/L	99.9	90 - 110		
Iron		4.00	3.93	mg/L	98.2	90 - 110		
Magnesium		10.0	10.2	mg/L	102	90 - 110		
Manganese		0.500	0.493	mg/L	98.7	90 - 110		
Potassium		50.0	51.2	mg/L	102	90 - 110		
Silicon		5.00	5.01	mg/L	100	90 - 110		
Sodium		50.0	50.2	mg/L	100	90 - 110		

* Exceeds LIMITS Criteria

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Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-39

Instrument ID: ICP-THERMO4 Run Time: 18:34 Method: 6010C

File ID: T4.082817.183421 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	10.0	mg/L	100	90 - 110		
Iron		4.00	3.93	mg/L	98.3	90 - 110		
Magnesium		10.0	10.2	mg/L	102	90 - 110		
Manganese		0.500	0.491	mg/L	98.1	90 - 110		
Potassium		50.0	51.3	mg/L	103	90 - 110		
Silicon		5.00	5.01	mg/L	100	90 - 110		
Sodium		50.0	50.7	mg/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-11

Instrument ID: ICP-THERMO4 Run Time: 14:50 Method: 6010C

File ID: T4.082917.145051 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	10.1	mg/L	101	90 - 110		
Iron		4.00	4.04	mg/L	101	90 - 110		
Magnesium		10.0	10.2	mg/L	102	90 - 110		
Manganese		0.500	0.505	mg/L	101	90 - 110		
Potassium		50.0	50.6	mg/L	101	90 - 110		
Silicon		5.00	5.10	mg/L	102	90 - 110		
Sodium		50.0	50.8	mg/L	102	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-13

Instrument ID: ICP-THERMO4 Run Time: 15:55 Method: 6010C

File ID: T4.082917.155544 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.1	mg/L	101	90 - 110		
Calcium		10.0	9.98	mg/L	99.8	90 - 110		
Iron		4.00	3.99	mg/L	99.9	90 - 110		
Magnesium		10.0	9.96	mg/L	99.6	90 - 110		
Manganese		0.500	0.503	mg/L	101	90 - 110		
Potassium		50.0	50.4	mg/L	101	90 - 110		
Silicon		5.00	5.08	mg/L	102	90 - 110		
Sodium		50.0	50.2	mg/L	100	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-20
Instrument ID: ICP-THERMO4 Run Time: 17:36 Method: 6010C
File ID: T4.082917.173629 Analyst: KKB QC Key: WATERLOO
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.2	mg/L	102	90 - 110		
Calcium		10.0	9.90	mg/L	99.0	90 - 110		
Iron		4.00	3.99	mg/L	99.8	90 - 110		
Magnesium		10.0	10.0	mg/L	100	90 - 110		
Manganese		0.500	0.496	mg/L	99.1	90 - 110		
Potassium		50.0	50.6	mg/L	101	90 - 110		
Silicon		5.00	5.05	mg/L	101	90 - 110		
Sodium		50.0	51.0	mg/L	102	90 - 110		

* Exceeds LIMITS Criteria

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Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-24

Instrument ID: ICP-THERMO4 Run Time: 18:02 Method: 6010C

File ID: T4.082917.180211 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.1	mg/L	101	90 - 110		
Calcium		10.0	9.88	mg/L	98.8	90 - 110		
Iron		4.00	3.97	mg/L	99.3	90 - 110		
Magnesium		10.0	10.0	mg/L	100	90 - 110		
Manganese		0.500	0.494	mg/L	98.8	90 - 110		
Potassium		50.0	50.6	mg/L	101	90 - 110		
Silicon		5.00	5.03	mg/L	101	90 - 110		
Sodium		50.0	51.0	mg/L	102	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5452857

Report generated 08/30/2017 09:53

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-08

Instrument ID: ICP-THERMO4 Run Time: 11:52 Method: 6010C

File ID: T4.082817.115254 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		0.160	0.166	mg/L	104	70 - 130		
Calcium		0.400	0.377	mg/L	94.2	70 - 130		
Iron		0.0800	0.0953	mg/L	119	70 - 130		
Magnesium		0.400	0.403	mg/L	101	70 - 130		
Manganese		0.00800	0.00684	mg/L	85.5	70 - 130		
Potassium		0.800	1.03	mg/L	128	70 - 130		
Silicon		0.800	0.734	mg/L	91.7	70 - 130		
Sodium		0.400	0.359	mg/L	89.8	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5452859

Report generated 08/30/2017 09:55

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-22
Instrument ID: ICP-THERMO4 Run Time: 13:54 Method: 6010C
File ID: T4.082817.135453 Analyst: KKB QC Key: WATERLOO
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Sodium		0.400	0.424	mg/L	106	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5452859
Report generated 08/30/2017 09:55

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-31

Instrument ID: ICP-THERMO4 Run Time: 16:32 Method: 6010C

File ID: T4.082817.163227 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		0.160	0.175	mg/L	110	70 - 130		
Calcium		0.400	0.369	mg/L	92.1	70 - 130		
Iron		0.0800	0.0814	mg/L	102	70 - 130		
Magnesium		0.400	0.443	mg/L	111	70 - 130		
Manganese		0.00800	0.00758	mg/L	94.8	70 - 130		
Potassium		0.800	0.909	mg/L	114	70 - 130		
Silicon		0.800	0.735	mg/L	91.8	70 - 130		
Sodium		0.400	0.383	mg/L	95.8	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5452859

Report generated 08/30/2017 09:55

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/28/2017 Sample ID: WG627494-41

Instrument ID: ICP-THERMO4 Run Time: 18:41 Method: 6010C

File ID: T4.082817.184129 Analyst: KKB QC Key: WATERLOO

Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 28-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		0.160	0.174	mg/L	108	70 - 130		
Calcium		0.400	0.398	mg/L	99.5	70 - 130		
Iron		0.0800	0.0812	mg/L	102	70 - 130		
Magnesium		0.400	0.465	mg/L	116	70 - 130		
Manganese		0.00800	0.00925	mg/L	116	70 - 130		
Potassium		0.800	0.982	mg/L	123	70 - 130		
Silicon		0.800	0.739	mg/L	92.4	70 - 130		
Sodium		0.400	0.424	mg/L	106	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5452859

Report generated 08/30/2017 09:55

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-08
Instrument ID: ICP-THERMO4 Run Time: 14:39 Method: 6010C
File ID: T4.082917.143948 Analyst: KKB QC Key: WATERLOO
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Sodium		0.350	0.437	mg/L	125	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5452859
Report generated 08/30/2017 09:55

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627770-17
Instrument ID: ICP-THERMO4 Run Time: 16:10 Method: 6010C
File ID: T4.082917.161035 Analyst: KKB QC Key: WATERLOO
Workgroup (AAB#): WG627458 Cal ID: ICP-TH - 29-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Sodium		0.350	0.263	mg/L	75.1	70 - 130		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5452859
Report generated 08/30/2017 09:55

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627458
Instrument ID: ICP-THERMO4 **Method:** 6010C
Sol. A : WG627494-11 **File ID:** T4.082817.120358 **Units:** mg/L
Sol. AB : WG627494-12 **File ID:** T4.082817.120738 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Aluminum	250	255	102	250	249	99.6	
Calcium	250	246	98.4	250	243	97.2	
Iron	100	98.8	98.8	100	97.4	97.4	
Magnesium	250	253	101	250	249	99.6	
Manganese	NS	-0.00408	NS	0.250	0.241	96.4	
Potassium	NS	0.206	NS	5.00	5.45	109	
Silicon	NS	0.0106	NS	NS	0.00936	NS	
Sodium	NS	-0.00831	NS	5.00	5.07	101	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
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Report generated 08/30/2017 09:52

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627458
Instrument ID: ICP-THERMO4 **Method:** 6010C
Sol. A : WG627494-37 **File ID:** T4.082817.182712 **Units:** mg/L
Sol. AB : WG627494-38 **File ID:** T4.082817.183052 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Aluminum	250	252	101	250	246	98.4	
Calcium	250	243	97.2	250	238	95.2	
Iron	100	94.6	94.6	100	92.8	92.8	
Magnesium	250	248	99.2	250	242	96.8	
Manganese	NS	-0.00338	NS	0.250	0.232	92.8	
Potassium	NS	0.0911	NS	5.00	5.25	105	
Silicon	NS	0.0143	NS	NS	0.0126	NS	
Sodium	NS	0.111	NS	5.00	5.12	102	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5452856
Report generated 08/30/2017 09:52

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627458
Instrument ID: ICP-THERMO4 **Method:** 6010C
Sol. A : WG627770-09 **File ID:** T4.082917.144333 **Units:** mg/L
Sol. AB : WG627770-10 **File ID:** T4.082917.144717 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Aluminum	250	250	100	250	244	97.6	
Calcium	250	242	96.8	250	236	94.4	
Iron	100	96.2	96.2	100	95.0	95.0	
Magnesium	250	246	98.4	250	243	97.2	
Manganese	NS	-0.00146	NS	0.250	0.238	95.2	
Potassium	NS	0.177	NS	5.00	5.24	105	
Silicon	NS	0.00611	NS	NS	0.00904	NS	
Sodium	NS	0.0174	NS	5.00	5.10	102	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

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Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627458
Instrument ID: ICP-THERMO4 **Method:** 6010C
Sol. A : WG627770-22 **File ID:** T4.082917.175452 **Units:** mg/L
Sol. AB : WG627770-23 **File ID:** T4.082917.175835 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Aluminum	250	248	99.2	250	244	97.6	
Calcium	250	237	94.8	250	232	92.8	
Iron	100	95.6	95.6	100	93.9	93.9	
Magnesium	250	245	98.0	250	241	96.4	
Manganese	NS	-0.00140	NS	0.250	0.231	92.4	
Potassium	NS	0.127	NS	5.00	5.14	103	
Silicon	NS	0.00745	NS	NS	0.0100	NS	
Sodium	NS	0.177	NS	5.00	5.14	103	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

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Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	AG	AL	AS	B	BA
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0.0000410	0	0	0
ARSENIC	189.00	0	0	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	0	0	0	0
CADMIUM	228.80	0	0	0.0145	0	-0.0000800
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0	0	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	0.000378	0	0	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	-0.000289	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0.0000140	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	-0.0000120	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	0
ZINC	206.20	0	0.0000320	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	BE	CA	CD	CO	CR
ALUMINUM	308.20	0	0	0	-0.000820	0
ANTIMONY	206.80	0	0	0	0	0.0260
ARSENIC	189.00	0	0	0	0	-0.00730
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	0	0	0.00343	0
CADMIUM	228.80	0	0	0	-0.00390	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	-0.000200
COPPER	224.70	0	0	0	0.0000770	-0.00100
IRON	261.10	0	0	0	0	-0.00100
LEAD	220.30	0	0	0	-0.0000130	-0.000132
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0.0000500
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	-0.000860	0
PHOSPHORUS	214.90	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0.00000500	0	0	0
THALLIUM	190.80	0	0	0	0.00240	0.000276
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	-0.00350
ZINC	206.20	0	0	0	0	-0.00180
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	CU	FE	K	LI	MG
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0.0000560	0	0	0
ARSENIC	189.00	0	-0.0000490	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	0.000648	0	0	0
CADMIUM	228.80	0	-0.00000500	0	0	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0.0000400	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0	0.00139	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0.000609	0	0	0	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0.0000220
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0.0000420	0	0	0
PHOSPHORUS	214.90	0.0390	0.000900	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	-0.000118	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	-0.000200	0	0	0
VANADIUM	292.40	0	0.0000700	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	MN	MO	NA	NI	P
ALUMINUM	308.20	0	0.0163	0	0	0
ANTIMONY	206.80	0	0.000910	0	-0.00190	0
ARSENIC	189.00	0	0.000139	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	-0.00190	0	0	0
CADMIUM	228.80	0	0.0000320	0	-0.000770	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0.000360	0	0	0	0
COBALT	228.60	0	-0.00200	0	0.000100	0
COPPER	224.70	0	0.00160	0	-0.0123	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	-0.000610	0	0.000110	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	-0.00290	-0.0230	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0.0000300	0	0	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	0.00710	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0.000600	0.000580	0	0	0
SILICON	212.40	0	-0.354	0	0	0
SILVER	328.10	0	-0.0000100	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0.00100	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	-0.000153	0	0	0
VANADIUM	292.40	-0.000200	-0.00160	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	PB	SB	SE	SI	SN
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0	0	0	-0.0320
ARSENIC	189.00	0	0	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	0	0	0	0
BORON	249.60	0	0	0	0	0
CADMIUM	228.80	0	0	0	0	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0.00440	0	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	0	0	0	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	SR	TI	TL	V	ZN
ALUMINUM	308.20	0	0	0	0.0720	0
ANTIMONY	206.80	0	0.000500	0	-0.00360	0
ARSENIC	189.00	0	0	0	0.000107	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.10	0	-0.00000700	0	0.000990	0
BORON	249.60	0	0	0	0	0
CADMIUM	228.80	0	0	0	0.000102	0
CALCIUM	422.60	0	0	0	0	0
CHROMIUM	267.70	0	0.0000550	0	0	0
COBALT	228.60	0	0.00170	0	0.0000200	0
COPPER	224.70	0	0.000269	0	0	0
IRON	261.10	0	0	0	0	0
LEAD	220.30	0	0	0	-0.000126	0
LITHIUM	670.70	0	0	0	0	0
MAGNESIUM	279.10	0	-0.00290	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.00	0	0	0	-0.000110	0
NICKEL	231.60	0	0	0	0	0
PHOSPHORUS	214.90	0	0	0	-0.00100	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.10	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.10	0	-0.000720	0	-0.000260	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.70	0	0	0	0	0
THALLIUM	190.80	0	-0.00100	0	-0.0420	0
TIN	189.90	0	-0.00190	0	0	0
TITANIUM	337.20	0	0	0	0	0
VANADIUM	292.40	0	0.000820	0	0	0
ZINC	206.20	0	0	0	0	0
ZIRCONIUM	339.10	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L17081305 **Date:** 01/04/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Wave Length	ZR
ALUMINUM	308.20	0
ANTIMONY	206.80	0
ARSENIC	189.00	0
BARIUM	455.40	0
BERYLLIUM	313.10	0
BORON	249.60	0
CADMIUM	228.80	0
CALCIUM	422.60	0
CHROMIUM	267.70	0
COBALT	228.60	0
COPPER	224.70	0
IRON	261.10	0
LEAD	220.30	0
LITHIUM	670.70	0
MAGNESIUM	279.10	0
MANGANESE	257.60	0
MOLYBDENUM	202.00	0
NICKEL	231.60	0
PHOSPHORUS	214.90	0
POTASSIUM	766.40	0
SELENIUM	196.10	0
SILICON	212.40	0
SILVER	328.10	0
SODIUM	589.50	0
STRONTIUM	407.70	0
THALLIUM	190.80	0
TIN	189.90	0
TITANIUM	337.20	0
VANADIUM	292.40	0
ZINC	206.20	0
ZIRCONIUM	339.10	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 5452852
Report generated: 08/30/2017 09:49

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L17081305 **Date:** 07/17/2017
Insturment ID: ICP-THERMO4 **Method:** 6010C

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Aluminum	10.00	900.0
Antimony	20.00	45.0
Arsenic	10.00	45.0
Barium	10.00	45.0
Beryllium	10.00	1.8
Boron	20.00	45.0
Cadmium	20.00	4.5
Calcium	8.00	270.0
Chromium	20.00	36.0
Cobalt	20.00	45.0
Copper	20.00	180.0
Iron	8.00	720.0
Lead	20.00	225.0
Lithium	8.00	36.0
Magnesium	8.00	900.0
Manganese	10.00	36.0
Molybdenum	20.00	18.0
Nickel	20.00	90.0
Phosphorus	20.00	180.0
Potassium	8.00	360.0
Selenium	20.00	90.0
Silicon	20.00	36.0
Silver	10.00	3.6
Sodium	8.00	270.0
Strontium	8.00	9.0
Thallium	20.00	18.0
Tin	20.00	45.0
Titanium	8.00	45.0
Vanadium	20.00	27.0
Zinc	20.00	45.0
Zirconium	10.00	45.0

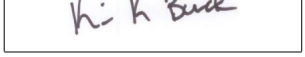
Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: 5452851
Report generated: 08/30/2017 09:49

2.3.1.3 Raw Data

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)
Ag 328.068 {103}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000185	0.033896	0.000000	1.000000
Al 308.215 {109}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.001569	0.008513	0.000000	1.000000
As 189.042 {478}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000018	0.023534	0.000000	1.000000
B 249.678 {135}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000117	0.015509	0.000000	1.000000
Ba 455.403 { 74}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.014849	1.173692	0.000000	1.000000
Be 313.107 {108}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000124	0.802119	0.000000	1.000000
Ca 422.673 { 80}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000231	0.023449	0.000000	1.000000
Cd 228.802 {447}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000350	0.318911	0.000000	1.000000
Co 228.616 {447}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000198	0.268189	0.000000	1.000000
Cr 267.716 {126}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000058	0.044597	0.000000	1.000000
Cu 224.700 {450}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000543	0.084922	0.000000	1.000000
Fe 261.187 {129}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000110	0.016671	0.000000	1.000000
K 766.490 { 44}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.007418	0.029687	0.000000	1.000000
Li 670.784 { 50}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.001008	0.581569	0.000000	1.000000
Mg 279.079 {121}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000317	0.004217	0.000000	1.000000
Mn 257.610 {131}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.001385	0.164364	0.000000	1.000000
Mo 202.030 {467}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000059	0.115070	0.000000	1.000000
Na 589.592 { 57}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.032894	0.085791	0.000000	1.000000
Ni 231.604 {446}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000865	0.069528	0.000000	1.000000
P 214.914 {457}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000123	0.009785	0.000000	1.000000
Pb 220.353 {453}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000442	0.048654	0.000000	1.000000
Sb 206.833 {463}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000478	0.021441	0.000000	1.000000
Se 196.090 {472}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000022	0.007587	0.000000	1.000000
Si 212.412 {459}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000296	0.025414	0.000000	1.000000
Sn 189.989 {477}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000065	0.069363	0.000000	1.000000
Sr 407.771 { 83}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.003107	1.941376	0.000000	1.000000
Ti 337.280 {100}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000728	0.087910	0.000000	1.000000
Tl 190.856 {477}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.000140	0.018258	0.000000	1.000000
V 292.402 {115}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000093	0.054090	0.000000	1.000000
Y 224.306 {450}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
Y 360.073 { 94}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
Y 377.433 { 89}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
Zn 206.200 {463}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	0.000298	0.459374	0.000000	1.000000
Zr 339.198 { 99}	8/28/2017 11:43:07	8/28/2017 11:43:07	Linear	1/Conc	-0.001891	0.001863	0.000000	1.000000

Approved: August 29, 2017



	Element, Wavelength and Order	Correlation	Std Error of Est	Predicted MDL	Predicted MQL	Status	Reslope		QC Norm	
							Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	0.999974	0.000001	0.002583	0.008612	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	0.999942	0.000006	0.008155	0.027184	OK.	1.000000	0.000000	1	0
	As 189.042 {478}	0.999966	0.000001	0.003360	0.011199	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	0.999258	0.000003	0.003276	0.010919	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	0.999964	0.000063	0.001002	0.003342	OK.	1.000000	0.000000	1	0
	Be 313.107 {108}	0.999910	0.000003	0.000078	0.000259	OK.	1.000000	0.000000	1	0
	Ca 422.673 { 80}	0.999808	0.000029	0.036885	0.122949	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	0.999387	0.000004	0.000374	0.001247	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	0.999965	0.000003	0.000520	0.001734	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	0.999911	0.000002	0.001293	0.004308	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	0.999960	0.000002	0.001830	0.006099	OK.	1.000000	0.000000	1	0
	Fe 261.187 {129}	0.999839	0.000008	0.017965	0.059884	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	0.999913	0.000124	0.096090	0.320301	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	0.999990	0.000026	0.004897	0.016322	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	0.999977	0.000003	0.071557	0.238522	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	0.999800	0.000010	0.002206	0.007353	OK.	1.000000	0.000000	1	0
	Mo 202.030 {467}	0.999981	0.000005	0.000634	0.002113	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	0.999985	0.000149	0.033196	0.110654	OK.	1.000000	0.000000	1	0
	Ni 231.604 {446}	0.999394	0.000008	0.001813	0.006043	OK.	1.000000	0.000000	1	0
	P 214.914 {457}	0.999956	0.000006	0.008994	0.029982	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	0.999898	0.000002	0.004220	0.014067	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	0.999905	0.000002	0.005930	0.019767	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	0.997046	0.000002	0.013909	0.046364	OK.	1.000000	0.000000	1	0
	Si 212.412 {459}	0.999973	0.000005	0.003263	0.010875	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	0.999975	0.000003	0.000954	0.003181	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	0.999990	0.000056	0.000454	0.001515	OK.	1.000000	0.000000	1	0
	Ti 337.280 {100}	0.999555	0.000017	0.006139	0.020463	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	0.999963	0.000001	0.004503	0.015008	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	0.999977	0.000002	0.001132	0.003773	OK.	1.000000	0.000000	1	0
	Y 224.306 {450}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
	Y 360.073 { 94}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
	Y 377.433 { 89}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
	Zn 206.200 {463}	0.999995	0.000009	0.000195	0.000649	OK.	1.000000	0.000000	1	0
	Zr 339.198 { 99}	0.581241	0.000017	0.422241	1.407470	OK.	1.000000	0.000000	1	0

Approved: August 29, 2017

Kirk Buck

Sample Name: S0 Acquired: 8/28/2017 11:24:53 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00019**	**.00157**	**.00002**	**-.00012**	**.01485**	**.00012**	**-.00023**
Stddev	.00003	.00004	.00008	.00005	.00091	.00003	.00012
%RSD	17.020	2.5366	451.89	43.354	6.1441	26.647	52.929
#1	-.00022	.00159	.00010	-.00017	.01431	.00011	-.00010
#2	-.00016	.00159	.00003	-.00012	.01433	.00010	-.00026
#3	-.00017	.00152	-.00007	-.00007	.01590	.00016	-.00033

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00035**	**.00020**	**.00006**	**-.00054**	**.00011**	**.00741**	**-.00101**
Stddev	.00012	.00007	.00004	.00007	.00017	.00294	.00309
%RSD	34.943	36.383	64.886	12.406	158.50	39.619	306.77
#1	.00025	.00020	.00005	-.00047	-.00009	.00670	-.00447
#2	.00031	.00012	.00010	-.00056	.00024	.01064	.00149
#3	.00049	.00027	.00002	-.00060	.00018	.00490	-.00004

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00032**	**.00139**	**.00006**	**-.03289**	**-.00087**	**.00012**	**-.00044**
Stddev	.00026	.00031	.00006	.00274	.00007	.00003	.00006
%RSD	82.852	22.304	106.78	8.3429	7.7919	26.536	14.396
#1	-.00048	.00158	.00013	-.03568	-.00079	.00010	-.00051
#2	-.00001	.00103	.00000	-.03020	-.00092	.00016	-.00038
#3	-.00046	.00155	.00005	-.03279	-.00089	.00011	-.00044

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00048**	**-.00002**	**.00030**	**.00006**	**.00311**	**-.00073**	**-.00014**
Stddev	.00002	.00005	.00003	.00006	.00044	.00030	.00003
%RSD	5.0568	217.08	9.7619	86.796	14.228	41.904	19.721
#1	.00051	-.00004	.00027	.00004	.00360	-.00038	-.00014
#2	.00047	-.00005	.00032	.00003	.00298	-.00090	-.00017
#3	.00046	.00003	.00030	.00013	.00274	-.00091	-.00011

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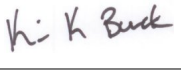

Sample Name: S0 Acquired: 8/28/2017 11:24:53 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	**.00009**	**.00030**	**-.00189**
Stddev	.00005	.00004	.00132
%RSD	52.490	14.134	69.570
#1	.00007	.00028	-.00225
#2	.00015	.00027	-.00043
#3	.00006	.00035	-.00299

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10603.**	**84677.**	**7699.0**
Stddev	21.	343.	52.1
%RSD	.19940	.40502	.67693
#1	10611.	84725.	7722.3
#2	10579.	84994.	7735.3
#3	10619.	84313.	7639.3

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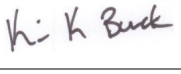

Sample Name: S1 Acquired: 8/28/2017 11:28:40 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	Ba4554	Be3131	Ca4226	Cd2288	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00008**	**.00228**	**.02561**	**.00038**	**.00166**	**.00054**	**.00056**
Stddev	.00009	.00005	.00108	.00003	.00016	.00009	.00006
%RSD	108.38	2.3675	4.2147	8.3830	9.6439	16.698	10.330
#1	-.00018	.00233	.02509	.00041	.00149	.00049	.00050
#2	-.00002	.00222	.02489	.00039	.00180	.00064	.00059
#3	-.00004	.00229	.02685	.00035	.00169	.00048	.00060

Elem	Cr2677	Cu2247	Fe2611	K_7664	Mn2576	Mo2020	Na5895
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00028**	**-.00019**	**.00047**	**.02172**	**.00223**	**.00091**	**-.00185**
Stddev	.00003	.00012	.00026	.00106	.00070	.00003	.00311
%RSD	11.751	67.060	54.097	4.8713	31.383	2.8573	167.51
#1	.00029	-.00005	.00024	.02291	.00232	.00093	-.00123
#2	.00025	-.00020	.00043	.02091	.00288	.00088	.00089
#3	.00031	-.00030	.00075	.02133	.00149	.00091	-.00522

Elem	Ni2316	P_2149	Pb2203	Sb2068	Si2124	Sn1899	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00043**	**.00086**	**-.00019**	**.00065**	**.00131**	**.00067**	**.01933**
Stddev	.00006	.00007	.00016	.00008	.00005	.00009	.00020
%RSD	13.904	8.6459	82.209	12.694	3.9550	13.967	1.0530
#1	-.00037	.00081	-.00018	.00056	.00136	.00076	.01932
#2	-.00043	.00083	-.00004	.00066	.00131	.00067	.01954
#3	-.00049	.00095	-.00035	.00073	.00126	.00057	.01914

Elem	Ti3372	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00040**	**.00050**	**.00413**	**-.00147**
Stddev	.00016	.00004	.00004	.00099
%RSD	39.245	8.6054	1.0093	66.985
#1	-.00031	.00046	.00416	-.00152
#2	-.00031	.00054	.00409	-.00047
#3	-.00058	.00049	.00416	-.00244

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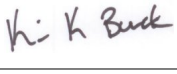


Sample Name: S1 Acquired: 8/28/2017 11:28:40 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	10627.	84593.	7378.0
Stddev	13.	260.	195.5
%RSD	.12241	.30748	2.6495
#1	10629.	84869.	7573.8
#2	10613.	84558.	7377.2
#3	10639.	84352.	7182.9

Approved: August 29, 2017

Sample Name: S2 Acquired: 8/28/2017 11:32:28 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

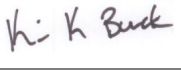
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00005**	**.00309**	**.00017**	**.00007**	**.03459**	**.00074**	**.00252**
Stddev	.00002	.00004	.00007	.00002	.00026	.00007	.00045
%RSD	45.183	1.2949	40.749	30.335	.76242	9.9886	17.861
#1	.00004	.00312	.00010	.00005	.03472	.00067	.00261
#2	.00008	.00305	.00024	.00009	.03429	.00082	.00292
#3	.00004	.00310	.00016	.00006	.03476	.00074	.00203

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00053**	**.00102**	**.00043**	**.00022**	**.00128**	**.03375**	**.00886**
Stddev	.00013	.00015	.00003	.00010	.00032	.00282	.00117
%RSD	24.899	14.869	6.6530	44.085	24.695	8.3697	13.246
#1	.00038	.00108	.00043	.00029	.00162	.03248	.00967
#2	.00057	.00113	.00046	.00027	.00100	.03179	.00939
#3	.00063	.00085	.00040	.00011	.00121	.03699	.00751

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00042**	**.00294**	**.00191**	**.03789**	**-.00017**	**.00170**	**-.00006**
Stddev	.00024	.00037	.00003	.00058	.00010	.00005	.00021
%RSD	56.693	12.504	1.8012	1.5291	59.173	3.0509	361.82
#1	.00047	.00254	.00192	.03828	-.00027	.00164	.00010
#2	.00062	.00327	.00194	.03816	-.00007	.00174	.00002
#3	.00016	.00302	.00187	.03722	-.00016	.00170	-.00030

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00083**	**-.00002**	**.00224**	**.00124**	**.03584**	**.00049**	**-.00002**
Stddev	.00007	.00009	.00011	.00006	.00020	.00051	.00002
%RSD	8.0778	387.76	4.9902	5.1109	.54709	105.84	121.16
#1	.00080	.00007	.00214	.00117	.03607	.00066	-.00005
#2	.00090	-.00011	.00236	.00126	.03571	.00089	-.00000
#3	.00077	-.00004	.00221	.00130	.03576	-.00009	-.00001

Approved: August 29, 2017

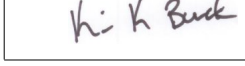


Sample Name: S2 Acquired: 8/28/2017 11:32:28 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	**.00092**	**.00765**	**-.00191**
Stddev	.00006	.00009	.00022
%RSD	6.3813	1.1933	11.689
#1	.00094	.00757	-.00177
#2	.00097	.00762	-.00216
#3	.00086	.00775	-.00178

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10668.**	**85039.**	**7680.4**
Stddev	21.	162.	11.4
%RSD	.19978	.19060	.14786
#1	10656.	85170.	7687.9
#2	10692.	84858.	7667.3
#3	10655.	85089.	7685.9

Approved: August 29, 2017



Sample Name: S3 Acquired: 8/28/2017 11:36:15 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

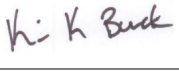
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01329**	**.08828**	**.00927**	**.00750**	**1.1881**	**.04071**	**.23385**
Stddev	.00008	.00029	.00013	.00011	.0079	.00007	.00020
%RSD	.63938	.33311	1.4289	1.4727	.66345	.17468	.08382
#1	.01324	.08860	.00940	.00762	1.1887	.04079	.23390
#2	.01339	.08801	.00914	.00740	1.1956	.04071	.23401
#3	.01325	.08824	.00926	.00749	1.1799	.04064	.23363

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01773**	**.05369**	**.02232**	**.04221**	**.06667**	**1.4899**	**.57955**
Stddev	.00009	.00002	.00007	.00010	.00031	.0060	.00264
%RSD	.51091	.04218	.31194	.23947	.46150	.40232	.45616
#1	.01783	.05369	.02227	.04215	.06635	1.4953	.58115
#2	.01765	.05366	.02229	.04215	.06696	1.4910	.58099
#3	.01772	.05371	.02240	.04233	.06672	1.4835	.57650

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.04161**	**.08336**	**.11438**	**4.2527**	**.03386**	**.09699**	**.02401**
Stddev	.00012	.00046	.00011	.0045	.00010	.00015	.00028
%RSD	.28546	.54937	.09369	.10670	.28610	.15697	1.1703
#1	.04156	.08314	.11431	4.2530	.03376	.09682	.02374
#2	.04152	.08389	.11433	4.2571	.03388	.09706	.02430
#3	.04174	.08305	.11450	4.2480	.03395	.09710	.02398

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02555**	**.00298**	**.11734**	**.06896**	**1.9440**	**.08650**	**.00828**
Stddev	.00001	.00007	.00005	.00024	.0077	.00006	.00002
%RSD	.02261	2.4405	.03918	.34334	.39409	.06639	.26762
#1	.02555	.00292	.11735	.06874	1.9464	.08653	.00829
#2	.02555	.00295	.11739	.06894	1.9501	.08644	.00825
#3	.02554	.00306	.11730	.06921	1.9354	.08654	.00829

Approved: August 29, 2017



Sample Name: S3 Acquired: 8/28/2017 11:36:15 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	**.05369**	**.45790**	**-.00013**
Stddev	.00006	.00025	.00053
%RSD	.11626	.05498	411.64
#1	.05376	.45816	.00039
#2	.05368	.45766	-.00010
#3	.05364	.45786	-.00068

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10529.**	**83525.**	**7653.5**
Stddev	21.	67.	18.4
%RSD	.20125	.07981	.24038
#1	10506.	83484.	7656.1
#2	10531.	83602.	7634.0
#3	10548.	83489.	7670.6

Approved: August 29, 2017

Kim K Buck

Sample Name: S4 Acquired: 8/28/2017 11:39:45 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

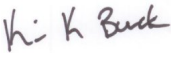
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02684**	**.17234**	**.01884**	**.01537**	**2.3604**	**.08233**	**.47014**	**.03529**
Stddev	.00001	.00039	.00004	.00005	.0162	.00014	.00310	.00004
%RSD	.04135	.22824	.21069	.30609	.68600	.16801	.65840	.11877
#1	.02684	.17279	.01888	.01534	2.3775	.08246	.47318	.03533
#2	.02682	.17211	.01880	.01534	2.3584	.08234	.47026	.03524
#3	.02684	.17211	.01884	.01542	2.3453	.08218	.46699	.03530

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.10746**	**.04468**	**.08490**	**.13364**	**2.9730**	**1.1626**	**.08387**	**.16562**
Stddev	.00018	.00005	.00012	.00099	.0190	.0090	.00059	.00105
%RSD	.16376	.12223	.14722	.74104	.63781	.77766	.70124	.63340
#1	.10763	.04474	.08501	.13478	2.9908	1.1695	.08434	.16676
#2	.10746	.04466	.08492	.13313	2.9752	1.1659	.08405	.16469
#3	.10728	.04464	.08476	.13301	2.9531	1.1524	.08321	.16541

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.23097**	**8.5514**	**.06840**	**.19762**	**.04853**	**.05130**	**.00616**	**.23735**
Stddev	.00054	.0657	.00011	.00037	.00012	.00008	.00003	.00032
%RSD	.23549	.76819	.15369	.18824	.25055	.15611	.53299	.13516
#1	.23105	8.6130	.06832	.19787	.04864	.05132	.00613	.23732
#2	.23039	8.5588	.06836	.19719	.04840	.05121	.00619	.23705
#3	.23147	8.4823	.06852	.19780	.04856	.05136	.00615	.23769

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.13874**	**3.8843**	**.17609**	**.01654**	**.10845**	**.91987**	**.00158**
Stddev	.00009	.0238	.00089	.00009	.00035	.00125	.00068
%RSD	.06674	.61293	.50385	.52954	.32301	.13581	43.118
#1	.13864	3.9100	.17698	.01647	.10881	.92113	.00083
#2	.13877	3.8798	.17608	.01652	.10811	.91863	.00173
#3	.13882	3.8631	.17520	.01664	.10841	.91985	.00216

Approved: August 29, 2017



Sample Name: S4 Acquired: 8/28/2017 11:39:45 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10311.**	**81179.**	**7612.3**
Stddev	113.	809.	109.4
%RSD	1.0960	.99662	1.4374
#1	10181.	80250.	7486.3
#2	10365.	81727.	7667.1
#3	10386.	81561.	7683.5

Approved: August 29, 2017

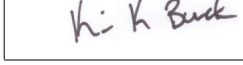
Sample Name: ICV Acquired: 8/28/2017 11:43:12 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40071**	**10.197**	**.40187**	**.49746**	**1.0152**	**.05043**	**10.126**
Stddev	.00237	.035	.00054	.00121	.0007	.00005	.039
%RSD	.59041	.33930	.13548	.24332	.06694	.09234	.38276
#1	.40281	10.226	.40182	.49676	1.0151	.05048	10.161
#2	.39815	10.205	.40136	.49886	1.0145	.05039	10.084
#3	.40118	10.159	.40244	.49676	1.0159	.05041	10.132
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05065**	**.20223**	**.49902**	**.50953**	**4.0041**	**50.477**	**1.0091**
Stddev	.00007	.00021	.00087	.00079	.0204	.147	.0036
%RSD	.14221	.10348	.17511	.15500	.50825	.29122	.35242
#1	.05057	.20214	.49998	.51044	3.9931	50.315	1.0060
#2	.05068	.20208	.49878	.50905	3.9915	50.601	1.0130
#3	.05071	.20247	.49829	.50910	4.0275	50.514	1.0085
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.259**	**.50902**	**.96537**	**50.370**	**.50572**	**10.078**	**.50668**
Stddev	.173	.00202	.00156	.038	.00301	.011	.00263
%RSD	1.6868	.39633	.16181	.07474	.59512	.10877	.51885
#1	10.395	.51135	.96646	50.411	.50417	10.083	.50970
#2	10.317	.50778	.96358	50.361	.50381	10.065	.50486
#3	10.064	.50794	.96608	50.337	.50919	10.085	.50550
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: ICV Acquired: 8/28/2017 11:43:12 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2402**	**.41087**	**5.0009**	**1.0266**	**1.0127**	**1.0134**	**.50276**
Stddev	.0058	.00408	.0029	.0021	.0017	.0023	.00387
%RSD	.46780	.99361	.05886	.20772	.16418	.22965	.76907
#1	1.2339	.41138	5.0043	1.0247	1.0117	1.0151	.49885
#2	1.2415	.40656	4.9988	1.0261	1.0118	1.0108	.50658
#3	1.2452	.41468	4.9998	1.0289	1.0146	1.0144	.50284
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.99601**	**1.0146**	F **.34290**
Stddev	.00258	.0015	.31061
%RSD	.25908	.14381	90.585
#1	.99692	1.0143	.24858
#2	.99801	1.0133	.68973
#3	.99309	1.0161	.09037
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-5.0000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10469.**	**83181.**	**7366.6**
Stddev	15.	452.	188.4
%RSD	.14087	.54388	2.5581
#1	10456.	82823.	7524.5
#2	10485.	83031.	7417.4
#3	10465.	83689.	7158.0

Approved: August 29, 2017

Kristi K Buck

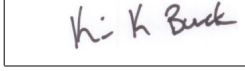
Sample Name: ICB Acquired: 8/28/2017 11:49:09 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00023**	**-.00664**	**.00061**	**.00432**	**-.00006**	**-.00010**	**-.04176**
Stddev	.00116	.00671	.00163	.00020	.00045	.00006	.02199
%RSD	515.49	101.07	268.85	4.6788	796.33	58.512	52.652
#1	-.00111	-.00559	.00248	.00433	-.00047	-.00006	-.01676
#2	.00096	-.00051	-.00014	.00452	-.00012	-.00007	-.05808
#3	.00082	-.01381	-.00052	.00411	.00042	-.00016	-.05045
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00003**	**-.00043**	**.00070**	**-.00151**	**-.00598**	**.16961**	**.00023**
Stddev	.00024	.00054	.00029	.00196	.00735	.04377	.00083
%RSD	920.65	124.19	41.152	129.12	122.86	25.803	359.41
#1	.00006	.00017	.00064	-.00260	.00208	.12943	.00034
#2	-.00023	-.00059	.00045	-.00268	-.00770	.21625	.00101
#3	.00025	-.00087	.00102	.00074	-.01232	.16316	-.00065
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.03364**	**-.00057**	**.00034**	**-.02127**	**.00068**	**-.00372**	**.00100**
Stddev	.07903	.00110	.00028	.01608	.00093	.00658	.00289
%RSD	234.90	191.09	83.378	75.596	136.45	177.21	289.25
#1	.01756	-.00178	.00001	-.00355	.00060	-.01127	-.00031
#2	-.03611	-.00030	.00047	-.02532	.00165	.00077	-.00101
#3	.11947	.00036	.00052	-.03494	-.00021	-.00064	.00431
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: ICB Acquired: 8/28/2017 11:49:09 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00891**	**-.00724**	**.00149**	**.00047**	**.00036**	**-.00139**	**-.00398**
Stddev	.00199	.00480	.00162	.00032	.00017	.00279	.00398
%RSD	22.373	66.275	108.98	68.727	47.835	200.53	100.06
#1	-.00906	-.00405	.00176	.00072	.00042	.00143	.00014
#2	-.01082	-.01275	.00296	.00057	.00017	-.00145	-.00428
#3	-.00684	-.00490	-.00025	.00011	.00049	-.00415	-.00780
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00042**	**.00019**	F **-.23628**
Stddev	.00096	.00024	.23596
%RSD	226.31	127.24	99.863
#1	.00130	.00017	-.34915
#2	-.00060	.00043	.03491
#3	.00058	-.00004	-.39462
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10630.**	**85444.**	**7708.1**
Stddev	31.	236.	30.0
%RSD	.29246	.27663	.38907
#1	10631.	85305.	7694.1
#2	10661.	85717.	7687.7
#3	10598.	85310.	7742.5

Approved: August 29, 2017

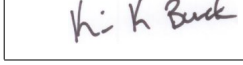
Sample Name: LLICV Acquired: 8/28/2017 11:52:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01084**	**.16574**	**.00959**	**.08284**	**.00853**	**.00155**	**.37685**	**.00103**
Stddev	.00159	.00211	.00332	.00286	.00050	.00004	.03400	.00027
%RSD	14.627	1.2721	34.659	3.4566	5.8937	2.3675	9.0232	26.284
#1	.00994	.16816	.00596	.07982	.00826	.00156	.41552	.00129
#2	.01267	.16433	.01034	.08318	.00821	.00151	.35160	.00106
#3	.00991	.16472	.01248	.08552	.00911	.00158	.36344	.00075
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00389**	**.00474**	**.00443**	**.09534**	**1.0269**	**.08277**	**.40308**	**.00684**
Stddev	.00017	.00018	.00075	.02396	.0616	.00213	.03395	.00269
%RSD	4.2682	3.8744	16.888	25.129	5.9941	2.5710	8.4218	39.259
#1	.00387	.00494	.00402	.07413	.98973	.08398	.44110	.00388
#2	.00406	.00458	.00530	.12133	.99301	.08032	.39233	.00912
#3	.00373	.00470	.00398	.09056	1.0979	.08403	.37581	.00753
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00769**	**.35935**	**.01963**	**.78957**	**.00889**	**.08144**	**.00901**	**.73351**
Stddev	.00046	.01462	.00022	.00453	.00113	.00511	.00924	.00287
%RSD	6.0319	4.0691	1.1200	.57335	12.668	6.2764	102.57	.39072
#1	.00811	.34248	.01985	.78634	.00788	.08141	.01857	.73269
#2	.00775	.36728	.01941	.79474	.01011	.08656	.00833	.73669
#3	.00719	.36830	.01962	.78763	.00869	.07634	.00012	.73114
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

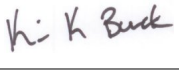


Sample Name: LLICV Acquired: 8/28/2017 11:52:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41385**	**.04186**	**.02294**	**.16023**	**.00727**	**.01742**	**40.662**
Stddev	.00045	.00010	.00791	.00511	.00029	.00004	.381
%RSD	.10948	.24216	34.464	3.1896	3.9558	.20486	.93623
#1	.41339	.04174	.03134	.15817	.00725	.01743	41.052
#2	.41429	.04192	.01565	.16605	.00700	.01738	40.291
#3	.41386	.04191	.02182	.15647	.00757	.01744	40.645
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10685.**	**85566.**	**7726.6**
Stddev	12.	203.	20.5
%RSD	.11587	.23770	.26530
#1	10672.	85785.	7730.7
#2	10697.	85531.	7744.7
#3	10687.	85383.	7704.3

Approved: August 29, 2017



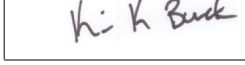
Sample Name: LLICV Acquired: 8/28/2017 11:56:36 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01068**	**.16392**	**.00842**	**.07927**	**.00822**	**.00153**	**.39277**	**.00092**
Stddev	.00120	.00156	.00298	.00102	.00036	.00005	.03689	.00018
%RSD	11.213	.94999	35.374	1.2877	4.3649	3.3973	9.3918	19.080
#1	.00997	.16562	.01090	.07911	.00798	.00149	.35023	.00072
#2	.01001	.16257	.00926	.07833	.00863	.00151	.41588	.00100
#3	.01206	.16358	.00512	.08036	.00805	.00159	.41219	.00104
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00384**	**.00507**	**.00316**	**.09316**	**.96653**	**.08149**	**.41443**	**.00471**
Stddev	.00012	.00063	.00003	.01730	.07411	.00169	.12664	.00249
%RSD	3.2086	12.522	.91015	18.574	7.6681	2.0768	30.559	52.774
#1	.00370	.00566	.00314	.10195	1.0496	.08342	.26841	.00262
#2	.00387	.00440	.00319	.07322	.94265	.08024	.48069	.00406
#3	.00394	.00515	.00314	.10430	.90730	.08081	.49420	.00746
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00765**	**.38228**	**.01830**	**.79199**	**.00880**	**.08449**	**.01907**	**.73236**
Stddev	.00060	.03098	.00115	.01544	.00182	.00108	.01169	.00095
%RSD	7.8276	8.1027	6.3080	1.9496	20.630	1.2749	61.317	.12955
#1	.00815	.39423	.01723	.80454	.01077	.08557	.02100	.73201
#2	.00699	.34711	.01815	.79669	.00720	.08448	.02967	.73343
#3	.00780	.40551	.01953	.77475	.00842	.08342	.00653	.73163
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

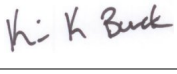


Sample Name: LLICV Acquired: 8/28/2017 11:56:36 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41504**	**.04129**	**.02199**	**.15020**	**.00795**	**.01769**	**42.073**
Stddev	.00134	.00052	.00599	.00304	.00041	.00016	.450
%RSD	.32354	1.2573	27.260	2.0259	5.1928	.89921	1.0700
#1	.41538	.04166	.02788	.15331	.00775	.01751	41.809
#2	.41617	.04070	.01590	.15007	.00842	.01773	42.593
#3	.41355	.04153	.02218	.14723	.00767	.01782	41.818
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10668.**	**85978.**	**7714.8**
Stddev	17.	219.	24.2
%RSD	.15725	.25512	.31378
#1	10669.	86201.	7742.8
#2	10650.	85971.	7700.0
#3	10684.	85763.	7701.7

Approved: August 29, 2017



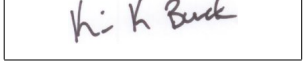
Sample Name: LLICV Acquired: 8/28/2017 12:00:17 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00970**	**.17077**	**.00766**	**.08348**	**.00916**	**.00156**	**.38009**	**.00088**
Stddev	.00109	.00619	.00039	.00171	.00138	.00006	.02096	.00012
%RSD	11.200	3.6230	5.1047	2.0512	15.111	3.7683	5.5158	13.109
#1	.00905	.17782	.00758	.08416	.00908	.00163	.39876	.00099
#2	.00910	.16621	.00808	.08153	.00782	.00151	.35741	.00076
#3	.01096	.16829	.00731	.08475	.01058	.00156	.38410	.00090
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00384**	**.00416**	**.00558**	**.08298**	**1.0203**	**.08593**	**.47321**	**.00882**
Stddev	.00034	.00065	.00118	.00208	.0294	.00388	.04842	.00120
%RSD	8.8067	15.558	21.180	2.5090	2.8826	4.5154	10.233	13.641
#1	.00404	.00364	.00451	.08078	1.0531	.08615	.44029	.00992
#2	.00402	.00397	.00684	.08492	1.0112	.08194	.45053	.00901
#3	.00345	.00489	.00538	.08325	.99646	.08969	.52882	.00754
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00790**	**.36891**	**.01842**	**.79844**	**.01144**	**.08672**	**.01938**	**.73902**
Stddev	.00035	.01008	.00128	.00329	.00453	.00234	.01199	.00062
%RSD	4.4661	2.7319	6.9611	.41172	39.616	2.6997	61.867	.08414
#1	.00753	.37866	.01986	.79656	.00635	.08756	.02610	.73862
#2	.00793	.35853	.01739	.79652	.01504	.08853	.00554	.73973
#3	.00824	.36953	.01801	.80223	.01292	.08408	.02650	.73870
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

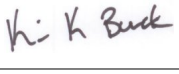


Sample Name: LLICV Acquired: 8/28/2017 12:00:17 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41713**	**.04231**	**.02812**	**.15866**	**.00825**	**.01751**	**43.312**
Stddev	.00056	.00018	.00309	.00045	.00136	.00019	1.158
%RSD	.13385	.43324	10.991	.28147	16.472	1.0751	2.6747
#1	.41709	.04237	.02855	.15884	.00864	.01730	42.339
#2	.41771	.04245	.03098	.15899	.00674	.01757	43.003
#3	.41660	.04210	.02484	.15815	.00937	.01767	44.593
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10657.**	**85407.**	**7433.6**
Stddev	6.	214.	145.7
%RSD	.05347	.25079	1.9600
#1	10658.	85288.	7533.1
#2	10662.	85279.	7501.5
#3	10651.	85654.	7266.4

Approved: August 29, 2017



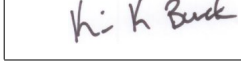
Sample Name: ICSA Acquired: 8/28/2017 12:03:58 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00260**	**254.51**	**-.00047**	**-.00348**	**.00042**	**-.00009**	**246.17**
Stddev	.00113	.61	.00329	.00134	.00114	.00009	.68
%RSD	43.366	.23870	706.59	38.406	272.92	98.125	.27533
#1	-.00130	255.12	-.00423	-.00449	-.00041	-.00011	245.43
#2	-.00320	254.50	.00184	-.00400	.00172	-.00017	246.76
#3	-.00329	253.90	.00099	-.00197	-.00006	.00001	246.32
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00005**	**-.00101**	**-.00118**	**.00379**	**98.844**	**.20614**	**.00483**
Stddev	.00060	.00038	.00150	.00078	.335	.07366	.00274
%RSD	1154.6	37.521	127.21	20.653	.33861	35.734	56.662
#1	.00062	-.00138	-.00289	.00372	98.582	.12625	.00796
#2	-.00026	-.00063	-.00016	.00304	99.221	.27136	.00362
#3	-.00052	-.00102	-.00048	.00460	98.729	.22082	.00291
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**253.26**	F **-.00408**	**-.00079**	**-.00831**	**-.00215**	**.02753**	**.00092**
Stddev	.80	.00139	.00038	.00612	.00062	.00080	.00193
%RSD	.31470	34.008	48.403	73.660	28.837	2.9202	210.01
#1	253.11	-.00562	-.00086	-.00366	-.00144	.02750	-.00021
#2	254.12	-.00292	-.00038	-.01524	-.00240	.02835	-.00018
#3	252.55	-.00371	-.00114	-.00602	-.00261	.02674	.00314
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00400					
Low Limit		-.00400					

Approved: August 29, 2017



Sample Name: ICSA Acquired: 8/28/2017 12:03:58 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00101**	F **-.02006**	**.01064**	**.00166**	**.00122**	**.00536**	**-.00496**
Stddev	.00197	.01277	.00125	.00185	.00047	.00474	.00392
%RSD	193.83	63.622	11.772	111.86	38.613	88.452	79.186
#1	.00109	-.02893	.00965	-.00035	.00090	.00961	-.00948
#2	.00294	-.00543	.01204	.00329	.00101	.00025	-.00246
#3	-.00099	-.02583	.01022	.00203	.00177	.00621	-.00292
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00800					
Low Limit		-.00800					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00506**	**-.00423**	F **-5.3274**
Stddev	.00031	.00014	.3852
%RSD	6.2138	3.3127	7.2307
#1	-.00535	-.00439	-5.0074
#2	-.00472	-.00415	-5.2198
#3	-.00510	-.00415	-5.7550
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02000
Low Limit			-.02000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9932.2**	**78060.**	**7500.3**
Stddev	17.3	158.	26.8
%RSD	.17424	.20302	.35678
#1	9927.9	78227.	7524.3
#2	9917.4	78039.	7471.4
#3	9951.2	77912.	7505.2

Approved: August 29, 2017

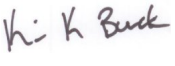
Sample Name: ICSAB Acquired: 8/28/2017 12:07:38 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.51608**	**249.24**	**.24436**	**.48103**	**.25328**	**.25743**	**242.91**
Stddev	.00266	.50	.00261	.00341	.00084	.00048	.82
%RSD	.51628	.20003	1.0699	.70930	.33258	.18747	.33709
#1	.51884	249.80	.24735	.47715	.25354	.25771	242.96
#2	.51352	248.83	.24321	.48239	.25234	.25771	242.06
#3	.51586	249.10	.24252	.48356	.25397	.25687	243.70
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.47078**	**.23582**	**.24479**	**.24520**	**97.381**	**5.4452**	**.00473**
Stddev	.00130	.00074	.00095	.00300	.311	.0384	.00213
%RSD	.27538	.31277	.38924	1.2215	.31930	.70570	45.035
#1	.47188	.23625	.24456	.24794	97.660	5.4863	.00624
#2	.46935	.23497	.24398	.24566	97.046	5.4393	.00567
#3	.47110	.23624	.24584	.24200	97.439	5.4101	.00229
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**248.89**	**.24143**	**-.00095**	**5.0690**	**.46849**	**-.01582**	**.47597**
Stddev	1.28	.00159	.00100	.0353	.00228	.00402	.00189
%RSD	.51343	.66039	104.76	.69739	.48734	25.408	.39665
#1	249.47	.24189	-.00132	5.0960	.47093	-.01807	.47379
#2	247.43	.24274	-.00171	5.0290	.46814	-.01118	.47712
#3	249.78	.23965	.00018	5.0819	.46640	-.01823	.47700
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: ICSAB Acquired: 8/28/2017 12:07:38 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49929**	**.23448**	**.00936**	**.48284**	**.00132**	**.00636**	**.44206**
Stddev	.00831	.01659	.00087	.00180	.00032	.00570	.00586
%RSD	1.6642	7.0759	9.2971	.37379	23.800	89.638	1.3252
#1	.50870	.24071	.00864	.48259	.00167	.01077	.44707
#2	.49296	.21568	.00911	.48476	.00124	-.00008	.43562
#3	.49622	.24706	.01033	.48118	.00106	.00839	.44350
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.24575**	**.46980**	F **-5.0199**
Stddev	.00031	.00069	.2561
%RSD	.12531	.14729	5.1012
#1	.24555	.46943	-4.7273
#2	.24610	.47060	-5.1293
#3	.24560	.46938	-5.2031
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02500
Low Limit			-.02500

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9932.0**	**77838.**	**7270.1**
Stddev	12.2	201.	165.1
%RSD	.12273	.25845	2.2712
#1	9928.1	77628.	7347.1
#2	9922.3	77857.	7382.6
#3	9945.7	78029.	7080.5

Approved: August 29, 2017

Kristi K Buck

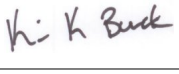
Sample Name: CCV Acquired: 8/28/2017 12:11:08 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40793**	**10.219**	**.40557**	**.50307**	**1.0169**	**.05041**	**10.185**
Stddev	.00020	.011	.00254	.00119	.0042	.00010	.044
%RSD	.04794	.10938	.62512	.23741	.41434	.19145	.43526
#1	.40778	10.228	.40337	.50176	1.0128	.05047	10.151
#2	.40815	10.207	.40501	.50409	1.0212	.05030	10.170
#3	.40786	10.223	.40834	.50335	1.0166	.05046	10.235
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05069**	**.20280**	**.50330**	**.50783**	**4.0756**	**50.836**	**1.0221**
Stddev	.00017	.00086	.00162	.00228	.0409	.095	.0103
%RSD	.32796	.42337	.32129	.44858	1.0039	.18702	1.0051
#1	.05060	.20181	.50206	.50998	4.0369	50.727	1.0108
#2	.05059	.20330	.50270	.50544	4.1184	50.883	1.0245
#3	.05088	.20330	.50513	.50807	4.0716	50.899	1.0310
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.246**	**.50884**	**1.0124**	**50.929**	**.50663**	**10.049**	**.50688**
Stddev	.113	.00254	.0008	.081	.00115	.013	.00093
%RSD	1.0993	.49938	.08011	.15944	.22668	.12571	.18281
#1	10.257	.50708	1.0116	50.836	.50557	10.038	.50748
#2	10.129	.51176	1.0124	50.988	.50785	10.047	.50581
#3	10.353	.50770	1.0133	50.962	.50647	10.063	.50734
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 12:11:08 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2164**	**.41368**	**5.0896**	**1.0166**	**1.0161**	**1.0256**	**.50881**
Stddev	.0082	.00514	.0128	.0021	.0023	.0037	.00419
%RSD	.67685	1.2432	.25196	.20324	.22618	.36416	.82375
#1	1.2081	.40973	5.0762	1.0151	1.0135	1.0221	.50399
#2	1.2245	.41950	5.0909	1.0157	1.0177	1.0295	.51161
#3	1.2165	.41182	5.1018	1.0190	1.0172	1.0251	.51083
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0054**	**1.0144**	F **.59998**
Stddev	.0020	.0006	.34395
%RSD	.20100	.06122	57.327
#1	1.0072	1.0139	.26238
#2	1.0058	1.0142	.58762
#3	1.0032	1.0151	.94995
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10429.**	**82881.**	**7442.9**
Stddev	12.	55.	127.0
%RSD	.11365	.06667	1.7059
#1	10442.	82895.	7469.3
#2	10425.	82929.	7304.8
#3	10419.	82821.	7554.6

Approved: August 29, 2017

Ki K Buck

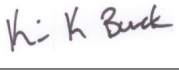
Sample Name: CCB Acquired: 8/28/2017 12:14:34 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00254**	**.04782**	**.00196**	**.00637**	**.00054**	**.00003**	**-.04474**
Stddev	.00310	.06843	.00121	.00180	.00139	.00008	.03680
%RSD	122.22	143.10	62.127	28.206	260.14	253.39	82.265
#1	-.00056	.12664	.00134	.00600	-.00087	.00013	-.03695
#2	.00254	.00357	.00117	.00478	.00056	.00000	-.01245
#3	.00564	.01325	.00336	.00832	.00192	-.00003	-.08481
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00025**	**-.00034**	**.00083**	**.00059**	**.00527**	**.24463**	**.00465**
Stddev	.00010	.00039	.00088	.00105	.02051	.05724	.00637
%RSD	39.921	113.52	105.77	176.08	389.46	23.397	137.05
#1	.00015	-.00073	.00103	.00140	.02868	.21821	.00745
#2	.00035	.00004	.00159	.00097	-.00950	.31030	.00914
#3	.00026	-.00033	-.00013	-.00059	-.00339	.20537	-.00264
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01291**	**-.00003**	**.00013**	**-.02703**	**.00169**	**-.00800**	**.00005**
Stddev	.05136	.00354	.00025	.01633	.00126	.00762	.00475
%RSD	397.72	10380.	191.08	60.403	74.324	95.243	9830.2
#1	-.01500	.00220	.00022	-.00897	.00273	-.00838	-.00474
#2	.07219	.00182	.00033	-.03137	.00030	-.00019	.00476
#3	-.01845	-.00412	-.00015	-.04075	.00204	-.01541	.00012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



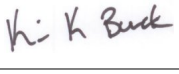
Sample Name: CCB Acquired: 8/28/2017 12:14:34 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00133**	**-.00337**	**.00442**	**.00106**	**.00049**	**-.00423**	**-.00434**
Stddev	.00139	.01115	.00400	.00051	.00030	.00497	.00369
%RSD	104.81	330.44	90.568	48.410	61.976	117.40	85.199
#1	-.00010	-.00285	.00216	.00091	.00014	-.00967	-.00219
#2	-.00104	.00751	.00206	.00163	.00067	-.00310	-.00860
#3	-.00284	-.01478	.00904	.00064	.00065	.00007	-.00221
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00039**	**.00020**	F **.14416**
Stddev	.00059	.00006	.52532
%RSD	149.68	32.653	364.39
#1	.00076	.00015	-.38967
#2	.00070	.00017	.16162
#3	-.00028	.00027	.66053
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10534.**	**84679.**	**7592.8**
Stddev	8.	140.	21.5
%RSD	.07658	.16544	.28309
#1	10525.	84517.	7584.2
#2	10541.	84751.	7577.0
#3	10536.	84768.	7617.3

Approved: August 29, 2017



Sample Name: L1708120002 Acquired: 8/28/2017 12:18:17 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00048**	**.02560**	**.00366**	**.01021**	**.38461**	**-.00002**	F **291.60**
Stddev	.00290	.00185	.00158	.00169	.00076	.00005	.44
%RSD	606.50	7.2325	43.131	16.591	.19672	238.60	.15147
#1	.00129	.02346	.00228	.00856	.38407	-.00008	291.54
#2	.00289	.02670	.00538	.01194	.38548	.00000	292.07
#3	-.00274	.02664	.00332	.01012	.38429	.00001	291.20
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							270.00
Low Limit							-.10000

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00015**	**.00026**	**.00139**	**.00681**	**.01212**	**12.256**	**.04412**
Stddev	.00047	.00069	.00108	.00184	.00721	.100	.00293
%RSD	306.00	269.97	77.262	26.974	59.471	.81319	6.6370
#1	.00070	.00106	.00063	.00719	.00541	12.243	.04193
#2	-.00012	-.00016	.00092	.00481	.01120	12.362	.04745
#3	-.00011	-.00012	.00263	.00842	.01974	12.164	.04298
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04654**	**-.00012**	**.00131**	**5.7547**	**.27858**	**.00575**	**.00458**
Stddev	.02423	.00111	.00015	.0463	.00151	.00518	.00238
%RSD	52.076	896.51	11.831	.80423	.54378	90.160	52.080
#1	.02144	-.00093	.00134	5.7039	.27683	.00015	.00702
#2	.06981	-.00059	.00144	5.7944	.27948	.01037	.00226
#3	.04836	.00115	.00114	5.7658	.27944	.00672	.00444
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Sample Name: L1708120002 Acquired: 8/28/2017 12:18:17 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00342**	**-.00372**	**.30573**	**.00090**	**.56046**	**-.02058**	**-.00392**
Stddev	.00514	.01160	.00256	.00071	.00081	.00040	.00519
%RSD	150.40	311.48	.83835	78.434	.14511	1.9314	132.33
#1	-.00325	.00719	.30277	.00016	.55989	-.02037	.00207
#2	-.00865	-.00246	.30734	.00157	.56140	-.02033	-.00683
#3	.00164	-.01591	.30706	.00097	.56011	-.02103	-.00701
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00059**	**.00057**	F **-.12731**
Stddev	.00097	.00017	.33875
%RSD	165.35	30.041	266.07
#1	.00166	.00046	-.26969
#2	.00035	.00077	-.37163
#3	-.00024	.00048	.25938
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10605.**	**85173.**	**7918.2**
Stddev	39.	520.	87.1
%RSD	.37169	.61108	1.1005
#1	10564.	85767.	8016.4
#2	10610.	84796.	7888.2
#3	10643.	84955.	7850.1

Approved: August 29, 2017

Sample Name: L1708120004 Acquired: 8/28/2017 12:22:00 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00252**	**.01514**	**.00361**	**.00837**	**1.8289**	**-.00006**	F **338.88**
Stddev	.00062	.00138	.00122	.00150	.0027	.00005	.44
%RSD	24.754	9.0870	33.821	17.913	.14938	81.719	.13006
#1	.00273	.01380	.00280	.00994	1.8319	-.00006	338.69
#2	.00302	.01655	.00301	.00819	1.8266	-.00011	338.57
#3	.00182	.01509	.00501	.00696	1.8283	-.00001	339.39
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							270.00
Low Limit							-.10000

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00051**	**.00140**	**-.00015**	**.00422**	**2.8810**	**24.221**	**.07724**
Stddev	.00022	.00070	.00025	.00276	.0131	.105	.00391
%RSD	43.135	49.638	170.23	65.499	.45584	.43329	5.0679
#1	.00034	.00185	.00006	.00588	2.8958	24.190	.07592
#2	.00043	.00060	-.00043	.00575	2.8707	24.136	.08165
#3	.00076	.00175	-.00008	.00103	2.8765	24.338	.07417
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.8061**	**.65628**	**-.00026**	**11.430**	**.00765**	**.00304**	**-.00163**
Stddev	.0740	.00133	.00031	.087	.00146	.00807	.00365
%RSD	.94848	.20325	116.89	.75880	19.027	265.49	223.99
#1	7.7797	.65478	.00008	11.499	.00706	.01230	-.00566
#2	7.7489	.65673	-.00049	11.459	.00931	-.00070	.00145
#3	7.8897	.65733	-.00038	11.333	.00658	-.00248	-.00067
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708120004 Acquired: 8/28/2017 12:22:00 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00221**	**.00163**	**.45746**	**.00133**	**1.4541**	**-.02388**	**-.00199**
Stddev	.00428	.00486	.00283	.00018	.0029	.00715	.00378
%RSD	193.87	298.07	.61946	13.707	.19738	29.945	190.19
#1	-.00712	-.00374	.45888	.00154	1.4563	-.03143	-.00580
#2	-.00023	.00573	.45420	.00123	1.4509	-.02302	.00176
#3	.00072	.00291	.45930	.00121	1.4551	-.01720	-.00192
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00029**	**.00394**	F **-.20950**
Stddev	.00033	.00014	.42294
%RSD	112.86	3.6680	201.88
#1	-.00067	.00378	.27883
#2	-.00010	.00407	-.45960
#3	-.00010	.00397	-.44771
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10340.**	**82265.**	**7670.6**
Stddev	18.	645.	75.4
%RSD	.17811	.78426	.98263
#1	10344.	81563.	7755.5
#2	10357.	82831.	7644.8
#3	10321.	82403.	7611.5

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708120006 Acquired: 8/28/2017 12:25:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00230**	**.05550**	**.00356**	**.01153**	**.36938**	**-.00012**	F **301.39**
Stddev	.00144	.00454	.00211	.00029	.00104	.00010	.91
%RSD	62.752	8.1711	59.271	2.5167	.28104	83.635	.30070
#1	.00183	.05278	.00273	.01125	.36982	-.00002	302.21
#2	.00115	.05300	.00596	.01183	.36819	-.00012	300.42
#3	.00392	.06074	.00199	.01150	.37012	-.00023	301.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							270.00
Low Limit							-.10000

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00020**	**.00025**	**.00032**	**.00323**	**.00985**	**19.423**	**.09604**
Stddev	.00017	.00074	.00049	.00072	.00204	.042	.00155
%RSD	82.947	289.23	153.07	22.341	20.690	.21866	1.6131
#1	.00030	.00045	.00050	.00406	.00762	19.472	.09757
#2	.00029	-.00056	.00069	.00290	.01162	19.399	.09608
#3	.00001	.00087	-.00023	.00274	.01032	19.399	.09447
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02505**	**-.00041**	**.00018**	**6.9324**	**.14838**	**.00906**	**.00067**
Stddev	.06916	.00180	.00048	.0251	.00049	.00557	.00157
%RSD	276.09	438.25	270.73	.36212	.33335	61.492	234.61
#1	.10488	.00095	.00005	6.9166	.14871	.00860	-.00114
#2	-.01320	.00027	-.00022	6.9614	.14781	.01485	.00168
#3	-.01653	-.00245	.00071	6.9193	.14861	.00373	.00146
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708120006 Acquired: 8/28/2017 12:25:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00479**	**-.00168**	**.29581**	**.00132**	**.63842**	**-.01783**	**-.00295**
Stddev	.00239	.00366	.00235	.00054	.00103	.00318	.00080
%RSD	49.919	217.47	.79562	40.744	.16187	17.823	27.070
#1	-.00740	-.00179	.29400	.00098	.63828	-.02134	-.00386
#2	-.00426	.00203	.29847	.00194	.63951	-.01515	-.00260
#3	-.00271	-.00529	.29495	.00104	.63746	-.01701	-.00238
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00055**	**.00074**	F **-.35237**
Stddev	.00020	.00014	.08733
%RSD	36.886	19.192	24.783
#1	.00059	.00059	-.36008
#2	.00033	.00088	-.26144
#3	.00073	.00074	-.43559
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10553.**	**84855.**	**7933.8**
Stddev	21.	298.	39.7
%RSD	.19922	.35168	.50008
#1	10535.	85183.	7947.7
#2	10576.	84779.	7889.0
#3	10548.	84601.	7964.6

Approved: August 29, 2017

Sample Name: L1708120006PS Acquired: 8/28/2017 12:29:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment: WG627342-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.21061**	**5.2603**	**.20856**	**1.0389**	**.87508**	**.02501**	F **308.56**
Stddev	.00081	.0107	.00267	.0030	.00097	.00011	.96
%RSD	.38539	.20281	1.2789	.28979	.11031	.43633	.31048
#1	.21105	5.2725	.20570	1.0417	.87619	.02497	309.64
#2	.20967	5.2550	.21098	1.0358	.87455	.02513	307.81
#3	.21110	5.2533	.20898	1.0393	.87449	.02492	308.22
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							270.00
Low Limit							-.10000

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02580**	**.09948**	**.24601**	**.25502**	**1.9890**	**44.861**	**.59342**
Stddev	.00007	.00035	.00054	.00031	.0147	.078	.00806
%RSD	.25466	.35290	.21886	.12032	.74105	.17363	1.3583
#1	.02574	.09957	.24565	.25533	1.9732	44.815	.58834
#2	.02587	.09910	.24574	.25502	2.0023	44.951	.60271
#3	.02580	.09978	.24662	.25471	1.9914	44.817	.58920
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.0006**	**.24867**	**.48631**	**32.448**	**.39289**	**5.2592**	**.25247**
Stddev	.0247	.00110	.00152	.161	.00093	.0150	.00284
%RSD	.49430	.44324	.31346	.49552	.23669	.28612	1.1269
#1	4.9720	.24974	.48798	32.262	.39222	5.2745	.25556
#2	5.0148	.24872	.48500	32.538	.39249	5.2589	.24995
#3	5.0148	.24754	.48594	32.543	.39395	5.2444	.25190
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

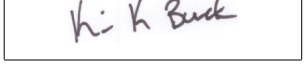
Sample Name: L1708120006PS Acquired: 8/28/2017 12:29:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment: WG627342-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.61745**	**.19978**	**3.0857**	**.49705**	**1.1407**	**.48006**	**.24439**
Stddev	.00454	.01943	.0104	.00072	.0010	.00334	.00674
%RSD	.73465	9.7257	.33708	.14427	.09116	.69625	2.7564
#1	.61929	.21083	3.0775	.49788	1.1408	.48030	.25074
#2	.61228	.21117	3.0822	.49660	1.1416	.48328	.24512
#3	.62078	.17735	3.0974	.49667	1.1396	.47661	.23732
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.50248**	**.49823**	F **-.07383**
Stddev	.00111	.00071	.12292
%RSD	.22092	.14275	166.49
#1	.50194	.49829	-.06387
#2	.50376	.49749	-.20143
#3	.50174	.49891	.04381
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10385.**	**83180.**	**7710.7**
Stddev	29.	295.	109.7
%RSD	.27589	.35413	1.4224
#1	10415.	83511.	7770.7
#2	10381.	83081.	7777.3
#3	10358.	82948.	7584.2

Approved: August 29, 2017



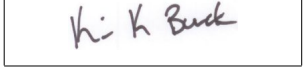
Sample Name: L1708120006SDL Acquired: 8/28/2017 12:32:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 50 Custom ID2: Custom ID3:
Comment: WG627342-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00224**	**.00387**	**.00094**	**.00815**	**.07613**	**-.00009**	**61.805**	**.00009**
Stddev	.00258	.01127	.00092	.00088	.00059	.00003	.227	.00026
%RSD	115.37	290.92	97.283	10.825	.77956	30.930	.36777	302.06
#1	.00521	.01434	.00023	.00916	.07674	-.00012	61.983	-.00021
#2	.00056	.00533	.00062	.00769	.07610	-.00006	61.884	.00020
#3	.00094	-.00805	.00198	.00759	.07555	-.00009	61.549	.00028
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00059**	**.00047**	**.00150**	**-.00167**	**4.0631**	**.02510**	**.01927**	**-.00164**
Stddev	.00011	.00058	.00035	.01807	.0877	.00360	.05291	.00250
%RSD	19.556	123.92	22.982	1081.6	2.1580	14.330	274.58	151.89
#1	-.00052	.00006	.00154	-.01873	4.0885	.02817	.03879	-.00325
#2	-.00052	.00112	.00183	.01727	3.9655	.02598	.05965	-.00291
#3	-.00072	.00022	.00114	-.00356	4.1352	.02114	-.04063	.00123
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00030**	**1.3446**	**.03326**	**.00483**	**.00148**	**-.00306**	**.00597**	**.07153**
Stddev	.00035	.0180	.00075	.00621	.00404	.00365	.00191	.00246
%RSD	117.16	1.3368	2.2595	128.67	272.43	119.29	32.011	3.4360
#1	.00002	1.3584	.03270	.00260	-.00134	-.00082	.00552	.07184
#2	.00069	1.3243	.03297	.01185	-.00032	-.00727	.00433	.07381
#3	.00018	1.3511	.03411	.00003	.00611	-.00109	.00807	.06893
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708120006SDL Acquired: 8/28/2017 12:32:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 50 Custom ID2: Custom ID3:
Comment: WG627342-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00021**	**.12888**	**-.00846**	**-.00038**	**-.00030**	**.00048**	**.00001**
Stddev	.00026	.00029	.00657	.00146	.00090	.00008	.36907
%RSD	126.39	.22497	77.632	386.42	302.04	17.706	5848300.
#1	.00024	.12919	-.00882	.00040	.00072	.00057	.36969
#2	-.00007	.12885	-.01485	.00053	-.00099	.00043	-.36844
#3	.00045	.12861	-.00172	-.00207	-.00062	.00042	-.00123
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10748.**	**86085.**	**7798.5**
Stddev	16.	563.	73.0
%RSD	.14924	.65451	.93550
#1	10767.	85546.	7856.5
#2	10739.	86040.	7822.4
#3	10739.	86670.	7716.6

Approved: August 29, 2017

Kristi K Buck

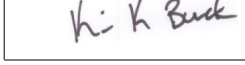
Sample Name: L1708120007 Acquired: 8/28/2017 12:36:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00003**	**.06879**	**.00140**	**.01782**	**.36603**	**-.00001**	F **302.93**
Stddev	.00061	.00489	.00153	.00305	.00086	.00005	.75
%RSD	2225.1	7.1032	109.19	17.096	.23526	847.58	.24786
#1	.00052	.06816	.00128	.01771	.36694	.00000	303.67
#2	.00021	.06426	.00299	.01483	.36523	.00004	302.17
#3	-.00065	.07397	-.00006	.02092	.36592	-.00005	302.95
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							270.00
Low Limit							-.10000

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00067**	**.00006**	**.00068**	**.00279**	**1.3269**	**2.3764**	**.01739**
Stddev	.00004	.00010	.00099	.00207	.0092	.0633	.00088
%RSD	6.1739	175.28	145.05	74.241	.69608	2.6632	5.0460
#1	.00068	.00017	.00183	.00041	1.3303	2.4434	.01801
#2	.00070	-.00002	.00009	.00417	1.3164	2.3176	.01639
#3	.00062	.00002	.00013	.00379	1.3339	2.3682	.01777
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**17.892**	**1.4940**	**.00036**	**1.4021**	**.02026**	**.04680**	**.00338**
Stddev	.117	.0116	.00016	.0246	.00152	.00592	.00308
%RSD	.65631	.77588	43.682	1.7557	7.4846	12.653	91.151
#1	17.989	1.5054	.00051	1.3947	.02135	.04499	.00007
#2	17.761	1.4944	.00020	1.3821	.01853	.05342	.00390
#3	17.924	1.4822	.00036	1.4296	.02090	.04200	.00617
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708120007 Acquired: 8/28/2017 12:36:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00344**	F **-.01397**	**1.9301**	**.00082**	**.31670**	**-.01571**	**-.00058**
Stddev	.00153	.00754	.0068	.00070	.00073	.00363	.00361
%RSD	44.405	53.933	.35254	84.762	.23164	23.131	617.91
#1	-.00498	-.02268	1.9224	.00036	.31741	-.01756	-.00458
#2	-.00192	-.00949	1.9326	.00048	.31595	-.01804	.00247
#3	-.00343	-.00976	1.9354	.00162	.31675	-.01152	.00035
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		90.000					
Low Limit		-.01000					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00004**	**.00487**	F **-.74762**
Stddev	.00086	.00007	.36089
%RSD	2248.2	1.4539	48.272
#1	.00069	.00494	-.72705
#2	-.00094	.00480	-.39745
#3	.00037	.00488	-1.1184
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10292.**	**82255.**	**7569.6**
Stddev	12.	471.	52.2
%RSD	.11619	.57304	.68929
#1	10306.	82785.	7545.4
#2	10289.	81882.	7629.4
#3	10283.	82099.	7533.9

Approved: August 29, 2017

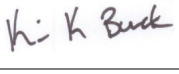
Sample Name: L1708120008 Acquired: 8/28/2017 12:40:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00036**	**.02095**	**.00175**	**.02213**	**.18773**	**-.00009**	**106.04**
Stddev	.00089	.00460	.00202	.00181	.00090	.00006	.16
%RSD	249.31	21.959	115.25	8.2000	.47740	65.644	.15076
#1	.00024	.02618	.00016	.02338	.18831	-.00016	105.96
#2	-.00047	.01753	.00403	.02005	.18670	-.00008	106.23
#3	.00129	.01915	.00108	.02297	.18818	-.00004	105.94
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00016**	**-.00059**	**.00038**	**.00140**	**.01158**	**9.6742**	**.04112**
Stddev	.00012	.00043	.00078	.00063	.00318	.0424	.00242
%RSD	76.190	72.801	206.89	45.352	27.428	.43842	5.8974
#1	-.00009	-.00081	.00058	.00212	.00840	9.7084	.04161
#2	-.00030	-.00009	-.00049	.00109	.01160	9.6267	.03848
#3	-.00009	-.00085	.00104	.00097	.01475	9.6874	.04325
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19865**	**.00055**	**.00014**	**6.7788**	**.04223**	**.00378**	**-.00140**
Stddev	.04920	.00304	.00025	.0466	.00132	.00725	.00542
%RSD	24.768	555.71	172.56	.68729	3.1255	191.75	388.41
#1	.20744	.00294	.00037	6.7530	.04117	.00631	-.00014
#2	.14564	-.00287	.00018	6.8326	.04371	-.00440	.00329
#3	.24286	.00158	-.00012	6.7508	.04181	.00943	-.00734
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708120008 Acquired: 8/28/2017 12:40:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00394**	F **-.01086**	**.19408**	**.00057**	**.29035**	**-.00725**	**-.00141**
Stddev	.00327	.02044	.00121	.00018	.00132	.00174	.00357
%RSD	83.041	188.18	.62550	31.729	.45538	24.046	252.88
#1	-.00442	-.00193	.19369	.00074	.28994	-.00918	-.00512
#2	-.00046	-.03424	.19311	.00039	.29183	-.00578	-.00111
#3	-.00694	.00360	.19544	.00057	.28928	-.00679	.00200
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		90.000					
Low Limit		-.01000					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00038**	**.00224**	F **-.15327**
Stddev	.00068	.00023	.27924
%RSD	177.80	10.459	182.19
#1	-.00023	.00230	-.37765
#2	.00112	.00199	.15945
#3	.00027	.00245	-.24161
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10695.**	**85751.**	**7757.0**
Stddev	13.	245.	63.4
%RSD	.11857	.28603	.81694
#1	10702.	85734.	7817.9
#2	10702.	86004.	7761.8
#3	10680.	85515.	7691.4

Approved: August 29, 2017

Kim K Buck

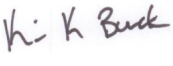
Sample Name: L1708121208 Acquired: 8/28/2017 12:44:07 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00254**	**.06810**	**.13760**	**.05096**	**.01049**	**-.00002**	**.09442**	**.00067**
Stddev	.00262	.00516	.00134	.00184	.00070	.00004	.01375	.00027
%RSD	103.19	7.5793	.97555	3.6076	6.7033	175.46	14.565	39.849
#1	.00552	.07392	.13636	.04896	.01109	-.00006	.07856	.00055
#2	.00157	.06631	.13903	.05134	.00971	.00002	.10304	.00098
#3	.00055	.06407	.13742	.05258	.01066	-.00003	.10167	.00049
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00036**	**.00690**	**-.00041**	**.01553**	**.42146**	**.00289**	**.08250**	**-.00044**
Stddev	.00048	.00018	.00121	.02365	.07425	.00253	.01653	.00061
%RSD	131.34	2.5508	293.94	152.28	17.617	87.827	20.032	138.74
#1	.00085	.00711	.00062	.00709	.45282	.00049	.07260	.00023
#2	-.00011	.00679	-.00174	-.00274	.33668	.00262	.10158	-.00058
#3	.00035	.00682	-.00011	.04225	.47489	.00554	.07333	-.00098
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00251**	**259.72**	**.00802**	**.72755**	**.00172**	**.00307**	**.00418**	**.30588**
Stddev	.00072	1.62	.00125	.00844	.00216	.00274	.00796	.00158
%RSD	28.549	.62330	15.622	1.1605	125.93	89.423	190.39	.51735
#1	.00330	260.36	.00942	.72757	.00179	-.00008	-.00432	.30445
#2	.00190	257.88	.00701	.73599	.00385	.00492	.00541	.30758
#3	.00232	260.92	.00762	.71910	-.00048	.00437	.01146	.30562
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708121208 Acquired: 8/28/2017 12:44:07 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 10 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00080**	**.03002**	**.05475**	**.00057**	**.01665**	**.00264**	**9.9932**
Stddev	.00087	.00017	.00461	.00268	.00089	.00022	.5415
%RSD	108.49	.55146	8.4238	466.51	5.3613	8.3520	5.4191
#1	-.00008	.02985	.04969	-.00024	.01564	.00273	9.8022
#2	.00082	.03018	.05583	-.00160	.01734	.00280	9.5729
#3	.00167	.03002	.05872	.00357	.01695	.00239	10.604
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10333.**	**81742.**	**7674.0**
Stddev	23.	266.	68.8
%RSD	.22073	.32558	.89670
#1	10359.	82028.	7631.6
#2	10322.	81696.	7753.4
#3	10317.	81502.	7636.9

Approved: August 29, 2017

Sample Name: L1708126401 Acquired: 8/28/2017 12:52:46 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00065**	**.00929**	**.07088**	**.04145**	**.04348**	**-.00020**	**42.278**
Stddev	.00092	.00382	.00207	.00108	.00076	.00007	.138
%RSD	142.07	41.065	2.9231	2.6031	1.7389	32.441	.32746
#1	.00021	.01370	.06917	.04211	.04275	-.00022	42.128
#2	.00003	.00702	.07027	.04021	.04342	-.00013	42.401
#3	.00170	.00716	.07318	.04204	.04426	-.00025	42.306
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00924**	**.00270**	**13.570**	**.01126**	**.05464**	**31.315**	**2.8383**
Stddev	.00007	.00060	.008	.00063	.01115	.109	.0113
%RSD	.81139	22.399	.05644	5.5588	20.401	.34835	.39732
#1	.00919	.00337	13.561	.01066	.06058	31.192	2.8269
#2	.00920	.00220	13.573	.01191	.06157	31.353	2.8386
#3	.00933	.00252	13.576	.01122	.04178	31.400	2.8495
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**70.821**	**.04581**	**.06352**	F **2123.6**	**.00303**	**.17742**	**.00377**
Stddev	.140	.00136	.00026	30.7	.00060	.00389	.00136
%RSD	.19805	2.9659	.41313	1.4466	19.963	2.1899	36.073
#1	70.713	.04724	.06381	2146.9	.00245	.18056	.00528
#2	70.772	.04568	.06330	2135.1	.00298	.17862	.00339
#3	70.980	.04453	.06344	2088.8	.00365	.17307	.00264
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708126401 Acquired: 8/28/2017 12:52:46 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.07020**	**.02396**	**4.1635**	**-.00147**	**.26532**	**-.00508**	**.00124**
Stddev	.00410	.00491	.0040	.00039	.00060	.00313	.00149
%RSD	5.8364	20.477	.09512	26.871	.22787	61.619	120.47
#1	-.07259	.02199	4.1590	-.00117	.26556	-.00241	.00056
#2	-.06547	.02955	4.1653	-.00132	.26576	-.00430	.00295
#3	-.07253	.02035	4.1663	-.00191	.26463	-.00852	.00021
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	45.000						
Low Limit	-.02000						

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.17372**	**.01375**	F **-.94244**
Stddev	.00088	.00028	.63828
%RSD	.50534	2.0098	67.726
#1	.17454	.01395	-1.2839
#2	.17381	.01386	-1.3374
#3	.17280	.01343	-.20606
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9173.2**	**70993.**	**7449.3**
Stddev	18.4	248.	63.1
%RSD	.20099	.34933	.84733
#1	9194.5	71279.	7470.2
#2	9161.5	70831.	7378.4
#3	9163.7	70870.	7499.4

Approved: August 29, 2017

Ki K Buck

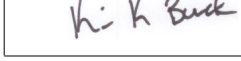
Sample Name: CCV Acquired: 8/28/2017 12:56:34 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40839**	**10.185**	**.39979**	**.49659**	**1.0102**	**.05035**	**10.050**
Stddev	.00141	.006	.00293	.00393	.0018	.00012	.025
%RSD	.34574	.05503	.73226	.79099	.17618	.23379	.24814
#1	.41001	10.181	.39854	.49760	1.0096	.05035	10.023
#2	.40742	10.191	.40313	.49991	1.0089	.05047	10.072
#3	.40775	10.183	.39769	.49225	1.0123	.05024	10.054
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05096**	**.20190**	**.50027**	**.50655**	**4.0093**	**50.736**	**1.0141**
Stddev	.00026	.00038	.00117	.00088	.0189	.120	.0021
%RSD	.51566	.18766	.23379	.17282	.47098	.23563	.20993
#1	.05122	.20164	.50073	.50646	3.9893	50.635	1.0164
#2	.05070	.20234	.49894	.50747	4.0119	50.706	1.0122
#3	.05096	.20174	.50113	.50573	4.0269	50.868	1.0136
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.166**	**.49916**	**1.0083**	**50.271**	**.50648**	**10.020**	**.50586**
Stddev	.046	.00186	.0018	.383	.00167	.009	.00366
%RSD	.45526	.37165	.17372	.76257	.33071	.08887	.72282
#1	10.113	.50005	1.0098	50.702	.50842	10.010	.50168
#2	10.200	.49703	1.0087	49.970	.50554	10.026	.50846
#3	10.184	.50040	1.0064	50.140	.50549	10.024	.50744
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 12:56:34 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2209**	**.39816**	**5.0778**	**1.0108**	**1.0094**	**1.0065**	**.50789**
Stddev	.0077	.01375	.0031	.0031	.0026	.0048	.00037
%RSD	.63274	3.4525	.06128	.30446	.25350	.47404	.07363
#1	1.2297	.39312	5.0758	1.0137	1.0065	1.0012	.50811
#2	1.2176	.41371	5.0813	1.0112	1.0112	1.0104	.50810
#3	1.2153	.38764	5.0761	1.0076	1.0105	1.0079	.50746
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0025**	**1.0129**	F **.55022**
Stddev	.0005	.0002	.40968
%RSD	.04970	.01877	74.457
#1	1.0024	1.0128	.36234
#2	1.0021	1.0131	.26818
#3	1.0030	1.0128	1.0201
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10380.**	**82522.**	**7585.2**
Stddev	7.	16.	17.1
%RSD	.06581	.01945	.22520
#1	10377.	82521.	7601.5
#2	10376.	82538.	7586.7
#3	10388.	82506.	7567.4

Approved: August 29, 2017

Kim K Buck

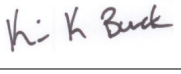
Sample Name: CCB Acquired: 8/28/2017 12:59:59 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00106**	**-.01142**	**.00295**	**.00244**	**.00061**	**-.00004**	**-.03772**
Stddev	.00086	.00475	.00180	.00097	.00037	.00003	.02351
%RSD	81.174	41.588	61.180	39.903	60.328	95.146	62.345
#1	-.00075	-.01086	.00492	.00164	.00058	-.00004	-.03177
#2	-.00202	-.00697	.00256	.00352	.00025	-.00007	-.06363
#3	-.00039	-.01642	.00137	.00216	.00099	.00000	-.01775
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00001**	**-.00053**	**.00001**	**-.00020**	**.00048**	**.35243**	**.00303**
Stddev	.00016	.00024	.00072	.00133	.01986	.06053	.00135
%RSD	2443.1	45.535	6726.6	674.09	4108.6	17.176	44.745
#1	-.00016	-.00074	.00083	.00045	.02142	.34734	.00156
#2	.00015	-.00027	-.00033	.00068	-.01808	.29460	.00423
#3	.00003	-.00060	-.00047	-.00172	-.00189	.41534	.00329
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00444**	**-.00061**	**.00001**	**.16990**	**.00255**	**.00033**	**.00141**
Stddev	.06959	.00193	.00067	.01734	.00103	.00772	.00170
%RSD	1568.8	314.52	5124.1	10.206	40.235	2371.2	120.08
#1	-.02565	-.00083	.00030	.16930	.00317	.00476	.00021
#2	-.06095	-.00242	.00049	.18754	.00136	-.00858	.00335
#3	.07330	.00141	-.00076	.15287	.00311	.00480	.00068
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 12:59:59 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00415**	**-.00289**	**.00353**	**.00115**	**.00037**	**-.00420**	**-.00584**
Stddev	.00044	.01726	.00331	.00079	.00033	.00389	.00268
%RSD	10.721	598.13	93.752	69.064	90.669	92.443	45.947
#1	-.00412	.00051	.00007	.00096	.00006	-.00757	-.00823
#2	-.00372	-.02159	.00385	.00046	.00072	-.00509	-.00294
#3	-.00461	.01242	.00666	.00201	.00032	.00005	-.00635
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00052**	**.00014**	F **-.19285**
Stddev	.00022	.00007	.35132
%RSD	42.306	51.900	182.17
#1	-.00035	.00008	-.46881
#2	-.00045	.00013	.20263
#3	-.00077	.00023	-.31238
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10595.**	**85216.**	**7410.0**
Stddev	16.	362.	194.8
%RSD	.15536	.42487	2.6288
#1	10614.	85614.	7557.3
#2	10589.	85127.	7483.5
#3	10583.	84907.	7189.1

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708120002 Acquired: 8/28/2017 13:03:52 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00062**	**.01503**	**.00333**	**.00461**	**.15194**	**-.00011**	**115.87**
Stddev	.00072	.00531	.00147	.00116	.00038	.00004	.19
%RSD	116.51	35.373	44.287	25.090	.24953	37.453	.16631
#1	-.00016	.01908	.00494	.00440	.15236	-.00007	115.94
#2	.00075	.00901	.00300	.00586	.15185	-.00012	116.02
#3	.00127	.01698	.00205	.00358	.15162	-.00015	115.65
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00033**	**-.00002**	**.00003**	**.00248**	**-.00662**	**5.0040**	**.01376**
Stddev	.00040	.00037	.00058	.00080	.02249	.1314	.00607
%RSD	121.10	1944.9	1906.0	32.405	339.75	2.6264	44.130
#1	-.00013	-.00044	.00054	.00285	-.01014	5.1552	.02027
#2	.00050	.00027	-.00060	.00303	.01742	4.9388	.01276
#3	.00061	.00012	.00016	.00156	-.02714	4.9179	.00825
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00593**	**-.00102**	**-.00001**	**2.3777**	**.11314**	**.00219**	**-.00074**
Stddev	.07156	.00360	.00015	.0115	.00071	.00365	.00172
%RSD	1207.7	352.96	1469.5	.48496	.63013	166.78	232.44
#1	.02450	-.00518	-.00015	2.3906	.11233	.00146	-.00007
#2	-.07309	.00103	-.00003	2.3686	.11342	-.00105	-.00269
#3	.06637	.00108	.00015	2.3738	.11368	.00614	.00054
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kim K Buck

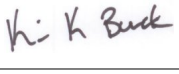
Sample Name: L1708120002 Acquired: 8/28/2017 13:03:52 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00149**	F **-.01515**	**.12298**	**-.00028**	**.22188**	**-.00854**	**-.00224**
Stddev	.00527	.01359	.00128	.00032	.00139	.00254	.00147
%RSD	353.61	89.735	1.0425	113.96	.62578	29.735	65.672
#1	-.00374	-.01885	.12254	-.00054	.22304	-.00997	-.00084
#2	.00453	-.02651	.12197	.00008	.22227	-.01004	-.00211
#3	-.00526	-.00009	.12442	-.00037	.22034	-.00561	-.00377
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		90.000					
Low Limit		-.01000					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00047**	**.00019**	F **-.13920**
Stddev	.00058	.00020	.20793
%RSD	122.31	105.75	149.37
#1	.00110	.00037	-.08318
#2	.00035	-.00003	.03498
#3	-.00004	.00023	-.36940
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10675.**	**84458.**	**7756.5**
Stddev	44.	1925.	195.6
%RSD	.41068	2.2794	2.5219
#1	10724.	82240.	7901.6
#2	10641.	85443.	7833.8
#3	10660.	85692.	7534.0

Approved: August 29, 2017



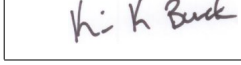
Sample Name: L1708120004 Acquired: 8/28/2017 13:07:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00143**	**.00497**	**.00274**	**.00492**	**.75210**	**-.00008**	**140.83**
Stddev	.00204	.00400	.00204	.00326	.00271	.00005	.56
%RSD	142.56	80.404	74.330	66.320	.36030	58.095	.39610
#1	.00205	.00070	.00049	.00837	.75440	-.00014	141.46
#2	-.00085	.00559	.00327	.00450	.74911	-.00005	140.58
#3	.00309	.00863	.00446	.00189	.75278	-.00006	140.44
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00012**	**.00032**	**.00069**	**-.00002**	**1.1660**	**10.145**	**.03083**
Stddev	.00042	.00018	.00075	.00156	.0067	.043	.00154
%RSD	343.81	54.307	108.08	6373.8	.57736	.41954	4.9826
#1	.00059	.00025	.00036	-.00032	1.1721	10.119	.03055
#2	-.00022	.00053	.00016	.00166	1.1588	10.123	.02946
#3	-.00000	.00020	.00154	-.00141	1.1672	10.194	.03249
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.2934**	**.27214**	**-.00009**	**4.7339**	**.00377**	**-.00316**	**.00259**
Stddev	.0598	.00210	.00057	.0207	.00146	.00922	.00544
%RSD	1.8144	.77187	665.78	.43747	38.884	291.63	209.91
#1	3.3253	.27441	.00035	4.7373	.00544	-.00456	-.00012
#2	3.3304	.27175	.00012	4.7117	.00310	.00668	.00886
#3	3.2244	.27027	-.00073	4.7527	.00275	-.01160	-.00096
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708120004 Acquired: 8/28/2017 13:07:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00305**	**-.00847**	**.18520**	**.00012**	**.59887**	**-.00812**	**-.00122**
Stddev	.00110	.00346	.00078	.00105	.00144	.00177	.00446
%RSD	36.085	40.893	.41875	907.84	.24083	21.858	366.46
#1	-.00378	-.00542	.18491	-.00025	.60022	-.00733	-.00429
#2	-.00359	-.00776	.18608	-.00070	.59735	-.00687	-.00327
#3	-.00178	-.01224	.18461	.00131	.59904	-.01015	.00390
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00092**	**.00204**	F **-.55079**
Stddev	.00162	.00030	.31526
%RSD	175.33	14.677	57.239
#1	-.00038	.00174	-.73712
#2	-.00275	.00204	-.18679
#3	.00036	.00234	-.72845
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10419.**	**83780.**	**7626.4**
Stddev	17.	228.	61.3
%RSD	.16668	.27209	.80418
#1	10420.	84025.	7638.5
#2	10436.	83743.	7560.0
#3	10402.	83574.	7680.8

Approved: August 29, 2017

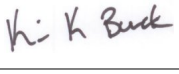
Sample Name: L1708120006 Acquired: 8/28/2017 13:11:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00087**	**.02483**	**.00204**	**.00554**	**.14501**	**-.00011**	**118.61**
Stddev	.00235	.00229	.00185	.00087	.00107	.00003	.34
%RSD	269.39	9.2050	90.585	15.776	.74077	28.743	.28604
#1	.00287	.02594	-.00008	.00474	.14612	-.00013	118.32
#2	.00145	.02220	.00329	.00647	.14398	-.00012	118.98
#3	-.00171	.02636	.00291	.00540	.14494	-.00007	118.54
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00026**	**.00006**	**.00061**	**.00172**	**.01158**	**7.6482**	**.03196**
Stddev	.00014	.00039	.00065	.00087	.01547	.1204	.00385
%RSD	51.757	661.19	105.63	50.670	133.53	1.5741	12.036
#1	.00022	-.00003	-.00011	.00171	.00150	7.6943	.02942
#2	.00015	.00049	.00083	.00086	.00386	7.7388	.03007
#3	.00041	-.00028	.00113	.00260	.02939	7.5116	.03639
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.07628**	**-.00079**	**.00015**	**2.7120**	**.05896**	**.00508**	**.00231**
Stddev	.05515	.00114	.00014	.0154	.00057	.00687	.00256
%RSD	72.297	145.46	88.097	.56604	.96492	135.39	110.59
#1	.03070	-.00067	.00023	2.6984	.05832	.00251	.00519
#2	.06056	.00029	-.00000	2.7286	.05914	.01286	.00028
#3	.13759	-.00198	.00024	2.7090	.05941	-.00014	.00147
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708120006 Acquired: 8/28/2017 13:11:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00009**	**.00682**	**.11122**	**.00029**	**.24883**	**-.00379**	**-.00081**
Stddev	.00322	.01248	.00102	.00017	.00010	.00158	.00327
%RSD	3771.1	183.09	.91679	57.091	.04183	41.671	403.44
#1	-.00367	.00286	.11020	.00049	.24885	-.00559	.00173
#2	.00084	-.00321	.11224	.00018	.24873	-.00265	.00033
#3	.00257	.02080	.11121	.00021	.24893	-.00313	-.00450
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00004**	**.00085**	F **-.20448**
Stddev	.00090	.00012	.48410
%RSD	2083.0	13.926	236.75
#1	.00078	.00072	.35006
#2	-.00101	.00085	-.42082
#3	.00010	.00096	-.54269
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10692.**	**85933.**	**7827.9**
Stddev	46.	215.	6.2
%RSD	.43423	.25033	.07887
#1	10646.	85817.	7831.1
#2	10739.	86181.	7820.7
#3	10692.	85800.	7831.7

Approved: August 29, 2017

Kristi K Buck

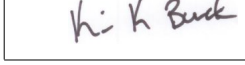
Sample Name: L1708120006PS Acquired: 8/28/2017 13:15:01 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment: WG627342-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20518**	**5.1105**	**.19854**	**1.0035**	**.64123**	**.02463**	**128.37**
Stddev	.00295	.0240	.00287	.0072	.00392	.00005	.77
%RSD	1.4359	.47000	1.4451	.72192	.61147	.19454	.59664
#1	.20853	5.1334	.19808	1.0014	.64241	.02468	128.21
#2	.20400	5.0855	.20162	.99759	.63686	.02458	127.70
#3	.20301	5.1127	.19594	1.0116	.64443	.02462	129.21
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02531**	**.09721**	**.24302**	**.24752**	**1.9370**	**32.694**	**.52308**
Stddev	.00022	.00013	.00170	.00146	.0126	.102	.00123
%RSD	.85374	.13779	.70023	.59024	.64920	.31074	.23502
#1	.02509	.09710	.24327	.24585	1.9485	32.672	.52322
#2	.02552	.09736	.24121	.24860	1.9389	32.606	.52178
#3	.02533	.09717	.24459	.24810	1.9236	32.805	.52423
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.8904**	**.24590**	**.47492**	**27.543**	**.30244**	**5.0903**	**.24491**
Stddev	.0787	.00117	.00106	.153	.00069	.0141	.00160
%RSD	1.6099	.47598	.22408	.55645	.22838	.27644	.65203
#1	4.8887	.24455	.47374	27.498	.30284	5.0799	.24343
#2	4.8125	.24646	.47519	27.417	.30165	5.1063	.24661
#3	4.9700	.24668	.47582	27.714	.30285	5.0846	.24470
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708120006PS Acquired: 8/28/2017 13:15:01 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 20 Custom ID2: Custom ID3:
Comment: WG627342-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.60457**	**.18862**	**2.6675**	**.48856**	**.74616**	**.47723**	**.24179**
Stddev	.00442	.00103	.0128	.00090	.00418	.00374	.00447
%RSD	.73044	.54363	.47946	.18380	.55954	.78317	1.8478
#1	.60829	.18966	2.6540	.48754	.74435	.47836	.23994
#2	.60573	.18761	2.6691	.48890	.74320	.48027	.24689
#3	.59969	.18858	2.6795	.48923	.75094	.47306	.23855
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.48894**	**.49406**	F **-.19537**
Stddev	.00179	.00066	.23572
%RSD	.36556	.13299	120.65
#1	.48956	.49416	.06895
#2	.48693	.49336	-.38379
#3	.49035	.49466	-.27126
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10570.**	**83888.**	**7594.9**
Stddev	18.	1426.	242.8
%RSD	.16908	1.7002	3.1964
#1	10588.	82264.	7760.1
#2	10552.	84460.	7708.4
#3	10570.	84939.	7316.2

Approved: August 29, 2017

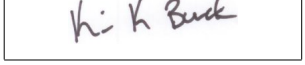
Sample Name: L1708120006SDL Acquired: 8/28/2017 13:18:30 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 100 Custom ID2: Custom ID3:
Comment: WG627342-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00009**	**.00460**	**.00211**	**.00628**	**.03573**	**-.00000**	**29.611**	**.00010**
Stddev	.00301	.00552	.00294	.00297	.00175	.00004	.142	.00025
%RSD	3467.2	119.96	139.41	47.220	4.8963	831.44	.47825	250.19
#1	-.00083	.01078	.00461	.00768	.03749	-.00001	29.768	.00006
#2	.00344	.00285	-.00113	.00288	.03399	-.00004	29.495	-.00013
#3	-.00235	.00017	.00284	.00829	.03571	.00004	29.569	.00037
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00020**	**-.00048**	**.00109**	**.00752**	**2.0411**	**.01064**	**.07149**	**-.00125**
Stddev	.00006	.00170	.00063	.00868	.1325	.00075	.04602	.00113
%RSD	29.022	355.22	57.850	115.45	6.4913	7.0323	64.372	89.979
#1	-.00013	.00115	.00151	.00316	2.1535	.01148	.06225	-.00049
#2	-.00022	-.00224	.00036	.01752	1.8950	.01005	.03080	-.00072
#3	-.00023	-.00034	.00139	.00189	2.0747	.01040	.12143	-.00254
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00034**	**.67980**	**.01737**	**.00332**	**.00075**	**-.00200**	**-.00120**	**.03418**
Stddev	.00039	.01670	.00099	.00469	.00154	.00203	.00753	.00224
%RSD	116.47	2.4566	5.7166	141.46	206.41	101.62	628.08	6.5671
#1	.00011	.66376	.01808	.00458	-.00061	-.00052	.00165	.03159
#2	.00011	.67855	.01623	.00725	.00043	-.00431	.00449	.03543
#3	.00079	.69709	.01779	-.00188	.00242	-.00116	-.00973	.03553
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

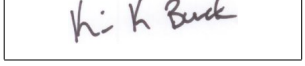


Sample Name: L1708120006SDL Acquired: 8/28/2017 13:18:30 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 100 Custom ID2: Custom ID3:
Comment: WG627342-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00052**	**.06177**	**-.00795**	**-.00253**	**-.00005**	**.00040**	**.07735**
Stddev	.00009	.00070	.00474	.00481	.00084	.00008	.14603
%RSD	18.171	1.1331	59.587	189.78	1632.1	19.145	188.79
#1	.00047	.06247	-.01287	.00271	-.00057	.00046	.08492
#2	.00063	.06107	-.00758	-.00674	.00092	.00031	.21945
#3	.00046	.06175	-.00341	-.00358	-.00051	.00043	-.07232
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10749.**	**86904.**	**7871.2**
Stddev	58.	498.	7.9
%RSD	.54371	.57271	.10055
#1	10681.	87284.	7880.0
#2	10780.	87088.	7869.2
#3	10785.	86341.	7864.5

Approved: August 29, 2017



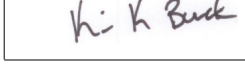
Sample Name: L1708120007 Acquired: 8/28/2017 13:22:13 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 50 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00032**	**.03608**	**.00302**	**.01207**	**.18309**	**.00003**	**153.04**
Stddev	.00271	.00314	.00327	.00139	.00182	.00005	.63
%RSD	848.19	8.6914	108.16	11.551	.99489	154.66	.41213
#1	.00266	.03945	.00671	.01360	.18159	.00007	152.74
#2	-.00263	.03325	.00189	.01088	.18511	.00003	153.77
#3	-.00099	.03555	.00047	.01172	.18256	-.00002	152.62
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00033**	**-.00026**	**.00093**	**.00143**	**.67464**	**1.0828**	**.00831**
Stddev	.00018	.00017	.00071	.00144	.02742	.1244	.00425
%RSD	54.194	66.246	76.444	100.92	4.0650	11.493	51.165
#1	.00049	-.00025	.00095	-.00018	.66144	.96872	.01241
#2	.00014	-.00043	.00162	.00261	.70617	1.0641	.00393
#3	.00036	-.00009	.00021	.00185	.65631	1.2155	.00859
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.1727**	**.75291**	**.00038**	**.73243**	**.01106**	**.02533**	**-.00011**
Stddev	.0170	.00290	.00035	.05093	.00065	.00590	.00149
%RSD	.18547	.38485	90.589	6.9534	5.9046	23.289	1337.1
#1	9.1547	.75172	.00003	.78892	.01065	.01856	-.00087
#2	9.1886	.75622	.00072	.69002	.01072	.02932	.00161
#3	9.1748	.75080	.00040	.71836	.01181	.02813	-.00107
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708120007 Acquired: 8/28/2017 13:22:13 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 50 Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00204**	**-.00095**	**.94393**	**.00065**	**.15961**	**-.00651**	**-.00256**
Stddev	.00520	.00368	.00289	.00020	.00020	.00237	.00518
%RSD	255.34	388.02	.30603	30.327	.12701	36.413	202.26
#1	.00003	.00320	.94452	.00070	.15965	-.00488	.00158
#2	-.00186	-.00378	.94649	.00082	.15980	-.00923	-.00837
#3	.00794	-.00226	.94080	.00043	.15940	-.00541	-.00090
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00071**	**.00303**	F **-.19510**
Stddev	.00077	.00003	.04688
%RSD	109.07	1.0697	24.028
#1	.00051	.00302	-.15481
#2	.00156	.00307	-.24655
#3	.00005	.00301	-.18393
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10468.**	**83484.**	**7663.8**
Stddev	16.	228.	84.8
%RSD	.15503	.27302	1.1063
#1	10466.	83719.	7738.7
#2	10453.	83263.	7571.8
#3	10486.	83470.	7681.0

Approved: August 29, 2017

Kristi K Buck

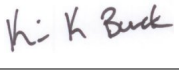
Sample Name: CCV Acquired: 8/28/2017 13:25:54 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40833**	**10.229**	**.39922**	**.49626**	**1.0132**	**.05055**	**10.101**
Stddev	.00087	.029	.00301	.00389	.0015	.00015	.036
%RSD	.21257	.28396	.75277	.78364	.14531	.29477	.36094
#1	.40765	10.243	.39592	.49957	1.0127	.05038	10.143
#2	.40931	10.196	.39995	.49198	1.0148	.05065	10.077
#3	.40804	10.249	.40180	.49724	1.0120	.05063	10.082
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05056**	**.20143**	**.50342**	**.50510**	**3.9970**	**50.686**	**1.0067**
Stddev	.00031	.00008	.00117	.00131	.0060	.110	.0025
%RSD	.61209	.04198	.23307	.25965	.14959	.21769	.24881
#1	.05088	.20141	.50419	.50657	4.0007	50.559	1.0094
#2	.05052	.20153	.50401	.50470	4.0003	50.744	1.0044
#3	.05027	.20136	.50207	.50404	3.9901	50.756	1.0063
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.320**	**.50554**	**1.0091**	**50.415**	**.50407**	**10.012**	**.50221**
Stddev	.035	.00191	.0010	.100	.00329	.006	.00305
%RSD	.34053	.37840	.09698	.19872	.65235	.06154	.60757
#1	10.326	.50478	1.0102	50.415	.50779	10.005	.49921
#2	10.282	.50771	1.0087	50.516	.50288	10.014	.50531
#3	10.352	.50412	1.0084	50.316	.50155	10.017	.50210
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 13:25:54 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2165**	**.38234**	**5.0818**	**1.0092**	**1.0134**	**1.0033**	**.50796**
Stddev	.0099	.00377	.0058	.0011	.0024	.0112	.00527
%RSD	.81653	.98526	.11353	.11065	.23197	1.1197	1.0378
#1	1.2193	.37910	5.0836	1.0082	1.0130	1.0137	.50197
#2	1.2247	.38144	5.0865	1.0104	1.0159	.99140	.51186
#3	1.2055	.38647	5.0753	1.0089	1.0112	1.0049	.51006
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0078**	**1.0120**	F **.86522**
Stddev	.0016	.0014	.19934
%RSD	.15647	.13978	23.039
#1	1.0074	1.0106	.71724
#2	1.0064	1.0134	1.0919
#3	1.0095	1.0120	.78654
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10380.**	**82485.**	**7539.8**
Stddev	23.	367.	16.6
%RSD	.22379	.44501	.22015
#1	10365.	82878.	7557.9
#2	10368.	82150.	7525.3
#3	10406.	82427.	7536.2

Approved: August 29, 2017

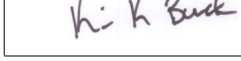
Sample Name: CCB Acquired: 8/28/2017 13:29:19 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00024**	**.00165**	**.00401**	**.00156**	**.00116**	**-.00007**	**.01916**
Stddev	.00050	.00140	.00267	.00098	.00071	.00005	.05295
%RSD	207.54	85.314	66.533	62.733	61.088	74.108	276.32
#1	.00034	.00156	.00157	.00125	.00196	-.00003	-.03788
#2	-.00052	.00309	.00686	.00078	.00088	-.00006	.06675
#3	-.00054	.00029	.00361	.00266	.00063	-.00013	.02862
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00004**	**-.00027**	**.00106**	**-.00005**	**.00040**	**.25815**	**.00380**
Stddev	.00007	.00062	.00170	.00094	.00531	.04407	.00785
%RSD	168.62	233.64	160.21	1937.7	1318.1	17.073	206.71
#1	-.00006	-.00079	-.00077	-.00024	.00408	.30675	-.00086
#2	-.00010	.00042	.00259	-.00088	.00282	.24690	.01287
#3	.00004	-.00043	.00137	.00097	-.00568	.22079	-.00060
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00651**	**-.00182**	**.00052**	**.00091**	**.00173**	**-.00464**	**.00099**
Stddev	.03507	.00185	.00023	.03524	.00192	.00155	.00125
%RSD	539.06	101.89	43.309	3855.9	111.05	33.380	126.03
#1	.04684	-.00251	.00027	-.03233	.00125	-.00512	.00119
#2	-.01681	-.00323	.00070	-.00279	.00009	-.00290	.00213
#3	-.01051	.00028	.00060	.03786	.00385	-.00588	-.00034
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 13:29:19 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00250**	**-.00073**	**.00440**	**.00079**	**.00058**	**-.00097**	**-.00218**
Stddev	.00575	.00163	.00212	.00066	.00034	.00582	.00345
%RSD	230.36	224.51	48.294	83.481	59.059	601.47	158.06
#1	.00153	-.00257	.00674	.00009	.00026	-.00560	-.00128
#2	-.00909	-.00016	.00384	.00088	.00093	-.00286	.00073
#3	.00006	.00055	.00261	.00141	.00054	.00556	-.00599
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00062**	**.00012**	F **.31497**
Stddev	.00060	.00009	.34333
%RSD	98.163	75.275	109.01
#1	-.00130	.00002	.65175
#2	-.00040	.00015	-.03456
#3	-.00015	.00021	.32771
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10565.**	**84250.**	**7359.2**
Stddev	17.	156.	233.6
%RSD	.15747	.18478	3.1747
#1	10551.	84235.	7146.3
#2	10562.	84412.	7322.2
#3	10583.	84102.	7609.1

Approved: August 29, 2017

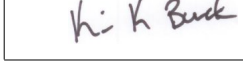
Sample Name: L1708121202 Acquired: 8/28/2017 13:33:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627050-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00042**	**.00587**	**-.00090**	**.02261**	**.01355**	**-.00007**	**32.687**	**.00005**
Stddev	.00216	.01129	.00188	.00138	.00060	.00004	.094	.00011
%RSD	515.17	192.22	208.86	6.1000	4.4344	55.854	.28762	223.61
#1	.00269	.01671	-.00058	.02200	.01316	-.00005	32.590	.00015
#2	-.00162	-.00583	.00080	.02419	.01424	-.00011	32.778	-.00007
#3	.00019	.00675	-.00292	.02164	.01326	-.00004	32.693	.00007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00015**	**.00111**	**.00133**	**.07528**	**1.3625**	**.00253**	**3.7949**	**.00870**
Stddev	.00027	.00055	.00077	.00370	.1175	.00412	.0385	.00083
%RSD	173.26	49.521	57.684	4.9162	8.6232	162.99	1.0147	9.5443
#1	-.00033	.00048	.00045	.07102	1.4133	.00656	3.7614	.00909
#2	-.00028	.00142	.00176	.07713	1.4461	.00271	3.7863	.00926
#3	.00015	.00144	.00180	.07768	1.2282	-.00168	3.8369	.00774
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00036**	**67.587**	**.00284**	**.04465**	**.00136**	**.00134**	**-.00540**	**2.3455**
Stddev	.00008	.130	.00024	.00700	.00535	.00481	.00732	.0028
%RSD	23.166	.19289	8.5332	15.682	392.53	358.43	135.57	.11763
#1	.00027	67.598	.00270	.05218	.00180	.00337	.00019	2.3461
#2	.00044	67.711	.00269	.03833	.00648	.00480	-.00270	2.3425
#3	.00037	67.451	.00312	.04343	-.00419	-.00415	-.01368	2.3480
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708121202 Acquired: 8/28/2017 13:33:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627050-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00041**	**.13057**	**-.00539**	**-.00152**	**.00062**	**.00229**	**-.00609**
Stddev	.00097	.00019	.00211	.00213	.00079	.00005	.91660
%RSD	235.56	.14700	39.091	140.16	126.99	2.3878	15046.
#1	.00066	.13074	-.00429	-.00061	.00088	.00223	.44017
#2	.00122	.13036	-.00782	-.00395	.00124	.00234	.60192
#3	-.00066	.13061	-.00406	.00000	-.00027	.00228	-1.0604
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10589.**	**83260.**	**7623.9**
Stddev	30.	593.	64.2
%RSD	.28345	.71244	.84153
#1	10580.	82591.	7658.3
#2	10564.	83721.	7663.5
#3	10622.	83468.	7549.9

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708121204MS Acquired: 8/28/2017 13:36:44 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627050-07

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04055**	**1.0382**	**.04228**	**.22325**	**.11320**	**.00504**	**34.055**
Stddev	.00078	.0027	.00186	.00203	.00146	.00004	.098
%RSD	1.9241	.25639	4.4079	.90727	1.2931	.78026	.28915
#1	.04023	1.0375	.04420	.22347	.11272	.00501	34.010
#2	.04144	1.0359	.04048	.22112	.11203	.00508	33.987
#3	.03998	1.0411	.04216	.22516	.11484	.00502	34.168
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00505**	**.01988**	**.05087**	**.05084**	**.46814**	**6.5183**	**.10371**
Stddev	.00033	.00029	.00125	.00205	.01883	.0496	.00207
%RSD	6.5279	1.4813	2.4656	4.0338	4.0229	.76160	1.9912
#1	.00467	.02021	.05209	.04913	.48849	6.5479	.10332
#2	.00528	.01966	.05094	.05026	.46460	6.4610	.10187
#3	.00520	.01976	.04958	.05311	.45133	6.5461	.10595
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.8844**	**.05802**	**.09734**	**79.668**	**.05165**	**1.0651**	**.04931**
Stddev	.0270	.00253	.00011	.148	.00042	.0025	.00505
%RSD	.55296	4.3612	.11442	.18559	.81993	.23090	10.240
#1	4.8907	.06059	.09745	79.574	.05119	1.0626	.04562
#2	4.9077	.05794	.09723	79.591	.05176	1.0653	.05507
#3	4.8548	.05553	.09734	79.838	.05201	1.0675	.04725
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Sample Name: L1708121204MS Acquired: 8/28/2017 13:36:44 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627050-07

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.12001**	**.03443**	**2.9724**	**.10048**	**.22827**	**.09657**	**.04906**
Stddev	.00287	.00478	.0014	.00129	.00129	.00404	.00195
%RSD	2.3886	13.882	.04574	1.2800	.56443	4.1866	3.9743
#1	.11982	.03639	2.9738	.10192	.22690	.10118	.05080
#2	.11725	.02899	2.9724	.10009	.22847	.09496	.04944
#3	.12297	.03792	2.9711	.09944	.22945	.09359	.04695
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.10131**	**.10512**	F **103.83**
Stddev	.00164	.00003	.66
%RSD	1.6175	.02784	.63523
#1	.09957	.10511	104.48
#2	.10152	.10510	103.16
#3	.10283	.10515	103.84
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10436.**	**82572.**	**7613.3**
Stddev	24.	101.	30.1
%RSD	.22787	.12181	.39547
#1	10416.	82667.	7619.6
#2	10462.	82582.	7639.8
#3	10432.	82467.	7580.6

Approved: August 29, 2017

Sample Name: L1708121206MSD Acquired: 8/28/2017 13:40:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627050-08

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04375**	**1.0554**	**.04227**	**.22320**	**.11539**	**.00516**	**33.712**
Stddev	.00142	.0035	.00405	.00053	.00110	.00007	.038
%RSD	3.2467	.33410	9.5777	.23621	.94986	1.2906	.11286
#1	.04258	1.0532	.03834	.22367	.11562	.00517	33.676
#2	.04533	1.0535	.04643	.22263	.11635	.00508	33.752
#3	.04335	1.0594	.04205	.22330	.11420	.00521	33.707
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00489**	**.01996**	**.05221**	**.05221**	**.47234**	**6.5255**	**.10197**
Stddev	.00005	.00014	.00039	.00117	.00376	.0845	.00371
%RSD	1.0506	.69762	.74719	2.2355	.79589	1.2952	3.6430
#1	.00493	.02009	.05226	.05355	.47417	6.5316	.10484
#2	.00490	.01999	.05258	.05142	.47484	6.4380	.10330
#3	.00483	.01981	.05180	.05167	.46802	6.6067	.09777
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.8831**	**.05800**	**.09807**	**75.976**	**.05135**	**1.0803**	**.05050**
Stddev	.0147	.00205	.00004	.073	.00094	.0018	.00431
%RSD	.30002	3.5359	.03789	.09551	1.8343	.16800	8.5429
#1	4.8993	.05968	.09812	76.059	.05105	1.0816	.04554
#2	4.8708	.05860	.09807	75.946	.05060	1.0782	.05342
#3	4.8792	.05571	.09804	75.924	.05241	1.0810	.05252
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708121206MSD Acquired: 8/28/2017 13:40:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627050-08

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.11961**	**.04066**	**2.9515**	**.10283**	**.22809**	**.09795**	**.05122**
Stddev	.00333	.00545	.0027	.00050	.00029	.00130	.00132
%RSD	2.7846	13.392	.09255	.48817	.12573	1.3298	2.5746
#1	.12291	.04014	2.9511	.10227	.22779	.09927	.05273
#2	.11625	.04635	2.9490	.10324	.22812	.09790	.05033
#3	.11969	.03549	2.9545	.10297	.22836	.09667	.05059
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.10220**	**.10615**	F **106.19**
Stddev	.00057	.00040	.33
%RSD	.56041	.37699	.31430
#1	.10196	.10575	105.83
#2	.10178	.10614	106.49
#3	.10285	.10655	106.25
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10419.**	**82454.**	**7573.1**
Stddev	12.	232.	10.8
%RSD	.11169	.28151	.14312
#1	10421.	82424.	7560.9
#2	10407.	82700.	7581.6
#3	10430.	82239.	7576.9

Approved: August 29, 2017

Kristi K Buck

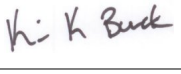
Sample Name: CCV Acquired: 8/28/2017 13:44:01 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41126**	**10.392**	**.39931**	**.50146**	**1.0253**	**.05142**	**10.175**
Stddev	.00226	.053	.00131	.00234	.0039	.00013	.014
%RSD	.54926	.50896	.32909	.46628	.37521	.25977	.14154
#1	.40869	10.453	.39965	.50016	1.0210	.05142	10.169
#2	.41217	10.368	.39786	.50416	1.0266	.05156	10.164
#3	.41292	10.356	.40042	.50006	1.0283	.05129	10.191
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05038**	**.20147**	**.51005**	**.50739**	**4.0018**	**51.208**	**1.0216**
Stddev	.00049	.00024	.00321	.00285	.0377	.335	.0086
%RSD	.96960	.12076	.62926	.56141	.94160	.65485	.84607
#1	.05078	.20125	.50642	.51053	3.9585	50.842	1.0118
#2	.05053	.20173	.51124	.50668	4.0192	51.501	1.0280
#3	.04984	.20143	.51249	.50496	4.0276	51.282	1.0250
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.376**	**.50552**	**1.0108**	**50.861**	**.50403**	**10.054**	**.50677**
Stddev	.048	.00413	.0017	.301	.00089	.022	.00591
%RSD	.46369	.81771	.16988	.59229	.17584	.21686	1.1669
#1	10.395	.50101	1.0125	50.516	.50331	10.067	.50314
#2	10.412	.50641	1.0109	51.069	.50377	10.065	.51360
#3	10.321	.50913	1.0090	50.999	.50502	10.029	.50358
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



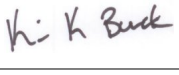
Sample Name: CCV Acquired: 8/28/2017 13:44:01 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2185**	**.38942**	**5.0925**	**1.0080**	**1.0234**	**1.0176**	**.50701**
Stddev	.0058	.00712	.0071	.0018	.0024	.0071	.00292
%RSD	.47774	1.8281	.13914	.17790	.23322	.70112	.57508
#1	1.2202	.39209	5.0850	1.0061	1.0211	1.0094	.50972
#2	1.2120	.39481	5.0990	1.0097	1.0259	1.0206	.50393
#3	1.2233	.38135	5.0934	1.0081	1.0232	1.0227	.50738
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0222**	**1.0181**	F **1.5803**
Stddev	.0006	.0007	.2049
%RSD	.05349	.07290	12.969
#1	1.0227	1.0188	1.3886
#2	1.0217	1.0181	1.7963
#3	1.0222	1.0174	1.5561
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10418.**	**82172.**	**7510.7**
Stddev	26.	178.	43.9
%RSD	.24797	.21665	.58504
#1	10434.	82366.	7557.8
#2	10388.	82015.	7470.8
#3	10432.	82136.	7503.5

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 13:47:26 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00089**	**.00810**	**.00051**	**.00452**	**.00091**	**.00004**	**.00095**
Stddev	.00139	.00324	.00095	.00214	.00078	.00009	.05052
%RSD	156.10	40.018	188.79	47.267	86.505	204.93	5307.8
#1	-.00017	.00673	-.00028	.00265	.00119	.00001	-.04074
#2	.00038	.01180	.00157	.00405	.00002	-.00002	-.01353
#3	.00246	.00577	.00023	.00685	.00151	.00014	.05713
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00003**	**-.00041**	**-.00069**	**.00180**	**.01576**	**.22847**	**.00210**
Stddev	.00045	.00044	.00059	.00091	.00963	.08042	.00194
%RSD	1619.8	107.17	86.071	50.746	61.086	35.197	92.715
#1	-.00049	-.00013	-.00129	.00076	.01022	.30249	.00005
#2	-.00001	-.00018	-.00010	.00214	.02688	.24002	.00232
#3	.00042	-.00091	-.00067	.00249	.01019	.14291	.00392
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.03480**	**.00034**	**.00039**	**.00136**	**.00305**	**.00083**	**-.00041**
Stddev	.11860	.00103	.00032	.01336	.00108	.00337	.00095
%RSD	340.83	302.37	81.466	984.98	35.557	405.68	231.89
#1	.16491	-.00083	.00075	.01462	.00423	-.00210	.00043
#2	-.06726	.00109	.00028	.00156	.00212	.00451	-.00144
#3	.00674	.00077	.00015	-.01211	.00279	.00008	-.00021
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kim K Buck

Sample Name: CCB Acquired: 8/28/2017 13:47:26 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00585**	**-.00263**	**.00326**	**.00115**	**.00061**	**-.00307**	**-.00153**
Stddev	.00328	.00794	.00144	.00081	.00025	.00266	.00354
%RSD	56.081	301.85	44.093	70.758	40.300	86.670	231.13
#1	-.00582	-.00164	.00374	.00063	.00058	-.00019	-.00463
#2	-.00915	.00477	.00164	.00073	.00039	-.00545	-.00228
#3	-.00259	-.01101	.00439	.00209	.00088	-.00358	.00232
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00034**	**-.00008**	F **-.08621**
Stddev	.00063	.00009	.20924
%RSD	187.28	115.16	242.71
#1	-.00072	-.00009	.15338
#2	-.00068	.00002	-.17899
#3	.00039	-.00016	-.23303
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10680.**	**85299.**	**7466.2**
Stddev	9.	211.	147.3
%RSD	.08631	.24693	1.9727
#1	10678.	85068.	7582.2
#2	10672.	85480.	7515.8
#3	10690.	85351.	7300.5

Approved: August 29, 2017

Kim K Buck

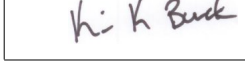
Sample Name: LLCCV Acquired: 8/28/2017 13:51:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00810**	**.17224**	**.00595**	**.07668**	**.00886**	**.00156**	**.37376**	**.00086**
Stddev	.00188	.00291	.00424	.00066	.00121	.00005	.02592	.00022
%RSD	23.230	1.6912	71.252	.86354	13.672	3.1661	6.9346	25.284
#1	.00829	.17266	.00810	.07739	.00829	.00151	.37568	.00096
#2	.00613	.16914	.00107	.07658	.01025	.00161	.39866	.00061
#3	.00987	.17493	.00868	.07607	.00803	.00156	.34693	.00101
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00412**	**.00395**	**.00606**	**.08020**	**.98673**	**.08557**	**.46850**	**.01042**
Stddev	.00038	.00080	.00135	.00814	.01470	.00182	.12459	.00240
%RSD	9.2085	20.195	22.282	10.145	1.4894	2.1231	26.593	23.049
#1	.00456	.00458	.00700	.08786	1.0028	.08483	.43036	.00944
#2	.00386	.00305	.00668	.08108	.98332	.08424	.36744	.00866
#3	.00395	.00423	.00452	.07166	.97404	.08764	.60770	.01315
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00793**	**.40650**	**.01823**	**.78718**	**.01103**	**.08179**	**.01904**	**.71995**
Stddev	.00020	.04097	.00117	.00832	.00092	.00427	.00762	.00214
%RSD	2.4788	10.079	6.3908	1.0566	8.3527	5.2218	40.025	.29717
#1	.00816	.42443	.01808	.77800	.00996	.08659	.01039	.71782
#2	.00781	.43545	.01947	.79422	.01158	.07842	.02200	.72210
#3	.00783	.35962	.01715	.78933	.01154	.08035	.02475	.71992
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: LLCCV Acquired: 8/28/2017 13:51:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40111**	**.04105**	**.01866**	**.15575**	**.00715**	**.01825**	**42.390**
Stddev	.00062	.00030	.00276	.00323	.00050	.00011	1.176
%RSD	.15444	.73284	14.810	2.0754	7.0129	.58226	2.7745
#1	.40111	.04082	.01570	.15890	.00669	.01813	41.590
#2	.40172	.04139	.01912	.15244	.00768	.01831	41.840
#3	.40049	.04093	.02118	.15590	.00706	.01830	43.741
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10683.**	**85639.**	**7476.4**
Stddev	38.	128.	159.5
%RSD	.35193	.14987	2.1334
#1	10725.	85639.	7554.1
#2	10671.	85511.	7582.1
#3	10653.	85768.	7292.9

Approved: August 29, 2017

Kristi K Buck

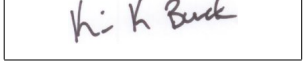
Sample Name: LLCCV Acquired: 8/28/2017 13:54:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00890**	**.18157**	**.01007**	**.07722**	**.00871**	**.00154**	**.37601**	**.00103**
Stddev	.00153	.00341	.00281	.00300	.00075	.00007	.03444	.00040
%RSD	17.190	1.8754	27.911	3.8859	8.5966	4.4703	9.1593	38.808
#1	.01008	.18477	.00711	.08007	.00828	.00152	.41578	.00147
#2	.00945	.18196	.01041	.07752	.00827	.00148	.35571	.00093
#3	.00717	.17799	.01270	.07409	.00958	.00162	.35655	.00069
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00383**	**.00450**	**.00474**	**.07138**	**.94283**	**.07898**	**.37562**	**.00890**
Stddev	.00049	.00043	.00254	.01783	.06970	.00194	.01453	.00083
%RSD	12.714	9.4461	53.574	24.987	7.3924	2.4594	3.8689	9.2909
#1	.00434	.00431	.00486	.06343	.92156	.08120	.36419	.00865
#2	.00378	.00420	.00214	.05889	.88624	.07761	.37069	.00982
#3	.00337	.00499	.00721	.09180	1.0207	.07813	.39197	.00823
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00804**	**.42435**	**.01774**	**.78711**	**.01135**	**.08132**	**.01000**	**.72700**
Stddev	.00038	.01326	.00147	.00905	.00533	.00488	.00460	.00137
%RSD	4.7738	3.1244	8.2680	1.1503	46.956	5.9966	45.987	.18812
#1	.00819	.41533	.01923	.77862	.00653	.08140	.01195	.72607
#2	.00832	.41814	.01770	.78608	.01044	.07640	.01330	.72637
#3	.00760	.43957	.01630	.79664	.01708	.08615	.00475	.72857
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: LLCCV Acquired: 8/28/2017 13:54:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40493**	**.04139**	**.01863**	**.15587**	**.00774**	**.01756**	**42.360**
Stddev	.00111	.00015	.00772	.00324	.00067	.00020	.349
%RSD	.27437	.36408	41.435	2.0763	8.7002	1.1401	.82290
#1	.40381	.04144	.02282	.15512	.00710	.01737	42.206
#2	.40493	.04152	.00972	.15942	.00770	.01777	42.116
#3	.40604	.04123	.02334	.15308	.00844	.01753	42.760
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10721.**	**85207.**	**7526.0**
Stddev	21.	187.	72.9
%RSD	.19375	.21941	.96833
#1	10712.	85403.	7584.7
#2	10745.	85031.	7548.8
#3	10706.	85185.	7444.4

Approved: August 29, 2017

Kristi K Buck

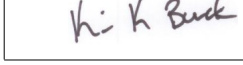
Sample Name: LLCCV Acquired: 8/28/2017 13:58:34 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00740**	**.17578**	**.00767**	**.07999**	**.00782**	**.00161**	**.39344**	**.00091**
Stddev	.00084	.00734	.00158	.00297	.00144	.00000	.00436	.00048
%RSD	11.285	4.1740	20.561	3.7146	18.473	.28776	1.1069	52.849
#1	.00669	.17950	.00941	.07789	.00809	.00161	.38943	.00036
#2	.00832	.16733	.00633	.07870	.00626	.00161	.39284	.00108
#3	.00719	.18051	.00728	.08339	.00910	.00161	.39807	.00127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00386**	**.00429**	**.00531**	**.07863**	**.96845**	**.08040**	**.42251**	**.00736**
Stddev	.00055	.00144	.00178	.00625	.05698	.00319	.06017	.00067
%RSD	14.347	33.660	33.580	7.9540	5.8840	3.9632	14.242	9.1193
#1	.00354	.00556	.00730	.08418	.91530	.08188	.39816	.00659
#2	.00450	.00460	.00388	.07185	1.0286	.07674	.49104	.00766
#3	.00354	.00272	.00474	.07985	.96142	.08257	.37832	.00783
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00760**	**.41578**	**.01877**	**.78584**	**.00864**	**.08434**	**.01180**	**.72748**
Stddev	.00036	.03226	.00047	.00205	.00154	.00097	.00636	.00170
%RSD	4.7066	7.7586	2.4824	.26063	17.792	1.1445	53.876	.23403
#1	.00785	.42724	.01894	.78819	.00962	.08324	.01020	.72600
#2	.00719	.37935	.01912	.78441	.00687	.08502	.00639	.72934
#3	.00776	.44074	.01824	.78493	.00945	.08477	.01880	.72710
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: LLCCV Acquired: 8/28/2017 13:58:34 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40700**	**.04107**	**.02217**	**.15676**	**.00671**	**.01801**	**42.387**
Stddev	.00101	.00041	.00880	.00151	.00037	.00015	.625
%RSD	.24711	.99115	39.685	.96401	5.5253	.85294	1.4736
#1	.40732	.04150	.01303	.15507	.00714	.01790	42.169
#2	.40587	.04068	.02289	.15799	.00652	.01819	41.901
#3	.40780	.04104	.03058	.15721	.00647	.01795	43.092
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10725.**	**85618.**	**7658.5**
Stddev	51.	130.	30.4
%RSD	.47274	.15188	.39732
#1	10693.	85597.	7648.5
#2	10698.	85500.	7692.7
#3	10783.	85757.	7634.3

Approved: August 29, 2017

Kim K Buck

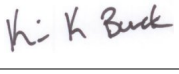
Sample Name: PBW 48 Acquired: 8/28/2017 14:39:21 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00040**	**.00517**	**.00114**	**.00070**	**.00039**	**-.00006**	**-.00398**
Stddev	.00128	.00564	.00026	.00142	.00127	.00003	.00674
%RSD	320.62	109.20	22.468	203.38	323.70	52.751	169.28
#1	-.00096	.00968	.00137	-.00073	.00167	-.00002	.00357
#2	.00058	-.00116	.00120	.00072	.00036	-.00008	-.00940
#3	.00157	.00698	.00086	.00210	-.00086	-.00008	-.00611
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00019**	**-.00035**	**.00037**	**.00020**	**.00890**	**.07772**	**.00071**
Stddev	.00018	.00025	.00008	.00102	.01310	.06449	.00452
%RSD	91.232	71.370	21.160	503.20	147.22	82.976	637.47
#1	.00010	-.00062	.00045	.00137	-.00608	.00949	-.00317
#2	.00040	-.00015	.00037	-.00053	.01821	.08601	-.00037
#3	.00008	-.00026	.00029	-.00022	.01457	.13766	.00567
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05737**	**-.00005**	**-.00007**	**-.01840**	**.00187**	**-.00630**	**.00175**
Stddev	.03218	.00137	.00026	.03216	.00080	.01077	.00424
%RSD	56.091	2706.7	398.56	174.74	42.609	170.88	242.14
#1	.02157	.00091	.00004	-.05011	.00277	-.01260	.00317
#2	.08388	.00056	.00012	.01419	.00125	.00613	-.00302
#3	.06667	-.00162	-.00036	-.01929	.00159	-.01244	.00509
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: PBW 48 Acquired: 8/28/2017 14:39:21 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00369**	**.00018**	**.00628**	**.00076**	**.00091**	**-.00521**	**-.00248**
Stddev	.00792	.00520	.00123	.00089	.00025	.00344	.00149
%RSD	214.62	2956.3	19.612	117.21	28.079	65.937	60.089
#1	-.00449	-.00462	.00608	.00018	.00081	-.00145	-.00419
#2	-.01117	.00570	.00759	.00177	.00120	-.00819	-.00178
#3	.00460	-.00055	.00515	.00031	.00072	-.00599	-.00147
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00066**	**.00091**	F **-.22565**
Stddev	.00072	.00012	.54663
%RSD	109.42	12.633	242.25
#1	-.00111	.00088	-.70805
#2	-.00105	.00104	-.33697
#3	.00017	.00082	.36808
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10732.**	**86425.**	**7707.3**
Stddev	17.	149.	29.8
%RSD	.15913	.17189	.38650
#1	10742.	86261.	7677.3
#2	10742.	86462.	7707.8
#3	10713.	86551.	7736.9

Approved: August 29, 2017

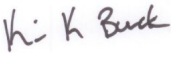
Sample Name: LCSW 48 Acquired: 8/28/2017 14:43:05 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20344**	**5.1622**	**.19482**	**.94037**	**.50959**	**.02477**	**5.0406**	**.02468**
Stddev	.00504	.0203	.00340	.00455	.00279	.00005	.0196	.00002
%RSD	2.4755	.39369	1.7457	.48418	.54677	.18192	.38852	.09975
#1	.20906	5.1589	.19841	.93548	.50758	.02477	5.0462	.02468
#2	.20190	5.1437	.19164	.94116	.51277	.02473	5.0568	.02467
#3	.19935	5.1839	.19441	.94448	.50841	.02482	5.0189	.02471
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10064**	**.25297**	**.25136**	**2.0071**	**25.416**	**.50390**	**5.1907**	**.25260**
Stddev	.00027	.00044	.00018	.0180	.013	.00618	.0621	.00140
%RSD	.27080	.17522	.07153	.89640	.05148	1.2269	1.1962	.55458
#1	.10068	.25307	.25135	1.9997	25.415	.50900	5.2582	.25128
#2	.10089	.25334	.25119	2.0276	25.430	.49702	5.1779	.25407
#3	.10035	.25248	.25155	1.9940	25.403	.50567	5.1361	.25245
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49000**	**25.383**	**.25236**	**4.8176**	**.25299**	**.59829**	**.18377**	**2.4801**
Stddev	.00112	.015	.00075	.0174	.00398	.00360	.00584	.0015
%RSD	.22779	.05801	.29792	.36070	1.5721	.60217	3.1803	.05983
#1	.48986	25.399	.25269	4.8360	.24843	.59956	.19040	2.4815
#2	.49118	25.381	.25150	4.8015	.25481	.60108	.17938	2.4785
#3	.48896	25.370	.25290	4.8152	.25574	.59422	.18152	2.4801
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: LCSW 48 Acquired: 8/28/2017 14:43:05 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50389**	**.50930**	**.50509**	**.25182**	**.50387**	**.49903**	**.79850**
Stddev	.00063	.00147	.00638	.00259	.00206	.00013	.15775
%RSD	.12586	.28935	1.2637	1.0282	.40882	.02672	19.756
#1	.50347	.50797	.51232	.24960	.50266	.49905	.64608
#2	.50462	.51089	.50025	.25120	.50270	.49916	.78833
#3	.50358	.50905	.50269	.25466	.50625	.49890	.96109
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10566.**	**84448.**	**7605.8**
Stddev	9.	75.	63.8
%RSD	.08475	.08840	.83886
#1	10569.	84494.	7631.4
#2	10556.	84361.	7533.1
#3	10573.	84487.	7652.8

Approved: August 29, 2017

Kristi K Buck

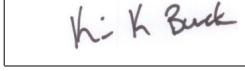
Sample Name: L1708131201 Acquired: 8/28/2017 14:46:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00078**	**.20817**	**.00088**	**.01715**	**.06593**	**-.00006**	**44.416**
Stddev	.00056	.00545	.00192	.00073	.00054	.00005	.170
%RSD	72.348	2.6198	217.97	4.2793	.82331	83.915	.38336
#1	.00142	.21412	.00123	.01770	.06645	-.00001	44.609
#2	.00053	.20698	-.00119	.01631	.06597	-.00011	44.285
#3	.00038	.20341	.00261	.01742	.06537	-.00007	44.355
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**.00001**	**.00169**	**.00199**	**.52515**	**1.4436**	**-.00008**
Stddev	.00010	.00082	.00041	.00153	.01895	.0657	.00227
%RSD	54.681	7187.6	24.147	76.724	3.6077	4.5525	2989.9
#1	.00008	.00068	.00134	.00063	.52348	1.5187	-.00241
#2	.00018	-.00091	.00214	.00171	.50710	1.3967	.00004
#3	.00027	.00026	.00160	.00364	.54488	1.4155	.00214
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.4572**	**.19485**	**.00034**	**4.3977**	**.00105**	**.02578**	**.00143**
Stddev	.1026	.00119	.00054	.0309	.00063	.00387	.00360
%RSD	1.3752	.61283	157.50	.70254	59.398	14.995	251.19
#1	7.3950	.19350	.00094	4.4302	.00041	.02855	.00511
#2	7.4011	.19575	-.00013	4.3687	.00108	.02136	-.00208
#3	7.5756	.19530	.00022	4.3943	.00166	.02741	.00127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708131201 Acquired: 8/28/2017 14:46:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00098**	**.00569**	**3.8161**	**.00071**	**.19099**	**.00232**	**-.00386**
Stddev	.00642	.01218	.0130	.00064	.00109	.00143	.00397
%RSD	658.49	214.10	.34106	90.313	.56987	61.316	102.95
#1	-.00148	-.00441	3.8130	.00014	.19164	.00282	-.00843
#2	.00826	.00226	3.8304	.00141	.18974	.00343	-.00120
#3	-.00386	.01922	3.8049	.00059	.19161	.00072	-.00195
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00004**	**.00268**	F **-.16783**
Stddev	.00092	.00012	.48464
%RSD	2126.6	4.3796	288.77
#1	.00077	.00263	-.34999
#2	.00015	.00260	-.53499
#3	-.00105	.00281	.38150
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10661.**	**85487.**	**7684.3**
Stddev	3.	91.	43.8
%RSD	.02568	.10668	.57033
#1	10659.	85543.	7667.7
#2	10664.	85536.	7734.0
#3	10661.	85382.	7651.2

Approved: August 29, 2017

Sample Name: L1708131202 Acquired: 8/28/2017 14:50:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00031**	**.06134**	**.00278**	**.01812**	**.07597**	**.00005**	**49.530**
Stddev	.00448	.00233	.00328	.00202	.00042	.00005	.071
%RSD	1449.2	3.7929	118.08	11.166	.55133	111.71	.14291
#1	-.00485	.05973	.00458	.02043	.07632	-.00000	49.603
#2	.00254	.06401	.00476	.01664	.07551	.00004	49.526
#3	.00324	.06029	-.00101	.01730	.07608	.00010	49.461
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00019**	**-.00051**	**.00006**	**-.00044**	**.03586**	**.98590**	**.00214**
Stddev	.00025	.00047	.00098	.00029	.01268	.07210	.00312
%RSD	130.42	90.786	1680.0	66.585	35.360	7.3133	145.65
#1	-.00010	-.00015	-.00046	-.00041	.02698	.92283	.00465
#2	.00035	-.00104	-.00055	-.00074	.05038	1.0645	.00312
#3	.00032	-.00035	.00119	-.00016	.03021	.97037	-.00135
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.0206**	**.00065**	**-.00019**	**3.4945**	**.00225**	**.00351**	**.00103**
Stddev	.0153	.00247	.00029	.0103	.00159	.00253	.00253
%RSD	.21810	380.15	152.86	.29450	70.766	72.238	244.66
#1	7.0046	.00254	-.00034	3.5008	.00409	.00116	.00019
#2	7.0220	-.00215	-.00037	3.4826	.00125	.00620	-.00097
#3	7.0351	.00155	.00014	3.5001	.00141	.00317	.00388
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131202 Acquired: 8/28/2017 14:50:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00059**	**.00076**	**4.0932**	**.00115**	**.18074**	**-.00134**	**.00006**
Stddev	.00658	.00988	.0044	.00049	.00049	.00456	.00043
%RSD	1123.8	1308.4	.10792	42.501	.27031	341.16	702.65
#1	-.00755	.00203	4.0923	.00169	.18060	-.00601	.00018
#2	.00026	-.00970	4.0980	.00074	.18033	.00310	.00042
#3	.00553	.00993	4.0893	.00102	.18128	-.00110	-.00042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00055**	**.00242**	F **-.13772**
Stddev	.00072	.00005	.47289
%RSD	129.76	2.2042	343.37
#1	-.00129	.00243	.31728
#2	-.00051	.00236	-.62667
#3	.00014	.00246	-.10377
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10633.**	**85448.**	**7683.5**
Stddev	10.	304.	21.1
%RSD	.09653	.35590	.27481
#1	10627.	85671.	7661.4
#2	10628.	85572.	7685.8
#3	10645.	85102.	7703.4

Approved: August 29, 2017

Sample Name: L1708131203 Acquired: 8/28/2017 14:53:57 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00132**	**.07811**	**.00094**	**.01275**	**.03941**	**-.00005**	**52.372**	**-.00001**
Stddev	.00167	.00396	.00143	.00119	.00073	.00004	.109	.00003
%RSD	126.77	5.0696	151.23	9.3602	1.8398	88.613	.20818	232.86
#1	.00250	.07390	.00253	.01338	.03939	-.00004	52.290	.00001
#2	-.00059	.07866	-.00024	.01137	.04014	-.00001	52.330	-.00001
#3	.00204	.08176	.00054	.01350	.03869	-.00010	52.496	-.00004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00031**	**.00081**	**.00053**	**.04504**	**.72729**	**.00599**	**6.9893**	**.00200**
Stddev	.00017	.00009	.00094	.01306	.07768	.00627	.0155	.00207
%RSD	53.906	11.697	178.02	29.001	10.680	104.63	.22178	103.59
#1	-.00014	.00071	.00149	.04854	.68524	.00874	6.9741	.00145
#2	-.00047	.00089	.00048	.05600	.81693	-.00118	7.0051	.00428
#3	-.00033	.00082	-.00039	.03058	.67971	.01041	6.9888	.00026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00010**	**2.9945**	**.00304**	**.00161**	**.00120**	**.00101**	**.00353**	**3.8037**
Stddev	.00058	.0050	.00061	.00117	.00065	.00313	.00411	.0024
%RSD	601.93	.16825	19.996	72.361	54.541	309.11	116.65	.06175
#1	.00055	2.9975	.00366	.00263	.00044	-.00184	.00142	3.8062
#2	-.00028	2.9973	.00245	.00034	.00154	.00437	.00827	3.8016
#3	-.00056	2.9887	.00302	.00187	.00160	.00051	.00089	3.8034
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708131203 Acquired: 8/28/2017 14:53:57 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00088**	**.13444**	**-.00302**	**-.00362**	**-.00009**	**.00181**	**.18087**
Stddev	.00091	.00082	.00407	.00285	.00039	.00015	.46434
%RSD	103.66	.60919	134.90	78.860	439.33	8.4919	256.73
#1	.00114	.13381	-.00763	-.00175	.00031	.00181	.28132
#2	-.00013	.13415	.00005	-.00690	-.00046	.00197	-.32547
#3	.00163	.13537	-.00147	-.00220	-.00012	.00166	.58676
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10591.**	**85421.**	**7610.0**
Stddev	9.	353.	60.7
%RSD	.08149	.41273	.79710
#1	10588.	85202.	7668.6
#2	10601.	85827.	7547.5
#3	10585.	85233.	7614.1

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131204 Acquired: 8/28/2017 14:57:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00080**	**.09097**	**.00088**	**.01237**	**.03806**	**-.00001**	**52.467**
Stddev	.00175	.00557	.00297	.00450	.00065	.00004	.058
%RSD	218.92	6.1260	335.64	36.333	1.7097	360.04	.10962
#1	-.00092	.09540	.00316	.00788	.03809	.00002	52.424
#2	.00073	.08471	-.00248	.01236	.03739	.00001	52.533
#3	.00259	.09280	.00197	.01687	.03869	-.00006	52.446
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00025**	**-.00044**	**.00074**	**.00181**	**.07626**	**.73632**	**.00376**
Stddev	.00029	.00006	.00071	.00193	.00757	.07855	.00194
%RSD	115.71	13.898	96.421	107.10	9.9238	10.668	51.548
#1	-.00007	-.00037	.00130	.00403	.08273	.77336	.00600
#2	.00034	-.00049	.00096	.00049	.06794	.64609	.00265
#3	.00049	-.00047	-.00006	.00090	.07811	.78950	.00264
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.0502**	**.00299**	**.00004**	**3.0469**	**.00271**	**.00011**	**.00456**
Stddev	.0408	.00254	.00044	.0063	.00086	.00428	.00342
%RSD	.57818	84.992	1056.6	.20762	31.865	3774.1	75.092
#1	7.0501	.00586	.00029	3.0465	.00319	-.00320	.00064
#2	7.0910	.00206	-.00047	3.0535	.00172	.00495	.00607
#3	7.0094	.00104	.00030	3.0408	.00324	-.00141	.00696
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131204 Acquired: 8/28/2017 14:57:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00104**	**-.00205**	**3.8102**	**.00168**	**.13562**	**-.00464**	**-.00188**
Stddev	.00279	.01520	.0150	.00047	.00062	.00509	.00071
%RSD	268.26	741.02	.39356	27.914	.45454	109.80	38.011
#1	-.00209	.01002	3.8176	.00130	.13493	-.00931	-.00269
#2	-.00316	-.01912	3.7930	.00154	.13586	-.00538	-.00133
#3	.00213	.00295	3.8201	.00221	.13609	.00079	-.00162
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00032**	**.00123**	F **-.22986**
Stddev	.00058	.00011	.29752
%RSD	181.09	9.2337	129.43
#1	.00035	.00132	-.45487
#2	-.00071	.00128	-.34219
#3	-.00060	.00110	.10747
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10610.**	**84688.**	**7566.5**
Stddev	21.	453.	15.4
%RSD	.20143	.53516	.20357
#1	10585.	84171.	7551.4
#2	10625.	84876.	7582.2
#3	10620.	85018.	7565.7

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131205 Acquired: 8/28/2017 15:01:19 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00106**	**.02548**	**.00117**	**.01285**	**.06888**	**-.00009**	**70.648**
Stddev	.00028	.00627	.00171	.00156	.00085	.00003	.308
%RSD	26.651	24.626	145.90	12.173	1.2293	30.771	.43617
#1	.00082	.03243	.00315	.01459	.06832	-.00006	70.377
#2	.00137	.02376	.00012	.01240	.06986	-.00009	70.583
#3	.00098	.02024	.00025	.01156	.06848	-.00012	70.983
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**-.00058**	**.00079**	**.00151**	**.00326**	**.90074**	**.00458**
Stddev	.00028	.00045	.00111	.00072	.01208	.05992	.00547
%RSD	165.90	78.196	141.09	47.851	370.92	6.6518	119.45
#1	.00028	-.00041	-.00049	.00219	.00771	.95697	.01013
#2	-.00015	-.00023	.00131	.00076	-.01042	.83772	-.00081
#3	.00036	-.00108	.00153	.00157	.01248	.90753	.00443
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.5010**	**.00164**	**.00053**	**2.9721**	**.00212**	**.01259**	**.00243**
Stddev	.0524	.00048	.00056	.0521	.00093	.01124	.00427
%RSD	.80668	29.110	105.43	1.7521	43.782	89.275	175.82
#1	6.4556	.00157	.00095	2.9212	.00123	.02414	.00437
#2	6.4891	.00121	-.00010	2.9698	.00206	.00170	-.00247
#3	6.5584	.00215	.00074	3.0253	.00308	.01192	.00538
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131205 Acquired: 8/28/2017 15:01:19 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00609**	**.00348**	**3.7601**	**.00118**	**.15981**	**-.00542**	**-.00547**
Stddev	.00104	.01521	.0088	.00026	.00111	.00264	.00039
%RSD	17.047	437.26	.23413	22.397	.69480	48.644	7.0735
#1	-.00725	-.01186	3.7685	.00088	.15864	-.00691	-.00591
#2	-.00578	.01856	3.7509	.00132	.15992	-.00697	-.00516
#3	-.00524	.00373	3.7611	.00134	.16085	-.00238	-.00536
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00037**	**.00136**	F **-.23031**
Stddev	.00062	.00007	.15245
%RSD	167.13	4.8452	66.193
#1	-.00056	.00140	-.40037
#2	-.00087	.00141	-.10590
#3	.00032	.00129	-.18466
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10594.**	**84332.**	**7589.6**
Stddev	10.	829.	81.3
%RSD	.09318	.98358	1.0715
#1	10587.	84208.	7679.5
#2	10605.	83571.	7568.4
#3	10590.	85216.	7521.0

Approved: August 29, 2017

Kristi K Buck

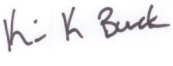
Sample Name: L1708131206 Acquired: 8/28/2017 15:05:00 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00083**	**.02117**	**-.00196**	**.01338**	**.05916**	**-.00003**	**64.819**	**.00009**
Stddev	.00229	.00882	.00287	.00045	.00107	.00001	.006	.00008
%RSD	276.12	41.669	146.07	3.3570	1.8035	20.992	.00966	91.912
#1	.00174	.03071	.00007	.01352	.05985	-.00004	64.819	.00003
#2	-.00158	.01949	-.00524	.01288	.05793	-.00002	64.813	.00019
#3	-.00265	.01331	-.00072	.01375	.05970	-.00004	64.826	.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00011**	**.00060**	**.00120**	**.02574**	**.78624**	**.00429**	**5.0832**	**.04197**
Stddev	.00020	.00120	.00048	.01945	.06028	.00546	.0516	.00052
%RSD	176.65	200.02	39.764	75.575	7.6667	127.23	1.0147	1.2431
#1	.00033	.00036	.00126	.01771	.84818	.00278	5.0512	.04200
#2	-.00005	-.00046	.00069	.04791	.72777	-.00025	5.0558	.04248
#3	.00005	.00189	.00164	.01158	.78277	.01035	5.1427	.04144
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00041**	**2.7726**	**.00233**	**.00087**	**-.00135**	**-.00266**	**.00388**	**3.7537**
Stddev	.00048	.0305	.00065	.00307	.00385	.00279	.00841	.0096
%RSD	118.25	1.0989	27.725	351.57	285.68	104.93	216.76	.25491
#1	.00055	2.7963	.00291	-.00197	.00309	.00016	-.00516	3.7428
#2	-.00013	2.7383	.00163	.00045	-.00330	-.00543	.01149	3.7572
#3	.00080	2.7834	.00244	.00413	-.00383	-.00271	.00531	3.7610
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708131206 Acquired: 8/28/2017 15:05:00 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00048**	**.14853**	**-.00223**	**-.00325**	**-.00006**	**.00151**	**.00796**
Stddev	.00095	.00016	.00407	.00138	.00051	.00009	.09799
%RSD	200.36	.11048	182.16	42.539	810.93	6.1291	1230.4
#1	.00055	.14838	.00188	-.00416	.00027	.00142	.06853
#2	.00139	.14849	-.00625	-.00166	-.00065	.00150	.06046
#3	-.00051	.14870	-.00233	-.00393	.00019	.00160	-.10509
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10389.**	**81087.**	**7571.8**
Stddev	67.	2112.	17.8
%RSD	.64401	2.6049	.23509
#1	10411.	83433.	7562.8
#2	10314.	80492.	7560.2
#3	10442.	79337.	7592.3

Approved: August 29, 2017

Ki K Buck

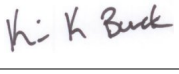
Sample Name: CCV Acquired: 8/28/2017 15:08:41 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40109**	**10.061**	**.39502**	**.48779**	**.99758**	**.04984**	**9.9824**
Stddev	.00135	.027	.00208	.00108	.00306	.00016	.0406
%RSD	.33680	.27107	.52662	.22185	.30707	.32242	.40709
#1	.40028	10.092	.39459	.48785	.99409	.05002	9.9803
#2	.40265	10.040	.39318	.48668	.99984	.04980	9.9428
#3	.40035	10.051	.39728	.48884	.99881	.04971	10.024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04965**	**.19890**	**.49599**	**.49942**	**3.9429**	**50.006**	**.99474**
Stddev	.00035	.00047	.00142	.00239	.0147	.200	.00869
%RSD	.70320	.23412	.28660	.47862	.37370	.39950	.87359
#1	.04942	.19943	.49724	.49672	3.9293	49.778	.98484
#2	.04949	.19873	.49627	.50127	3.9408	50.088	1.0011
#3	.05005	.19855	.49444	.50028	3.9585	50.152	.99828
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.026**	**.49512**	**.99302**	**49.675**	**.49620**	**9.8759**	**.49638**
Stddev	.041	.00422	.00023	.188	.00193	.0177	.00166
%RSD	.40558	.85209	.02346	.37786	.38809	.17969	.33449
#1	9.9826	.49028	.99311	49.487	.49619	9.8556	.49801
#2	10.033	.49707	.99320	49.862	.49813	9.8887	.49643
#3	10.063	.49801	.99276	49.676	.49428	9.8833	.49470
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 15:08:41 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2010**	**.37352**	**4.9978**	**.99250**	**.99467**	**.98685**	**.49932**
Stddev	.0020	.00352	.0060	.00018	.00262	.00663	.00051
%RSD	.16910	.94116	.12105	.01806	.26320	.67213	.10173
#1	1.1998	.37141	4.9989	.99234	.99165	.98234	.49971
#2	1.2033	.37157	4.9912	.99246	.99616	.99447	.49875
#3	1.1998	.37758	5.0032	.99269	.99621	.98374	.49951
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.99468**	**.99996**	F **.30189**
Stddev	.00608	.00127	.28814
%RSD	.61095	.12695	95.445
#1	1.0008	.99852	-.01926
#2	.99449	1.0005	.53778
#3	.98869	1.0009	.38715
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10512.**	**83465.**	**7662.8**
Stddev	16.	185.	37.5
%RSD	.15473	.22207	.48889
#1	10528.	83337.	7698.6
#2	10511.	83677.	7623.9
#3	10496.	83380.	7665.9

Approved: August 29, 2017

Kristi K Buck

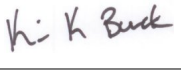
Sample Name: CCB Acquired: 8/28/2017 15:12:06 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00039**	**-.00334**	**.00208**	**.00227**	**.00043**	**.00003**	**-.02880**
Stddev	.00247	.00659	.00194	.00171	.00118	.00002	.01798
%RSD	627.80	197.52	93.336	75.446	276.33	73.435	62.415
#1	.00260	-.00042	.00323	.00097	.00152	.00002	-.02996
#2	.00086	.00129	.00318	.00163	-.00082	.00005	-.04617
#3	-.00228	-.01088	-.00016	.00421	.00057	.00001	-.01028
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00000**	**-.00007**	**.00058**	**.00035**	**.00244**	**.24189**	**.00014**
Stddev	.00012	.00037	.00084	.00057	.01521	.05891	.00233
%RSD	19624.	552.72	144.84	162.08	624.43	24.356	1694.1
#1	-.00009	-.00045	.00136	.00100	-.01130	.21323	.00223
#2	-.00005	.00028	-.00031	.00014	.01879	.20279	.00054
#3	.00014	-.00003	.00068	-.00008	-.00018	.30965	-.00236
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00408**	**.00104**	**-.00002**	**.01035**	**.00078**	**-.00093**	**.00079**
Stddev	.05359	.00250	.00076	.00762	.00174	.00447	.00370
%RSD	1313.6	241.07	4699.6	73.630	222.48	480.53	466.97
#1	.05735	.00221	.00013	.01259	.00110	-.00595	.00481
#2	.00471	-.00184	-.00084	.01660	-.00110	.00262	-.00246
#3	-.04982	.00274	.00066	.00186	.00234	.00054	.00002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 15:12:06 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00120**	**.00306**	**.00266**	**.00056**	**.00024**	**-.00784**	**-.00073**
Stddev	.00842	.00963	.00072	.00058	.00060	.00027	.00188
%RSD	699.91	315.19	27.098	102.54	248.83	3.4056	257.86
#1	-.01033	.01402	.00289	.00123	.00078	-.00809	-.00276
#2	.00628	-.00407	.00185	.00026	.00036	-.00789	.00094
#3	.00043	-.00078	.00323	.00020	-.00041	-.00756	-.00036
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00002**	**.00072**	F **-.13064**
Stddev	.00054	.00024	.48943
%RSD	2369.8	33.059	374.65
#1	-.00038	.00067	.35228
#2	.00060	.00051	-.11786
#3	-.00029	.00097	-.62633
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10636.**	**85653.**	**7615.0**
Stddev	27.	161.	22.0
%RSD	.25727	.18797	.28868
#1	10647.	85737.	7634.7
#2	10605.	85755.	7591.3
#3	10656.	85468.	7619.0

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131207 Acquired: 8/28/2017 15:15:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00146**	**.03612**	**.00346**	**.01501**	**.04611**	**-.00008**	**58.715**
Stddev	.00148	.00170	.00237	.00184	.00081	.00006	.144
%RSD	101.54	4.7200	68.467	12.273	1.7512	70.844	.24591
#1	-.00288	.03752	.00165	.01342	.04677	-.00002	58.789
#2	-.00158	.03422	.00258	.01703	.04635	-.00009	58.807
#3	.00008	.03662	.00614	.01458	.04521	-.00014	58.549
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00027**	**-.00013**	**.00003**	**.00180**	**.03673**	**.64120**	**.00234**
Stddev	.00036	.00050	.00050	.00091	.00722	.05522	.00292
%RSD	133.21	393.70	1590.1	50.554	19.661	8.6120	124.95
#1	.00067	-.00070	.00029	.00209	.04453	.60910	.00032
#2	-.00001	.00014	-.00054	.00078	.03537	.60954	.00569
#3	.00014	.00018	.00035	.00253	.03028	.70496	.00101
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.3471**	**.00360**	**.00001**	**3.4245**	**.00211**	**.00008**	**.00238**
Stddev	.0882	.00094	.00070	.0206	.00160	.00367	.00165
%RSD	1.0569	26.203	5514.5	.60139	75.668	4425.6	69.287
#1	8.4305	.00251	.00054	3.4483	.00393	.00220	.00427
#2	8.2547	.00405	-.00078	3.4128	.00147	.00220	.00133
#3	8.3560	.00422	.00028	3.4125	.00093	-.00415	.00153
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131207 Acquired: 8/28/2017 15:15:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00101**	**.00211**	**3.6867**	**.00068**	**.17258**	**-.00838**	**-.00346**
Stddev	.00165	.00710	.0079	.00078	.00025	.00213	.00071
%RSD	163.05	336.67	.21340	115.77	.14310	25.423	20.460
#1	-.00269	.00448	3.6957	.00036	.17275	-.00778	-.00265
#2	-.00097	.00772	3.6835	.00157	.17269	-.01074	-.00378
#3	.00062	-.00587	3.6810	.00010	.17230	-.00661	-.00395
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00065**	**.00119**	F **-.12982**
Stddev	.00097	.00015	.09383
%RSD	148.93	12.816	72.279
#1	-.00010	.00134	-.15589
#2	.00174	.00104	-.20786
#3	.00031	.00119	-.02571
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10551.**	**84837.**	**7558.2**
Stddev	13.	188.	77.6
%RSD	.11998	.22214	1.0261
#1	10560.	84635.	7558.1
#2	10555.	84867.	7480.7
#3	10536.	85008.	7635.9

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131208 Acquired: 8/28/2017 15:19:30 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00053**	**.12919**	**.00107**	**.01619**	**.06840**	**.00003**	**51.320**	**.00019**
Stddev	.00195	.00320	.00291	.00305	.00046	.00002	.138	.00031
%RSD	364.73	2.4796	270.55	18.834	.67752	79.653	.26955	160.71
#1	.00213	.13031	-.00050	.01398	.06894	.00005	51.411	-.00016
#2	-.00164	.13169	-.00071	.01493	.06815	.00001	51.388	.00031
#3	.00111	.12558	.00443	.01967	.06812	.00002	51.161	.00042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00078**	**.00030**	**.00241**	**.11493**	**1.1599**	**.00334**	**7.1394**	**.01603**
Stddev	.00075	.00123	.00111	.01223	.1037	.00208	.0055	.00146
%RSD	96.909	408.21	45.920	10.642	8.9409	62.201	.07706	9.1163
#1	-.00002	.00170	.00296	.12803	1.2134	.00286	7.1433	.01670
#2	-.00080	-.00020	.00315	.11296	1.0403	.00154	7.1417	.01436
#3	-.00152	-.00059	.00114	.10381	1.2259	.00561	7.1331	.01704
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00039**	**3.5201**	**.00208**	**.01406**	**.00337**	**-.00025**	**.00253**	**4.0191**
Stddev	.00031	.0302	.00088	.00674	.00140	.00670	.00275	.0061
%RSD	77.937	.85641	42.311	47.936	41.630	2655.0	108.78	.15087
#1	.00004	3.4854	.00288	.01270	.00333	.00496	-.00009	4.0257
#2	.00057	3.5352	.00114	.02138	.00199	-.00781	.00228	4.0178
#3	.00057	3.5397	.00222	.00811	.00479	.00209	.00539	4.0138
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

Sample Name: L1708131208 Acquired: 8/28/2017 15:19:30 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00068**	**.16982**	**-.00258**	**-.00389**	**.00001**	**.00241**	**.20553**
Stddev	.00069	.00047	.00301	.00278	.00072	.00006	.13418
%RSD	101.98	.27638	116.78	71.527	5301.9	2.3320	65.283
#1	.00146	.16950	-.00023	-.00707	-.00076	.00235	.09935
#2	.00045	.17036	-.00153	-.00188	.00016	.00246	.16092
#3	.00013	.16961	-.00597	-.00272	.00065	.00242	.35633
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10547.**	**85175.**	**7645.1**
Stddev	24.	70.	77.1
%RSD	.22698	.08240	1.0082
#1	10536.	85250.	7604.2
#2	10574.	85164.	7597.1
#3	10531.	85111.	7734.0

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131209 Acquired: 8/28/2017 15:23:12 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00098**	**.01732**	**-.00162**	**.01483**	**.05196**	**-.00002**	**57.681**
Stddev	.00121	.01468	.00101	.00235	.00105	.00009	.150
%RSD	122.73	84.740	62.344	15.871	2.0231	407.49	.26075
#1	.00224	.00594	-.00047	.01286	.05195	-.00012	57.638
#2	-.00017	.03389	-.00234	.01744	.05092	.00000	57.557
#3	.00087	.01213	-.00205	.01420	.05302	.00005	57.848
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00050**	**-.00061**	**.00134**	**.00201**	**.01165**	**1.1743**	**.00617**
Stddev	.00005	.00021	.00081	.00141	.01157	.0546	.00379
%RSD	11.039	33.797	60.636	70.119	99.273	4.6502	61.336
#1	.00051	-.00072	.00063	.00104	.01306	1.1165	.01000
#2	.00054	-.00074	.00222	.00363	-.00055	1.1813	.00608
#3	.00044	-.00037	.00117	.00136	.02246	1.2251	.00243
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.9238**	**-.00173**	**.00042**	**3.4696**	**.00208**	**.00458**	**.00248**
Stddev	.1156	.00059	.00019	.0508	.00098	.00470	.00208
%RSD	1.2955	34.101	46.751	1.4627	47.286	102.50	83.991
#1	9.0081	-.00108	.00060	3.4250	.00296	.00898	.00346
#2	8.7920	-.00186	.00043	3.4591	.00224	.00513	.00389
#3	8.9713	-.00223	.00021	3.5248	.00102	-.00037	.00009
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131209 Acquired: 8/28/2017 15:23:12 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00265**	**-.00128**	**3.7499**	**.00029**	**.18541**	**-.00124**	**-.00511**
Stddev	.00526	.00123	.0062	.00027	.00108	.00690	.00448
%RSD	198.43	96.683	.16479	91.557	.58221	555.06	87.622
#1	-.00205	-.00227	3.7462	.00007	.18434	-.00239	.00006
#2	.00228	-.00166	3.7570	.00059	.18539	.00616	-.00783
#3	-.00819	.00010	3.7464	.00022	.18650	-.00750	-.00756
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00028**	**.00103**	F **-.29274**
Stddev	.00083	.00011	.13678
%RSD	298.27	10.285	46.725
#1	.00123	.00096	-.17647
#2	-.00010	.00099	-.44345
#3	-.00030	.00116	-.25829
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10545.**	**80307.**	**7521.8**
Stddev	18.	250.	99.8
%RSD	.17402	.31078	1.3274
#1	10537.	80465.	7625.4
#2	10531.	80019.	7513.8
#3	10566.	80436.	7426.2

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131210 Acquired: 8/28/2017 15:26:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00182**	**.02722**	**.00076**	**.01928**	**.07607**	**-.00000**	**54.864**
Stddev	.00113	.00341	.00048	.00070	.00066	.00004	.124
%RSD	61.953	12.544	63.376	3.6384	.86185	1307.0	.22641
#1	.00079	.03090	.00113	.01967	.07547	-.00004	54.815
#2	.00165	.02662	.00022	.01970	.07598	-.00001	54.772
#3	.00303	.02415	.00094	.01847	.07677	.00004	55.006
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00018**	**-.00054**	**-.00007**	**.00185**	**.02502**	**1.0062**	**.00252**
Stddev	.00020	.00058	.00069	.00106	.00144	.0392	.00564
%RSD	115.04	106.33	967.25	57.682	5.7604	3.8981	223.43
#1	.00002	-.00091	.00036	.00250	.02436	.99226	-.00033
#2	.00010	-.00084	-.00087	.00062	.02667	1.0505	-.00112
#3	.00040	.00012	.00030	.00243	.02402	.97580	.00902
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.5106**	**.00106**	**.00061**	**4.6662**	**.00227**	**.01003**	**.00200**
Stddev	.1042	.00449	.00049	.0217	.00170	.00277	.00107
%RSD	1.0957	423.84	81.159	.46491	75.018	27.588	53.376
#1	9.4089	.00606	.00091	4.6412	.00146	.01017	.00149
#2	9.5056	-.00260	.00004	4.6777	.00423	.01273	.00129
#3	9.6172	-.00029	.00087	4.6798	.00112	.00720	.00323
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131210 Acquired: 8/28/2017 15:26:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00551**	**.00232**	**3.8706**	**.00045**	**.23944**	**-.00720**	**-.00854**
Stddev	.00367	.01290	.0025	.00012	.00102	.00082	.00586
%RSD	66.513	555.08	.06550	26.310	.42481	11.377	68.631
#1	-.00717	.01664	3.8712	.00047	.23832	-.00814	-.00177
#2	-.00806	-.00125	3.8728	.00033	.23969	-.00661	-.01179
#3	-.00131	-.00841	3.8678	.00057	.24030	-.00685	-.01205
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00039**	**.00162**	F **-.14706**
Stddev	.00044	.00008	.43266
%RSD	113.74	4.6761	294.20
#1	.00010	.00164	.35241
#2	-.00050	.00169	-.40614
#3	-.00076	.00154	-.38745
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10530.**	**85118.**	**7687.0**
Stddev	32.	268.	62.3
%RSD	.30267	.31502	.81002
#1	10495.	85419.	7758.7
#2	10557.	85028.	7646.4
#3	10537.	84906.	7655.9

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708131211 Acquired: 8/28/2017 15:30:34 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00024**	**.05092**	**.00113**	**.01905**	**.06332**	**-.00004**	**41.777**
Stddev	.00096	.00245	.00226	.00365	.00037	.00002	.073
%RSD	399.39	4.8104	200.16	19.177	.59028	44.938	.17548
#1	-.00076	.05325	-.00137	.02320	.06374	-.00006	41.779
#2	.00114	.04836	.00172	.01764	.06323	-.00002	41.703
#3	.00034	.05114	.00304	.01631	.06301	-.00005	41.849
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**-.00067**	**.00050**	**.00166**	**.03568**	**1.5312**	**.00047**
Stddev	.00024	.00007	.00092	.00035	.01449	.0585	.00235
%RSD	139.86	10.755	185.32	20.967	40.620	3.8171	499.59
#1	.00043	-.00070	-.00047	.00201	.04731	1.4902	-.00154
#2	-.00005	-.00059	.00059	.00131	.04027	1.5052	-.00011
#3	.00013	-.00073	.00137	.00165	.01944	1.5981	.00306
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.7537**	**.00026**	**.00019**	**4.6475**	**.00330**	**.01013**	**.00365**
Stddev	.0950	.00408	.00035	.0252	.00072	.00837	.00201
%RSD	1.4068	1586.1	186.82	.54155	21.963	82.635	55.204
#1	6.7481	-.00354	-.00016	4.6556	.00406	.01531	.00286
#2	6.8514	-.00025	.00019	4.6676	.00322	.00047	.00215
#3	6.6616	.00456	.00055	4.6192	.00262	.01461	.00594
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131211 Acquired: 8/28/2017 15:30:34 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00263**	**.00052**	**3.6985**	**.00070**	**.16422**	**-.00266**	**-.00305**
Stddev	.00799	.00563	.0076	.00071	.00036	.00422	.00459
%RSD	304.06	1085.9	.20543	101.73	.22110	158.82	150.70
#1	-.01103	-.00540	3.7073	.00069	.16407	-.00326	-.00696
#2	-.00173	.00115	3.6945	.00142	.16463	-.00655	-.00418
#3	.00488	.00580	3.6938	-.00000	.16395	.00183	.00201
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00021**	**.00080**	F **-.29038**
Stddev	.00086	.00009	.12194
%RSD	412.34	11.072	41.992
#1	-.00046	.00076	-.30538
#2	-.00010	.00074	-.16164
#3	.00118	.00090	-.40412
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10519.**	**85169.**	**7578.2**
Stddev	3.	307.	20.6
%RSD	.02871	.36065	.27167
#1	10518.	84816.	7601.2
#2	10523.	85315.	7561.5
#3	10517.	85376.	7571.9

Approved: August 29, 2017

Sample Name: L1708131212 Acquired: 8/28/2017 15:34:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00026**	**.03758**	**-.00162**	**.01343**	**.03007**	**-.00001**	**48.086**
Stddev	.00249	.00549	.00135	.00277	.00135	.00000	.055
%RSD	971.26	14.620	83.160	20.627	4.4946	34.335	.11405
#1	.00289	.03423	-.00294	.01211	.03058	-.00002	48.095
#2	-.00007	.03458	-.00025	.01156	.02854	-.00002	48.135
#3	-.00205	.04392	-.00167	.01661	.03109	-.00001	48.027
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00010**	**-.00056**	**.00041**	**.00051**	**.02363**	**1.1223**	**.00418**
Stddev	.00027	.00054	.00012	.00082	.00319	.0726	.00264
%RSD	284.00	95.924	27.978	160.59	13.512	6.4698	63.225
#1	.00034	-.00086	.00049	.00067	.02322	1.0410	.00722
#2	-.00020	-.00090	.00047	.00125	.02065	1.1454	.00290
#3	.00015	.00006	.00028	-.00038	.02700	1.1807	.00242
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.7104**	**.00071**	**.00008**	**4.2072**	**.00135**	**.00683**	**.00140**
Stddev	.0836	.00319	.00075	.0109	.00186	.00404	.00428
%RSD	1.4648	446.61	952.25	.25815	137.58	59.161	305.86
#1	5.6249	.00293	-.00076	4.2053	-.00069	.00966	.00605
#2	5.7143	.00215	.00069	4.2189	.00294	.00220	.00051
#3	5.7920	-.00294	.00031	4.1974	.00180	.00862	-.00237
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708131212 Acquired: 8/28/2017 15:34:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00020**	**.00960**	**3.4393**	**.00080**	**.15117**	**-.00173**	**-.00143**
Stddev	.00303	.01556	.0073	.00083	.00046	.00398	.00326
%RSD	1541.7	162.12	.21242	104.37	.30601	230.48	227.70
#1	-.00306	-.00720	3.4398	.00046	.15063	-.00580	.00016
#2	-.00051	.01248	3.4318	.00019	.15145	-.00154	-.00519
#3	.00298	.02351	3.4464	.00175	.15142	.00216	.00073
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00046**	**.00152**	F **-.35765**
Stddev	.00038	.00013	.24543
%RSD	82.591	8.5919	68.623
#1	.00033	.00144	-.12755
#2	.00016	.00167	-.32942
#3	.00088	.00145	-.61597
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10522.**	**84917.**	**7588.1**
Stddev	5.	177.	30.5
%RSD	.05128	.20888	.40205
#1	10516.	85009.	7572.8
#2	10526.	85029.	7568.2
#3	10524.	84713.	7623.2

Approved: August 29, 2017

Kristi K Buck

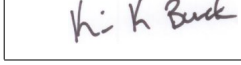
Sample Name: L1708131213 Acquired: 8/28/2017 15:37:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00123**	**.02725**	**.00137**	**.01961**	**.07083**	**-.00009**	**51.363**	**.00025**
Stddev	.00122	.00500	.00345	.00044	.00062	.00001	.130	.00010
%RSD	98.616	18.363	252.05	2.2360	.87139	10.454	.25294	37.807
#1	.00209	.02153	-.00087	.02009	.07127	-.00010	51.430	.00014
#2	.00177	.03079	.00534	.01923	.07111	-.00009	51.447	.00029
#3	-.00016	.02944	-.00037	.01953	.07013	-.00008	51.214	.00032
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00032**	**-.00000**	**.00114**	**.02605**	**1.0524**	**.00678**	**7.5369**	**.00275**
Stddev	.00034	.00116	.00038	.01297	.0638	.00457	.0949	.00056
%RSD	106.40	39096.	33.112	49.769	6.0630	67.330	1.2585	20.440
#1	.00007	-.00080	.00143	.02659	.98962	.00866	7.5500	.00217
#2	-.00054	-.00054	.00127	.01283	1.1172	.01012	7.6246	.00329
#3	-.00049	.00133	.00071	.03874	1.0504	.00158	7.4362	.00280
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00046**	**8.6434**	**.00202**	**.00106**	**.00115**	**-.00192**	**.00325**	**3.7026**
Stddev	.00053	.0297	.00120	.00521	.00195	.00190	.00484	.0032
%RSD	115.32	.34358	59.521	492.83	169.01	99.151	149.06	.08631
#1	.00063	8.6128	.00280	.00600	-.00078	.00018	.00321	3.7029
#2	-.00013	8.6721	.00064	-.00439	.00312	-.00354	.00811	3.6992
#3	.00089	8.6453	.00263	.00156	.00113	-.00239	-.00157	3.7056
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708131213 Acquired: 8/28/2017 15:37:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00104**	**.22012**	**-.00316**	**-.00272**	**.00035**	**.00099**	**.31382**
Stddev	.00096	.00059	.00657	.00216	.00089	.00022	.37358
%RSD	91.631	.26946	207.59	79.597	250.93	22.472	119.04
#1	.00204	.22014	-.00760	-.00490	.00017	.00100	.67983
#2	.00013	.22070	.00438	-.00058	-.00043	.00076	-.06689
#3	.00095	.21952	-.00628	-.00267	.00132	.00121	.32852
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10550.**	**85104.**	**7587.6**
Stddev	16.	352.	75.8
%RSD	.14976	.41405	.99892
#1	10557.	85510.	7674.9
#2	10561.	84915.	7538.5
#3	10532.	84885.	7549.6

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708131214 Acquired: 8/28/2017 15:41:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00017**	**.16718**	**.00289**	**.01715**	**.08098**	**-.00000**	**30.477**	**.00009**
Stddev	.00143	.00655	.00328	.00121	.00078	.00007	.124	.00025
%RSD	821.23	3.9151	113.73	7.0440	.96110	6931.0	.40784	271.28
#1	.00009	.16409	.00473	.01630	.08033	-.00009	30.471	-.00009
#2	-.00172	.16275	-.00090	.01662	.08184	.00004	30.356	-.00001
#3	.00110	.17470	.00484	.01853	.08076	.00004	30.604	.00038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00052**	**.00053**	**.00203**	**.10836**	**.74533**	**.00215**	**4.1894**	**.00030**
Stddev	.00038	.00072	.00130	.01638	.08248	.00242	.0727	.00177
%RSD	71.757	136.13	64.140	15.118	11.066	112.27	1.7346	598.67
#1	-.00009	-.00024	.00172	.08962	.68966	.00439	4.1059	.00159
#2	-.00068	.00119	.00346	.11992	.84009	.00249	4.2384	-.00172
#3	-.00079	.00064	.00091	.11555	.70625	-.00041	4.2238	.00102
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00034**	**2.5586**	**.00193**	**.01214**	**.00183**	**-.00228**	**-.00607**	**4.2269**
Stddev	.00046	.0053	.00096	.00644	.00540	.00457	.00905	.0137
%RSD	135.56	.20620	49.884	53.024	295.50	200.90	149.16	.32323
#1	.00010	2.5568	.00183	.01767	.00288	-.00325	.00216	4.2390
#2	.00005	2.5645	.00102	.00507	.00662	-.00628	-.01576	4.2296
#3	.00088	2.5544	.00293	.01368	-.00402	.00270	-.00460	4.2121
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

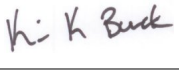
Kristi K Buck

Sample Name: L1708131214 Acquired: 8/28/2017 15:41:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00091**	**.10022**	**.00522**	**-.00408**	**.00071**	**.00168**	**.01419**
Stddev	.00056	.00024	.00114	.00072	.00108	.00007	.20066
%RSD	61.608	.24100	21.840	17.713	152.18	4.4445	1413.8
#1	.00116	.10040	.00609	-.00491	.00195	.00174	.21863
#2	.00027	.09995	.00565	-.00367	.00004	.00172	.00641
#3	.00129	.10032	.00393	-.00365	.00014	.00160	-.18246
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10595.**	**85565.**	**7630.1**
Stddev	2.	83.	50.2
%RSD	.02024	.09650	.65821
#1	10592.	85530.	7594.2
#2	10596.	85505.	7608.7
#3	10595.	85659.	7687.5

Approved: August 29, 2017



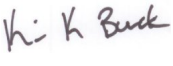
Sample Name: L1708135601 Acquired: 8/28/2017 15:45:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00036**	**.02963**	**.00242**	**.01272**	**.00222**	**.00001**	**.34574**	**.00031**
Stddev	.00172	.00120	.00064	.00147	.00035	.00009	.08272	.00022
%RSD	475.16	4.0629	26.319	11.563	15.808	1067.1	23.925	72.301
#1	-.00092	.02961	.00250	.01180	.00260	-.00003	.44000	.00019
#2	.00231	.03085	.00301	.01441	.00190	.00011	.28522	.00057
#3	-.00030	.02844	.00174	.01193	.00217	-.00005	.31201	.00017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00031**	**.00120**	**.05834**	**.04941**	**.35300**	**.00007**	**.11696**	**.00065**
Stddev	.00019	.00053	.00093	.00451	.17106	.00776	.04913	.00143
%RSD	62.497	44.582	1.5894	9.1207	48.457	11183.	42.001	221.82
#1	-.00046	.00155	.05865	.04959	.33285	-.00840	.15867	.00228
#2	-.00009	.00146	.05729	.04481	.19292	.00684	.06281	-.00039
#3	-.00038	.00058	.05907	.05382	.53324	.00176	.12940	.00005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00003**	**.23479**	**.00318**	**-.01685**	**-.00064**	**-.00227**	**-.00240**	**.06003**
Stddev	.00015	.00360	.00249	.00069	.00121	.00403	.00995	.00116
%RSD	534.96	1.5320	78.230	4.1234	188.56	177.60	414.58	1.9305
#1	-.00016	.23083	.00333	-.01733	-.00151	-.00163	-.01362	.06128
#2	.00013	.23571	.00062	-.01606	.00074	.00140	.00538	.05983
#3	-.00005	.23784	.00559	-.01718	-.00115	-.00658	.00104	.05898
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708135601 Acquired: 8/28/2017 15:45:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00156**	**.00162**	**.00028**	**-.00264**	**-.00085**	**.01122**	**.01825**
Stddev	.00075	.00039	.00552	.00345	.00039	.00026	.35261
%RSD	47.835	24.297	1948.6	130.41	45.641	2.3246	1932.4
#1	.00242	.00207	-.00022	-.00359	-.00130	.01147	-.19251
#2	.00102	.00135	.00604	-.00551	-.00061	.01095	.42532
#3	.00125	.00144	-.00496	.00118	-.00064	.01122	-.17807
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10671.**	**86297.**	**7542.2**
Stddev	12.	153.	53.4
%RSD	.10866	.17757	.70776
#1	10685.	86473.	7543.2
#2	10663.	86229.	7488.3
#3	10667.	86190.	7595.0

Approved: August 29, 2017

Kim K Buck

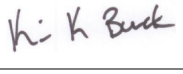
Sample Name: L1708135602 Acquired: 8/28/2017 15:49:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00131**	**.05688**	**.00119**	**.01085**	**.00120**	**-.00001**	**.11406**
Stddev	.00206	.00674	.00076	.00342	.00098	.00007	.01890
%RSD	156.63	11.854	63.260	31.480	82.133	674.85	16.570
#1	-.00036	.04913	.00061	.01473	.00008	-.00009	.10101
#2	-.00367	.06017	.00092	.00955	.00156	.00003	.13573
#3	.00010	.06135	.00205	.00828	.00195	.00003	.10543
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00002**	**-.00038**	**.00133**	**.01589**	**.04870**	**.17355**	**.00380**
Stddev	.00009	.00023	.00082	.00175	.00507	.02447	.00131
%RSD	363.72	61.558	61.559	10.989	10.414	14.098	34.381
#1	.00010	-.00057	.00038	.01646	.05211	.19691	.00268
#2	.00004	-.00046	.00176	.01393	.05112	.17561	.00524
#3	-.00007	-.00012	.00183	.01729	.04287	.14811	.00349
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00762**	**.00042**	**.00008**	**.00112**	**.00212**	**-.00221**	**.00395**
Stddev	.05146	.00101	.00011	.02523	.00079	.00423	.00340
%RSD	675.33	243.25	136.15	2251.7	37.477	191.92	86.068
#1	-.00269	-.00050	-.00001	-.01450	.00275	-.00459	.00003
#2	.04119	.00150	.00005	-.01237	.00123	-.00471	.00580
#3	-.06136	.00024	.00020	.03023	.00238	.00268	.00603
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708135602 Acquired: 8/28/2017 15:49:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00076**	**-.00135**	**.11017**	**.00123**	**.00081**	**.00126**	**-.00517**
Stddev	.00262	.00199	.00271	.00051	.00016	.00249	.00579
%RSD	344.31	146.99	2.4598	41.777	20.121	198.24	112.11
#1	-.00379	-.00255	.11069	.00180	.00078	.00379	.00141
#2	.00058	-.00245	.11258	.00080	.00066	-.00118	-.00738
#3	.00092	.00094	.10723	.00109	.00098	.00116	-.00953
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00069**	**.00506**	F **-.21370**
Stddev	.00037	.00012	.29437
%RSD	52.949	2.3949	137.75
#1	-.00055	.00494	.12525
#2	-.00111	.00518	-.36103
#3	-.00042	.00506	-.40531
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10609.**	**86045.**	**7630.7**
Stddev	10.	139.	42.4
%RSD	.09650	.16171	.55514
#1	10599.	85925.	7671.8
#2	10619.	86198.	7587.2
#3	10608.	86012.	7633.2

Approved: August 29, 2017

Kristi K Buck

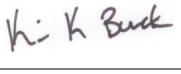
Sample Name: CCV Acquired: 8/28/2017 15:52:47 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40538**	**10.118**	**.39799**	**.48993**	**1.0103**	**.05017**	**10.009**
Stddev	.00368	.022	.00097	.00349	.0022	.00010	.078
%RSD	.90821	.21774	.24383	.71225	.22175	.19628	.77906
#1	.40211	10.100	.39894	.48748	1.0084	.05006	10.093
#2	.40937	10.143	.39700	.49393	1.0097	.05022	9.9393
#3	.40466	10.112	.39803	.48839	1.0127	.05024	9.9934
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04978**	**.20013**	**.49849**	**.50199**	**3.9493**	**50.708**	**1.0110**
Stddev	.00012	.00081	.00122	.00079	.0345	.138	.0099
%RSD	.24080	.40564	.24479	.15789	.87324	.27120	.97571
#1	.04974	.20105	.49718	.50144	3.9590	50.656	1.0220
#2	.04968	.19952	.49868	.50289	3.9110	50.605	1.0081
#3	.04991	.19982	.49960	.50163	3.9779	50.864	1.0029
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.098**	**.49734**	**.99890**	**50.193**	**.49797**	**9.9592**	**.50364**
Stddev	.041	.00291	.00115	.058	.00026	.0133	.00204
%RSD	.40711	.58513	.11489	.11531	.05302	.13343	.40461
#1	10.144	.49472	.99954	50.205	.49808	9.9450	.50309
#2	10.067	.49684	.99958	50.130	.49816	9.9613	.50590
#3	10.082	.50047	.99757	50.244	.49767	9.9714	.50194
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 15:52:47 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2142**	**.37761**	**5.0198**	**.99748**	**1.0081**	**.99864**	**.50773**
Stddev	.0056	.01406	.0029	.00122	.0009	.00371	.00123
%RSD	.46246	3.7234	.05695	.12240	.08775	.37184	.24297
#1	1.2167	.39360	5.0217	.99607	1.0081	.99555	.50663
#2	1.2182	.36721	5.0165	.99823	1.0072	1.0028	.50750
#3	1.2078	.37201	5.0213	.99814	1.0089	.99762	.50906
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0000**	**1.0098**	F **.45440**
Stddev	.0016	.0006	.27538
%RSD	.15629	.05857	60.602
#1	.99826	1.0104	.77187
#2	1.0012	1.0098	.28013
#3	1.0007	1.0092	.31120
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10422.**	**82670.**	**7507.8**
Stddev	27.	27.	50.1
%RSD	.26252	.03319	.66704
#1	10409.	82675.	7486.6
#2	10403.	82695.	7565.0
#3	10453.	82641.	7471.9

Approved: August 29, 2017

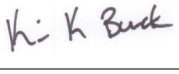
Sample Name: CCB Acquired: 8/28/2017 15:56:12 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00162**	**-.00509**	**-.00222**	**.00477**	**-.00001**	**-.00002**	**-.05646**
Stddev	.00118	.00246	.00142	.00287	.00085	.00002	.01740
%RSD	73.238	48.375	64.028	60.205	6653.0	92.865	30.820
#1	.00286	-.00535	-.00099	.00805	.00027	-.00001	-.07238
#2	.00150	-.00742	-.00377	.00271	-.00097	-.00001	-.05911
#3	.00050	-.00251	-.00189	.00355	.00066	-.00004	-.03789
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00030**	**-.00042**	**.00084**	**.00024**	**.00228**	**.30668**	**-.00415**
Stddev	.00019	.00039	.00102	.00058	.01367	.12411	.00374
%RSD	63.572	93.715	121.40	243.41	600.37	40.470	89.945
#1	.00027	-.00046	.00188	-.00020	-.00353	.23915	-.00621
#2	.00012	-.00001	.00082	.00002	-.00753	.23097	-.00641
#3	.00050	-.00079	-.00017	.00090	.01789	.44991	.00016
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.03771**	**-.00048**	**.00039**	**-.05367**	**.00110**	**.00062**	**-.00306**
Stddev	.02762	.00274	.00016	.02435	.00155	.00937	.00215
%RSD	73.237	572.51	41.467	45.366	140.55	1520.6	70.288
#1	.00595	.00218	.00041	-.03612	.00240	.00426	-.00160
#2	.05604	-.00032	.00021	-.08147	-.00061	.00762	-.00204
#3	.05114	-.00329	.00053	-.04343	.00152	-.01003	-.00553
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 15:56:12 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00043**	**.00003**	**.00109**	**.00128**	**.00043**	**-.00249**	**-.00372**
Stddev	.00195	.00952	.00063	.00022	.00061	.00919	.00148
%RSD	452.13	37290.	57.454	17.324	141.61	369.42	39.836
#1	-.00067	-.00849	.00180	.00122	.00078	-.01252	-.00293
#2	-.00072	.01030	.00059	.00153	-.00027	.00553	-.00280
#3	.00269	-.00174	.00089	.00110	.00080	-.00047	-.00543
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00094**	**.00068**	F **-.33300**
Stddev	.00077	.00011	.14478
%RSD	81.598	15.670	43.477
#1	-.00052	.00056	-.21083
#2	-.00047	.00074	-.49292
#3	-.00183	.00074	-.29526
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10566.**	**85331.**	**7421.3**
Stddev	18.	388.	160.4
%RSD	.16953	.45503	2.1612
#1	10586.	85663.	7491.6
#2	10557.	84904.	7534.5
#3	10554.	85427.	7237.8

Approved: August 29, 2017

Sample Name: L1708135603 Acquired: 8/28/2017 15:59:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00049**	**-.00147**	**.00178**	**.01075**	**.00024**	**.00002**	**.14824**	**-.00010**
Stddev	.00122	.00508	.00214	.00176	.00034	.00000	.04404	.00026
%RSD	248.03	344.70	120.17	16.409	139.95	10.652	29.706	268.51
#1	-.00136	.00127	.00420	.01244	.00061	.00002	.19032	.00020
#2	.00090	-.00734	.00012	.00892	-.00006	.00002	.10248	-.00030
#3	-.00101	.00164	.00103	.01090	.00018	.00002	.15190	-.00020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00007**	**.00053**	**.00260**	**.00533**	**.23586**	**.00333**	**-.06181**	**-.00005**
Stddev	.00037	.00036	.00224	.01336	.09173	.00159	.02246	.00251
%RSD	501.99	67.639	86.381	250.46	38.891	47.779	36.344	4676.5
#1	-.00035	.00012	.00001	-.00975	.13415	.00459	-.06551	-.00290
#2	.00021	.00067	.00399	.01568	.26110	.00385	-.03773	.00091
#3	.00036	.00079	.00379	.01007	.31232	.00154	-.08220	.00183
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00028**	**-.00953**	**.00362**	**-.00345**	**.00204**	**.00048**	**-.00084**	**.01545**
Stddev	.00055	.02298	.00142	.00367	.00257	.00331	.01048	.00251
%RSD	196.68	241.10	39.094	106.32	126.27	687.89	1243.0	16.220
#1	-.00002	.01682	.00221	.00031	-.00068	.00263	.00430	.01825
#2	.00091	-.02005	.00504	-.00701	.00443	-.00333	.00607	.01467
#3	-.00006	-.02537	.00362	-.00365	.00235	.00214	-.01290	.01342
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708135603 Acquired: 8/28/2017 15:59:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00081**	**.00047**	**-.00101**	**-.00199**	**-.00007**	**.00203**	**.05856**
Stddev	.00092	.00012	.00745	.00361	.00047	.00023	.12830
%RSD	113.51	26.380	738.07	180.97	680.47	11.498	219.09
#1	-.00003	.00055	.00091	-.00400	-.00061	.00227	-.00664
#2	.00067	.00033	.00530	.00217	.00025	.00180	-.02404
#3	.00180	.00052	-.00924	-.00415	.00016	.00201	.20637
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10641.**	**85061.**	**7508.3**
Stddev	17.	693.	95.6
%RSD	.15547	.81484	1.2733
#1	10622.	84266.	7617.6
#2	10651.	85383.	7440.3
#3	10650.	85535.	7467.1

Approved: August 29, 2017

Kristi K Buck

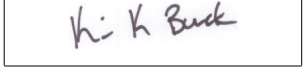
Sample Name: L1708135604 Acquired: 8/28/2017 16:03:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00073**	**.02935**	**.00103**	**.02343**	**.00158**	**.00000**	**.33680**
Stddev	.00307	.00590	.00173	.00155	.00088	.00004	.01195
%RSD	422.73	20.117	168.04	6.6103	55.264	900.48	3.5467
#1	-.00382	.02784	.00295	.02251	.00066	-.00004	.34525
#2	.00232	.02434	.00052	.02522	.00169	.00003	.34201
#3	-.00068	.03586	-.00039	.02257	.00240	.00002	.32313
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00022**	**-.00017**	**.00124**	**.01057**	**.03992**	**.13059**	**.00207**
Stddev	.00022	.00039	.00073	.00129	.01115	.03340	.00182
%RSD	101.31	229.04	58.553	12.246	27.945	25.572	87.934
#1	-.00004	-.00011	.00063	.01199	.03002	.16781	.00258
#2	.00035	-.00059	.00105	.00946	.05200	.12075	.00005
#3	.00034	.00019	.00205	.01025	.03772	.10323	.00359
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09131**	**.00178**	**-.00006**	**.03353**	**.00211**	**-.00099**	**-.00038**
Stddev	.07337	.00111	.00037	.00532	.00096	.00245	.00336
%RSD	80.351	62.383	668.39	15.861	45.223	248.38	881.21
#1	.00659	.00284	.00037	.03218	.00170	.00162	.00323
#2	.13366	.00187	-.00031	.03939	.00321	-.00134	-.00342
#3	.13369	.00063	-.00023	.02901	.00143	-.00324	-.00096
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708135604 Acquired: 8/28/2017 16:03:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00673**	**.00558**	**.06619**	**.00144**	**.00092**	**-.00452**	**-.00538**
Stddev	.00497	.00711	.00176	.00036	.00043	.00478	.00099
%RSD	73.929	127.34	2.6558	25.074	46.957	105.67	18.403
#1	-.00537	-.00254	.06429	.00143	.00109	.00099	-.00579
#2	-.01224	.01066	.06776	.00181	.00124	-.00742	-.00610
#3	-.00257	.00863	.06650	.00109	.00043	-.00715	-.00425
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00010**	**.00373**	F **-.45169**
Stddev	.00116	.00012	.34946
%RSD	1127.0	3.0983	77.367
#1	-.00032	.00359	-.46603
#2	.00141	.00378	-.79376
#3	-.00078	.00380	-.09528
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10671.**	**85947.**	**7604.0**
Stddev	27.	151.	48.3
%RSD	.24898	.17606	.63574
#1	10700.	85862.	7659.8
#2	10666.	85857.	7576.9
#3	10647.	86122.	7575.2

Approved: August 29, 2017

Kim K Buck

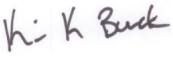
Sample Name: L1708135604PS Acquired: 8/28/2017 16:07:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627457-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19848**	**5.0741**	**.19124**	**.93689**	**.49921**	**.02424**	**5.2071**	**.02397**
Stddev	.00220	.0100	.00322	.00174	.00140	.00004	.0386	.00037
%RSD	1.1063	.19633	1.6816	.18530	.28100	.17820	.74103	1.5597
#1	.20015	5.0786	.19275	.93488	.49772	.02420	5.1755	.02373
#2	.19600	5.0627	.18754	.93783	.50051	.02423	5.1958	.02440
#3	.19930	5.0811	.19341	.93795	.49940	.02429	5.2501	.02378
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09833**	**.24683**	**.25528**	**1.9826**	**24.925**	**.49586**	**5.1333**	**.24713**
Stddev	.00035	.00095	.00027	.0091	.193	.00405	.0473	.00222
%RSD	.35728	.38668	.10703	.46096	.77586	.81771	.92088	.89799
#1	.09873	.24647	.25499	1.9734	25.073	.49332	5.1738	.24460
#2	.09811	.24611	.25534	1.9828	24.706	.50053	5.0814	.24875
#3	.09814	.24791	.25553	1.9917	24.995	.49372	5.1446	.24803
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.47767**	**24.901**	**.24537**	**4.7202**	**.24959**	**.58874**	**.17597**	**2.4606**
Stddev	.00145	.098	.00216	.0050	.00315	.00152	.00813	.0051
%RSD	.30363	.39159	.88034	.10657	1.2624	.25861	4.6184	.20776
#1	.47787	24.809	.24686	4.7189	.25298	.59004	.17186	2.4549
#2	.47613	24.890	.24289	4.7159	.24906	.58910	.18533	2.4622
#3	.47901	25.003	.24635	4.7257	.24674	.58706	.17071	2.4648
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708135604PS Acquired: 8/28/2017 16:07:26 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627457-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49142**	**.49875**	**.48572**	**.24570**	**.49460**	**.49490**	**.34920**
Stddev	.00108	.00236	.00614	.00292	.00071	.00049	.52937
%RSD	.22010	.47256	1.2632	1.1897	.14401	.09860	151.60
#1	.49019	.49603	.48436	.24604	.49420	.49482	-.11516
#2	.49225	.50008	.49242	.24262	.49542	.49446	.23711
#3	.49180	.50014	.48038	.24844	.49418	.49542	.92564
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10561.**	**84059.**	**7580.9**
Stddev	14.	175.	24.0
%RSD	.13133	.20834	.31631
#1	10558.	84159.	7598.6
#2	10548.	84162.	7553.6
#3	10576.	83857.	7590.6

Approved: August 29, 2017

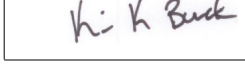
Sample Name: L1708135604SDL Acquired: 8/28/2017 16:10:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627457-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00026**	**-.00047**	**.00067**	**.00828**	**.00164**	**.00001**	**.03703**
Stddev	.00313	.00159	.00420	.00128	.00115	.00004	.06114
%RSD	1198.8	336.86	626.97	15.494	69.973	296.94	165.10
#1	-.00290	-.00080	.00034	.00911	.00296	.00001	-.00251
#2	.00319	-.00187	.00503	.00681	.00110	-.00002	.00615
#3	-.00107	.00125	-.00336	.00894	.00087	.00006	.10745
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00013**	**-.00033**	**.00103**	**.00187**	**.01441**	**.15098**	**.00016**
Stddev	.00026	.00042	.00083	.00126	.02086	.04844	.00557
%RSD	200.98	127.29	81.149	67.538	144.75	32.084	3466.5
#1	-.00038	-.00032	.00062	.00262	.00751	.18285	-.00624
#2	-.00016	-.00076	.00047	.00041	-.00212	.09524	.00391
#3	.00015	.00009	.00198	.00257	.03785	.17486	.00282
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05742**	**-.00015**	**.00056**	**-.00385**	**.00225**	**-.00039**	**-.00020**
Stddev	.02166	.00178	.00082	.00203	.00266	.00194	.00296
%RSD	37.729	1183.0	146.95	52.802	118.09	494.85	1511.0
#1	.03251	.00014	.00101	-.00227	.00372	.00172	.00276
#2	.07187	.00146	-.00039	-.00614	-.00082	-.00210	-.00315
#3	.06788	-.00206	.00105	-.00314	.00384	-.00080	-.00019
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708135604SDL Acquired: 8/28/2017 16:10:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627457-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00149**	**-.00274**	**.01198**	**.00010**	**.00072**	**-.00245**	**-.00187**
Stddev	.00157	.00479	.00224	.00080	.00090	.00560	.00139
%RSD	104.97	174.83	18.704	767.08	124.51	228.53	74.245
#1	-.00325	.00156	.00942	-.00024	-.00031	-.00193	-.00237
#2	-.00024	-.00791	.01362	.00102	.00137	.00287	-.00030
#3	-.00099	-.00188	.01288	-.00046	.00111	-.00829	-.00293
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00009**	**.00102**	F **-.28257**
Stddev	.00100	.00004	.43751
%RSD	1099.8	4.1123	154.83
#1	-.00080	.00104	.19946
#2	-.00052	.00098	-.39263
#3	.00105	.00106	-.65455
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10688.**	**85456.**	**7590.1**
Stddev	37.	162.	18.5
%RSD	.34221	.18925	.24372
#1	10700.	85279.	7592.6
#2	10647.	85494.	7570.4
#3	10718.	85595.	7607.2

Approved: August 29, 2017

Ki K Buck

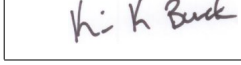
Sample Name: L1708135604MS Acquired: 8/28/2017 16:14:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19747**	**5.0620**	**.18974**	**.93509**	**.50053**	**.02418**	**5.2703**	**.02415**
Stddev	.00290	.0023	.00241	.00265	.00129	.00006	.0143	.00051
%RSD	1.4667	.04561	1.2722	.28347	.25806	.22790	.27203	2.1001
#1	.20004	5.0609	.18722	.93705	.49925	.02424	5.2855	.02386
#2	.19804	5.0605	.18997	.93208	.50183	.02416	5.2684	.02474
#3	.19433	5.0647	.19203	.93615	.50050	.02413	5.2570	.02386
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09774**	**.24722**	**.25539**	**1.9832**	**24.862**	**.49236**	**5.1149**	**.24829**
Stddev	.00040	.00205	.00226	.0109	.048	.00149	.1163	.00068
%RSD	.41031	.83030	.88399	.55112	.19483	.30325	2.2728	.27526
#1	.09733	.24513	.25279	1.9923	24.811	.49384	5.1569	.24900
#2	.09814	.24923	.25646	1.9862	24.867	.49085	5.2042	.24764
#3	.09775	.24730	.25691	1.9711	24.907	.49239	4.9834	.24822
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.47846**	**24.868**	**.24507**	**4.7022**	**.24578**	**.58840**	**.18386**	**2.4802**
Stddev	.00115	.109	.00153	.0152	.00121	.00382	.00437	.0065
%RSD	.23957	.43864	.62444	.32384	.49077	.64904	2.3789	.26085
#1	.47728	24.973	.24333	4.7031	.24439	.59005	.17935	2.4728
#2	.47854	24.877	.24623	4.6865	.24636	.58404	.18808	2.4832
#3	.47957	24.755	.24563	4.7169	.24658	.59113	.18414	2.4847
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708135604MS Acquired: 8/28/2017 16:14:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-04

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49266**	**.49914**	**.48854**	**.24832**	**.49441**	**.49174**	**.51126**
Stddev	.00220	.00120	.00490	.00484	.00049	.00040	.22545
%RSD	.44641	.24120	1.0032	1.9506	.09871	.08066	44.097
#1	.49052	.49831	.48944	.24679	.49427	.49141	.25101
#2	.49254	.50052	.49293	.24443	.49401	.49163	.64692
#3	.49492	.49859	.48325	.25374	.49496	.49218	.63586
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10543.**	**84068.**	**7604.0**
Stddev	9.	294.	68.0
%RSD	.09002	.34992	.89375
#1	10545.	83991.	7673.3
#2	10533.	83819.	7537.5
#3	10551.	84393.	7601.3

Approved: August 29, 2017

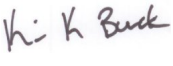
Sample Name: L1708135604MSD Acquired: 8/28/2017 16:18:07 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20326**	**5.3021**	**.19734**	**.96345**	**.51871**	**.02503**	**8.2130**	**.02470**
Stddev	.00434	.0194	.00146	.00303	.00056	.00012	.0085	.00020
%RSD	2.1365	.36649	.73879	.31496	.10755	.49234	.10303	.82955
#1	.20811	5.3245	.19574	.96509	.51912	.02512	8.2036	.02488
#2	.19974	5.2906	.19860	.96531	.51807	.02508	8.2200	.02475
#3	.20192	5.2911	.19768	.95995	.51893	.02489	8.2154	.02448
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10081**	**.25518**	**.26087**	**2.2474**	**25.697**	**.51207**	**5.4439**	**.27382**
Stddev	.00037	.00025	.00123	.0084	.178	.00560	.0894	.00158
%RSD	.36756	.09693	.47191	.37425	.69179	1.0940	1.6416	.57881
#1	.10084	.25531	.26102	2.2415	25.837	.51449	5.4820	.27245
#2	.10117	.25490	.26201	2.2570	25.497	.50566	5.5078	.27346
#3	.10043	.25534	.25957	2.2435	25.758	.51605	5.3418	.27555
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49210**	**25.702**	**.25182**	**4.8598**	**.25389**	**.60174**	**.18330**	**2.5868**
Stddev	.00026	.032	.00153	.0165	.00301	.00216	.00339	.0003
%RSD	.05285	.12402	.60812	.34013	1.1864	.35864	1.8479	.01286
#1	.49215	25.725	.25172	4.8747	.25530	.60294	.18036	2.5871
#2	.49234	25.666	.25340	4.8626	.25044	.59925	.18700	2.5869
#3	.49182	25.716	.25034	4.8420	.25594	.60304	.18253	2.5864
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708135604MSD Acquired: 8/28/2017 16:18:07 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627378-05

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50383**	**.51746**	**.50915**	**.25251**	**.51141**	**.50408**	**.03518**
Stddev	.00078	.00105	.00459	.00255	.00149	.00115	.35365
%RSD	.15561	.20255	.90156	1.0099	.29194	.22724	1005.3
#1	.50340	.51791	.51411	.25247	.51115	.50534	-.35094
#2	.50473	.51626	.50505	.24998	.51007	.50382	.34337
#3	.50334	.51820	.50831	.25508	.51302	.50309	.11310
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10602.**	**84439.**	**7553.5**
Stddev	24.	168.	62.0
%RSD	.22876	.19926	.82051
#1	10619.	84346.	7604.1
#2	10574.	84338.	7484.4
#3	10612.	84633.	7572.0

Approved: August 29, 2017

Ki K Buck

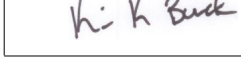
Sample Name: CCV Acquired: 8/28/2017 16:21:36 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40122**	**10.184**	**.39547**	**.49541**	**1.0044**	**.05058**	**9.9787**
Stddev	.00048	.010	.00334	.00419	.0009	.00011	.0376
%RSD	.12065	.09840	.84526	.84480	.09121	.22015	.37681
#1	.40177	10.189	.39930	.49081	1.0034	.05068	9.9567
#2	.40096	10.173	.39393	.49642	1.0044	.05060	9.9572
#3	.40091	10.191	.39316	.49900	1.0052	.05046	10.022
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04977**	**.19858**	**.50222**	**.50214**	**3.9802**	**50.540**	**1.0101**
Stddev	.00047	.00077	.00235	.00104	.0214	.202	.0034
%RSD	.94774	.38969	.46830	.20780	.53667	.39928	.34153
#1	.05026	.19907	.50489	.50258	3.9594	50.334	1.0084
#2	.04932	.19769	.50134	.50095	3.9792	50.550	1.0077
#3	.04974	.19898	.50045	.50289	4.0021	50.737	1.0140
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.104**	**.49871**	**.99618**	**50.170**	**.49267**	**9.9096**	**.49847**
Stddev	.042	.00496	.00099	.128	.00179	.0170	.00154
%RSD	.41248	.99423	.09955	.25576	.36363	.17161	.30902
#1	10.058	.49903	.99652	50.028	.49465	9.9156	.49943
#2	10.115	.49360	.99696	50.276	.49222	9.9228	.49670
#3	10.140	.50350	.99506	50.208	.49115	9.8904	.49929
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 16:21:36 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.1969**	**.37774**	**5.0144**	**.99324**	**1.0032**	**.99951**	**.50497**
Stddev	.0024	.00964	.0046	.00034	.0014	.01249	.00287
%RSD	.20496	2.5516	.09265	.03409	.14118	1.2501	.56851
#1	1.1989	.37472	5.0091	.99344	1.0019	.99047	.50822
#2	1.1976	.38853	5.0174	.99285	1.0031	1.0138	.50391
#3	1.1941	.36998	5.0168	.99343	1.0047	.99428	.50278
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0061**	**1.0036**	F **.73100**
Stddev	.0019	.0008	.12322
%RSD	.19040	.08148	16.857
#1	1.0081	1.0041	.76641
#2	1.0044	1.0041	.83264
#3	1.0057	1.0027	.59395
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10557.**	**83386.**	**7595.2**
Stddev	13.	175.	40.3
%RSD	.12269	.20970	.53093
#1	10553.	83386.	7616.0
#2	10546.	83211.	7548.7
#3	10572.	83560.	7620.8

Approved: August 29, 2017

Kristi K Buck

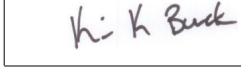
Sample Name: CCB Acquired: 8/28/2017 16:25:01 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**-.00357**	**.00020**	**.00543**	**.00063**	**-.00001**	**-.00539**
Stddev	.00328	.00556	.00361	.00117	.00129	.00005	.05534
%RSD	1980.3	155.60	1833.2	21.501	204.34	344.43	1027.0
#1	.00388	-.00203	-.00302	.00419	.00205	.00004	-.01246
#2	-.00104	-.00974	-.00049	.00558	-.00047	-.00004	.05314
#3	-.00234	.00105	.00410	.00651	.00032	-.00005	-.05685
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00037**	**-.00068**	**.00148**	**.00057**	**.01007**	**.17879**	**-.00170**
Stddev	.00010	.00039	.00047	.00117	.00538	.08578	.00435
%RSD	27.076	57.898	31.911	203.89	53.360	47.979	255.10
#1	-.00029	-.00069	.00115	-.00069	.01583	.09587	-.00161
#2	-.00034	-.00107	.00127	.00079	.00922	.26717	.00260
#3	-.00048	-.00028	.00202	.00161	.00518	.17332	-.00609
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.05312**	**-.00102**	**.00023**	**-.03904**	**.00030**	**.00255**	**.00106**
Stddev	.08214	.00043	.00067	.01236	.00170	.00062	.00202
%RSD	154.63	41.991	286.24	31.649	561.42	24.224	189.94
#1	-.02433	-.00097	-.00054	-.05299	-.00142	.00271	-.00124
#2	.01074	-.00062	.00062	-.03468	.00197	.00307	.00188
#3	-.14579	-.00147	.00062	-.02946	.00036	.00187	.00255
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



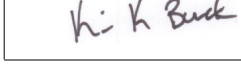
Sample Name: CCB Acquired: 8/28/2017 16:25:01 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00024**	**-.00695**	**.00366**	**.00027**	**.00043**	**-.00688**	**-.00373**
Stddev	.00222	.01150	.00107	.00016	.00022	.00664	.00383
%RSD	916.75	165.44	29.309	60.837	50.115	96.491	102.61
#1	.00119	-.00882	.00353	.00046	.00019	-.00185	-.00554
#2	.00088	-.01741	.00480	.00014	.00052	-.00438	.00067
#3	-.00280	.00537	.00266	.00021	.00059	-.01440	-.00633
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00121**	**.00061**	F **.30324**
Stddev	.00050	.00014	.12787
%RSD	40.961	22.497	42.167
#1	-.00160	.00069	.39186
#2	-.00137	.00069	.36121
#3	-.00065	.00045	.15666
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10702.**	**85900.**	**7464.4**
Stddev	15.	243.	208.5
%RSD	.13971	.28337	2.7929
#1	10719.	85894.	7620.3
#2	10697.	86145.	7545.3
#3	10690.	85659.	7227.6

Approved: August 29, 2017



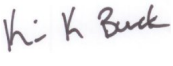
Sample Name: LLCCV Acquired: 8/28/2017 16:28:44 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00865**	**.17351**	**.00804**	**.07958**	**.00853**	**.00160**	**.40975**	**.00063**
Stddev	.00194	.00753	.00143	.00163	.00064	.00009	.01785	.00018
%RSD	22.387	4.3396	17.794	2.0541	7.5149	5.5338	4.3572	29.153
#1	.00683	.17386	.00658	.07921	.00885	.00151	.39917	.00077
#2	.01068	.16582	.00811	.08136	.00779	.00162	.39973	.00071
#3	.00843	.18087	.00944	.07816	.00895	.00168	.43037	.00042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00388**	**.00500**	**.00619**	**.09237**	**.90750**	**.08175**	**.43353**	**.00934**
Stddev	.00015	.00104	.00165	.01760	.01013	.00123	.03473	.00262
%RSD	3.9363	20.800	26.570	19.055	1.1163	1.5028	8.0102	28.044
#1	.00391	.00383	.00443	.07328	.90897	.08121	.47352	.01132
#2	.00371	.00582	.00647	.09589	.89672	.08088	.41102	.00637
#3	.00401	.00534	.00769	.10795	.91682	.08315	.41605	.01033
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00760**	**.39748**	**.01807**	**.78507**	**.00762**	**.08063**	**.01556**	**.73281**
Stddev	.00020	.02840	.00063	.00350	.00347	.00347	.00883	.00114
%RSD	2.6605	7.1456	3.4917	.44569	45.525	4.3036	56.748	.15490
#1	.00772	.36882	.01756	.78282	.01136	.07914	.00538	.73288
#2	.00737	.39800	.01877	.78910	.00452	.08460	.02108	.73390
#3	.00771	.42562	.01787	.78328	.00696	.07816	.02022	.73164
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

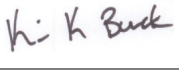


Sample Name: LLCCV Acquired: 8/28/2017 16:28:44 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40826**	**.04180**	**.01835**	**.15855**	**.00734**	**.01992**	**41.757**
Stddev	.00125	.00042	.00723	.00112	.00069	.00013	.582
%RSD	.30656	1.0164	39.384	.70441	9.3268	.66348	1.3946
#1	.40742	.04197	.01991	.15938	.00715	.01981	42.392
#2	.40970	.04132	.01046	.15899	.00678	.02006	41.248
#3	.40767	.04211	.02466	.15728	.00811	.01989	41.631
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10777.**	**86063.**	**7631.8**
Stddev	24.	377.	11.5
%RSD	.22197	.43860	.15074
#1	10785.	86496.	7619.6
#2	10796.	85801.	7633.4
#3	10750.	85892.	7642.4

Approved: August 29, 2017



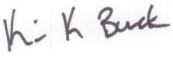
Sample Name: LLCCV Acquired: 8/28/2017 16:32:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00944**	**.17544**	**.00836**	**.08011**	**.00770**	**.00158**	**.36850**	**.00081**
Stddev	.00067	.00734	.00489	.00129	.00097	.00006	.03152	.00008
%RSD	7.0644	4.1829	58.547	1.6099	12.534	3.4891	8.5525	9.9153
#1	.00960	.18202	.00539	.08121	.00746	.00156	.39427	.00077
#2	.00870	.16753	.00567	.08042	.00877	.00154	.37785	.00077
#3	.01001	.17679	.01400	.07869	.00688	.00164	.33336	.00091
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00369**	**.00469**	**.00536**	**.08139**	**.90903**	**.07734**	**.44307**	**.00758**
Stddev	.00007	.00121	.00125	.01925	.04185	.00342	.06254	.00166
%RSD	2.0047	25.887	23.266	23.648	4.6043	4.4215	14.115	21.949
#1	.00369	.00329	.00670	.09867	.94883	.07490	.50884	.00768
#2	.00362	.00541	.00517	.06065	.91287	.07588	.38437	.00587
#3	.00377	.00536	.00423	.08486	.86538	.08125	.43600	.00919
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00762**	**.38304**	**.01691**	**.79576**	**.00690**	**.07891**	**.02176**	**.73460**
Stddev	.00023	.01843	.00199	.00309	.00051	.00539	.00839	.00095
%RSD	3.0807	4.8119	11.771	.38822	7.4188	6.8291	38.535	.12973
#1	.00744	.38445	.01476	.79850	.00634	.07330	.01209	.73377
#2	.00788	.36394	.01728	.79241	.00703	.08405	.02632	.73564
#3	.00753	.40072	.01869	.79635	.00734	.07939	.02689	.73439
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: LLCCV Acquired: 8/28/2017 16:32:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41214**	**.04159**	**.02055**	**.16129**	**.00807**	**.01860**	**42.461**
Stddev	.00027	.00053	.00462	.00224	.00038	.00009	.669
%RSD	.06564	1.2734	22.494	1.3906	4.6497	.49886	1.5749
#1	.41245	.04161	.01910	.16209	.00764	.01858	43.219
#2	.41194	.04211	.01683	.16301	.00832	.01852	42.210
#3	.41204	.04105	.02573	.15875	.00825	.01870	41.954
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10745.**	**85989.**	**7709.0**
Stddev	33.	152.	37.9
%RSD	.30393	.17619	.49198
#1	10762.	86142.	7725.8
#2	10766.	85986.	7665.6
#3	10708.	85839.	7735.6

Approved: August 29, 2017

Kristi K Buck

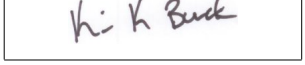
Sample Name: LLCCV Acquired: 8/28/2017 16:36:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00802**	**.17732**	**.00653**	**.08443**	**.00940**	**.00162**	**.37046**	**.00067**
Stddev	.00162	.00204	.00156	.00115	.00109	.00003	.00777	.00015
%RSD	20.244	1.1513	23.887	1.3569	11.613	1.9051	2.0981	22.256
#1	.00686	.17946	.00718	.08333	.00939	.00165	.36253	.00077
#2	.00732	.17708	.00766	.08561	.00832	.00162	.37806	.00050
#3	.00988	.17540	.00475	.08434	.01051	.00159	.37078	.00075
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00378**	**.00537**	**.00452**	**.10114**	**.85684**	**.08575**	**.41617**	**.00924**
Stddev	.00048	.00036	.00010	.01894	.02486	.00144	.03409	.00353
%RSD	12.816	6.7164	2.3135	18.723	2.9018	1.6779	8.1913	38.267
#1	.00434	.00572	.00454	.08670	.85304	.08698	.44505	.00526
#2	.00346	.00500	.00440	.09414	.88338	.08417	.37857	.01041
#3	.00355	.00538	.00461	.12258	.83409	.08611	.42489	.01203
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00770**	**.38151**	**.01763**	**.79315**	**.01102**	**.08373**	**.00997**	**.73765**
Stddev	.00070	.02685	.00132	.00765	.00396	.00571	.01944	.00156
%RSD	9.0516	7.0375	7.4969	.96411	35.928	6.8150	194.93	.21121
#1	.00821	.40209	.01689	.80134	.01530	.07719	.02971	.73586
#2	.00799	.35114	.01684	.79191	.01027	.08772	-.00915	.73841
#3	.00691	.39130	.01916	.78619	.00749	.08628	.00935	.73868
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

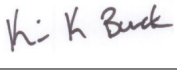


Sample Name: LLCCV Acquired: 8/28/2017 16:36:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41177**	**.04150**	**.01970**	**.15984**	**.00757**	**.01739**	**42.840**
Stddev	.00060	.00004	.00227	.00148	.00054	.00010	.687
%RSD	.14683	.10664	11.539	.92818	7.0930	.57926	1.6037
#1	.41118	.04154	.02222	.16131	.00701	.01750	42.083
#2	.41239	.04145	.01782	.15834	.00761	.01730	43.013
#3	.41174	.04150	.01904	.15986	.00808	.01739	43.424
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10730.**	**85148.**	**7555.6**
Stddev	21.	1649.	54.7
%RSD	.19898	1.9364	.72445
#1	10750.	83248.	7599.8
#2	10708.	86205.	7572.6
#3	10732.	85991.	7494.4

Approved: August 29, 2017



Sample Name: PBW 91 Acquired: 8/28/2017 16:39:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00301**	**.02065**	**-.00151**	**.00509**	**.00097**	**-.00008**	**.04499**	**-.00002**
Stddev	.00135	.00637	.00199	.00031	.00046	.00003	.01220	.00030
%RSD	44.926	30.832	131.65	6.1725	47.966	34.218	27.115	1263.1
#1	-.00453	.02313	-.00310	.00539	.00130	-.00005	.05881	.00028
#2	-.00260	.01342	-.00216	.00477	.00044	-.00011	.03571	-.00031
#3	-.00191	.02541	.00072	.00510	.00117	-.00008	.04045	-.00004
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00035**	**-.00001**	**.00033**	**.07946**	**.10855**	**-.00061**	**.03739**	**-.00016**
Stddev	.00015	.00110	.00121	.00769	.07257	.00051	.04948	.00171
%RSD	42.898	16049.	367.27	9.6810	66.857	83.573	132.32	1058.0
#1	-.00041	.00028	-.00095	.08780	.09936	-.00077	-.01451	-.00203
#2	-.00047	.00092	.00144	.07793	.04101	-.00004	.08403	.00133
#3	-.00018	-.00123	.00050	.07265	.18528	-.00102	.04266	.00022
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00016**	**-.01148**	**.00477**	**-.00968**	**.00321**	**-.00091**	**-.00072**	**.00529**
Stddev	.00116	.02618	.00233	.00474	.00160	.00303	.00747	.00163
%RSD	725.01	228.02	48.880	48.997	49.746	333.80	1043.0	30.892
#1	-.00116	-.00760	.00220	-.00662	.00156	-.00348	.00208	.00420
#2	.00065	.01254	.00676	-.00728	.00475	-.00167	.00495	.00450
#3	.00099	-.03939	.00535	-.01514	.00332	.00243	-.00918	.00717
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

Kim K Buck

Sample Name: PBW 91 Acquired: 8/28/2017 16:39:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00099**	**.00047**	**-.00162**	**-.00270**	**-.00094**	**.00132**	**.12570**
Stddev	.00037	.00031	.00413	.00187	.00082	.00004	.20732
%RSD	37.401	66.112	254.57	69.190	87.307	2.6824	164.94
#1	.00112	.00061	-.00148	-.00076	-.00166	.00136	.36463
#2	.00128	.00068	.00243	-.00449	-.00005	.00130	-.00661
#3	.00057	.00011	-.00582	-.00286	-.00109	.00129	.01907
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10628.**	**85514.**	**7552.7**
Stddev	38.	533.	54.8
%RSD	.36135	.62374	.72548
#1	10608.	85603.	7489.7
#2	10605.	85997.	7579.3
#3	10673.	84942.	7589.1

Approved: August 29, 2017

Kristi K Buck

Sample Name: LCSW 91 Acquired: 8/28/2017 16:43:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20279**	**5.2003**	**.19296**	**.94924**	**.51191**	**.02489**	**5.1312**	**.02479**
Stddev	.00108	.0150	.00308	.00166	.00075	.00007	.0247	.00011
%RSD	.53495	.28937	1.5950	.17486	.14694	.28605	.48158	.46365
#1	.20160	5.1977	.18947	.94761	.51269	.02485	5.1029	.02488
#2	.20373	5.1867	.19410	.95093	.51183	.02485	5.1420	.02483
#3	.20304	5.2164	.19530	.94919	.51119	.02497	5.1486	.02466
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10032**	**.25348**	**.25167**	**1.9911**	**25.499**	**.51038**	**5.1093**	**.25250**
Stddev	.00033	.00120	.00122	.0161	.099	.00498	.1334	.00279
%RSD	.33348	.47221	.48632	.81030	.38984	.97593	2.6114	1.1060
#1	.10046	.25222	.25225	1.9727	25.418	.50508	4.9809	.25268
#2	.09994	.25460	.25250	1.9981	25.610	.51496	5.2472	.24962
#3	.10056	.25364	.25026	2.0026	25.469	.51110	5.0998	.25519
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48912**	**25.427**	**.25077**	**4.8198**	**.25390**	**.59231**	**.18728**	**2.4756**
Stddev	.00068	.081	.00153	.0067	.00456	.00492	.01248	.0075
%RSD	.14003	.31778	.60877	.13849	1.7964	.83015	6.6646	.30123
#1	.48990	25.367	.25064	4.8227	.24864	.58879	.18243	2.4805
#2	.48863	25.395	.25236	4.8122	.25636	.59022	.20146	2.4670
#3	.48883	25.519	.24931	4.8246	.25670	.59793	.17796	2.4793
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

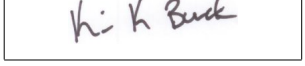
Kristi K Burk

Sample Name: LCSW 91 Acquired: 8/28/2017 16:43:33 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50329**	**.51318**	**.50210**	**.25396**	**.50754**	**.50258**	**.50704**
Stddev	.00144	.00230	.00280	.00706	.00172	.00061	.57633
%RSD	.28639	.44842	.55720	2.7808	.33974	.12046	113.67
#1	.50439	.51118	.49900	.25731	.50651	.50282	.70974
#2	.50381	.51267	.50285	.24585	.50659	.50189	-.14325
#3	.50165	.51569	.50444	.25872	.50953	.50303	.95464
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10474.**	**83526.**	**7574.3**
Stddev	35.	895.	119.9
%RSD	.33574	1.0715	1.5830
#1	10503.	84372.	7710.5
#2	10484.	83615.	7485.0
#3	10435.	82589.	7527.3

Approved: August 29, 2017



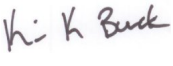
Sample Name: L1708130501 Acquired: 8/28/2017 16:47:02 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00282**	**1.5094**	**.00840**	**.05631**	**.05716**	**.00005**	**28.460**	**.00096**
Stddev	.00119	.0049	.00320	.00205	.00038	.00001	.045	.00025
%RSD	42.020	.32644	38.124	3.6375	.67206	15.046	.15943	26.345
#1	-.00419	1.5037	.01209	.05404	.05759	.00006	28.407	.00069
#2	-.00208	1.5123	.00650	.05688	.05703	.00005	28.482	.00099
#3	-.00220	1.5122	.00660	.05802	.05685	.00004	28.489	.00119
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00147**	**.00593**	**.01696**	**1.7654**	**3.8573**	**.02888**	**5.3649**	**.06489**
Stddev	.00015	.00105	.00077	.0322	.0629	.00260	.0250	.00238
%RSD	9.8819	17.642	4.5504	1.8254	1.6314	8.9871	.46548	3.6626
#1	.00136	.00546	.01728	1.7826	3.7848	.03082	5.3655	.06475
#2	.00164	.00713	.01608	1.7854	3.8900	.02989	5.3896	.06734
#3	.00142	.00521	.01751	1.7282	3.8972	.02593	5.3396	.06259
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01841**	**137.78**	**.00697**	**.16870**	**.01506**	**-.00241**	**-.00206**	**6.7875**
Stddev	.00034	.32	.00168	.00168	.00568	.00372	.00409	.0158
%RSD	1.8324	.23179	24.137	.99375	37.712	154.46	198.77	.23230
#1	.01805	137.61	.00802	.16732	.01057	.00163	-.00225	6.7986
#2	.01845	138.14	.00503	.16821	.02145	-.00316	.00212	6.7694
#3	.01873	137.58	.00785	.17057	.01317	-.00570	-.00606	6.7944
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708130501 Acquired: 8/28/2017 16:47:02 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00867**	**.28895**	**.03450**	**-.00116**	**.00893**	**.15867**	**2.0960**
Stddev	.00039	.00030	.00616	.00251	.00093	.00016	.1375
%RSD	4.5536	.10531	17.847	215.88	10.411	.09769	6.5581
#1	.00871	.28867	.03114	.00029	.00898	.15881	2.2459
#2	.00825	.28891	.03076	-.00406	.00983	.15871	2.0662
#3	.00904	.28927	.04161	.00028	.00797	.15851	1.9759
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10458.**	**79497.**	**7684.5**
Stddev	11.	2472.	11.2
%RSD	.10459	3.1090	.14596
#1	10470.	82330.	7682.1
#2	10456.	78382.	7674.7
#3	10448.	77779.	7696.8

Approved: August 29, 2017

Kristi K Buck

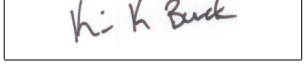
Sample Name: L1708130502 Acquired: 8/28/2017 16:50:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00196**	**.05380**	**.00155**	**.04955**	**.03704**	**-.00004**	**18.566**	**-.00001**
Stddev	.00050	.00419	.00263	.00258	.00027	.00001	.096	.00016
%RSD	25.325	7.7858	170.20	5.2041	.72273	20.444	.51918	1185.7
#1	-.00219	.05010	.00170	.05170	.03677	-.00005	18.601	-.00009
#2	-.00139	.05294	.00410	.05026	.03731	-.00005	18.457	-.00012
#3	-.00230	.05835	-.00116	.04669	.03705	-.00004	18.640	.00017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00037**	**.00087**	**.00151**	**.01764**	**3.2925**	**.03040**	**3.0939**	**.01642**
Stddev	.00026	.00056	.00088	.01011	.0532	.00139	.0623	.00208
%RSD	68.291	64.097	58.195	57.309	1.6169	4.5694	2.0135	12.653
#1	.00008	.00147	.00065	.01977	3.3312	.02997	3.1261	.01426
#2	.00056	.00037	.00241	.00663	3.2318	.02927	3.0221	.01840
#3	.00048	.00077	.00147	.02650	3.3146	.03195	3.1334	.01659
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01804**	**148.14**	**.00270**	**.05356**	**.00116**	**.00362**	**.00013**	**5.2710**
Stddev	.00027	.33	.00097	.00237	.00171	.00244	.01135	.0110
%RSD	1.4756	.22461	35.918	4.4245	147.04	67.411	8637.5	.20926
#1	.01794	148.17	.00198	.05267	.00274	.00286	.00218	5.2590
#2	.01834	147.80	.00232	.05176	.00140	.00166	.01032	5.2807
#3	.01784	148.46	.00380	.05624	-.00065	.00636	-.01211	5.2733
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708130502 Acquired: 8/28/2017 16:50:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00167**	**.22477**	**.00122**	**-.00229**	**.00876**	**.00802**	**.53204**
Stddev	.00077	.00050	.00438	.00272	.00078	.00015	.12348
%RSD	46.221	.22163	357.67	118.79	8.8934	1.9188	23.210
#1	.00156	.22419	.00561	-.00435	.00811	.00789	.57689
#2	.00250	.22510	.00120	.00079	.00962	.00819	.62682
#3	.00097	.22501	-.00314	-.00330	.00854	.00798	.39239
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10434.**	**82647.**	**7612.5**
Stddev	15.	217.	14.9
%RSD	.13954	.26225	.19561
#1	10420.	82406.	7601.2
#2	10435.	82709.	7607.0
#3	10449.	82826.	7629.4

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130503 Acquired: 8/28/2017 16:54:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00261**	**.09592**	**-.00105**	**.31371**	**.05179**	**.00002**	**59.048**
Stddev	.00187	.00495	.00152	.00142	.00089	.00002	.119
%RSD	71.575	5.1593	145.91	.45274	1.7210	78.436	.20156
#1	-.00381	.09795	-.00189	.31487	.05280	.00005	59.185
#2	-.00046	.09028	-.00196	.31212	.05111	.00001	58.995
#3	-.00355	.09953	.00072	.31413	.05147	.00002	58.965
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00004**	**-.00020**	**.00732**	**.00220**	**.07431**	**12.062**	**.09598**
Stddev	.00020	.00017	.00037	.00072	.01483	.024	.00438
%RSD	545.41	84.367	5.1169	32.615	19.962	.20123	4.5682
#1	.00020	-.00001	.00689	.00250	.06110	12.062	.09093
#2	-.00013	-.00026	.00748	.00271	.09036	12.038	.09873
#3	-.00018	-.00033	.00758	.00138	.07148	12.086	.09829
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.842**	**.01278**	**.00172**	F **797.13**	**.00099**	**.34012**	**.00273**
Stddev	.049	.00201	.00065	5.01	.00094	.00760	.00152
%RSD	.41437	15.708	37.952	.62842	95.388	2.2343	55.496
#1	11.795	.01302	.00247	802.65	.00154	.33176	.00326
#2	11.837	.01466	.00136	792.89	-.00010	.34202	.00391
#3	11.893	.01067	.00132	795.84	.00151	.34660	.00102
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130503 Acquired: 8/28/2017 16:54:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00027**	**-.00251**	**25.860**	**.01792**	**.42956**	**.07491**	**-.00249**
Stddev	.00245	.00188	.024	.00052	.00090	.00418	.00277
%RSD	894.38	74.790	.09359	2.9147	.20882	5.5749	111.13
#1	.00187	-.00208	25.865	.01852	.42857	.07831	-.00223
#2	.00150	-.00089	25.834	.01758	.42977	.07618	-.00538
#3	-.00255	-.00457	25.881	.01765	.43033	.07025	.00014
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00923**	**.04754**	**2.3425**
Stddev	.00051	.00015	.2949
%RSD	5.5399	.32222	12.589
#1	.00885	.04749	2.2904
#2	.00981	.04742	2.0772
#3	.00902	.04771	2.6600
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9912.5**	**77290.**	**7474.6**
Stddev	18.7	98.	59.5
%RSD	.18908	.12707	.79632
#1	9934.1	77185.	7433.2
#2	9900.2	77306.	7447.8
#3	9903.1	77380.	7542.8

Approved: August 29, 2017

Kristi K Buck

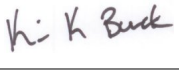
Sample Name: L1708130504 Acquired: 8/28/2017 16:58:10 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00223**	**.04337**	**.00080**	**.31439**	**.04973**	**-.00005**	**57.533**
Stddev	.00110	.00793	.00266	.00537	.00094	.00003	.063
%RSD	49.489	18.295	333.00	1.7084	1.8937	64.023	.11000
#1	-.00117	.03695	.00205	.31143	.04888	-.00005	57.492
#2	-.00215	.05223	-.00225	.31115	.05074	-.00001	57.606
#3	-.00337	.04091	.00260	.32059	.04957	-.00008	57.501
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00003**	**-.00010**	**.00595**	**.00133**	**.01160**	**12.230**	**.09503**
Stddev	.00057	.00049	.00193	.00054	.00941	.123	.00514
%RSD	1761.7	475.27	32.458	40.626	81.099	1.0092	5.4078
#1	-.00034	.00046	.00807	.00106	.01864	12.098	.08968
#2	.00063	-.00045	.00548	.00196	.00091	12.250	.09547
#3	-.00038	-.00032	.00430	.00098	.01526	12.342	.09993
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.817**	**.00709**	**.00122**	F **794.29**	**.00130**	**.31670**	**.00254**
Stddev	.029	.00188	.00035	7.55	.00142	.01085	.00352
%RSD	.24956	26.463	28.446	.95060	108.58	3.4246	138.72
#1	11.817	.00724	.00133	798.19	.00233	.30779	.00651
#2	11.846	.00889	.00083	799.10	-.00031	.32878	.00130
#3	11.787	.00514	.00150	785.59	.00190	.31354	-.00020
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017



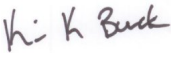
Sample Name: L1708130504 Acquired: 8/28/2017 16:58:10 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00068**	**.00336**	**25.880**	**.01635**	**.42928**	**.02316**	**-.00530**
Stddev	.00751	.01508	.037	.00031	.00120	.00430	.00145
%RSD	1108.8	448.64	.14181	1.8812	.28070	18.581	27.328
#1	-.00133	.00722	25.917	.01646	.42797	.02194	-.00388
#2	-.00783	.01613	25.844	.01659	.42951	.02794	-.00525
#3	.00713	-.01327	25.879	.01600	.43034	.01960	-.00677
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00536**	**.00161**	**1.0316**
Stddev	.00068	.00016	.1122
%RSD	12.615	10.085	10.876
#1	.00460	.00145	1.0888
#2	.00589	.00163	1.1036
#3	.00559	.00177	.90232
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9962.1**	**77380.**	**7509.9**
Stddev	23.6	222.	30.8
%RSD	.23705	.28746	.41045
#1	9949.1	77131.	7544.1
#2	9989.4	77560.	7501.6
#3	9947.9	77449.	7484.2

Approved: August 29, 2017



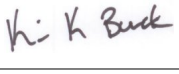
Sample Name: L1708130505 Acquired: 8/28/2017 17:01:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00106**	**.07183**	**-.00148**	**.31861**	**.04513**	**.00005**	**54.957**
Stddev	.00242	.00632	.00012	.00235	.00022	.00001	.091
%RSD	227.49	8.7966	8.4040	.73720	.47679	21.067	.16472
#1	-.00086	.07276	-.00158	.32099	.04531	.00006	55.057
#2	-.00358	.07764	-.00134	.31630	.04489	.00004	54.933
#3	.00125	.06510	-.00153	.31855	.04520	.00005	54.881
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00039**	**.00005**	**.00637**	**.00318**	**.05703**	**12.571**	**.09679**
Stddev	.00032	.00040	.00129	.00148	.00578	.140	.00306
%RSD	84.173	812.65	20.203	46.418	10.129	1.1152	3.1661
#1	.00024	.00051	.00516	.00478	.05697	12.410	.09453
#2	.00076	-.00021	.00772	.00187	.06283	12.635	.10027
#3	.00016	-.00015	.00624	.00288	.05128	12.668	.09556
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.723**	**.00816**	**.00151**	F **802.91**	**.00202**	**.34625**	**.00290**
Stddev	.099	.00191	.00047	9.91	.00068	.00845	.00487
%RSD	.84674	23.371	31.272	1.2338	33.769	2.4398	168.12
#1	11.770	.00707	.00156	812.77	.00263	.33983	-.00221
#2	11.609	.00704	.00195	803.00	.00128	.35582	.00750
#3	11.791	.01036	.00101	792.96	.00215	.34311	.00341
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017



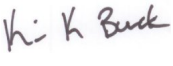
Sample Name: L1708130505 Acquired: 8/28/2017 17:01:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00344**	**.00136**	**26.521**	**.01784**	**.40312**	**.08316**	**-.00549**
Stddev	.00692	.00420	.046	.00076	.00081	.00211	.00308
%RSD	201.04	310.08	.17448	4.2427	.20098	2.5414	56.012
#1	.00448	.00258	26.468	.01698	.40405	.08546	-.00599
#2	-.00828	-.00332	26.555	.01815	.40256	.08130	-.00828
#3	-.00651	.00481	26.540	.01840	.40276	.08272	-.00219
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.01187**	**.01167**	**2.7816**
Stddev	.00064	.00008	.2017
%RSD	5.3537	.66716	7.2508
#1	.01114	.01173	2.5868
#2	.01224	.01170	2.7684
#3	.01224	.01158	2.9896
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9900.5**	**77171.**	**7468.9**
Stddev	17.7	40.	1.5
%RSD	.17900	.05214	.01997
#1	9916.4	77213.	7468.1
#2	9881.4	77132.	7470.6
#3	9903.8	77169.	7467.9

Approved: August 29, 2017



Sample Name: L1708130506 Acquired: 8/28/2017 17:05:48 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00239**	**.05127**	**.00139**	**.31197**	**.04970**	**-.00006**	**57.342**
Stddev	.00167	.00211	.00169	.00164	.00014	.00005	.147
%RSD	69.739	4.1164	121.63	.52417	.28781	88.245	.25651
#1	-.00057	.05173	.00154	.31212	.04955	-.00009	57.213
#2	-.00383	.05312	-.00037	.31027	.04983	-.00008	57.312
#3	-.00277	.04897	.00300	.31353	.04973	.00000	57.502
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00014**	**-.00035**	**.00486**	**.00004**	**.00015**	**12.111**	**.09418**
Stddev	.00031	.00025	.00062	.00067	.00902	.083	.00332
%RSD	224.21	72.273	12.861	1499.4	5829.4	.68812	3.5257
#1	.00050	-.00064	.00478	.00008	-.00693	12.096	.09097
#2	-.00000	-.00020	.00428	-.00064	-.00292	12.036	.09760
#3	-.00008	-.00021	.00552	.00070	.01031	12.201	.09395
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.737**	**.00732**	**.00135**	F **784.33**	**.00055**	**.32389**	**.00256**
Stddev	.058	.00157	.00035	10.39	.00179	.00826	.00140
%RSD	.49087	21.516	26.308	1.3247	324.87	2.5515	54.713
#1	11.801	.00683	.00175	792.66	-.00116	.32054	.00413
#2	11.721	.00908	.00122	787.63	.00040	.33331	.00144
#3	11.689	.00604	.00108	772.69	.00242	.31784	.00211
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

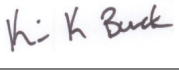
Sample Name: L1708130506 Acquired: 8/28/2017 17:05:48 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00169**	**-.00033**	**25.723**	**.01762**	**.42541**	**.03486**	**-.00287**
Stddev	.00255	.00454	.021	.00119	.00026	.00824	.00089
%RSD	151.59	1368.4	.08271	6.7667	.06175	23.636	31.165
#1	.00204	-.00081	25.745	.01892	.42546	.03279	-.00253
#2	.00404	.00443	25.721	.01737	.42565	.04393	-.00388
#3	-.00103	-.00461	25.703	.01657	.42513	.02785	-.00219
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00709**	**.00969**	**1.5240**
Stddev	.00053	.00014	.0969
%RSD	7.5161	1.4446	6.3546
#1	.00709	.00953	1.5566
#2	.00656	.00981	1.6004
#3	.00763	.00972	1.4151
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9991.1**	**77665.**	**7567.9**
Stddev	32.1	232.	31.5
%RSD	.32124	.29846	.41672
#1	9961.7	77800.	7532.6
#2	9986.4	77398.	7593.3
#3	10025.	77798.	7577.9

Approved: August 29, 2017



Sample Name: L1708130506PS Acquired: 8/28/2017 17:09:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627458-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19959**	**4.6879**	**.19882**	**1.2355**	**.53941**	**.02553**	**56.424**
Stddev	.00353	.0252	.00340	.0013	.00228	.00012	.059
%RSD	1.7683	.53729	1.7093	.10382	.42214	.45736	.10402
#1	.20319	4.7159	.19538	1.2358	.53721	.02558	56.370
#2	.19943	4.6806	.19891	1.2341	.53926	.02540	56.416
#3	.19614	4.6672	.20217	1.2366	.54176	.02562	56.487
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02434**	**.09518**	**.25064**	**.24097**	**1.9311**	**36.387**	**.58229**
Stddev	.00005	.00037	.00162	.00118	.0027	.192	.00313
%RSD	.21523	.38869	.64670	.49132	.13947	.52884	.53810
#1	.02431	.09523	.25099	.24139	1.9341	36.494	.58587
#2	.02430	.09552	.25205	.24189	1.9289	36.165	.58005
#3	.02440	.09479	.24887	.23963	1.9303	36.503	.58095
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**15.348**	**.24961**	**.47749**	F **729.78**	**.23768**	**5.2920**	**.23728**
Stddev	.040	.00284	.00064	6.75	.00155	.0110	.00132
%RSD	.25749	1.1369	.13354	.92477	.65413	.20851	.55539
#1	15.394	.25048	.47820	723.88	.23944	5.3047	.23878
#2	15.321	.24644	.47698	737.14	.23648	5.2846	.23631
#3	15.330	.25192	.47727	728.32	.23712	5.2867	.23674
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Sample Name: L1708130506PS Acquired: 8/28/2017 17:09:37 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627458-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.59088**	**.17529**	**25.675**	**.50015**	**.87472**	**.52847**	**.22885**
Stddev	.00678	.01339	.030	.00067	.00090	.00448	.00382
%RSD	1.1477	7.6373	.11651	.13379	.10318	.84719	1.6671
#1	.59262	.16039	25.672	.49977	.87370	.52997	.23301
#2	.59662	.17920	25.707	.49974	.87502	.52344	.22803
#3	.58340	.18629	25.647	.50092	.87543	.53201	.22551
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.51257**	**.50504**	**1.6894**
Stddev	.00049	.00051	.2025
%RSD	.09645	.10191	11.984
#1	.51312	.50481	1.4617
#2	.51246	.50563	1.7574
#3	.51215	.50468	1.8491
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9946.6**	**77706.**	**7488.4**
Stddev	26.1	208.	27.5
%RSD	.26224	.26820	.36704
#1	9976.7	77709.	7501.6
#2	9932.5	77496.	7456.8
#3	9930.5	77913.	7506.8

Approved: August 29, 2017

Ki K Buck

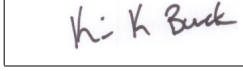
Sample Name: L1708130506SDL Acquired: 8/28/2017 17:13:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627458-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00147**	**.01304**	**-.00096**	**.06638**	**.01066**	**.00003**	**11.393**
Stddev	.00043	.00240	.00317	.00177	.00069	.00008	.084
%RSD	29.124	18.439	329.15	2.6723	6.5042	234.90	.73357
#1	.00197	.01051	-.00258	.06516	.00992	.00010	11.402
#2	.00124	.01529	-.00300	.06841	.01130	.00006	11.305
#3	.00121	.01333	.00269	.06556	.01075	-.00006	11.472
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00025**	**-.00048**	**.00195**	**-.00041**	**-.00603**	**2.6286**	**.01827**
Stddev	.00032	.00044	.00005	.00021	.01125	.1158	.00346
%RSD	128.58	92.267	2.5341	49.721	186.37	4.4059	18.941
#1	.00011	-.00045	.00199	-.00065	-.00541	2.7468	.01617
#2	-.00034	-.00005	.00195	-.00030	.00489	2.6237	.01638
#3	-.00050	-.00094	.00189	-.00029	-.01758	2.5153	.02227
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.4081**	**.00221**	**.00039**	**173.90**	**.00103**	**.06287**	**.00050**
Stddev	.0953	.00162	.00059	.90	.00058	.00256	.00184
%RSD	3.9582	73.306	152.75	.51650	56.271	4.0677	367.52
#1	2.4961	.00361	.00092	174.26	.00091	.06098	.00206
#2	2.3068	.00043	-.00025	172.88	.00166	.06578	-.00153
#3	2.4213	.00258	.00049	174.56	.00052	.06185	.00096
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: L1708130506SDL Acquired: 8/28/2017 17:13:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627458-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00094**	F **-.01013**	**5.1290**	**.00283**	**.08445**	**.00549**	**-.00300**
Stddev	.00795	.00160	.0060	.00106	.00018	.00349	.00384
%RSD	849.52	15.799	.11716	37.658	.21285	63.472	128.06
#1	.00673	-.00838	5.1239	.00231	.08436	.00621	.00056
#2	.00421	-.01152	5.1356	.00405	.08434	.00857	-.00707
#3	-.00813	-.01048	5.1276	.00212	.08466	.00170	-.00249
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		90.000					
Low Limit		-.01000					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00119**	**.00051**	F **-.06144**
Stddev	.00054	.00007	.28555
%RSD	45.035	13.597	464.76
#1	.00170	.00058	.11939
#2	.00124	.00044	.08692
#3	.00063	.00051	-.39062
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10420.**	**82560.**	**7576.8**
Stddev	30.	412.	20.3
%RSD	.28445	.49927	.26795
#1	10452.	82981.	7554.1
#2	10415.	82542.	7593.3
#3	10393.	82157.	7582.9

Approved: August 29, 2017

Kristi K Buck

Sample Name: CCV Acquired: 8/28/2017 17:16:56 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40551**	**10.165**	**.39708**	**.49179**	**1.0084**	**.05059**	**10.011**	**.04966**
Stddev	.00263	.029	.00171	.00274	.0042	.00012	.026	.00029
%RSD	.64926	.28859	.42977	.55763	.41860	.23389	.26007	.57611
#1	.40590	10.182	.39888	.49415	1.0129	.05072	10.034	.04998
#2	.40271	10.182	.39549	.48878	1.0045	.05057	10.015	.04954
#3	.40793	10.131	.39688	.49243	1.0076	.05048	9.9824	.04945
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19897**	**.50138**	**.50250**	**3.9054**	**50.694**	**1.0048**	**10.068**	**.49603**
Stddev	.00029	.00103	.00220	.0394	.133	.0080	.059	.00285
%RSD	.14485	.20626	.43708	1.0078	.26188	.79375	.58171	.57436
#1	.19913	.50243	.50198	3.9246	50.828	1.0125	10.136	.49602
#2	.19913	.50134	.50491	3.8601	50.563	1.0053	10.032	.49888
#3	.19863	.50036	.50061	3.9315	50.690	.99662	10.037	.49318
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.99381**	**49.907**	**.49275**	**9.9036**	**.50157**	**1.2033**	**.36851**	**5.0169**
Stddev	.00207	.075	.00140	.0118	.00122	.0017	.00691	.0033
%RSD	.20813	.14965	.28329	.11904	.24417	.13722	1.8760	.06566
#1	.99148	49.988	.49412	9.8982	.50200	1.2042	.36072	5.0205
#2	.99545	49.893	.49281	9.8954	.50019	1.2014	.37393	5.0141
#3	.99449	49.841	.49133	9.9171	.50253	1.2043	.37087	5.0159
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Approved: August 29, 2017

Kristi K Buck

Sample Name: CCV Acquired: 8/28/2017 17:16:56 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.99426**	**1.0060**	**.98581**	**.50693**	**1.0061**	**1.0072**	**1.0570**
Stddev	.00115	.0014	.00410	.00382	.0013	.0010	.3917
%RSD	.11598	.14198	.41565	.75283	.12799	.10298	37.060
#1	.99534	1.0075	.98654	.51133	1.0071	1.0076	.75130
#2	.99440	1.0047	.98950	.50484	1.0066	1.0060	.92106
#3	.99304	1.0056	.98140	.50461	1.0047	1.0079	1.4985
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10459.**	**82717.**	**7536.0**
Stddev	6.	263.	20.5
%RSD	.05582	.31789	.27174
#1	10459.	82849.	7557.0
#2	10464.	82415.	7534.9
#3	10453.	82889.	7516.1

Approved: August 29, 2017

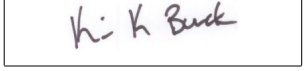
Sample Name: CCB Acquired: 8/28/2017 17:20:20 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00040**	**-.00484**	**-.00170**	**.00493**	**.00019**	**.00001**	**-.03066**
Stddev	.00182	.00635	.00278	.00236	.00090	.00003	.00823
%RSD	455.61	131.04	163.81	47.878	464.28	309.01	26.845
#1	-.00250	-.00399	.00145	.00737	-.00014	.00002	-.02192
#2	.00069	.00103	-.00273	.00476	.00121	-.00003	-.03827
#3	.00061	-.01157	-.00381	.00266	-.00049	.00004	-.03178
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00006**	**-.00024**	**.00003**	**-.00029**	**-.00505**	**.20026**	**.00149**
Stddev	.00007	.00033	.00049	.00151	.01246	.01284	.00222
%RSD	110.87	137.23	1810.0	514.56	246.81	6.4130	148.68
#1	-.00006	-.00047	-.00016	-.00037	-.00226	.21420	-.00076
#2	-.00013	-.00039	.00058	-.00176	.00578	.19764	.00157
#3	.00001	.00014	-.00034	.00125	-.01866	.18892	.00368
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.01696**	**-.00079**	**.00006**	**.10373**	**.00213**	**-.00153**	**-.00034**
Stddev	.05443	.00159	.00051	.02866	.00077	.00065	.00415
%RSD	320.99	200.68	844.80	27.629	36.315	42.784	1213.1
#1	.02619	.00085	.00058	.13666	.00143	-.00155	.00108
#2	-.07811	-.00090	-.00044	.08444	.00199	-.00086	.00291
#3	.00105	-.00233	.00003	.09009	.00296	-.00217	-.00502
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 17:20:20 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00425**	**-.00934**	**.00516**	**.00082**	**.00037**	**-.00306**	**-.00107**
Stddev	.00174	.01338	.00098	.00092	.00047	.00218	.00196
%RSD	40.921	143.30	19.009	112.66	126.37	71.478	183.68
#1	-.00456	.00269	.00416	.00042	.00021	-.00557	-.00066
#2	-.00237	-.02375	.00612	.00017	.00090	-.00164	.00066
#3	-.00581	-.00694	.00520	.00188	.00000	-.00195	-.00319
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00054**	**.00082**	F **-.21280**
Stddev	.00042	.00001	.20653
%RSD	78.749	1.4006	97.054
#1	-.00060	.00081	-.06454
#2	-.00009	.00081	-.12515
#3	-.00093	.00083	-.44869
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10572.**	**85181.**	**7553.9**
Stddev	29.	438.	29.8
%RSD	.27560	.51389	.39508
#1	10568.	85513.	7587.7
#2	10544.	84685.	7542.6
#3	10602.	85344.	7531.3

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130508 Acquired: 8/28/2017 17:24:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00046**	**.34179**	**.00892**	**.18526**	**.14503**	**.00000**	**1.4507**
Stddev	.00081	.00692	.00252	.00216	.00039	.00003	.0230
%RSD	176.17	2.0245	28.281	1.1649	.26930	1209.4	1.5822
#1	.00027	.34267	.00827	.18417	.14506	-.00003	1.4340
#2	-.00134	.34822	.01170	.18774	.14540	.00001	1.4769
#3	-.00032	.33447	.00678	.18386	.14462	.00003	1.4412
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00041**	**.00092**	**.60893**	**.00299**	**.53786**	**4.6844**	**.01029**
Stddev	.00022	.00069	.00179	.00171	.01301	.1009	.00224
%RSD	55.001	74.978	.29356	57.305	2.4182	2.1538	21.734
#1	.00066	.00150	.60925	.00369	.53535	4.5679	.01118
#2	.00033	.00016	.60700	.00424	.52629	4.7394	.01194
#3	.00023	.00109	.61053	.00104	.55194	4.7458	.00774
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.7350**	**.00593**	**.00255**	F **815.61**	**.02029**	**2.8095**	**.00178**
Stddev	.0130	.00174	.00043	29.00	.00232	.0027	.00129
%RSD	.75166	29.350	16.721	3.5561	11.419	.09780	72.362
#1	1.7254	.00527	.00209	830.25	.01774	2.8073	.00061
#2	1.7498	.00461	.00293	834.39	.02227	2.8085	.00315
#3	1.7296	.00790	.00262	782.21	.02085	2.8126	.00156
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130508 Acquired: 8/28/2017 17:24:04 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00160**	**.01007**	**3.7587**	**.03938**	**.77381**	**1.0934**	**.00120**
Stddev	.00284	.01909	.0023	.00043	.00334	.0136	.00087
%RSD	177.33	189.57	.06073	1.0967	.43140	1.2425	73.114
#1	-.00233	-.00745	3.7563	.03903	.77429	1.0970	.00028
#2	-.00401	.03042	3.7609	.03986	.77689	1.1048	.00203
#3	.00153	.00724	3.7590	.03926	.77026	1.0783	.00128
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.18719**	**.04559**	F **92.735**
Stddev	.00119	.00015	1.989
%RSD	.63445	.33675	2.1448
#1	.18835	.04571	92.792
#2	.18598	.04565	94.695
#3	.18724	.04542	90.719
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9988.6**	**77701.**	**7469.8**
Stddev	21.8	142.	189.6
%RSD	.21792	.18267	2.5380
#1	9966.4	77697.	7451.5
#2	9989.6	77846.	7290.0
#3	10010.	77562.	7667.9

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130509 Acquired: 8/28/2017 17:27:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00040**	**.33796**	**.01224**	**.20005**	**.15426**	**-.00008**	**1.1936**
Stddev	.00274	.00530	.00234	.00171	.00071	.00003	.0262
%RSD	686.02	1.5696	19.108	.85388	.46164	40.527	2.1994
#1	-.00278	.34350	.01194	.20147	.15419	-.00004	1.1735
#2	-.00102	.33292	.01006	.20052	.15500	-.00009	1.2233
#3	.00260	.33748	.01471	.19815	.15358	-.00010	1.1841
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00002**	**.00052**	**.63225**	**.00081**	**.50863**	**4.9652**	**.00414**
Stddev	.00041	.00011	.00083	.00106	.00341	.0906	.00308
%RSD	1687.1	20.357	.13114	130.48	.67060	1.8250	74.323
#1	-.00028	.00044	.63232	-.00015	.50469	4.9790	.00060
#2	.00049	.00048	.63138	.00194	.51075	5.0481	.00621
#3	-.00014	.00064	.63304	.00064	.51044	4.8684	.00561
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.7489**	**.00360**	**.00206**	F **857.85**	**.01902**	**3.0334**	**.00030**
Stddev	.0357	.00343	.00049	12.53	.00091	.0027	.00290
%RSD	2.0415	95.271	24.011	1.4600	4.8089	.08886	977.56
#1	1.7105	.00757	.00149	863.65	.01956	3.0305	-.00016
#2	1.7812	.00163	.00229	866.43	.01797	3.0337	-.00235
#3	1.7551	.00161	.00239	843.48	.01954	3.0359	.00340
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130509 Acquired: 8/28/2017 17:27:51 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00600**	**.00568**	**3.9922**	**.03676**	**.83110**	**1.1438**	**.00330**
Stddev	.00503	.00383	.0051	.00082	.00309	.0029	.00267
%RSD	83.790	67.486	.12701	2.2233	.37187	.25229	80.983
#1	-.00067	.00225	3.9864	.03767	.82921	1.1412	.00109
#2	-.01066	.00498	3.9961	.03656	.83467	1.1469	.00627
#3	-.00667	.00982	3.9939	.03607	.82943	1.1434	.00254
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.20292**	**.03050**	F **101.13**
Stddev	.00136	.00012	1.56
%RSD	.67195	.37870	1.5447
#1	.20136	.03038	101.20
#2	.20355	.03061	102.65
#3	.20386	.03052	99.526
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9999.4**	**77672.**	**7547.8**
Stddev	28.6	227.	98.6
%RSD	.28627	.29196	1.3066
#1	9967.5	77436.	7544.0
#2	10008.	77888.	7451.1
#3	10023.	77692.	7648.3

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130510 Acquired: 8/28/2017 17:31:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00207**	**.04794**	**.00161**	**.15920**	**.04335**	**-.00004**	**58.325**
Stddev	.00188	.00250	.00067	.00223	.00071	.00001	.141
%RSD	90.898	5.2088	41.455	1.3985	1.6472	34.903	.24256
#1	-.00343	.04785	.00182	.16149	.04256	-.00005	58.182
#2	-.00286	.04549	.00086	.15704	.04394	-.00002	58.328
#3	.00008	.05048	.00215	.15907	.04355	-.00004	58.465
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00001**	**-.00020**	**.00285**	**.00219**	**.46500**	**8.4396**	**.01622**
Stddev	.00015	.00024	.00087	.00165	.00637	.0215	.00467
%RSD	1091.2	118.43	30.565	75.442	1.3708	.25517	28.774
#1	.00019	-.00031	.00202	.00049	.45863	8.4641	.01217
#2	-.00007	-.00037	.00278	.00380	.46499	8.4308	.01516
#3	-.00007	.00007	.00376	.00228	.47138	8.4238	.02132
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**12.887**	**.04680**	**.00031**	F **373.32**	**.00222**	**.14338**	**.00227**
Stddev	.059	.00135	.00017	14.07	.00146	.00645	.00261
%RSD	.45598	2.8935	54.822	3.7678	65.903	4.4984	115.02
#1	12.868	.04595	.00019	372.50	.00056	.14741	.00475
#2	12.953	.04836	.00024	387.78	.00333	.14679	.00253
#3	12.841	.04609	.00050	359.68	.00276	.13594	-.00046
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

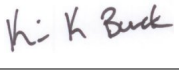
Sample Name: L1708130510 Acquired: 8/28/2017 17:31:38 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00148**	**.00589**	**7.6787**	**.00051**	**.85146**	**.01570**	**.00015**
Stddev	.00643	.00543	.0014	.00131	.00092	.00063	.00270
%RSD	433.59	92.301	.01839	257.19	.10765	4.0283	1846.7
#1	-.00734	.01176	7.6786	.00120	.85070	.01540	.00063
#2	-.00251	.00484	7.6802	-.00100	.85120	.01527	.00257
#3	.00540	.00105	7.6774	.00133	.85248	.01642	-.00276
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00254**	**.00403**	**2.0925**
Stddev	.00128	.00011	.3402
%RSD	50.392	2.8268	16.258
#1	.00152	.00409	2.2275
#2	.00397	.00390	1.7055
#3	.00212	.00411	2.3445
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10126.**	**79017.**	**7211.1**
Stddev	13.	1242.	183.3
%RSD	.12905	1.5720	2.5420
#1	10141.	77599.	7387.1
#2	10116.	79910.	7021.3
#3	10121.	79543.	7224.8

Approved: August 29, 2017



Sample Name: L1708130511 Acquired: 8/28/2017 17:35:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00087**	**.03415**	**.00162**	**.16476**	**.04263**	**.00003**	**60.376**
Stddev	.00091	.00554	.00049	.00147	.00057	.00001	.109
%RSD	105.19	16.208	30.209	.89217	1.3257	48.047	.17991
#1	-.00062	.03747	.00179	.16324	.04214	.00004	60.487
#2	-.00010	.02776	.00107	.16486	.04250	.00002	60.270
#3	-.00188	.03723	.00199	.16617	.04325	.00002	60.371
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00010**	**-.00015**	**.00172**	**.00240**	**.38706**	**8.6816**	**.01534**
Stddev	.00024	.00032	.00068	.00153	.00612	.0276	.00184
%RSD	253.59	207.72	39.440	63.741	1.5811	.31819	12.016
#1	.00013	.00003	.00113	.00405	.38563	8.7065	.01357
#2	-.00036	-.00052	.00246	.00104	.39377	8.6863	.01725
#3	-.00006	.00003	.00158	.00211	.38178	8.6519	.01519
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**13.323**	**.04836**	**.00027**	F **393.66**	**.00235**	**.14364**	**-.00073**
Stddev	.145	.00071	.00049	7.59	.00074	.00634	.00092
%RSD	1.0877	1.4687	185.87	1.9291	31.283	4.4166	127.33
#1	13.187	.04769	-.00028	389.28	.00219	.14470	-.00163
#2	13.475	.04910	.00039	402.43	.00171	.13683	.00021
#3	13.308	.04829	.00069	389.28	.00316	.14939	-.00076
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130511 Acquired: 8/28/2017 17:35:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00163**	**-.00495**	**7.9949**	**.00067**	**.87810**	**.00617**	**-.00346**
Stddev	.00456	.00816	.0112	.00020	.00209	.00901	.00072
%RSD	280.30	165.00	.13969	29.357	.23761	146.09	20.942
#1	.00102	-.00423	7.9820	.00065	.87879	.00377	-.00355
#2	.00647	.00283	8.0021	.00048	.87575	.01613	-.00269
#3	-.00260	-.01344	8.0004	.00088	.87975	-.00140	-.00413
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00109**	**.00114**	**1.0909**
Stddev	.00070	.00011	.6091
%RSD	64.633	9.6225	55.838
#1	.00076	.00103	1.7104
#2	.00061	.00116	.49268
#3	.00190	.00124	1.0696
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10113.**	**79033.**	**7440.8**
Stddev	23.	453.	90.5
%RSD	.22902	.57338	1.2162
#1	10089.	79157.	7464.2
#2	10115.	78530.	7340.9
#3	10135.	79411.	7517.3

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130512 Acquired: 8/28/2017 17:39:16 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00210**	**.06746**	**.75680**	**.32787**	**.06399**	**-.00011**	**5.0766**
Stddev	.00315	.00602	.00340	.00196	.00075	.00006	.0398
%RSD	149.81	8.9177	.44870	.59864	1.1758	61.343	.78327
#1	-.00258	.06927	.75739	.32811	.06405	-.00017	5.0711
#2	-.00499	.07235	.75315	.32971	.06320	-.00005	5.1188
#3	.00126	.06074	.75987	.32580	.06470	-.00010	5.0399
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00439**	**.00029**	**.00082**	**.00147**	**.09191**	**2.1151**	**.01257**
Stddev	.00036	.00006	.00138	.00068	.01195	.0918	.00363
%RSD	8.2846	22.108	168.80	46.336	12.996	4.3405	28.913
#1	.00456	.00022	.00129	.00085	.07988	2.2163	.00893
#2	.00462	.00031	-.00074	.00220	.10377	2.0372	.01619
#3	.00397	.00035	.00190	.00137	.09209	2.0918	.01259
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.3679**	**.01680**	**.00243**	F **502.06**	**.00281**	**.08346**	**.00007**
Stddev	.0298	.00164	.00044	7.40	.00199	.00383	.00390
%RSD	.40405	9.7878	18.252	1.4733	70.766	4.5910	5536.5
#1	7.3808	.01676	.00259	510.33	.00257	.08564	.00451
#2	7.3891	.01846	.00277	499.78	.00095	.08571	-.00278
#3	7.3339	.01517	.00193	496.08	.00491	.07904	-.00153
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130512 Acquired: 8/28/2017 17:39:16 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00063**	F **-.01223**	**4.7906**	**.00086**	**.57201**	**-.00477**	**-.00111**
Stddev	.00244	.01326	.0020	.00047	.00012	.00160	.00397
%RSD	387.47	108.43	.04135	54.814	.02078	33.592	357.68
#1	-.00272	-.02749	4.7908	.00115	.57188	-.00516	-.00379
#2	.00205	-.00361	4.7924	.00032	.57212	-.00300	-.00299
#3	-.00122	-.00558	4.7885	.00111	.57204	-.00613	.00345
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		90.000					
Low Limit		-.01000					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00039**	**.00478**	**12.360**
Stddev	.00058	.00012	.325
%RSD	147.99	2.6078	2.6331
#1	-.00100	.00487	12.169
#2	.00016	.00463	12.176
#3	-.00034	.00483	12.736
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10079.**	**79178.**	**7459.5**
Stddev	26.	276.	62.3
%RSD	.25459	.34912	.83565
#1	10051.	78931.	7387.9
#2	10101.	79126.	7501.6
#3	10087.	79477.	7489.0

Approved: August 29, 2017

Sample Name: L1708130513 Acquired: 8/28/2017 17:43:06 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00122**	**.02374**	**.73660**	**.32542**	**.06601**	**-.00007**	**5.1822**
Stddev	.00091	.00606	.00076	.00212	.00028	.00004	.0184
%RSD	74.352	25.548	.10370	.65048	.43014	61.597	.35419
#1	-.00018	.02484	.73748	.32493	.06582	-.00003	5.1611
#2	-.00162	.01720	.73617	.32774	.06588	-.00007	5.1938
#3	-.00186	.02918	.73614	.32359	.06634	-.00012	5.1919
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00429**	**-.00012**	**.00111**	**.00170**	**.01161**	**2.1105**	**.01209**
Stddev	.00031	.00039	.00060	.00165	.00290	.0681	.00191
%RSD	7.2320	334.50	54.233	97.352	24.931	3.2276	15.810
#1	.00400	.00030	.00180	-.00004	.00965	2.0493	.01316
#2	.00425	-.00047	.00081	.00325	.01026	2.0982	.01323
#3	.00462	-.00018	.00071	.00188	.01494	2.1839	.00988
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.5662**	**.01593**	**.00273**	F **494.32**	**.00288**	**.08245**	**.00280**
Stddev	.0409	.00154	.00018	6.41	.00100	.00141	.00236
%RSD	.54039	9.6867	6.6365	1.2967	34.694	1.7159	84.127
#1	7.5495	.01761	.00266	497.86	.00182	.08300	.00209
#2	7.6128	.01459	.00294	498.16	.00381	.08351	.00543
#3	7.5363	.01558	.00260	486.92	.00301	.08085	.00088
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130513 Acquired: 8/28/2017 17:43:06 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00208**	**-.00443**	**4.7625**	**.00083**	**.58264**	**-.00478**	**-.00659**
Stddev	.00057	.00311	.0041	.00045	.00192	.00801	.00070
%RSD	27.227	70.140	.08573	54.422	.33021	167.42	10.687
#1	.00270	-.00164	4.7608	.00052	.58411	.00343	-.00579
#2	.00158	-.00386	4.7672	.00135	.58334	-.00522	-.00686
#3	.00196	-.00778	4.7596	.00062	.58046	-.01256	-.00711
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00064**	**.00122**	F **-.18662**
Stddev	.00112	.00007	.45837
%RSD	173.78	5.8443	245.62
#1	.00030	.00123	-.67012
#2	-.00188	.00115	.24160
#3	-.00035	.00129	-.13132
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10101.**	**78935.**	**7379.1**
Stddev	22.	239.	94.6
%RSD	.22086	.30258	1.2826
#1	10083.	79210.	7331.2
#2	10126.	78779.	7318.0
#3	10093.	78815.	7488.1

Approved: August 29, 2017

Kristi K Buck

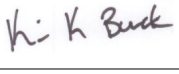
Sample Name: L1708130514 Acquired: 8/28/2017 17:46:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00157**	**.04248**	**.00550**	**.33464**	**.03233**	**-.00003**	**215.70**
Stddev	.00140	.00345	.00206	.00711	.00051	.00006	.45
%RSD	89.095	8.1255	37.437	2.1256	1.5856	200.90	.21061
#1	-.00031	.04014	.00500	.33529	.03289	-.00003	216.07
#2	-.00308	.04645	.00776	.32723	.03221	.00003	215.19
#3	-.00132	.04086	.00374	.34141	.03188	-.00009	215.85
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00037**	**.00026**	**.00069**	**.00239**	**3.2760**	**7.3754**	**.01876**
Stddev	.00015	.00040	.00124	.00226	.0044	.0408	.00122
%RSD	41.504	154.88	180.44	94.385	.13540	.55323	6.5231
#1	.00039	.00039	.00196	.00484	3.2738	7.3283	.01988
#2	.00020	.00057	-.00050	.00195	3.2732	7.3995	.01745
#3	.00050	-.00019	.00059	.00039	3.2812	7.3983	.01896
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**75.376**	**.46135**	**.00004**	F **463.06**	**.00292**	**.18006**	**.00308**
Stddev	.242	.00230	.00084	5.42	.00112	.00341	.00285
%RSD	.32139	.49889	1966.1	1.1696	38.306	1.8965	92.477
#1	75.101	.46186	.00100	456.85	.00192	.17985	.00271
#2	75.465	.45883	-.00051	465.52	.00271	.17675	.00610
#3	75.560	.46335	-.00036	466.80	.00412	.18357	.00043
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017



Sample Name: L1708130514 Acquired: 8/28/2017 17:46:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00248**	**-.00596**	**9.3131**	**.00074**	**2.6709**	**-.00402**	**-.00091**
Stddev	.00302	.00379	.0028	.00077	.0056	.00955	.00442
%RSD	121.69	63.672	.03028	104.04	.20959	237.67	484.22
#1	-.00253	-.01025	9.3163	.00057	2.6756	-.00875	-.00005
#2	-.00548	-.00306	9.3122	.00007	2.6647	.00698	-.00570
#3	.00056	-.00456	9.3109	.00158	2.6723	-.01028	.00301
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00066**	**.00137**	**.02367**
Stddev	.00040	.00003	.31349
%RSD	60.752	2.3282	1324.6
#1	-.00092	.00139	.13465
#2	-.00020	.00138	.26657
#3	-.00085	.00133	-.33022
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10011.**	**78802.**	**7519.6**
Stddev	13.	119.	20.9
%RSD	.13413	.15138	.27847
#1	10015.	78923.	7538.4
#2	9996.6	78800.	7497.0
#3	10023.	78685.	7523.5

Approved: August 29, 2017

Sample Name: L1708130515 Acquired: 8/28/2017 17:50:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00051**	**.01951**	**.00300**	**.32482**	**.03456**	**-.00005**	**202.27**
Stddev	.00115	.00678	.00275	.00286	.00027	.00007	1.23
%RSD	225.38	34.752	91.628	.88032	.79065	139.34	.60896
#1	-.00063	.02732	.00558	.32566	.03466	-.00004	203.53
#2	.00070	.01589	.00011	.32164	.03476	-.00012	201.06
#3	-.00159	.01530	.00331	.32717	.03425	.00001	202.22
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00049**	**.00003**	**.00097**	**.00308**	**2.7309**	**6.5629**	**.02296**
Stddev	.00030	.00025	.00192	.00222	.0351	.1249	.00546
%RSD	60.089	788.77	197.39	72.071	1.2866	1.9036	23.794
#1	.00070	.00031	-.00066	.00074	2.7626	6.5911	.01684
#2	.00063	-.00015	.00050	.00334	2.6931	6.4262	.02735
#3	.00015	-.00007	.00308	.00515	2.7370	6.6713	.02469
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**74.969**	**.39142**	**.00011**	F **446.27**	**.00176**	**.20925**	**.00108**
Stddev	.519	.00343	.00058	3.28	.00113	.00708	.00255
%RSD	.69273	.87688	541.57	.73603	64.121	3.3841	235.09
#1	75.072	.38928	.00039	449.79	.00272	.21555	.00356
#2	74.405	.38961	-.00056	445.72	.00205	.20158	-.00153
#3	75.428	.39538	.00050	443.29	.00052	.21061	.00122
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130515 Acquired: 8/28/2017 17:50:42 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00009**	F **-.01111**	**9.3840**	**.00128**	**2.6422**	**-.00806**	**-.00001**
Stddev	.00157	.01009	.0077	.00021	.0142	.00685	.00047
%RSD	1674.8	90.788	.08262	16.501	.53827	85.005	3264.8
#1	.00189	-.00940	9.3866	.00104	2.6533	-.01385	.00052
#2	-.00102	-.02195	9.3753	.00143	2.6262	-.00049	-.00036
#3	-.00059	-.00199	9.3902	.00138	2.6472	-.00985	-.00020
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		90.000					
Low Limit		-.01000					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00041**	**.00098**	**.03693**
Stddev	.00089	.00018	.22838
%RSD	214.74	17.899	618.44
#1	-.00128	.00101	-.22677
#2	.00049	.00114	.16609
#3	-.00046	.00079	.17146
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9931.6**	**78088.**	**7457.9**
Stddev	18.9	177.	27.0
%RSD	.18995	.22695	.36194
#1	9919.9	77941.	7430.7
#2	9953.4	78285.	7484.7
#3	9921.6	78038.	7458.2

Approved: August 29, 2017

Ki K Buck

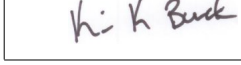
Sample Name: L1708130516 Acquired: 8/28/2017 17:54:29 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00178**	**.05622**	**.00526**	**.34114**	**.03341**	**.00003**	**223.67**
Stddev	.00032	.00063	.00086	.00592	.00067	.00005	1.08
%RSD	18.099	1.1267	16.435	1.7352	2.0138	169.62	.48107
#1	-.00141	.05576	.00621	.34794	.03329	.00008	223.38
#2	-.00192	.05595	.00502	.33830	.03413	-.00003	224.86
#3	-.00201	.05694	.00454	.33717	.03280	.00004	222.77
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00025**	**.00004**	**.00087**	**.00411**	**3.4590**	**7.6412**	**.01998**
Stddev	.00004	.00060	.00076	.00022	.0142	.0823	.00284
%RSD	15.772	1364.3	86.962	5.3137	.40948	1.0765	14.224
#1	.00021	-.00054	.00063	.00398	3.4543	7.6497	.01748
#2	.00026	.00066	.00027	.00399	3.4748	7.7190	.02307
#3	.00029	.00001	.00173	.00436	3.4477	7.5551	.01938
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**77.832**	**.47856**	**-.00009**	F **475.49**	**.00304**	**.18389**	**-.00047**
Stddev	.514	.00080	.00054	7.89	.00090	.00219	.00418
%RSD	.66040	.16780	576.87	1.6597	29.568	1.1905	892.24
#1	78.019	.47800	-.00026	472.86	.00371	.18153	.00435
#2	78.226	.47948	.00051	484.36	.00202	.18429	-.00263
#3	77.251	.47821	-.00053	469.25	.00338	.18586	-.00313
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017



Sample Name: L1708130516 Acquired: 8/28/2017 17:54:29 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00103**	**-.00921**	**9.5776**	**.00011**	**2.7604**	**-.01157**	**-.00781**
Stddev	.00573	.00843	.0048	.00062	.0117	.00284	.00279
%RSD	553.52	91.505	.04989	549.87	.42477	24.567	35.761
#1	.00545	-.01453	9.5805	.00082	2.7541	-.01009	-.00683
#2	-.00317	-.01361	9.5801	-.00017	2.7739	-.00978	-.00564
#3	-.00539	.00051	9.5721	-.00032	2.7532	-.01485	-.01096
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00011**	**.00212**	**.07683**
Stddev	.00058	.00007	.40120
%RSD	518.04	3.2571	522.21
#1	-.00045	.00220	-.31045
#2	.00008	.00209	.05030
#3	.00071	.00207	.49064
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9855.3**	**77729.**	**7282.1**
Stddev	8.4	55.	159.6
%RSD	.08566	.07102	2.1916
#1	9862.1	77786.	7327.5
#2	9858.0	77676.	7104.8
#3	9845.8	77724.	7414.1

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130517 Acquired: 8/28/2017 17:58:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00081**	**.02560**	**.00363**	**.32841**	**.03489**	**-.00005**	**209.46**
Stddev	.00313	.00099	.00188	.00093	.00004	.00004	1.01
%RSD	385.44	3.8822	51.674	.28204	.10815	83.359	.48338
#1	.00141	.02530	.00503	.32794	.03493	-.00004	210.27
#2	.00054	.02670	.00436	.32781	.03485	-.00009	208.32
#3	-.00439	.02479	.00150	.32947	.03490	-.00001	209.77
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00048**	**-.00008**	**.00161**	**.00355**	**2.8705**	**6.6844**	**.01826**
Stddev	.00032	.00040	.00041	.00223	.0024	.0600	.00359
%RSD	67.134	533.16	25.318	62.889	.08433	.89785	19.677
#1	.00065	-.00052	.00143	.00544	2.8729	6.7386	.01440
#2	.00011	.00001	.00208	.00109	2.8680	6.6947	.01888
#3	.00068	.00028	.00133	.00411	2.8706	6.6199	.02151
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**76.671**	**.40140**	**.00071**	F **455.98**	**.00146**	**.23160**	**.00308**
Stddev	.172	.00255	.00042	3.50	.00253	.00255	.00186
%RSD	.22465	.63534	59.403	.76794	173.89	1.1021	60.258
#1	76.672	.40278	.00103	452.00	.00218	.22986	.00521
#2	76.498	.39846	.00023	457.32	-.00136	.23453	.00225
#3	76.842	.40296	.00085	458.61	.00355	.23040	.00179
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 29, 2017

Ki K Buck

Sample Name: L1708130517 Acquired: 8/28/2017 17:58:18 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00253**	**.01201**	**9.5838**	**.00141**	**2.6905**	**-.00977**	**-.00566**
Stddev	.00462	.00588	.0046	.00090	.0091	.00731	.00321
%RSD	182.15	48.991	.04783	63.843	.33679	74.785	56.739
#1	-.00647	.01145	9.5842	.00176	2.6980	-.01321	-.00638
#2	-.00368	.00642	9.5882	.00039	2.6805	-.00138	-.00215
#3	.00255	.01815	9.5790	.00207	2.6931	-.01473	-.00845
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00019**	**.00544**	F **-.05131**
Stddev	.00069	.00017	.30893
%RSD	365.35	3.1229	602.11
#1	.00028	.00525	.30427
#2	-.00098	.00553	-.25376
#3	.00013	.00555	-.20443
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9847.0**	**77812.**	**7371.8**
Stddev	7.8	155.	5.2
%RSD	.07969	.19956	.07009
#1	9841.2	77981.	7373.7
#2	9843.9	77677.	7366.0
#3	9856.0	77776.	7375.8

Approved: August 29, 2017

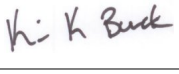
Sample Name: CCV Acquired: 8/28/2017 18:02:06 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40340**	**10.188**	**.39811**	**.49117**	**1.0119**	**.05072**	**9.9944**
Stddev	.00062	.035	.00189	.00074	.0037	.00009	.0195
%RSD	.15362	.34504	.47353	.15065	.36657	.17797	.19470
#1	.40278	10.228	.39659	.49033	1.0077	.05072	9.9934
#2	.40340	10.163	.40022	.49147	1.0146	.05081	10.014
#3	.40402	10.173	.39754	.49171	1.0135	.05063	9.9755
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04931**	**.19912**	**.50259**	**.50195**	**3.9284**	**51.172**	**1.0211**
Stddev	.00020	.00082	.00183	.00287	.0130	.153	.0033
%RSD	.40332	.41219	.36413	.57197	.33156	.29953	.32538
#1	.04950	.20006	.50104	.50059	3.9434	51.060	1.0175
#2	.04910	.19871	.50211	.50525	3.9216	51.109	1.0216
#3	.04933	.19859	.50461	.50001	3.9202	51.347	1.0241
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.154**	**.49346**	**.99524**	**50.195**	**.49360**	**9.8974**	**.49702**
Stddev	.041	.00279	.00313	.153	.00042	.0184	.00085
%RSD	.40624	.56521	.31458	.30433	.08478	.18608	.17159
#1	10.168	.49045	.99682	50.032	.49370	9.9161	.49785
#2	10.108	.49399	.99727	50.218	.49396	9.8966	.49615
#3	10.187	.49595	.99164	50.335	.49314	9.8793	.49707
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 18:02:06 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2070**	**.36717**	**5.0118**	**.99475**	**1.0087**	**.99304**	**.50670**
Stddev	.0040	.01252	.0084	.00400	.0024	.00281	.00349
%RSD	.33429	3.4096	.16759	.40177	.23426	.28291	.68938
#1	1.2034	.38089	5.0215	.99726	1.0064	.99302	.50562
#2	1.2113	.35636	5.0080	.99685	1.0086	.99587	.51061
#3	1.2063	.36427	5.0061	.99014	1.0111	.99025	.50388
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**1.0072**	**1.0062**	F **.62041**
Stddev	.0020	.0009	.15606
%RSD	.20245	.09044	25.154
#1	1.0084	1.0072	.61674
#2	1.0084	1.0062	.77827
#3	1.0049	1.0054	.46622
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10481.**	**82834.**	**7448.9**
Stddev	39.	302.	78.5
%RSD	.37152	.36444	1.0539
#1	10505.	83063.	7529.2
#2	10436.	82946.	7445.2
#3	10502.	82492.	7372.3

Approved: August 29, 2017

Kristi K Buck

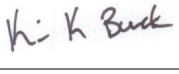
Sample Name: CCB Acquired: 8/28/2017 18:05:30 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00063**	**-.00835**	**.00003**	**.00356**	**.00014**	**.00000**	**-.02074**
Stddev	.00157	.00300	.00158	.00188	.00100	.00002	.04868
%RSD	247.13	35.940	5867.9	52.846	731.53	1201.3	234.76
#1	-.00084	-.00703	-.00076	.00273	.00077	.00000	.03513
#2	.00046	-.01178	-.00101	.00223	-.00102	.00002	-.05410
#3	.00228	-.00623	.00185	.00571	.00066	-.00001	-.04324
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00012**	**-.00056**	**.00063**	**.00039**	**.00554**	**.17391**	**-.00208**
Stddev	.00043	.00012	.00124	.00047	.01825	.07161	.00531
%RSD	370.01	20.718	196.37	118.50	329.55	41.174	255.14
#1	.00059	-.00069	.00101	.00087	-.01529	.22280	-.00722
#2	-.00025	-.00049	.00163	.00038	.01874	.09172	.00338
#3	.00000	-.00049	-.00075	-.00006	.01316	.20721	-.00241
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00106**	**-.00057**	**.00057**	**.15404**	**.00267**	**-.00047**	**.00222**
Stddev	.04162	.00227	.00038	.03142	.00190	.00433	.00349
%RSD	3931.6	395.35	66.017	20.400	71.014	920.72	157.35
#1	.02487	-.00314	.00036	.18469	.00312	-.00547	.00305
#2	-.04906	.00115	.00101	.15553	.00430	.00196	-.00161
#3	.02102	.00027	.00035	.12190	.00059	.00210	.00520
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



Sample Name: CCB Acquired: 8/28/2017 18:05:30 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00187**	**-.01119**	**.00657**	**.00101**	**.00054**	**-.00233**	**-.00590**
Stddev	.00477	.00257	.00150	.00046	.00029	.00488	.00060
%RSD	255.12	22.947	22.770	45.777	54.403	208.97	10.128
#1	.00429	-.01148	.00825	.00147	.00042	-.00253	-.00587
#2	-.00363	-.01360	.00539	.00102	.00088	-.00711	-.00651
#3	.00496	-.00849	.00606	.00055	.00032	.00264	-.00532
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00035**	**.00072**	F **.07000**
Stddev	.00112	.00010	.28257
%RSD	315.89	13.720	403.69
#1	.00093	.00066	.37842
#2	-.00107	.00083	.00800
#3	-.00092	.00066	-.17643
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10614.**	**84877.**	**7439.7**
Stddev	14.	483.	45.7
%RSD	.13440	.56952	.61377
#1	10600.	85431.	7457.6
#2	10614.	84654.	7473.6
#3	10629.	84544.	7387.8

Approved: August 29, 2017

Sample Name: L1708130519 Acquired: 8/28/2017 18:09:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00127**	**.05425**	**.00176**	**.09758**	**.09910**	**.00002**	**102.27**
Stddev	.00135	.00412	.00118	.00344	.00039	.00001	.45
%RSD	106.88	7.5885	66.710	3.5300	.38885	30.686	.43825
#1	.00023	.05723	.00275	.10156	.09933	.00002	101.80
#2	-.00164	.04955	.00046	.09558	.09866	.00001	102.31
#3	-.00239	.05596	.00208	.09560	.09931	.00002	102.70
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00043**	**-.00011**	**.00202**	**.00274**	**1.9176**	**1.1853**	**.01358**
Stddev	.00009	.00020	.00054	.00070	.0070	.0393	.00274
%RSD	20.534	182.59	26.963	25.603	.36297	3.3161	20.207
#1	.00035	-.00007	.00197	.00213	1.9162	1.1820	.01355
#2	.00041	.00007	.00150	.00350	1.9115	1.2262	.01634
#3	.00053	-.00032	.00259	.00258	1.9252	1.1478	.01085
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**33.695**	**.50470**	**.00088**	**81.615**	**.00325**	**.01011**	**.00142**
Stddev	.191	.00328	.00016	.432	.00087	.00643	.00379
%RSD	.56687	.65071	18.620	.52953	26.810	63.596	267.90
#1	33.490	.50106	.00072	81.120	.00298	.00340	-.00275
#2	33.867	.50561	.00105	81.920	.00422	.01621	.00232
#3	33.729	.50743	.00086	81.804	.00254	.01071	.00468
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130519 Acquired: 8/28/2017 18:09:14 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00502**	**-.00437**	**8.1665**	**.00107**	**.53576**	**-.00796**	**-.00084**
Stddev	.00020	.00952	.0171	.00132	.00163	.00684	.00310
%RSD	3.9666	218.04	.20935	123.69	.30357	85.966	370.12
#1	-.00518	-.00536	8.1770	-.00045	.53405	-.01214	.00272
#2	-.00480	.00561	8.1757	.00169	.53594	-.01167	-.00231
#3	-.00508	-.01335	8.1468	.00197	.53729	-.00006	-.00292
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00025**	**.00131**	F **-.61457**
Stddev	.00124	.00011	.24864
%RSD	506.69	8.7416	40.458
#1	.00119	.00120	-.47889
#2	-.00092	.00130	-.90154
#3	-.00101	.00143	-.46329
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10288.**	**81165.**	**7159.2**
Stddev	23.	970.	219.8
%RSD	.22672	1.1949	3.0705
#1	10271.	80052.	7341.5
#2	10278.	81618.	7221.1
#3	10315.	81826.	6915.1

Approved: August 29, 2017

Kim K Buck

Sample Name: L1708130520 Acquired: 8/28/2017 18:12:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00092**	**.01340**	**.01141**	**.09954**	**.12654**	**.00003**	**99.164**
Stddev	.00244	.00740	.00409	.00061	.00060	.00007	.168
%RSD	266.41	55.264	35.896	.61249	.47693	190.43	.16961
#1	.00178	.01980	.00853	.09987	.12689	-.00004	99.022
#2	-.00156	.00529	.00960	.09991	.12689	.00009	99.350
#3	-.00297	.01511	.01610	.09883	.12585	.00005	99.121
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**-.00017**	**.00152**	**.00169**	**.55640**	**1.3664**	**.00614**
Stddev	.00034	.00031	.00103	.00130	.01450	.0639	.00231
%RSD	199.35	178.24	67.791	76.872	2.6064	4.6787	37.610
#1	.00047	-.00010	.00240	.00266	.56553	1.2960	.00458
#2	.00025	.00009	.00175	.00022	.56399	1.3822	.00505
#3	-.00020	-.00051	.00039	.00219	.53968	1.4209	.00880
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**32.293**	**.34669**	**.00072**	**81.795**	**.00351**	**-.00114**	**.00172**
Stddev	.395	.00453	.00064	.316	.00089	.00462	.00369
%RSD	1.2226	1.3074	88.983	.38657	25.222	403.38	214.40
#1	32.195	.34253	.00009	81.732	.00268	.00331	-.00180
#2	32.728	.35152	.00069	82.139	.00342	-.00084	.00557
#3	31.957	.34602	.00136	81.516	.00444	-.00591	.00140
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017

Kristi K Buck

Sample Name: L1708130520 Acquired: 8/28/2017 18:12:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00583**	**-.00497**	**7.6721**	**.00136**	**.54561**	**-.00643**	**-.00036**
Stddev	.00345	.01567	.0129	.00082	.00225	.00444	.00120
%RSD	59.185	315.14	.16778	60.279	.41309	69.090	331.26
#1	-.00800	.00056	7.6752	.00097	.54460	-.00413	-.00174
#2	-.00763	.00718	7.6832	.00081	.54819	-.00361	.00044
#3	-.00185	-.02265	7.6580	.00230	.54404	-.01156	.00021
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00114**	**.00185**	F **-.59259**
Stddev	.00088	.00015	.18272
%RSD	77.050	8.2362	30.835
#1	.00042	.00184	-.77694
#2	.00088	.00170	-.58928
#3	.00212	.00201	-.41154
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10248.**	**81360.**	**7426.4**
Stddev	86.	323.	14.5
%RSD	.83875	.39642	.19504
#1	10149.	81023.	7426.3
#2	10299.	81390.	7411.9
#3	10297.	81666.	7440.9

Approved: August 29, 2017

Kristi K Buck

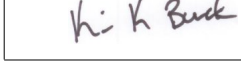
Sample Name: L1708130520MS Acquired: 8/28/2017 18:16:36 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20222**	**4.9240**	**.20727**	**1.0540**	**.63417**	**.02548**	**106.40**	**.02487**
Stddev	.00287	.0069	.00288	.0033	.00113	.00003	.14	.00018
%RSD	1.4184	.14009	1.3878	.31398	.17815	.11385	.12907	.72290
#1	.19930	4.9176	.20478	1.0522	.63382	.02547	106.53	.02503
#2	.20503	4.9233	.21042	1.0520	.63544	.02546	106.26	.02491
#3	.20234	4.9313	.20660	1.0578	.63327	.02551	106.40	.02467
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09707**	**.25006**	**.24440**	**2.5048**	**27.002**	**.52113**	**38.201**	**.60193**
Stddev	.00045	.00232	.00143	.0257	.118	.00420	.147	.00241
%RSD	.46130	.92975	.58428	1.0281	.43671	.80542	.38582	.40081
#1	.09731	.25186	.24474	2.5061	27.028	.52474	38.242	.60244
#2	.09736	.25089	.24283	2.5298	26.874	.51653	38.324	.59931
#3	.09656	.24744	.24562	2.4784	27.105	.52213	38.038	.60405
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48892**	**108.90**	**.24134**	**4.9573**	**.24421**	**.59870**	**.17434**	**10.423**
Stddev	.00049	.45	.00064	.0057	.00117	.00893	.00205	.011
%RSD	.10109	.41743	.26723	.11606	.47971	1.4917	1.1742	.10154
#1	.48840	108.98	.24113	4.9605	.24513	.58900	.17306	10.411
#2	.48900	109.31	.24207	4.9608	.24289	.60053	.17325	10.426
#3	.48938	108.41	.24083	4.9507	.24460	.60658	.17670	10.431
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

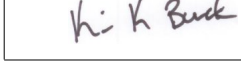


Sample Name: L1708130520MS Acquired: 8/28/2017 18:16:36 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-04

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49442**	**1.0608**	**.49644**	**.24380**	**.51342**	**.49081**	**.31154**
Stddev	.00041	.0014	.00789	.00699	.00160	.00106	.26122
%RSD	.08287	.13695	1.5895	2.8685	.31149	.21640	83.848
#1	.49433	1.0624	.49052	.23723	.51338	.49199	.59097
#2	.49407	1.0604	.50540	.25115	.51184	.49051	.07345
#3	.49487	1.0595	.49340	.24303	.51504	.48994	.27021
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10201.**	**80858.**	**7385.6**
Stddev	36.	168.	27.0
%RSD	.35154	.20778	.36596
#1	10181.	81020.	7388.1
#2	10180.	80869.	7357.4
#3	10242.	80684.	7411.3

Approved: August 29, 2017



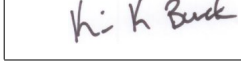
Sample Name: L1708130520MSD Acquired: 8/28/2017 18:20:05 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19603**	**4.7822**	**.19927**	**1.0271**	**.61541**	**.02467**	**103.21**	**.02414**
Stddev	.00210	.0232	.00174	.0062	.00239	.00004	.33	.00012
%RSD	1.0708	.48452	.87426	.60467	.38762	.16175	.32277	.50771
#1	.19576	4.7883	.20026	1.0205	.61267	.02466	102.86	.02421
#2	.19826	4.8017	.19726	1.0329	.61656	.02472	103.53	.02420
#3	.19408	4.7566	.20030	1.0278	.61701	.02465	103.23	.02399
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09331**	**.24513**	**.23781**	**2.4373**	**26.281**	**.50451**	**36.873**	**.57972**
Stddev	.00029	.00080	.00103	.0313	.130	.00245	.284	.00601
%RSD	.31523	.32614	.43246	1.2849	.49448	.48553	.76935	1.0362
#1	.09318	.24450	.23663	2.4631	26.235	.50733	36.719	.57679
#2	.09364	.24603	.23851	2.4463	26.428	.50290	37.201	.58663
#3	.09309	.24487	.23830	2.4024	26.181	.50330	36.700	.57574
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.47462**	**105.57**	**.23387**	**4.8089**	**.24124**	**.58196**	**.17367**	**10.085**
Stddev	.00129	.45	.00238	.0122	.00399	.00328	.00673	.007
%RSD	.27140	.42378	1.0180	.25365	1.6548	.56413	3.8766	.06969
#1	.47493	105.14	.23650	4.8072	.24333	.57947	.17725	10.086
#2	.47573	106.03	.23323	4.7976	.24376	.58072	.16591	10.091
#3	.47321	105.54	.23187	4.8218	.23664	.58568	.17786	10.077
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708130520MSD Acquired: 8/28/2017 18:20:05 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627371-05

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48025**	**1.0279**	**.48206**	**.23561**	**.49726**	**.47631**	**.06776**
Stddev	.00074	.0029	.00688	.00296	.00093	.00036	.92082
%RSD	.15442	.27835	1.4263	1.2563	.18756	.07507	1359.0
#1	.48110	1.0253	.47856	.23757	.49715	.47595	-.97370
#2	.47982	1.0310	.48998	.23220	.49824	.47667	.40293
#3	.47982	1.0274	.47764	.23706	.49639	.47630	.77404
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10190.**	**80693.**	**7382.9**
Stddev	25.	71.	82.3
%RSD	.24572	.08846	1.1144
#1	10171.	80761.	7405.6
#2	10181.	80699.	7291.6
#3	10219.	80618.	7451.4

Approved: August 29, 2017

Kristi K Buck

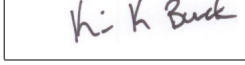
Sample Name: L1708131401 Acquired: 8/28/2017 18:23:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00297**	**11.841**	**.01586**	**.03882**	**.26525**	**.00067**	**59.241**	**.00032**
Stddev	.00102	.018	.00252	.00098	.00185	.00008	.148	.00028
%RSD	34.221	.15346	15.885	2.5121	.69841	11.740	.25052	87.701
#1	-.00241	11.857	.01747	.03769	.26318	.00070	59.169	.00002
#2	-.00235	11.843	.01717	.03942	.26582	.00058	59.411	.00036
#3	-.00414	11.821	.01296	.03934	.26675	.00073	59.141	.00057
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01022**	**.01534**	**.03265**	**18.907**	**3.9647**	**.02301**	**11.401**	**.98230**
Stddev	.00059	.00118	.00061	.034	.0173	.00407	.015	.00643
%RSD	5.7379	7.7013	1.8669	.17808	.43648	17.676	.12912	.65418
#1	.01041	.01529	.03330	18.875	3.9816	.02485	11.417	.98175
#2	.00956	.01654	.03258	18.942	3.9654	.01834	11.400	.97616
#3	.01068	.01418	.03209	18.902	3.9471	.02582	11.387	.98898
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00181**	**13.633**	**.02258**	**.53152**	**.01419**	**-.00369**	**-.00281**	**18.602**
Stddev	.00040	.035	.00012	.00663	.00108	.00513	.00481	.022
%RSD	22.311	.25361	.54807	1.2481	7.6380	139.07	171.02	.11970
#1	.00135	13.653	.02261	.53155	.01295	.00143	-.00652	18.599
#2	.00209	13.593	.02268	.53814	.01467	-.00366	.00263	18.626
#3	.00200	13.653	.02244	.52488	.01496	-.00883	-.00455	18.582
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: L1708131401 Acquired: 8/28/2017 18:23:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00203**	**.40155**	**.11885**	**-.00264**	**.01816**	**.16023**	**.13605**
Stddev	.00066	.00054	.01060	.00301	.00025	.00020	.20887
%RSD	32.499	.13453	8.9177	113.79	1.3766	.12409	153.52
#1	.00242	.40092	.10709	-.00013	.01826	.16002	.27491
#2	.00127	.40186	.12766	-.00182	.01787	.16041	.23740
#3	.00240	.40186	.12180	-.00597	.01834	.16025	-.10416
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10503.**	**83643.**	**7394.1**
Stddev	25.	393.	61.6
%RSD	.23801	.47005	.83371
#1	10524.	83903.	7461.6
#2	10476.	83191.	7379.8
#3	10509.	83835.	7340.8

Approved: August 29, 2017

Kristi K Buck

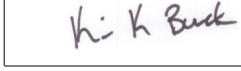
Sample Name: ICSA Acquired: 8/28/2017 18:27:12 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.00705**	**252.39**	**-.00079**	**-.00692**	**.00071**	**-.00001**	**242.71**
Stddev	.00199	.70	.00282	.00186	.00118	.00005	1.08
%RSD	28.249	.27733	356.33	26.811	165.91	473.36	.44304
#1	-.00481	252.82	-.00402	-.00805	.00203	.00005	241.48
#2	-.00862	252.76	.00122	-.00478	-.00026	-.00002	243.16
#3	-.00773	251.58	.00043	-.00794	.00037	-.00006	243.49
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	.00400						
Low Limit	-.00400						

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00055**	**-.00041**	**.00041**	F **.01528**	**94.552**	**.09113**	**.00087**
Stddev	.00027	.00045	.00038	.00322	.714	.04356	.00222
%RSD	49.020	109.85	92.267	21.092	.75521	47.804	253.75
#1	-.00024	.00005	.00083	.01814	93.873	.11239	-.00162
#2	-.00074	-.00043	.00034	.01179	95.297	.04102	.00161
#3	-.00066	-.00085	.00007	.01591	94.486	.11998	.00263
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				.00400			
Low Limit				-.00400			

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**248.00**	**-.00338**	**-.00034**	**.11073**	**-.00286**	**.03229**	F **-.00671**
Stddev	1.30	.00082	.00016	.04131	.00055	.00483	.00131
%RSD	.52554	24.110	47.610	37.302	19.300	14.951	19.463
#1	246.62	-.00340	-.00016	.10814	-.00225	.02823	-.00753
#2	249.21	-.00419	-.00045	.15328	-.00332	.03102	-.00739
#3	248.17	-.00256	-.00043	.07079	-.00301	.03763	-.00520
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit							.00400
Low Limit							-.00400

Approved: August 29, 2017



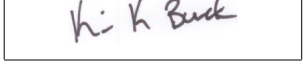
Sample Name: ICSA Acquired: 8/28/2017 18:27:12 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00262**	F **-.01044**	**.01434**	**.00081**	**.00164**	**.00497**	**-.00228**
Stddev	.00448	.00610	.00221	.00108	.00054	.00445	.00282
%RSD	171.15	58.400	15.445	133.73	33.018	89.548	124.07
#1	.00592	-.01560	.01348	.00175	.00171	.00622	.00032
#2	.00441	-.00371	.01685	.00105	.00106	.00867	-.00528
#3	-.00248	-.01200	.01268	-.00037	.00213	.00003	-.00186
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00800					
Low Limit		-.00800					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00487**	**-.00459**	F **-5.5128**
Stddev	.00038	.00002	.2393
%RSD	7.7361	.46305	4.3412
#1	-.00517	-.00458	-5.6184
#2	-.00445	-.00458	-5.6812
#3	-.00499	-.00462	-5.2389
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02000
Low Limit			-.02000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9683.3**	**75870.**	**7140.7**
Stddev	221.4	1044.	179.5
%RSD	2.2866	1.3755	2.5139
#1	9487.6	74818.	7308.4
#2	9638.7	75888.	7162.4
#3	9923.6	76905.	6951.4

Approved: August 29, 2017



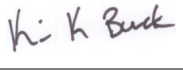
Sample Name: ICSAB Acquired: 8/28/2017 18:30:52 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50880**	**245.52**	**.24138**	**.46537**	**.24774**	**.25593**	**237.91**
Stddev	.00099	.48	.00273	.00127	.00197	.00047	1.27
%RSD	.19546	.19548	1.1318	.27235	.79458	.18519	.53552
#1	.50970	245.60	.23893	.46392	.24654	.25592	236.49
#2	.50773	245.95	.24433	.46625	.25001	.25642	238.96
#3	.50897	245.00	.24087	.46595	.24667	.25547	238.28
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.46182**	**.22921**	**.24317**	**.24855**	**92.755**	**5.2462**	**-.00004**
Stddev	.00012	.00065	.00066	.00201	.420	.1059	.00358
%RSD	.02537	.28363	.26961	.80830	.45277	2.0192	9042.6
#1	.46192	.22853	.24346	.24927	92.349	5.3302	-.00284
#2	.46169	.22928	.24242	.24628	93.187	5.2811	.00399
#3	.46185	.22983	.24363	.25010	92.730	5.1272	-.00127
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**241.69**	**.23202**	**-.00068**	**5.1176**	**.45561**	**-.01526**	**.46786**
Stddev	1.50	.00275	.00039	.0279	.00174	.00612	.00359
%RSD	.62083	1.1834	56.758	.54459	.38248	40.128	.76717
#1	242.45	.22891	-.00024	5.0994	.45367	-.01634	.47192
#2	242.66	.23306	-.00096	5.1497	.45608	-.02077	.46651
#3	239.96	.23410	-.00084	5.1038	.45706	-.00867	.46514
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 29, 2017



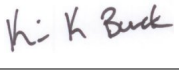
Sample Name: ICSAB Acquired: 8/28/2017 18:30:52 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48348**	**.21878**	**.01263**	**.46924**	**.00131**	**.00453**	**.43652**
Stddev	.00356	.02044	.00193	.00112	.00009	.00547	.00326
%RSD	.73659	9.3423	15.256	.23916	6.8832	120.66	.74652
#1	.48067	.24236	.01082	.46803	.00129	.00610	.43289
#2	.48227	.20627	.01466	.46944	.00141	.00905	.43918
#3	.48748	.20770	.01240	.47025	.00123	-.00155	.43750
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.24404**	**.46258**	F **-5.3602**
Stddev	.00105	.00013	.2927
%RSD	.43129	.02838	5.4611
#1	.24285	.46246	-5.6918
#2	.24440	.46272	-5.2511
#3	.24486	.46256	-5.1377
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02500
Low Limit			-.02500

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9907.1**	**77478.**	**7265.4**
Stddev	26.4	163.	22.6
%RSD	.26692	.21097	.31089
#1	9903.7	77649.	7241.1
#2	9882.5	77323.	7269.4
#3	9935.1	77463.	7285.7

Approved: August 29, 2017



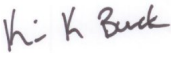
Sample Name: CCV Acquired: 8/28/2017 18:34:21 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40109**	**10.249**	**.39626**	**.49559**	**1.0114**	**.05070**	**10.039**	**.04991**
Stddev	.00219	.010	.00415	.00321	.0016	.00016	.040	.00015
%RSD	.54571	.09325	1.0465	.64855	.15866	.31360	.40226	.30942
#1	.40305	10.251	.39474	.49351	1.0096	.05054	10.065	.05000
#2	.39873	10.238	.40096	.49396	1.0128	.05086	9.9925	.04999
#3	.40148	10.257	.39310	.49929	1.0117	.05070	10.059	.04973
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19910**	**.50416**	**.50154**	**3.9322**	**51.297**	**1.0224**	**10.210**	**.49064**
Stddev	.00019	.00148	.00022	.0364	.141	.0112	.112	.00203
%RSD	.09361	.29348	.04482	.92681	.27406	1.0918	1.0982	.41337
#1	.19929	.50551	.50139	3.9303	51.160	1.0206	10.086	.49033
#2	.19892	.50258	.50180	3.8968	51.290	1.0122	10.238	.49280
#3	.19908	.50438	.50144	3.9696	51.441	1.0343	10.305	.48878
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.99525**	**50.654**	**.49463**	**9.9164**	**.49974**	**1.1989**	**.37007**	**5.0096**
Stddev	.00035	.445	.00075	.0268	.00252	.0042	.00797	.0044
%RSD	.03527	.87778	.15128	.27039	.50431	.35372	2.1549	.08782
#1	.99493	50.477	.49497	9.8924	.49860	1.1958	.36528	5.0130
#2	.99519	50.324	.49377	9.9453	.50263	1.2038	.37928	5.0047
#3	.99562	51.159	.49515	9.9114	.49799	1.1972	.36566	5.0112
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Approved: August 29, 2017



Sample Name: CCV Acquired: 8/28/2017 18:34:21 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.99138**	**1.0072**	**.99372**	**.50584**	**1.0082**	**1.0067**	**.91776**
Stddev	.00156	.0013	.01074	.00118	.0016	.0007	.39564
%RSD	.15744	.13127	1.0804	.23388	.15790	.07076	43.110
#1	.99273	1.0065	.99145	.50470	1.0088	1.0069	.46849
#2	.99174	1.0063	.98430	.50577	1.0093	1.0072	1.0707
#3	.98967	1.0087	1.0054	.50706	1.0064	1.0059	1.2141
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10431.**	**82480.**	**7417.6**
Stddev	9.	423.	47.3
%RSD	.08617	.51309	.63800
#1	10429.	82942.	7369.5
#2	10423.	82111.	7464.1
#3	10441.	82388.	7419.2

Approved: August 29, 2017

Kristi K Buck

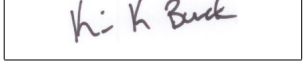
Sample Name: CCB Acquired: 8/28/2017 18:37:46 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00174**	**.00408**	**.00148**	**.00492**	**.00124**	**-.00002**	**-.04222**	**.00014**
Stddev	.00366	.00489	.00233	.00185	.00042	.00003	.00702	.00023
%RSD	210.87	119.85	157.17	37.642	33.986	202.53	16.625	167.40
#1	-.00067	.00756	.00358	.00692	.00077	-.00006	-.03797	.00009
#2	.00128	-.00151	-.00102	.00325	.00137	.00001	-.03837	-.00006
#3	-.00581	.00618	.00188	.00460	.00157	-.00000	-.05033	.00038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00020**	**.00079**	**.00080**	**.01448**	**.10760**	**-.00281**	**.03632**	**-.00054**
Stddev	.00026	.00057	.00259	.01378	.02477	.00656	.04817	.00175
%RSD	131.95	72.253	325.22	95.150	23.026	233.71	132.63	326.18
#1	-.00019	.00123	.00368	.00013	.10826	-.00463	.00423	-.00076
#2	.00006	.00101	.00005	.01572	.13203	.00447	.01302	-.00216
#3	-.00047	.00014	-.00134	.02761	.08250	-.00825	.09172	.00131
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00030**	**.00536**	**.00198**	**.00010**	**.00253**	**-.00154**	**.00269**	**.00435**
Stddev	.00036	.01958	.00079	.01143	.00227	.00090	.01479	.00177
%RSD	119.16	365.09	39.796	11975.	89.797	58.473	550.02	40.688
#1	.00035	-.01579	.00146	.00904	.00236	-.00129	.00738	.00293
#2	.00063	.00902	.00159	-.01278	.00488	-.00255	-.01388	.00634
#3	-.00008	.02287	.00289	.00402	.00035	-.00080	.01457	.00379
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

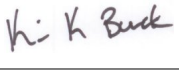


Sample Name: CCB Acquired: 8/28/2017 18:37:46 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00147**	**.00046**	**-.00100**	**-.00232**	**.00062**	**.00063**	**.01839**
Stddev	.00054	.00022	.00284	.00122	.00064	.00004	.12826
%RSD	36.609	46.963	283.07	52.417	102.87	5.7420	697.58
#1	.00138	.00021	-.00077	-.00364	.00127	.00065	-.07813
#2	.00098	.00060	.00171	-.00208	.00060	.00065	-.03064
#3	.00205	.00056	-.00395	-.00124	-.00001	.00059	.16393
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10565.**	**84768.**	**7446.5**
Stddev	21.	158.	23.4
%RSD	.19547	.18586	.31402
#1	10541.	84944.	7429.0
#2	10577.	84640.	7473.1
#3	10577.	84719.	7437.5

Approved: August 29, 2017



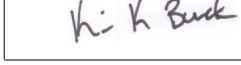
Sample Name: LLCCV Acquired: 8/28/2017 18:41:29 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00936**	**.17352**	**.00693**	**.08082**	**.00963**	**.00167**	**.39797**	**.00068**
Stddev	.00375	.00460	.00349	.00365	.00198	.00008	.01718	.00016
%RSD	40.041	2.6520	50.319	4.5155	20.536	4.5149	4.3170	23.012
#1	.01282	.17248	.00511	.08417	.00760	.00160	.37814	.00054
#2	.00538	.16953	.01095	.07693	.00973	.00165	.40841	.00085
#3	.00990	.17855	.00473	.08136	.01155	.00175	.40735	.00066
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00363**	**.00576**	**.00582**	**.08121**	**.98217**	**.08580**	**.46496**	**.00925**
Stddev	.00060	.00104	.00118	.01424	.01596	.00528	.07244	.00205
%RSD	16.671	18.154	20.238	17.539	1.6253	6.1583	15.580	22.214
#1	.00429	.00606	.00666	.09646	.99979	.08806	.52987	.01029
#2	.00312	.00661	.00632	.07890	.97805	.08958	.47819	.00688
#3	.00347	.00459	.00447	.06826	.96867	.07977	.38682	.01058
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00795**	**.42449**	**.01876**	**.79529**	**.00964**	**.08324**	**.00810**	**.73886**
Stddev	.00031	.01032	.00205	.00135	.00411	.00494	.00358	.00265
%RSD	3.8650	2.4321	10.914	.16923	42.618	5.9351	44.226	.35887
#1	.00768	.41976	.02083	.79648	.00971	.07857	.00403	.73588
#2	.00829	.41738	.01673	.79383	.01371	.08841	.00951	.73976
#3	.00789	.43633	.01872	.79556	.00550	.08274	.01076	.74095
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

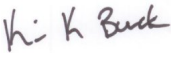


Sample Name: LLCCV Acquired: 8/28/2017 18:41:29 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41319**	**.04187**	**.02650**	**.15622**	**.00711**	**.01893**	**43.361**
Stddev	.00159	.00023	.00126	.00087	.00059	.00019	.307
%RSD	.38526	.55250	4.7524	.55483	8.2316	.99567	.70748
#1	.41484	.04185	.02583	.15627	.00661	.01880	43.193
#2	.41167	.04211	.02795	.15533	.00776	.01885	43.175
#3	.41307	.04165	.02571	.15707	.00698	.01915	43.715
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10606.**	**85086.**	**7447.2**
Stddev	23.	587.	65.8
%RSD	.21843	.68950	.88403
#1	10582.	85576.	7520.9
#2	10607.	84436.	7394.3
#3	10629.	85247.	7426.4

Approved: August 29, 2017



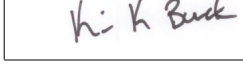
Sample Name: LLCCV Acquired: 8/28/2017 18:45:12 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00772**	**.17634**	**.00669**	**.08035**	**.00938**	**.00166**	**.39930**	**.00093**
Stddev	.00253	.00516	.00139	.00289	.00041	.00006	.02826	.00006
%RSD	32.754	2.9282	20.785	3.6012	4.3438	3.5144	7.0775	6.3019
#1	.00934	.17633	.00510	.08225	.00931	.00172	.36918	.00100
#2	.00481	.18151	.00729	.08177	.00902	.00165	.42523	.00089
#3	.00902	.17118	.00767	.07702	.00982	.00160	.40349	.00089
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00367**	**.00497**	**.00401**	**.08042**	**.97236**	**.08220**	**.40029**	**.00733**
Stddev	.00029	.00123	.00065	.01017	.02720	.00243	.05798	.00174
%RSD	7.8037	24.757	16.186	12.642	2.7969	2.9535	14.484	23.784
#1	.00370	.00535	.00351	.07750	.94570	.08385	.46360	.00539
#2	.00394	.00595	.00377	.07203	.97131	.07941	.38751	.00784
#3	.00337	.00359	.00474	.09173	1.0001	.08333	.34977	.00877
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00790**	**.37363**	**.01684**	**.80132**	**.01038**	**.08276**	**.01599**	**.73991**
Stddev	.00050	.00903	.00119	.00307	.00281	.00187	.00475	.00136
%RSD	6.2973	2.4170	7.0608	.38294	27.064	2.2610	29.718	.18373
#1	.00788	.37639	.01567	.80005	.01158	.08470	.01051	.73835
#2	.00741	.36354	.01682	.80482	.00717	.08096	.01843	.74062
#3	.00840	.38096	.01804	.79909	.01238	.08262	.01903	.74077
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017

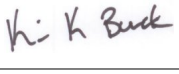


Sample Name: LLCCV Acquired: 8/28/2017 18:45:12 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41297**	**.04209**	**.02362**	**.16068**	**.00766**	**.01798**	**43.198**
Stddev	.00190	.00055	.00261	.00107	.00211	.00009	.231
%RSD	.45896	1.3022	11.066	.66449	27.576	.48986	.53422
#1	.41377	.04157	.02652	.15980	.00879	.01795	42.938
#2	.41432	.04266	.02145	.16187	.00522	.01808	43.376
#3	.41080	.04203	.02289	.16038	.00897	.01791	43.281
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10621.**	**84844.**	**7435.8**
Stddev	5.	153.	18.6
%RSD	.04306	.18051	.24962
#1	10616.	84981.	7456.3
#2	10624.	84872.	7430.9
#3	10623.	84679.	7420.1

Approved: August 29, 2017



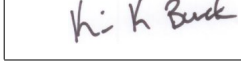
Sample Name: LLCCV Acquired: 8/28/2017 18:48:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00831**	**.17082**	**.00945**	**.07924**	**.00922**	**.00161**	**.38018**	**.00088**
Stddev	.00015	.00881	.00233	.00409	.00040	.00005	.04488	.00022
%RSD	1.8191	5.1554	24.654	5.1609	4.3528	3.0072	11.805	25.472
#1	.00814	.16790	.01175	.08297	.00968	.00166	.33391	.00085
#2	.00839	.18072	.00950	.07487	.00893	.00162	.38309	.00068
#3	.00842	.16385	.00709	.07987	.00905	.00156	.42353	.00112
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00393**	**.00487**	**.00395**	**.07834**	**.91388**	**.08128**	**.44448**	**.00940**
Stddev	.00018	.00082	.00122	.00571	.01384	.00221	.05945	.00106
%RSD	4.6706	16.903	30.816	7.2850	1.5142	2.7147	13.375	11.313
#1	.00376	.00571	.00283	.07469	.89963	.08068	.37659	.00882
#2	.00412	.00407	.00378	.07542	.91474	.08372	.48724	.01062
#3	.00391	.00483	.00525	.08492	.92727	.07944	.46959	.00875
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00758**	**.41352**	**.01755**	**.79621**	**.00565**	**.07832**	**.01052**	**.73864**
Stddev	.00041	.02494	.00051	.00704	.00088	.00593	.00949	.00244
%RSD	5.4365	6.0320	2.9088	.88435	15.613	7.5673	90.142	.33034
#1	.00725	.38846	.01712	.79147	.00564	.07365	.01158	.73711
#2	.00804	.41376	.01812	.80430	.00477	.08499	.01944	.73736
#3	.00745	.43835	.01742	.79285	.00653	.07633	.00055	.74146
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 29, 2017



Sample Name: LLCCV Acquired: 8/28/2017 18:48:54 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v469) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.41015**	**.04182**	**.02447**	**.15411**	**.00737**	**.01799**	**43.658**
Stddev	.00101	.00017	.00260	.00236	.00051	.00008	.287
%RSD	.24693	.41192	10.623	1.5290	6.9179	.42935	.65713
#1	.41125	.04182	.02588	.15513	.00726	.01801	43.380
#2	.40925	.04164	.02147	.15579	.00693	.01804	43.639
#3	.40997	.04199	.02605	.15142	.00793	.01790	43.953
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10678.**	**85579.**	**7511.4**
Stddev	14.	133.	24.8
%RSD	.13149	.15555	.33022
#1	10694.	85489.	7521.0
#2	10667.	85516.	7483.2
#3	10672.	85732.	7529.9

Approved: August 29, 2017

	Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)
	Ag 328.068 {103}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000214	0.035078	0.000000	1.000000
	Al 308.215 {109}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.001521	0.008708	0.000000	1.000000
	As 189.042 {478}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000025	0.023828	0.000000	1.000000
	B 249.678 {135}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000089	0.015415	0.000000	1.000000
	Ba 455.403 { 74}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.016770	1.231030	0.000000	1.000000
	Be 313.107 {108}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000066	0.828813	0.000000	1.000000
	Ca 422.673 { 80}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000815	0.024805	0.000000	1.000000
	Cd 228.802 {447}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000346	0.323406	0.000000	1.000000
	Co 228.616 {447}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000134	0.270147	0.000000	1.000000
	Cr 267.716 {126}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000102	0.045686	0.000000	1.000000
	Cu 224.700 {450}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000474	0.086337	0.000000	1.000000
	Fe 261.187 {129}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000033	0.017275	0.000000	1.000000
	K 766.490 { 44}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.006963	0.031151	0.000000	1.000000
	Li 670.784 { 50}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.005025	0.611142	0.000000	1.000000
	Mg 279.079 {121}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000033	0.004411	0.000000	1.000000
	Mn 257.610 {131}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.001427	0.172321	0.000000	1.000000
	Mo 202.030 {467}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000146	0.115326	0.000000	1.000000
	Na 589.592 { 57}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.036119	0.088980	0.000000	1.000000
	Ni 231.604 {446}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000726	0.069627	0.000000	1.000000
	P 214.914 {457}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000124	0.009890	0.000000	1.000000
	Pb 220.353 {453}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000492	0.049292	0.000000	1.000000
	Sb 206.833 {463}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000434	0.021838	0.000000	1.000000
	Se 196.090 {472}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000095	0.007231	0.000000	1.000000
	Si 212.412 {459}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000353	0.025597	0.000000	1.000000
	Sn 189.989 {477}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000077	0.069292	0.000000	1.000000
	Sr 407.771 { 83}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.003321	2.032551	0.000000	1.000000
	Ti 337.280 {100}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.001822	0.091078	0.000000	1.000000
	Tl 190.856 {477}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.000195	0.018697	0.000000	1.000000
	V 292.402 {115}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.000050	0.055772	0.000000	1.000000
	Y 224.306 {450}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
	Y 360.073 { 94}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
	Y 377.433 { 89}*	<not fit>	<Never Calibrated>	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000
	Zn 206.200 {463}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	0.001086	0.468471	0.000000	1.000000
	Zr 339.198 { 99}	8/29/2017 14:28:34	8/29/2017 14:28:34	Linear	1/Conc	-0.002986	0.002629	0.000000	1.000000

Approved: August 30, 2017

Kirk Buck

Approved: August 30, 2017

Kirk Buck

Element, Wavelength and Order	Correlation	Std Error of Est	Predicted MDL	Predicted MQL	Status	Reslope		QC Norm	
						Slope	Y-Int	Slope factor	Offset
Ag 328.068 {103}	0.999975	0.000001	0.002593	0.008643	OK.	1.000000	0.000000	1	0
Al 308.215 {109}	0.999957	0.000005	0.008210	0.027366	OK.	1.000000	0.000000	1	0
As 189.042 {478}	0.999091	0.000004	0.003412	0.011372	OK.	1.000000	0.000000	1	0
B 249.678 {135}	0.999490	0.000002	0.003372	0.011239	OK.	1.000000	0.000000	1	0
Ba 455.403 { 74}	0.999996	0.000023	0.001022	0.003408	OK.	1.000000	0.000000	1	0
Be 313.107 {108}	0.999942	0.000003	0.000078	0.000259	OK.	1.000000	0.000000	1	0
Ca 422.673 { 80}	0.999920	0.000020	0.037399	0.124664	OK.	1.000000	0.000000	1	0
Cd 228.802 {447}	0.999612	0.000003	0.000379	0.001263	OK.	1.000000	0.000000	1	0
Co 228.616 {447}	0.999885	0.000005	0.000531	0.001770	OK.	1.000000	0.000000	1	0
Cr 267.716 {126}	0.999924	0.000002	0.001300	0.004335	OK.	1.000000	0.000000	1	0
Cu 224.700 {450}	0.999995	0.000001	0.001847	0.006158	OK.	1.000000	0.000000	1	0
Fe 261.187 {129}	0.999473	0.000014	0.018476	0.061587	OK.	1.000000	0.000000	1	0
K 766.490 { 44}	0.999993	0.000038	0.098122	0.327072	OK.	1.000000	0.000000	1	0
Li 670.784 { 50}	0.999521	0.000186	0.004995	0.016650	OK.	1.000000	0.000000	1	0
Mg 279.079 {121}	0.999795	0.000009	0.072299	0.240996	OK.	1.000000	0.000000	1	0
Mn 257.610 {131}	0.999982	0.000003	0.002267	0.007556	OK.	1.000000	0.000000	1	0
Mo 202.030 {467}	0.999982	0.000004	0.000646	0.002154	OK.	1.000000	0.000000	1	0
Na 589.592 { 57}	0.999976	0.000194	0.034151	0.113835	OK.	1.000000	0.000000	1	0
Ni 231.604 {446}	0.999679	0.000006	0.001856	0.006187	OK.	1.000000	0.000000	1	0
P 214.914 {457}	0.999959	0.000006	0.009132	0.030441	OK.	1.000000	0.000000	1	0
Pb 220.353 {453}	0.999987	0.000001	0.004284	0.014281	OK.	1.000000	0.000000	1	0
Sb 206.833 {463}	0.999801	0.000003	0.005983	0.019944	OK.	1.000000	0.000000	1	0
Se 196.090 {472}	0.998690	0.000001	0.015018	0.050059	OK.	1.000000	0.000000	1	0
Si 212.412 {459}	0.999978	0.000005	0.003328	0.011094	OK.	1.000000	0.000000	1	0
Sn 189.989 {477}	0.999996	0.000001	0.000981	0.003271	OK.	1.000000	0.000000	1	0
Sr 407.771 { 83}	0.999995	0.000039	0.000465	0.001549	OK.	1.000000	0.000000	1	0
Ti 337.280 {100}	0.999723	0.000014	0.006355	0.021182	OK.	1.000000	0.000000	1	0
Tl 190.856 {477}	0.999967	0.000001	0.004531	0.015103	OK.	1.000000	0.000000	1	0
V 292.402 {115}	0.999962	0.000003	0.001134	0.003780	OK.	1.000000	0.000000	1	0
Y 224.306 {450}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
Y 360.073 { 94}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
Y 377.433 { 89}*	0.000000	0.000000	-1.000000	-1.000000	Warnin	1.000000	0.000000	1	0
Zn 206.200 {463}	0.999988	0.000015	0.000196	0.000653	OK.	1.000000	0.000000	1	0
Zr 339.198 { 99}	0.544588	0.000026	0.321435	1.071450	OK.	1.000000	0.000000	1	0

Approved: August 30, 2017

Kim K Buck

Approved: August 30, 2017

Kim K Buck

Sample Name: S0 Acquired: 8/29/2017 14:10:20 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00021**	**.00152**	**.00002**	**-.00009**	**.01677**	**.00007**	**-.00082**
Stddev	.00004	.00009	.00004	.00006	.00113	.00006	.00095
%RSD	17.138	5.7725	159.14	63.087	6.7091	92.887	116.68
#1	-.00022	.00162	.00000	-.00013	.01803	.00004	-.00173
#2	-.00025	.00146	.00007	-.00002	.01642	.00014	-.00089
#3	-.00018	.00148	-.00000	-.00012	.01586	.00002	.00017

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00035**	**.00013**	**.00010**	**-.00047**	**-.00003**	**.00696**	**-.00503**
Stddev	.00005	.00012	.00004	.00002	.00033	.00239	.00072
%RSD	14.756	91.407	41.109	4.0939	969.84	34.349	14.368
#1	.00033	.00018	.00006	-.00045	-.00039	.00832	-.00526
#2	.00030	.00022	.00014	-.00048	.00025	.00420	-.00561
#3	.00040	-.00001	.00012	-.00049	.00004	.00836	-.00422

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00003**	**.00143**	**.00015**	**-.03612**	**-.00073**	**.00012**	**-.00049**
Stddev	.00053	.00028	.00004	.00161	.00007	.00004	.00020
%RSD	1585.5	19.363	26.360	4.4642	10.294	35.626	40.050
#1	.00059	.00160	.00011	-.03711	-.00065	.00012	-.00041
#2	-.00002	.00157	.00019	-.03700	-.00080	.00008	-.00072
#3	-.00046	.00111	.00014	-.03426	-.00073	.00017	-.00035

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00043**	**-.00010**	**.00035**	**.00008**	**.00332**	**-.00182**	**-.00019**
Stddev	.00015	.00011	.00004	.00004	.00140	.00033	.00000
%RSD	34.796	114.20	12.261	57.664	42.185	18.160	1.8761
#1	.00033	.00001	.00033	.00003	.00416	-.00187	-.00020
#2	.00036	-.00009	.00040	.00007	.00170	-.00213	-.00019
#3	.00061	-.00021	.00032	.00012	.00409	-.00147	-.00020

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Sample Name: S0 Acquired: 8/29/2017 14:10:20 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	**.00005**	**.00109**	**-.00299**
Stddev	.00001	.00004	.00045
%RSD	26.875	3.4989	14.932
#1	.00005	.00112	-.00326
#2	.00004	.00109	-.00247
#3	.00006	.00105	-.00323

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10265.**	**81551.**	**7058.6**
Stddev	36.	1054.	101.7
%RSD	.34869	1.2924	1.4404
#1	10234.	80350.	6956.7
#2	10304.	82323.	7160.1
#3	10257.	81981.	7058.9

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Sample Name: S1 Acquired: 8/29/2017 14:14:07 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	Ba4554	Be3131	Ca4226	Cd2288	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00010**	**.00226**	**.02701**	**.00046**	**.00166**	**.00053**	**.00060**
Stddev	.00009	.00006	.00110	.00003	.00051	.00008	.00005
%RSD	91.003	2.6032	4.0702	6.6755	30.480	14.578	7.9549
#1	-.00021	.00232	.02729	.00043	.00157	.00061	.00058
#2	-.00005	.00225	.02794	.00049	.00120	.00052	.00057
#3	-.00005	.00221	.02580	.00045	.00220	.00046	.00066

Elem	Cr2677	Cu2247	Fe2611	K_7664	Mn2576	Mo2020	Na5895
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00026**	**-.00012**	**.00080**	**.01989**	**.00208**	**.00103**	**.00406**
Stddev	.00001	.00010	.00021	.00046	.00010	.00007	.00382
%RSD	3.3440	83.886	25.822	2.3273	4.6726	7.0947	94.074
#1	.00025	-.00023	.00062	.01940	.00209	.00111	.00587
#2	.00026	-.00007	.00102	.01995	.00197	.00101	.00665
#3	.00027	-.00005	.00076	.02032	.00217	.00097	-.00033

Elem	Ni2316	P_2149	Pb2203	Sb2068	Si2124	Sn1899	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00056**	**.00088**	**-.00029**	**.00071**	**.00128**	**.00064**	**.02011**
Stddev	.00007	.00000	.00008	.00008	.00004	.00004	.00043
%RSD	12.229	.30245	28.448	11.040	3.4808	6.1407	2.1246
#1	-.00058	.00088	-.00020	.00072	.00133	.00061	.02060
#2	-.00062	.00088	-.00037	.00078	.00127	.00069	.01989
#3	-.00049	.00088	-.00030	.00063	.00124	.00062	.01983

Elem	Ti3372	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00092**	**.00045**	**.00467**	**-.00256**
Stddev	.00042	.00006	.00008	.00027
%RSD	45.203	12.131	1.7492	10.532
#1	-.00137	.00051	.00474	-.00279
#2	-.00083	.00045	.00458	-.00226
#3	-.00055	.00040	.00469	-.00262

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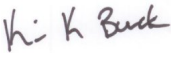

Sample Name: S1 Acquired: 8/29/2017 14:14:07 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10268.**	**82197.**	**7048.5**
Stddev	20.	279.	57.7
%RSD	.19736	.33999	.81851
#1	10275.	82340.	7101.2
#2	10245.	82375.	6986.8
#3	10283.	81875.	7057.4

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Sample Name: S2 Acquired: 8/29/2017 14:17:55 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00003**	**.00297**	**.00026**	**-.00002**	**.03610**	**.00080**	**.00313**
Stddev	.00004	.00002	.00008	.00001	.00076	.00005	.00027
%RSD	118.73	.73879	31.317	33.074	2.1087	6.0695	8.7874
#1	.00003	.00295	.00017	-.00002	.03669	.00077	.00296
#2	.00007	.00298	.00028	-.00001	.03525	.00076	.00345
#3	-.00001	.00299	.00034	-.00002	.03637	.00085	.00298

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00070**	**.00117**	**.00042**	**.00025**	**.00136**	**.03299**	**.00888**
Stddev	.00006	.00014	.00005	.00006	.00019	.00074	.00361
%RSD	8.6005	12.282	12.654	24.181	13.837	2.2391	40.665
#1	.00076	.00120	.00044	.00028	.00126	.03214	.00493
#2	.00064	.00101	.00036	.00018	.00125	.03340	.00968
#3	.00071	.00129	.00046	.00028	.00158	.03343	.01202

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00054**	**.00280**	**.00188**	**.03631**	**-.00027**	**.00164**	**-.00012**
Stddev	.00031	.00003	.00005	.00457	.00004	.00002	.00014
%RSD	56.600	1.2358	2.5199	12.596	14.257	1.1512	118.51
#1	.00067	.00278	.00193	.04116	-.00028	.00163	-.00007
#2	.00077	.00284	.00185	.03208	-.00031	.00162	-.00027
#3	.00019	.00279	.00184	.03570	-.00023	.00166	-.00001

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00079**	**-.00008**	**.00222**	**.00115**	**.03583**	**.00003**	**-.00006**
Stddev	.00012	.00005	.00004	.00006	.00037	.00003	.00006
%RSD	14.917	61.496	1.8278	5.0236	1.0381	94.584	93.957
#1	.00068	-.00004	.00218	.00109	.03541	.00002	-.00002
#2	.00092	-.00006	.00224	.00120	.03601	.00000	-.00004
#3	.00076	-.00014	.00225	.00115	.03608	.00006	-.00013

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Sample Name: S2 Acquired: 8/29/2017 14:17:55 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	.00087	.00816	-.00227
Stddev	.00004	.00004	.00005
%RSD	4.6105	.45148	2.2162
#1	.00084	.00812	-.00221
#2	.00087	.00816	-.00230
#3	.00092	.00819	-.00231

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	10217.	82071.	7063.6
Stddev	34.	123.	110.8
%RSD	.33624	.14932	1.5679
#1	10239.	82212.	7135.4
#2	10235.	81990.	7119.3
#3	10177.	82012.	6936.0

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Sample Name: S3 Acquired: 8/29/2017 14:21:43 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01376**	**.09041**	**.00939**	**.00753**	**1.2507**	**.04204**	**.24697**
Stddev	.00009	.00064	.00009	.00001	.0011	.00020	.00173
%RSD	.66491	.70319	.97105	.08008	.09116	.46881	.69961
#1	.01384	.09114	.00931	.00752	1.2519	.04226	.24562
#2	.01377	.08997	.00949	.00754	1.2504	.04199	.24636
#3	.01366	.09012	.00936	.00753	1.2497	.04188	.24892

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01791**	**.05397**	**.02283**	**.04303**	**.06916**	**1.5624**	**.60738**
Stddev	.00010	.00013	.00016	.00017	.00019	.0041	.00110
%RSD	.53116	.23908	.68226	.39456	.28028	.26219	.18034
#1	.01802	.05382	.02296	.04293	.06897	1.5644	.60661
#2	.01787	.05408	.02287	.04293	.06936	1.5651	.60689
#3	.01784	.05400	.02266	.04323	.06916	1.5577	.60863

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.04412**	**.08828**	**.11500**	**4.4184**	**.03411**	**.09819**	**.02444**
Stddev	.00011	.00055	.00011	.0158	.00016	.00018	.00011
%RSD	.25537	.62326	.09742	.35696	.46591	.18000	.46851
#1	.04425	.08766	.11488	4.4232	.03393	.09805	.02431
#2	.04407	.08846	.11510	4.4312	.03415	.09814	.02454
#3	.04404	.08872	.11501	4.4007	.03424	.09839	.02447

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02606**	**.00277**	**.11822**	**.06919**	**2.0431**	**.08859**	**.00846**
Stddev	.00009	.00005	.00023	.00012	.0081	.00098	.00004
%RSD	.35653	1.7289	.19426	.17277	.39727	1.1029	.48853
#1	.02606	.00282	.11812	.06926	2.0504	.08972	.00847
#2	.02615	.00273	.11806	.06905	2.0445	.08799	.00849
#3	.02596	.00277	.11848	.06925	2.0343	.08807	.00841

Approved: August 30, 2017

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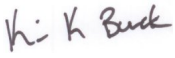

Sample Name: S3 Acquired: 8/29/2017 14:21:43 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S
Avg	.05535	.46830	-.00060
Stddev	.00035	.00008	.00094
%RSD	.63241	.01812	156.91
#1	.05574	.46828	-.00149
#2	.05523	.46839	-.00068
#3	.05507	.46822	.00038

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	10019.	78812.	6980.5
Stddev	26.	374.	27.4
%RSD	.26300	.47507	.39251
#1	9990.9	78437.	7002.2
#2	10023.	78814.	6989.5
#3	10043.	79185.	6949.7

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Sample Name: S4 Acquired: 8/29/2017 14:25:11 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02772**	**.17609**	**.01899**	**.01538**	**2.4759**	**.08475**	**.49508**	**.03567**
Stddev	.00011	.00036	.00012	.00006	.0042	.00006	.00072	.00020
%RSD	.38667	.20403	.65700	.41577	.16846	.06492	.14637	.56578
#1	.02774	.17605	.01887	.01543	2.4712	.08481	.49425	.03576
#2	.02761	.17575	.01912	.01531	2.4792	.08470	.49556	.03543
#3	.02782	.17647	.01900	.01538	2.4774	.08474	.49543	.03581

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.10791**	**.04603**	**.08641**	**.13747**	**3.1226**	**1.2119**	**.08810**	**.17320**
Stddev	.00024	.00005	.00014	.00052	.0092	.0067	.00031	.00096
%RSD	.22667	.11067	.15754	.37972	.29439	.55078	.35344	.55451
#1	.10764	.04608	.08628	.13719	3.1121	1.2072	.08776	.17305
#2	.10799	.04600	.08641	.13716	3.1292	1.2089	.08837	.17423
#3	.10811	.04599	.08655	.13808	3.1265	1.2195	.08819	.17232

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.23139**	**8.8506**	**.06910**	**.19965**	**.04903**	**.05201**	**.00577**	**.23931**
Stddev	.00027	.0328	.00012	.00011	.00018	.00011	.00015	.00029
%RSD	.11875	.37034	.16722	.05263	.35968	.21306	2.6353	.12299
#1	.23136	8.8153	.06921	.19971	.04900	.05210	.00578	.23929
#2	.23113	8.8566	.06898	.19971	.04922	.05189	.00561	.23903
#3	.23167	8.8800	.06910	.19953	.04887	.05204	.00591	.23962

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.13848**	**4.0610**	**.18017**	**.01684**	**.11178**	**.93907**	**.00143**
Stddev	.00011	.0082	.00098	.00003	.00030	.00056	.00014
%RSD	.07682	.20206	.54575	.19726	.26866	.05919	10.046
#1	.13836	4.0523	.17929	.01686	.11210	.93937	.00129
#2	.13857	4.0686	.18123	.01681	.11150	.93940	.00158
#3	.13850	4.0622	.17998	.01687	.11175	.93842	.00142

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Sample Name: S4 Acquired: 8/29/2017 14:25:11 Type: Cal
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: IR Corr. Factor: 1.000000
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	9880.7	77646.	6985.7
Stddev	2.7	249.	5.4
%RSD	.02740	.32095	.07759
#1	9877.6	77512.	6991.9
#2	9881.9	77933.	6983.1
#3	9882.6	77492.	6982.1

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Sample Name: ICV Acquired: 8/29/2017 14:28:39 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.39931**	**10.129**	**.40480**	**.49690**	**1.0061**	**.05010**	**10.004**
Stddev	.00131	.004	.00320	.00117	.0027	.00002	.060
%RSD	.32928	.03861	.79022	.23518	.26467	.04537	.59588
#1	.40081	10.134	.40826	.49555	1.0090	.05008	10.071
#2	.39834	10.128	.40196	.49748	1.0038	.05009	9.9568
#3	.39878	10.126	.40418	.49766	1.0054	.05012	9.9832
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05041**	**.20197**	**.50185**	**.50682**	**3.9640**	**50.010**	**.99852**
Stddev	.00036	.00020	.00190	.00070	.0252	.101	.00730
%RSD	.72174	.09919	.37778	.13899	.63574	.20230	.73121
#1	.05075	.20211	.50067	.50603	3.9361	49.927	.99419
#2	.05002	.20174	.50085	.50705	3.9851	49.979	.99442
#3	.05045	.20206	.50404	.50738	3.9708	50.122	1.0070
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.099**	**.51070**	**.96042**	**49.799**	**.50411**	**10.055**	**.50313**
Stddev	.058	.00214	.00263	.107	.00054	.012	.00398
%RSD	.57109	.41819	.27360	.21491	.10650	.12409	.79158
#1	10.100	.51028	.95903	49.722	.50472	10.067	.50293
#2	10.156	.50881	.96345	49.753	.50372	10.056	.50721
#3	10.041	.51301	.95877	49.921	.50389	10.042	.49925
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICV Acquired: 8/29/2017 14:28:39 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2364**	**.41498**	**5.0017**	**1.0238**	**1.0058**	**1.0014**	**.49911**
Stddev	.0037	.00908	.0045	.0007	.0004	.0015	.00397
%RSD	.30240	2.1890	.09040	.07044	.03589	.14769	.79481
#1	1.2404	.42457	4.9968	1.0242	1.0060	1.0005	.49621
#2	1.2330	.40651	5.0026	1.0242	1.0054	1.0031	.49750
#3	1.2358	.41384	5.0057	1.0229	1.0060	1.0006	.50363
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.98694**	**1.0113**	F **.60345**
Stddev	.00116	.0001	.10987
%RSD	.11791	.00951	18.207
#1	.98658	1.0113	.47659
#2	.98600	1.0114	.66597
#3	.98824	1.0112	.66779
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-5.0000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9966.0**	**78414.**	**6880.6**
Stddev	18.8	695.	44.3
%RSD	.18832	.88650	.64315
#1	9976.5	77619.	6831.3
#2	9944.4	78911.	6916.9
#3	9977.3	78711.	6893.5

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

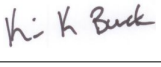
Sample Name: ICB Acquired: 8/29/2017 14:36:00 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00104**	**.00388**	**-.00056**	**.00119**	**-.00065**	**.00003**	**.00358**
Stddev	.00208	.00252	.00055	.00214	.00058	.00004	.01723
%RSD	199.32	64.963	97.341	179.70	88.826	127.71	480.76
#1	.00282	.00100	-.00002	-.00127	-.00111	.00002	-.01383
#2	.00154	.00497	-.00111	.00258	-.00084	.00000	.02062
#3	-.00124	.00566	-.00056	.00226	-.00000	.00007	.00396
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

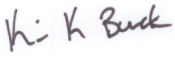
Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00025**	**-.00012**	**-.00004**	**-.00088**	**-.00585**	**.18154**	**.00752**
Stddev	.00030	.00025	.00213	.00139	.00219	.07474	.00437
%RSD	121.12	206.58	5738.3	158.32	37.350	41.168	58.141
#1	.00044	-.00031	.00232	-.00046	-.00813	.13211	.00322
#2	-.00010	-.00022	-.00063	-.00243	-.00565	.14499	.01196
#3	.00041	.00016	-.00181	.00026	-.00377	.26752	.00738
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.03826**	**-.00060**	**-.00005**	**-.03016**	**-.00089**	**-.00826**	**-.00082**
Stddev	.11048	.00274	.00041	.01995	.00144	.00879	.00582
%RSD	288.78	453.79	828.25	66.161	161.16	106.43	714.66
#1	-.04509	-.00365	-.00022	-.04957	-.00118	-.01169	.00362
#2	.16357	.00165	-.00035	-.00971	-.00216	.00173	.00134
#3	-.00371	.00019	.00042	-.03118	.00067	-.01483	-.00741
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017



Approved: August 30, 2017



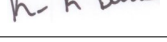
Sample Name: ICB Acquired: 8/29/2017 14:36:00 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00407**	**.00397**	**.00023**	**-.00047**	**.00023**	**.00513**	**-.00178**
Stddev	.00535	.00750	.00448	.00008	.00035	.00661	.00303
%RSD	131.61	188.93	1912.2	17.500	154.66	128.81	169.93
#1	-.01017	-.00161	.00492	-.00039	-.00015	-.00248	-.00438
#2	-.00015	.01250	-.00400	-.00046	.00029	.00948	-.00252
#3	-.00189	.00102	-.00021	-.00055	.00054	.00840	.00155
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

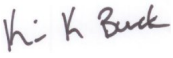
Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00051**	**-.00150**	F **.40852**
Stddev	.00086	.00001	.15015
%RSD	171.01	.64952	36.755
#1	-.00039	-.00151	.42256
#2	.00057	-.00149	.25184
#3	.00134	-.00149	.55116
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10139.**	**81358.**	**7015.5**
Stddev	.	226.	30.1
%RSD	.00383	.27788	.42867
#1	10139.	81563.	7046.0
#2	10139.	81116.	6985.9
#3	10138.	81397.	7014.5

Approved: August 30, 2017



Approved: August 30, 2017



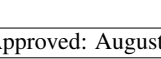
Sample Name: LLICV Acquired: 8/29/2017 14:39:48 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00906**	**.18585**	**.00869**	**.07630**	**.00894**	**.00168**	**.44677**	**.00105**
Stddev	.00168	.00269	.00175	.00156	.00041	.00003	.05592	.00010
%RSD	18.538	1.4466	20.198	2.0382	4.6175	1.8196	12.516	9.0544
#1	.00714	.18534	.01015	.07597	.00899	.00165	.41737	.00100
#2	.00975	.18876	.00918	.07494	.00851	.00167	.41168	.00117
#3	.01028	.18346	.00674	.07800	.00933	.00171	.51125	.00100
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

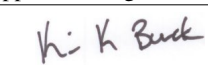
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00465**	**.00310**	**.00430**	**.08572**	**.96987**	**.09034**	**.37404**	**.00855**
Stddev	.00033	.00079	.00227	.01897	.17923	.00155	.03375	.00288
%RSD	7.1499	25.442	52.853	22.135	18.480	1.7148	9.0225	33.749
#1	.00454	.00287	.00230	.10758	.89747	.08862	.33638	.00530
#2	.00502	.00398	.00677	.07608	.83817	.09078	.40153	.00950
#3	.00438	.00246	.00383	.07351	1.1740	.09162	.38420	.01083
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00798**	**.43731**	**.01572**	**.81183**	**.00784**	**.08667**	**.02548**	**.75111**
Stddev	.00029	.00709	.00113	.00387	.00163	.00296	.00594	.00161
%RSD	3.6929	1.6222	7.2109	.47624	20.819	3.4138	23.329	.21466
#1	.00832	.43795	.01444	.80952	.00596	.08816	.02269	.75160
#2	.00784	.42991	.01609	.81629	.00892	.08326	.03230	.74931
#3	.00778	.44406	.01661	.80967	.00863	.08857	.02144	.75242
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: LLICV Acquired: 8/29/2017 14:39:48 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.42117**	**.04186**	**.02858**	**.16295**	**.00866**	**.01674**	**32.074**
Stddev	.00201	.00039	.00635	.00293	.00139	.00004	.108
%RSD	.47787	.92368	22.234	1.7960	16.050	.26522	.33706
#1	.42170	.04162	.02180	.15959	.00985	.01678	31.966
#2	.42286	.04166	.02954	.16496	.00713	.01676	32.074
#3	.41894	.04231	.03440	.16429	.00898	.01669	32.182
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10141.**	**81375.**	**7053.5**
Stddev	34.	217.	31.1
%RSD	.33635	.26660	.44048
#1	10178.	81264.	7036.0
#2	10112.	81235.	7089.3
#3	10133.	81624.	7035.0

Approved: August 30, 2017
Kim K Buck

Approved: August 30, 2017
Kim K Buck

Sample Name: ICSA Acquired: 8/29/2017 14:43:33 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.00559**	**250.21**	**.00135**	**-.01649**	**.00002**	**.00012**	**241.62**
Stddev	.00204	.37	.00605	.00364	.00123	.00007	.42
%RSD	36.405	.14975	449.33	22.076	5463.2	62.119	.17529
#1	-.00547	250.05	-.00560	-.01288	.00120	.00009	241.62
#2	-.00362	250.64	.00546	-.01644	.00012	.00020	242.04
#3	-.00768	249.94	.00418	-.02016	-.00125	.00007	241.19
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	.00400						
Low Limit	-.00400						

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **.00115**	**-.00017**	**-.00066**	F **.00844**	**96.196**	**.17658**	**.00943**
Stddev	.00022	.00075	.00124	.00144	.177	.03925	.00159
%RSD	18.735	432.08	189.65	17.112	.18441	22.226	16.880
#1	.00090	-.00103	-.00118	.00994	95.991	.13913	.01019
#2	.00128	.00021	.00076	.00832	96.307	.21740	.01050
#3	.00126	.00030	-.00156	.00706	96.289	.17322	.00760
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit	.00080			.00400			
Low Limit	-.00080			-.00400			

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**245.84**	**-.00146**	**-.00123**	**.01739**	**-.00380**	**.02040**	**.00157**
Stddev	.56	.00155	.00042	.01770	.00105	.01265	.00205
%RSD	.22630	106.68	34.466	101.74	27.532	62.033	131.08
#1	245.99	-.00201	-.00169	.03431	-.00384	.01741	.00278
#2	245.23	-.00266	-.00085	-.00099	-.00482	.00951	.00272
#3	246.31	.00030	-.00115	.01887	-.00273	.03428	-.00080
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSA Acquired: 8/29/2017 14:43:33 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00114**	F **.01110**	**.00611**	**-.00110**	**.00153**	**.01014**	**.00169**
Stddev	.00301	.01056	.00156	.00020	.00006	.00448	.00160
%RSD	262.93	95.058	25.604	18.292	3.9416	44.185	94.501
#1	.00300	.02017	.00785	-.00087	.00156	.01063	.00195
#2	-.00233	.01362	.00481	-.00119	.00146	.00543	.00314
#3	.00276	-.00048	.00568	-.00124	.00157	.01435	-.00002
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00800					
Low Limit		-.00800					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00462**	**-.00785**	F **-3.5651**
Stddev	.00127	.00008	.2165
%RSD	27.477	1.0267	6.0730
#1	-.00574	-.00791	-3.8049
#2	-.00324	-.00788	-3.5062
#3	-.00489	-.00775	-3.3841
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02000
Low Limit			-.02000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9473.9**	**74066.**	**6893.4**
Stddev	22.4	62.	15.1
%RSD	.23674	.08396	.21846
#1	9468.8	74133.	6897.5
#2	9454.4	74056.	6876.8
#3	9498.4	74010.	6906.0

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSAB Acquired: 8/29/2017 14:47:17 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50468**	**244.34**	**.24023**	**.47676**	**.24641**	**.25229**	**235.80**
Stddev	.00115	.08	.00181	.00308	.00074	.00003	1.29
%RSD	.22729	.03197	.75503	.64597	.29953	.01020	.54804
#1	.50448	244.25	.24088	.47627	.24557	.25230	234.44
#2	.50365	244.37	.23818	.47396	.24692	.25230	235.95
#3	.50592	244.40	.24163	.48006	.24676	.25226	237.01
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.46662**	**.23323**	**.24189**	**.24548**	**95.011**	**5.2391**	**.00344**
Stddev	.00034	.00065	.00049	.00075	.689	.0850	.00650
%RSD	.07236	.27658	.20272	.30575	.72474	1.6223	188.98
#1	.46673	.23397	.24242	.24605	94.281	5.1535	.00363
#2	.46624	.23285	.24145	.24575	95.102	5.2403	.00984
#3	.46689	.23286	.24180	.24463	95.649	5.3235	-.00315
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**243.08**	**.23752**	**-.00122**	**5.0974**	**.46470**	**-.00878**	**.47263**
Stddev	1.85	.00121	.00080	.0663	.00203	.00093	.00259
%RSD	.76103	.50761	65.799	1.3000	.43669	10.571	.54758
#1	241.21	.23682	-.00215	5.0282	.46664	-.00776	.47384
#2	243.14	.23683	-.00075	5.1603	.46259	-.00900	.46966
#3	244.91	.23892	-.00076	5.1036	.46488	-.00958	.47439
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSAB Acquired: 8/29/2017 14:47:17 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48631**	**.24748**	**.00904**	**.47489**	**.00131**	**.00429**	**.43843**
Stddev	.00860	.01732	.00414	.00175	.00012	.00845	.00323
%RSD	1.7687	6.9978	45.765	.36836	9.1124	197.02	.73745
#1	.47686	.25311	.00913	.47660	.00117	.00632	.43488
#2	.48840	.26129	.00486	.47310	.00137	-.00499	.43918
#3	.49368	.22805	.01313	.47498	.00138	.01154	.44122
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.24101**	**.46083**	F **-3.7200**
Stddev	.00194	.00048	.8030
%RSD	.80619	.10496	21.585
#1	.23918	.46093	-2.9503
#2	.24305	.46031	-3.6572
#3	.24081	.46126	-4.5526
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02500
Low Limit			-.02500

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9557.0**	**74581.**	**6773.7**
Stddev	9.2	33.	94.9
%RSD	.09616	.04393	1.4009
#1	9567.0	74546.	6841.8
#2	9555.2	74587.	6813.9
#3	9548.9	74611.	6665.3

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: CCV Acquired: 8/29/2017 14:50:51 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40494**	**10.247**	**.40366**	**.50210**	**1.0118**	**.05052**	**10.078**	**.05070**
Stddev	.00131	.011	.00187	.00445	.0026	.00006	.091	.00046
%RSD	.32424	.10410	.46279	.88537	.25610	.12220	.90696	.90445
#1	.40645	10.235	.40160	.49729	1.0148	.05047	10.140	.05123
#2	.40427	10.253	.40523	.50296	1.0101	.05059	9.9731	.05045
#3	.40409	10.254	.40416	.50606	1.0105	.05050	10.122	.05043
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20344**	**.50450**	**.50801**	**4.0424**	**50.641**	**1.0103**	**10.223**	**.50515**
Stddev	.00087	.00119	.00197	.0049	.126	.0055	.075	.00491
%RSD	.42871	.23593	.38847	.12093	.24951	.54617	.73307	.97201
#1	.20441	.50340	.50811	4.0480	50.499	1.0088	10.189	.51072
#2	.20320	.50435	.50992	4.0400	50.681	1.0056	10.172	.50147
#3	.20272	.50576	.50598	4.0391	50.742	1.0164	10.309	.50325
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.0143**	**50.784**	**.50823**	**10.049**	**.50592**	**1.2189**	**.42434**	**5.1013**
Stddev	.0019	.234	.00182	.022	.00477	.0095	.01735	.0064
%RSD	.18597	.46167	.35904	.21414	.94316	.78178	4.0898	.12627
#1	1.0159	50.780	.50920	10.065	.50922	1.2083	.40595	5.1083
#2	1.0148	50.551	.50612	10.056	.50045	1.2217	.44043	5.1001
#3	1.0122	51.020	.50936	10.024	.50808	1.2268	.42666	5.0956
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: CCV Acquired: 8/29/2017 14:50:51 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.0178**	**1.0116**	**1.0115**	**.50854**	**1.0070**	**1.0131**	**.95927**
Stddev	.0018	.0022	.0053	.00459	.0012	.0021	.21133
%RSD	.17700	.22166	.52558	.90170	.12106	.20820	22.031
#1	1.0196	1.0126	1.0102	.50455	1.0068	1.0151	.84904
#2	1.0178	1.0090	1.0068	.51355	1.0059	1.0134	.82585
#3	1.0160	1.0131	1.0173	.50753	1.0083	1.0109	1.2029
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9941.1**	**78461.**	**6929.6**
Stddev	14.9	164.	28.9
%RSD	.14969	.20882	.41733
#1	9935.3	78316.	6941.3
#2	9930.0	78427.	6950.9
#3	9958.0	78639.	6896.7

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: CCB Acquired: 8/29/2017 14:54:19 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00076**	**.05002**	**.00130**	**.00144**	**.00072**	**.00009**	**.03065**
Stddev	.00158	.04897	.00191	.00099	.00094	.00005	.03935
%RSD	208.32	97.893	146.81	69.274	130.96	52.550	128.38
#1	.00051	.01588	-.00030	.00051	-.00036	.00004	-.00494
#2	-.00254	.10613	.00078	.00249	.00135	.00013	.02398
#3	-.00025	.02806	.00342	.00131	.00118	.00011	.07291
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**.00069**	**.00009**	**.00112**	**.01057**	**.15756**	**.00358**
Stddev	.00053	.00034	.00126	.00053	.02300	.08533	.00304
%RSD	316.46	49.147	1405.5	47.334	217.52	54.157	84.957
#1	.00036	.00044	.00145	.00142	.00774	.08578	.00606
#2	.00057	.00055	-.00016	.00142	-.01088	.13499	.00019
#3	-.00043	.00107	-.00103	.00051	.03487	.25190	.00448
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.03608**	**-.00064**	**-.00058**	**.02046**	**-.00151**	**-.00451**	**-.00091**
Stddev	.08661	.00485	.00023	.01169	.00039	.00331	.00189
%RSD	240.04	760.39	39.361	57.152	25.667	73.533	208.08
#1	.05897	-.00598	-.00034	.01055	-.00108	-.00459	.00117
#2	-.11056	.00348	-.00059	.03336	-.00161	-.00778	-.00251
#3	-.05666	.00059	-.00079	.01748	-.00183	-.00115	-.00138
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017

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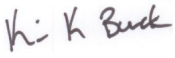

Sample Name: CCB Acquired: 8/29/2017 14:54:19 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00381**	**.00912**	**.00197**	**.00022**	**.00052**	**.00440**	**.00041**
Stddev	.00305	.00130	.00075	.00019	.00077	.00831	.00340
%RSD	79.957	14.283	37.932	84.435	148.55	188.91	822.06
#1	.00032	.00987	.00117	.00021	.00012	.00410	-.00214
#2	.00516	.00986	.00208	.00004	.00003	.01285	-.00090
#3	.00595	.00761	.00264	.00041	.00140	-.00376	.00427
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00066**	**-.00045**	F **.52687**
Stddev	.00068	.00008	.19606
%RSD	102.90	17.942	37.213
#1	-.00007	-.00054	.72676
#2	.00077	-.00039	.51895
#3	.00128	-.00042	.33488
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10116.**	**81117.**	**6829.2**
Stddev	2.	183.	133.7
%RSD	.02325	.22562	1.9583
#1	10118.	81037.	6949.0
#2	10118.	81326.	6853.7
#3	10114.	80987.	6684.9

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
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Sample Name: L1708130503 Acquired: 8/29/2017 15:18:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

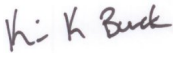
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00329**	**.03747**	**.00070**	**.06039**	**.00991**	**.00004**	**11.907**	**.00012**
Stddev	.00389	.00369	.00196	.00258	.00124	.00005	.043	.00051
%RSD	118.41	9.8429	279.62	4.2800	12.519	128.00	.35930	425.12
#1	.00021	.03669	.00296	.06030	.00850	.00008	11.945	.00016
#2	-.00259	.04149	-.00053	.05785	.01043	-.00001	11.860	-.00041
#3	-.00748	.03423	-.00033	.06301	.01081	.00005	11.915	.00061
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00016**	**-.00009**	**-.00060**	**.03964**	**2.4508**	**.02461**	**2.3988**	**.00410**
Stddev	.00036	.00098	.00031	.00936	.0799	.00159	.0234	.00185
%RSD	226.51	1050.9	52.755	23.618	3.2619	6.4622	.97545	45.139
#1	-.00052	.00036	-.00024	.04878	2.4762	.02279	2.3753	.00422
#2	.00020	.00058	-.00084	.03007	2.5150	.02573	2.4221	.00219
#3	-.00015	-.00122	-.00070	.04008	2.3612	.02531	2.3990	.00588
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00003**	**177.36**	**-.00134**	**.06754**	**.00224**	**-.00185**	**.00087**	**5.2847**
Stddev	.00035	.24	.00171	.00717	.00076	.00364	.01759	.0052
%RSD	1043.3	.13605	127.68	10.614	33.779	197.10	2023.5	.09883
#1	-.00041	177.10	.00063	.06154	.00300	-.00033	.00055	5.2791
#2	.00029	177.39	-.00227	.06561	.00149	-.00600	.01862	5.2854
#3	.00003	177.58	-.00239	.07548	.00224	.00079	-.01656	5.2895
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: L1708130503 Acquired: 8/29/2017 15:18:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00250**	**.08604**	**.01705**	**-.00139**	**.00269**	**.00843**	**.78430**
Stddev	.00136	.00005	.00227	.00392	.00029	.00019	.19548
%RSD	54.354	.05621	13.290	283.16	10.677	2.2168	24.924
#1	.00100	.08598	.01669	-.00547	.00288	.00829	.83548
#2	.00285	.08607	.01948	.00236	.00284	.00836	.56832
#3	.00364	.08606	.01499	-.00104	.00236	.00864	.94909
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9896.2**	**77654.**	**6830.5**
Stddev	51.9	1033.	174.4
%RSD	.52465	1.3301	2.5526
#1	9954.0	78753.	6944.4
#2	9880.8	77506.	6917.3
#3	9853.6	76703.	6629.8

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

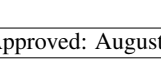
Sample Name: L1708130505 Acquired: 8/29/2017 15:22:12 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00114**	**.03626**	**-.00121**	**.06405**	**.00902**	**.00008**	**10.970**	**.00033**
Stddev	.00073	.00512	.00262	.00271	.00116	.00006	.023	.00022
%RSD	64.105	14.125	215.90	4.2244	12.871	73.309	.21304	66.682
#1	.00197	.03387	.00155	.06093	.00869	.00014	10.992	.00008
#2	.00080	.03278	-.00152	.06542	.01031	.00003	10.946	.00049
#3	.00064	.04215	-.00367	.06579	.00806	.00006	10.973	.00042
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

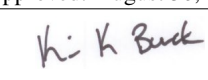
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00031**	**.00073**	**.00013**	**.02579**	**2.4435**	**.02352**	**2.3041**	**.00360**
Stddev	.00032	.00080	.00288	.01077	.0656	.00116	.1211	.00158
%RSD	104.58	109.84	2270.9	41.767	2.6848	4.9155	5.2566	44.022
#1	-.00007	.00028	.00288	.03531	2.5122	.02303	2.1780	.00447
#2	-.00017	.00165	-.00286	.02797	2.3815	.02484	2.4195	.00177
#3	-.00068	.00026	.00036	.01410	2.4366	.02269	2.3149	.00455
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00050**	**181.36**	**-.00139**	**.06320**	**.00170**	**.00222**	**.01401**	**5.4089**
Stddev	.00038	.76	.00026	.00605	.00358	.00402	.00283	.0179
%RSD	76.971	.41877	19.088	9.5762	210.89	181.20	20.198	.33159
#1	.00080	180.86	-.00169	.06013	.00149	.00616	.01396	5.4032
#2	.00006	182.23	-.00125	.07018	.00538	-.00188	.01121	5.3945
#3	.00064	180.98	-.00122	.05930	-.00177	.00238	.01687	5.4290
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708130505 Acquired: 8/29/2017 15:22:12 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00299**	**.08027**	**.02178**	**-.00127**	**.00255**	**.00095**	**.29178**
Stddev	.00099	.00028	.00461	.00620	.00061	.00012	.15000
%RSD	33.170	.34698	21.179	487.19	23.893	12.913	51.408
#1	.00411	.08005	.02165	-.00714	.00227	.00096	.46190
#2	.00224	.08058	.02645	-.00190	.00325	.00083	.23487
#3	.00261	.08018	.01723	.00522	.00213	.00107	.17857
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9866.3**	**78204.**	**7024.1**
Stddev	28.5	46.	19.5
%RSD	.28898	.05917	.27803
#1	9878.1	78165.	7035.8
#2	9887.0	78255.	7001.6
#3	9833.7	78192.	7035.0

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

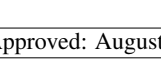
Sample Name: L1708130508 Acquired: 8/29/2017 15:25:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00084**	**.09004**	**.00378**	**.03728**	**.02807**	**.00002**	**.26599**	**.00043**
Stddev	.00009	.00609	.00400	.00138	.00017	.00008	.07898	.00045
%RSD	10.581	6.7648	105.95	3.6942	.59573	526.57	29.692	104.59
#1	.00084	.08657	-.00084	.03645	.02817	-.00002	.21001	.00082
#2	.00075	.08648	.00593	.03887	.02817	-.00004	.23163	.00055
#3	.00093	.09708	.00624	.03652	.02788	.00011	.35632	-.00007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

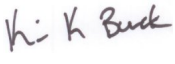
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00018**	**.11744**	**-.00177**	**.13616**	**.91849**	**.00630**	**.28007**	**-.00019**
Stddev	.00057	.00038	.00128	.02325	.05934	.00376	.06400	.00095
%RSD	319.80	.32775	72.210	17.077	6.4603	59.633	22.853	509.23
#1	-.00039	.11700	-.00249	.11055	.90127	.00197	.27756	.00001
#2	.00047	.11772	-.00253	.14197	.86967	.00831	.21736	-.00122
#3	-.00061	.11760	-.00029	.15595	.98453	.00864	.34529	.00065
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00013**	**180.61**	**.00200**	**.55856**	**.00124**	**.00416**	**.00183**	**.74962**
Stddev	.00028	.53	.00070	.00677	.00133	.00226	.00337	.00204
%RSD	217.30	.29525	35.119	1.2115	107.72	54.339	183.75	.27267
#1	.00019	181.09	.00219	.55517	.00109	.00235	.00083	.75181
#2	-.00031	180.04	.00122	.55415	.00264	.00343	-.00092	.74927
#3	-.00027	180.72	.00259	.56635	-.00002	.00669	.00559	.74777
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708130508 Acquired: 8/29/2017 15:25:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00771**	**.15162**	**.21569**	**.00099**	**.03702**	**.00661**	**14.413**
Stddev	.00058	.00086	.00090	.00423	.00150	.00016	.485
%RSD	7.5369	.56911	.41657	427.14	4.0578	2.3935	3.3639
#1	.00812	.15203	.21667	-.00074	.03730	.00659	14.864
#2	.00705	.15062	.21550	.00582	.03836	.00647	13.900
#3	.00798	.15219	.21490	-.00210	.03540	.00678	14.475
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9857.8**	**78588.**	**7038.7**
Stddev	13.9	241.	17.9
%RSD	.14125	.30664	.25362
#1	9858.5	78625.	7028.6
#2	9871.4	78330.	7028.3
#3	9843.6	78808.	7059.4

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708130510 Acquired: 8/29/2017 15:29:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 2 Custom ID2: Custom ID3:
Comment:

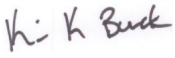
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00014**	**.04209**	**.00321**	**.07845**	**.02145**	**.00005**	**29.471**	**.00040**
Stddev	.00106	.01247	.00223	.00214	.00151	.00007	.073	.00020
%RSD	749.81	29.633	69.518	2.7233	7.0215	126.68	.24748	49.489
#1	-.00135	.04885	.00339	.08091	.02305	.00013	29.506	.00039
#2	.00027	.02770	.00089	.07731	.02126	.00000	29.388	.00061
#3	.00065	.04972	.00534	.07713	.02005	.00003	29.521	.00021
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00020**	**.00067**	**-.00062**	**.23333**	**4.2187**	**.01494**	**6.3938**	**.02600**
Stddev	.00013	.00059	.00179	.00181	.0552	.00388	.0880	.00089
%RSD	68.313	87.328	288.40	.77396	1.3077	25.972	1.3767	3.4224
#1	-.00025	.00130	-.00213	.23515	4.2212	.01049	6.3687	.02501
#2	-.00004	.00057	.00136	.23154	4.2726	.01670	6.3211	.02627
#3	-.00030	.00014	-.00111	.23329	4.1624	.01762	6.4917	.02673
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00029**	**198.05**	**-.00128**	**.07723**	**.00327**	**.00311**	**.01097**	**3.9309**
Stddev	.00016	.45	.00149	.00775	.00303	.00066	.01238	.0032
%RSD	55.855	.22532	117.01	10.030	92.512	21.218	112.90	.08131
#1	-.00034	198.52	-.00300	.08354	.00676	.00259	.01593	3.9272
#2	-.00043	197.99	-.00034	.06859	.00146	.00289	-.00313	3.9330
#3	-.00011	197.64	-.00050	.07957	.00158	.00386	.02010	3.9325
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: L1708130510 Acquired: 8/29/2017 15:29:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 2 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00011**	**.43050**	**.00680**	**-.00173**	**.00171**	**.00043**	**.91784**
Stddev	.00041	.00057	.00507	.00191	.00065	.00006	.29124
%RSD	378.75	.13310	74.537	110.08	38.197	14.470	31.731
#1	.00057	.43097	.00272	-.00110	.00189	.00037	.61309
#2	-.00020	.43066	.00520	-.00387	.00226	.00050	1.1934
#3	-.00004	.42986	.01247	-.00022	.00099	.00042	.94705
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9772.5**	**77534.**	**6784.4**
Stddev	27.8	340.	54.1
%RSD	.28476	.43888	.79782
#1	9798.5	77393.	6831.9
#2	9743.1	77287.	6795.8
#3	9775.9	77922.	6725.5

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: L1708130512 Acquired: 8/29/2017 15:33:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

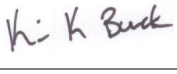
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00120**	**.01915**	**.15636**	**.06877**	**.01293**	**.00007**	**1.0205**	**.00116**
Stddev	.00103	.00378	.00419	.00192	.00080	.00009	.0293	.00004
%RSD	86.071	19.762	2.6781	2.7967	6.1866	127.35	2.8672	3.0165
#1	-.00023	.02346	.15351	.06683	.01212	.00017	1.0411	.00115
#2	-.00228	.01638	.16117	.06878	.01294	.00004	.98699	.00120
#3	-.00108	.01760	.15441	.07068	.01372	.00000	1.0334	.00113
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00029**	**-.00056**	**.00035**	**.03034**	**.45833**	**.00564**	**1.3886**	**.00337**
Stddev	.00007	.00041	.00222	.00679	.08804	.00240	.0689	.00212
%RSD	25.193	73.192	636.04	22.369	19.208	42.510	4.9596	62.862
#1	-.00035	-.00061	.00199	.02880	.52575	.00300	1.3091	.00276
#2	-.00021	-.00013	.00123	.03776	.35873	.00625	1.4292	.00573
#3	-.00029	-.00093	-.00218	.02445	.49052	.00768	1.4275	.00163
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00022**	**107.95**	**-.00067**	**.01938**	**.00172**	**-.00426**	**.01192**	**.98883**
Stddev	.00028	.32	.00095	.00266	.00262	.00341	.01785	.00315
%RSD	126.23	.30016	140.73	13.723	151.95	80.093	149.79	.31885
#1	.00053	107.59	-.00164	.01730	.00389	-.00790	-.00848	.98669
#2	.00017	108.22	-.00063	.01847	.00246	-.00112	.02468	.99245
#3	-.00003	108.04	.00025	.02238	-.00119	-.00378	.01955	.98735
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: L1708130512 Acquired: 8/29/2017 15:33:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00079**	**.11467**	**.00502**	**-.00255**	**.00024**	**-.00045**	**.36695**
Stddev	.00024	.00038	.00208	.00118	.00113	.00015	.01864
%RSD	30.807	.33302	41.390	46.084	466.60	33.310	5.0803
#1	-.00106	.11478	.00263	-.00336	.00121	-.00041	.34955
#2	-.00058	.11424	.00608	-.00120	-.00100	-.00033	.38663
#3	-.00073	.11498	.00635	-.00309	.00051	-.00062	.36468
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9891.8**	**78916.**	**6892.1**
Stddev	55.2	341.	29.7
%RSD	.55793	.43208	.43137
#1	9854.5	79309.	6918.9
#2	9865.7	78702.	6860.1
#3	9955.2	78736.	6897.4

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708130514 Acquired: 8/29/2017 15:37:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00259**	**.02339**	**.00372**	**.06911**	**.00599**	**.00005**	**44.367**	**.00039**
Stddev	.00194	.00968	.00251	.00132	.00170	.00005	.293	.00047
%RSD	74.697	41.379	67.439	1.9091	28.364	98.750	.66088	119.88
#1	.00123	.01417	.00606	.06978	.00734	.00010	44.346	.00065
#2	.00481	.02252	.00405	.06759	.00656	.00001	44.671	-.00015
#3	.00174	.03347	.00107	.06997	.00408	.00004	44.085	.00066
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00012**	**-.00076**	**-.00112**	**.70760**	**1.4793**	**.01129**	**15.442**	**.09536**
Stddev	.00016	.00113	.00179	.04379	.0365	.00386	.043	.00264
%RSD	133.08	150.00	160.16	6.1887	2.4699	34.134	.27893	2.7706
#1	.00001	-.00097	-.00089	.67009	1.4386	.00763	15.422	.09673
#2	.00004	-.00177	.00055	.69698	1.5093	.01094	15.491	.09704
#3	.00030	.00047	-.00301	.75572	1.4898	.01532	15.411	.09232
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00052**	**99.881**	**.00019**	**.02992**	**.00147**	**.00246**	**.00537**	**1.9017**
Stddev	.00027	.590	.00085	.00241	.00127	.00416	.00939	.0016
%RSD	51.881	.59072	440.55	8.0624	86.565	169.19	174.84	.08562
#1	-.00066	100.22	.00008	.02835	.00002	.00681	.01351	1.9036
#2	-.00068	100.22	.00110	.02871	.00196	.00206	.00750	1.9005
#3	-.00021	99.199	-.00060	.03269	.00242	-.00149	-.00490	1.9010
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017
Kim K Buck

Approved: August 30, 2017
Kim K Buck

Sample Name: L1708130514 Acquired: 8/29/2017 15:37:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00027**	**.54127**	**.00075**	**.00044**	**.00102**	**-.00109**	**.12711**
Stddev	.00029	.00456	.00121	.00393	.00046	.00006	.10992
%RSD	108.32	.84279	161.48	893.98	45.431	5.5210	86.475
#1	-.00025	.54293	.00069	-.00409	.00117	-.00105	.10098
#2	-.00057	.54478	-.00043	.00297	.00138	-.00106	.24775
#3	.00001	.53612	.00199	.00244	.00050	-.00116	.03262
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9915.9**	**79043.**	**7066.7**
Stddev	11.8	241.	96.9
%RSD	.11870	.30510	1.3715
#1	9920.3	79259.	7030.6
#2	9924.8	79087.	6993.0
#3	9902.6	78783.	7176.5

Approved: August 30, 2017

Approved: August 30, 2017

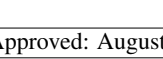
Sample Name: L1708130516 Acquired: 8/29/2017 15:40:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00022**	**.02368**	**.00251**	**.06925**	**.00602**	**.00011**	**45.773**	**.00023**
Stddev	.00228	.00391	.00158	.00138	.00059	.00003	.156	.00032
%RSD	1016.2	16.517	62.735	1.9862	9.7228	28.842	.34151	135.65
#1	-.00252	.02702	.00433	.06954	.00642	.00007	45.629	.00030
#2	.00204	.02463	.00164	.07046	.00630	.00012	45.939	-.00011
#3	-.00020	.01938	.00157	.06776	.00535	.00013	45.752	.00051
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

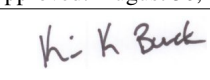
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00027**	**-.00041**	**-.00002**	**.71271**	**1.5956**	**.01394**	**16.010**	**.10017**
Stddev	.00003	.00130	.00132	.00201	.0398	.00936	.161	.00249
%RSD	11.043	314.83	8349.3	.28169	2.4950	67.136	1.0028	2.4870
#1	-.00029	-.00044	-.00144	.71059	1.5856	.02213	15.925	.09747
#2	-.00028	-.00170	.00117	.71296	1.5618	.00374	16.195	.10239
#3	-.00023	.00090	.00022	.71458	1.6395	.01596	15.910	.10064
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00019**	**103.46**	**-.00015**	**.03621**	**.00274**	**-.00002**	**.00851**	**1.9630**
Stddev	.00071	.26	.00070	.00885	.00303	.00005	.00610	.0065
%RSD	384.71	.25335	474.26	24.449	110.44	318.88	71.708	.33077
#1	.00047	103.16	.00051	.02700	.00413	-.00005	.01375	1.9559
#2	-.00094	103.56	-.00007	.04466	.00482	-.00004	.00181	1.9685
#3	-.00008	103.65	-.00088	.03696	-.00073	.00005	.00997	1.9647
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708130516 Acquired: 8/29/2017 15:40:53 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00021**	**.55876**	**.00500**	**.00174**	**.00008**	**-.00114**	**.84655**
Stddev	.00040	.00317	.00722	.00160	.00023	.00003	.27774
%RSD	196.17	.56806	144.44	92.214	295.32	2.5599	32.809
#1	-.00002	.55564	-.00311	.00276	-.00000	-.00113	1.0654
#2	-.00067	.56198	.00739	.00256	-.00010	-.00112	.53410
#3	.00007	.55865	.01073	-.00011	.00034	-.00117	.94016
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9900.3**	**78621.**	**7010.6**
Stddev	10.2	244.	69.3
%RSD	.10304	.30973	.98887
#1	9903.0	78710.	7019.3
#2	9908.8	78808.	6937.3
#3	9889.0	78345.	7075.1

Approved: August 30, 2017
Ki K Buck

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Sample Name: L1708130723 Acquired: 8/29/2017 15:44:36 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00089**	**.01009**	**.00017**	**-.00110**	**-.00012**	**.00006**	**.02008**
Stddev	.00149	.00120	.00293	.00343	.00123	.00002	.01757
%RSD	166.63	11.913	1705.9	311.75	1028.2	28.397	87.538
#1	-.00038	.00972	-.00249	.00263	.00015	.00008	.02802
#2	.00252	.00911	.00331	-.00413	.00096	.00006	.03227
#3	.00053	.01143	-.00030	-.00181	-.00146	.00005	-.00007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00059**	**-.00013**	**-.00165**	**-.00029**	**.00264**	**.12006**	**.00437**
Stddev	.00058	.00024	.00103	.00052	.00624	.08311	.00234
%RSD	97.657	183.77	62.218	178.57	236.57	69.222	53.559
#1	.00119	-.00009	-.00091	.00023	-.00168	.20136	.00659
#2	.00004	-.00039	-.00282	-.00081	-.00020	.12356	.00459
#3	.00055	.00009	-.00122	-.00029	.00979	.03526	.00192
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.14265**	**-.00053**	**-.00028**	**1.5184**	**.00035**	**-.00558**	**.00428**
Stddev	.04911	.00143	.00079	.0241	.00151	.00540	.00353
%RSD	34.427	273.02	285.80	1.5877	429.68	96.827	82.459
#1	-.17188	.00086	-.00118	1.4906	.00170	-.00960	.00664
#2	-.17012	-.00044	.00030	1.5325	.00063	-.00770	.00597
#3	-.08595	-.00200	.00004	1.5322	-.00127	.00056	.00022
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	900.00						
Low Limit	-.10000						

Approved: August 30, 2017
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Sample Name: L1708130723 Acquired: 8/29/2017 15:44:36 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00056**	**.00517**	**.52614**	**-.00017**	**.00006**	**.00980**	**-.00058**
Stddev	.00410	.00962	.00148	.00099	.00034	.00520	.00430
%RSD	736.83	186.01	.28194	589.94	580.32	53.078	744.90
#1	.00411	-.00086	.52465	.00061	.00001	.00876	.00431
#2	.00149	.00011	.52762	-.00129	.00041	.00519	-.00226
#3	-.00393	.01626	.52614	.00017	-.00025	.01544	-.00378
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00065**	**-.00049**	**.15407**
Stddev	.00073	.00019	.21159
%RSD	110.88	38.982	137.33
#1	-.00017	-.00028	.31362
#2	.00120	-.00055	-.08595
#3	.00094	-.00065	.23455
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10216.**	**82706.**	**7080.2**
Stddev	26.	172.	29.6
%RSD	.25664	.20854	.41815
#1	10194.	82552.	7084.5
#2	10245.	82893.	7048.7
#3	10208.	82674.	7107.4

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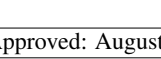
Sample Name: L1708130723PS Acquired: 8/29/2017 15:48:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627342-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19633**	**4.9691**	**.19128**	**.92615**	**.49535**	**.02379**	**4.9303**	**.02448**
Stddev	.00113	.0102	.00217	.00319	.00206	.00008	.0684	.00011
%RSD	.57665	.20571	1.1334	.34496	.41621	.32603	1.3880	.44735
#1	.19517	4.9809	.19372	.92523	.49328	.02387	4.8960	.02460
#2	.19744	4.9636	.18959	.92970	.49536	.02378	5.0091	.02442
#3	.19637	4.9627	.19052	.92351	.49740	.02372	4.8858	.02441
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

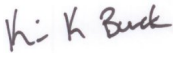
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09926**	**.24345**	**.24722**	**1.9577**	**24.780**	**.49649**	**4.9274**	**.24689**
Stddev	.00032	.00048	.00031	.0057	.095	.00232	.1009	.00258
%RSD	.32287	.19657	.12517	.28949	.38415	.46632	2.0474	1.0453
#1	.09892	.24400	.24689	1.9528	24.804	.49901	4.8301	.24483
#2	.09956	.24315	.24751	1.9639	24.861	.49445	5.0315	.24978
#3	.09929	.24319	.24726	1.9565	24.675	.49601	4.9206	.24606
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48130**	**26.129**	**.24797**	**4.7503**	**.25176**	**.58761**	**.20300**	**2.9053**
Stddev	.00099	.204	.00186	.0157	.00367	.00519	.01222	.0057
%RSD	.20598	.78039	.75167	.33025	1.4567	.88378	6.0203	.19647
#1	.48159	25.954	.24992	4.7374	.25267	.58707	.18897	2.9073
#2	.48020	26.353	.24621	4.7677	.25489	.59305	.21131	2.9097
#3	.48212	26.081	.24778	4.7456	.24772	.58270	.20873	2.8988
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708130723PS Acquired: 8/29/2017 15:48:24 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627342-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50017**	**.49553**	**.48479**	**.24785**	**.48591**	**.49079**	**.58946**
Stddev	.00124	.00139	.01201	.00254	.00069	.00079	.29221
%RSD	.24693	.28104	2.4783	1.0261	.14287	.16038	49.573
#1	.50117	.49465	.47111	.24939	.48662	.49100	.25235
#2	.49879	.49713	.48961	.24491	.48590	.48992	.74565
#3	.50056	.49480	.49364	.24924	.48523	.49145	.77039
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10081.**	**80745.**	**7065.2**
Stddev	38.	222.	48.0
%RSD	.37346	.27475	.67961
#1	10082.	80703.	7104.2
#2	10118.	80546.	7011.6
#3	10042.	80984.	7080.0

Approved: August 30, 2017
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Approved: August 30, 2017
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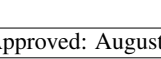
Sample Name: L1708130723SDL Acquired: 8/29/2017 15:51:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627342-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00021**	**.00923**	**.00095**	**.00080**	**-.00048**	**.00002**	**-.01741**	**.00046**
Stddev	.00126	.00802	.00289	.00273	.00118	.00004	.03785	.00034
%RSD	591.67	86.886	304.06	343.59	246.81	161.68	217.43	73.353
#1	.00121	.01845	.00391	.00355	-.00148	-.00000	.01971	.00014
#2	-.00067	.00539	.00080	-.00192	-.00077	.00001	-.05596	.00082
#3	-.00118	.00386	-.00186	.00076	.00082	.00006	-.01598	.00043
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

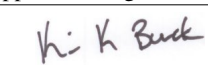
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00027**	**-.00103**	**-.00129**	**-.00047**	**.09720**	**.00541**	**-.06686**	**.00215**
Stddev	.00038	.00052	.00184	.00792	.05794	.00056	.13002	.00115
%RSD	139.74	51.047	143.19	1672.2	59.608	10.378	194.48	53.400
#1	-.00063	-.00143	-.00131	-.00765	.15079	.00583	.07156	.00194
#2	-.00033	-.00121	-.00312	-.00180	.10507	.00477	-.08569	.00340
#3	.00013	-.00043	.00057	.00802	.03573	.00563	-.18643	.00113
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00038**	**.29115**	**-.00231**	**-.00038**	**.00329**	**-.00140**	**.01141**	**.10923**
Stddev	.00075	.01234	.00045	.00030	.00178	.00493	.00218	.00302
%RSD	195.90	4.2393	19.649	78.260	54.198	352.03	19.139	2.7679
#1	-.00044	.29080	-.00249	-.00072	.00403	-.00619	.00889	.11266
#2	-.00110	.30366	-.00265	-.00019	.00126	-.00167	.01265	.10805
#3	.00039	.27899	-.00180	-.00023	.00459	.00366	.01270	.10697
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708130723SDL Acquired: 8/29/2017 15:51:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627342-04

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00013**	**-.00011**	**.00475**	**.00078**	**.00046**	**-.00121**	**.30728**
Stddev	.00034	.00004	.00253	.00230	.00092	.00009	.23956
%RSD	254.03	42.009	53.236	295.48	201.56	7.7922	77.960
#1	.00042	-.00011	.00363	.00344	.00106	-.00110	.44958
#2	-.00023	-.00015	.00765	-.00055	-.00061	-.00126	.44156
#3	.00021	-.00006	.00298	-.00055	.00092	-.00128	.03070
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10177.**	**82013.**	**7047.9**
Stddev	14.	138.	46.7
%RSD	.13836	.16882	.66290
#1	10192.	81976.	7051.3
#2	10171.	81898.	6999.6
#3	10166.	82167.	7092.8

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: CCV Acquired: 8/29/2017 15:55:44 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40331**	**10.050**	**.39943**	**.49766**	**1.0031**	**.04971**	**9.9793**
Stddev	.00212	.037	.00352	.00218	.0032	.00008	.0273
%RSD	.52495	.36823	.88021	.43901	.32365	.16651	.27396
#1	.40196	10.023	.39864	.49525	.99960	.04961	9.9529
#2	.40575	10.092	.40328	.49952	1.0060	.04977	9.9774
#3	.40223	10.034	.39638	.49822	1.0036	.04974	10.007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05069**	**.20306**	**.49773**	**.50481**	**3.9940**	**50.363**	**1.0079**
Stddev	.00037	.00010	.00139	.00238	.0264	.347	.0019
%RSD	.72331	.04906	.27953	.47107	.65992	.68980	.18903
#1	.05110	.20318	.49910	.50747	3.9681	50.057	1.0100
#2	.05040	.20299	.49632	.50407	4.0208	50.291	1.0062
#3	.05058	.20303	.49777	.50289	3.9930	50.740	1.0076
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.9633**	**.50284**	**1.0078**	**50.221**	**.50655**	**10.011**	**.50483**
Stddev	.0790	.00385	.0028	.117	.00086	.017	.00131
%RSD	.79333	.76546	.27686	.23205	.16921	.16924	.25894
#1	9.9269	.50382	1.0049	50.181	.50747	10.014	.50627
#2	9.9091	.49859	1.0082	50.129	.50640	9.9931	.50449
#3	10.054	.50610	1.0104	50.352	.50577	10.027	.50373
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 30, 2017
Kim K Buck

Approved: August 30, 2017
Kim K Buck

Sample Name: CCV Acquired: 8/29/2017 15:55:44 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2146**	**.40782**	**5.0797**	**1.0125**	**1.0040**	**1.0049**	**.50767**
Stddev	.0037	.00492	.0112	.0003	.0027	.0054	.00427
%RSD	.30412	1.2069	.21945	.02880	.26733	.53327	.84139
#1	1.2171	.40398	5.0721	1.0127	1.0011	1.0108	.51168
#2	1.2104	.40610	5.0744	1.0127	1.0046	1.0034	.50317
#3	1.2164	.41337	5.0925	1.0122	1.0064	1.0004	.50816
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.99340**	**1.0102**	F **.84910**
Stddev	.00281	.0005	.27123
%RSD	.28257	.05032	31.943
#1	.99526	1.0096	.70426
#2	.99478	1.0105	1.1620
#3	.99017	1.0105	.68104
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9973.5**	**79028.**	**6975.5**
Stddev	23.6	330.	47.8
%RSD	.23690	.41801	.68595
#1	9990.0	78847.	7030.1
#2	9984.0	78827.	6940.7
#3	9946.4	79409.	6955.8

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: CCB Acquired: 8/29/2017 15:59:12 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00077**	**.00652**	**-.00006**	**.00089**	**.00054**	**.00007**	**-.00519**
Stddev	.00133	.01052	.00238	.00173	.00054	.00006	.00442
%RSD	171.52	161.31	3784.4	194.66	99.696	81.514	85.202
#1	-.00081	-.00469	-.00275	-.00061	.00020	.00008	-.00018
#2	.00057	.00808	.00176	.00279	.00026	.00012	-.00855
#3	-.00209	.01617	.00080	.00049	.00116	.00001	-.00684
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00018**	**.00034**	**-.00106**	**-.00050**	**.02606**	**.08435**	**.00464**
Stddev	.00036	.00054	.00095	.00142	.00483	.03203	.00262
%RSD	201.78	160.12	89.743	285.81	18.534	37.968	56.382
#1	.00024	-.00018	-.00098	.00087	.03160	.07781	.00344
#2	.00050	.00030	-.00205	-.00197	.02386	.05610	.00764
#3	-.00021	.00089	-.00015	-.00040	.02272	.11914	.00284
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.05886**	**.00038**	**.00004**	**.05185**	**-.00011**	**-.00123**	**.00281**
Stddev	.05906	.00078	.00053	.02290	.00155	.00645	.00210
%RSD	100.35	203.27	1338.8	44.174	1457.6	522.96	74.878
#1	-.00356	.00033	.00018	.07329	-.00183	.00038	.00117
#2	-.12108	-.00036	-.00055	.02772	.00035	.00425	.00518
#3	-.05194	.00119	.00049	.05454	.00116	-.00833	.00208
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: CCB Acquired: 8/29/2017 15:59:12 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00496**	**.01180**	**.00475**	**-.00045**	**.00053**	**-.00078**	**-.00141**
Stddev	.00114	.00549	.00133	.00063	.00020	.00497	.00327
%RSD	22.932	46.492	27.914	139.19	38.544	637.32	231.28
#1	.00371	.00614	.00600	-.00084	.00075	.00485	.00192
#2	.00593	.01710	.00336	-.00079	.00036	-.00455	-.00154
#3	.00524	.01217	.00490	.00027	.00047	-.00264	-.00462
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00039**	**-.00049**	F **.51106**
Stddev	.00067	.00016	.13237
%RSD	173.02	33.977	25.902
#1	.00085	-.00032	.40418
#2	.00070	-.00048	.46987
#3	-.00038	-.00065	.65913
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10135.**	**81209.**	**6988.4**
Stddev	9.	94.	23.8
%RSD	.08484	.11615	.34127
#1	10142.	81205.	6966.4
#2	10125.	81305.	6984.9
#3	10138.	81116.	7013.8

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: LLCCV Acquired: 8/29/2017 16:03:01 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

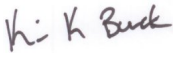
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00702**	**.10710**	**.00512**	**.04691**	**.00495**	**.00104**	**.28859**	**.00079**
Stddev	.00074	.00694	.00478	.00169	.00038	.00009	.02777	.00019
%RSD	10.479	6.4821	93.399	3.5954	7.6162	8.5882	9.6228	24.129
#1	.00644	.11251	.00518	.04699	.00481	.00108	.26106	.00065
#2	.00785	.10951	.00987	.04519	.00537	.00094	.28810	.00072
#3	.00678	.09927	.00031	.04856	.00465	.00111	.31660	.00101
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00279**	**.00199**	**.00111**	**.05765**	**.59679**	**.05351**	**.17840**	**.00414**
Stddev	.00050	.00028	.00067	.00732	.03311	.00496	.00791	.00054
%RSD	18.025	13.934	60.424	12.706	5.5479	9.2615	4.4358	12.972
#1	.00254	.00225	.00052	.05206	.60123	.04837	.17829	.00428
#2	.00247	.00170	.00184	.05495	.62745	.05825	.18636	.00460
#3	.00337	.00203	.00096	.06594	.56168	.05390	.17054	.00355
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00468**	**.23863**	**.00931**	**.49356**	**.00774**	**.05200**	**.03146**	**.46295**
Stddev	.00045	.06208	.00027	.01500	.00080	.00558	.00780	.00344
%RSD	9.6854	26.015	2.8807	3.0399	10.354	10.723	24.807	.74221
#1	.00516	.26031	.00909	.49088	.00682	.05418	.03172	.46184
#2	.00426	.28696	.00923	.50972	.00823	.05615	.03913	.46021
#3	.00463	.16862	.00961	.48007	.00818	.04566	.02353	.46680
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: LLCCV Acquired: 8/29/2017 16:03:01 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.25867**	**.02590**	**.01880**	**.09591**	**.00525**	**.01004**	**19.831**
Stddev	.00099	.00035	.00535	.00228	.00117	.00019	.781
%RSD	.38465	1.3682	28.443	2.3785	22.343	1.9127	3.9386
#1	.25816	.02552	.02476	.09679	.00552	.01014	19.292
#2	.25804	.02598	.01723	.09763	.00627	.00982	19.474
#3	.25982	.02621	.01442	.09332	.00397	.01015	20.727
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10067.**	**79986.**	**6866.6**
Stddev	97.	1246.	97.4
%RSD	.96246	1.5583	1.4183
#1	9956.3	79241.	6954.0
#2	10138.	79292.	6884.0
#3	10106.	81425.	6761.6

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: LLCCV Acquired: 8/29/2017 16:06:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00448**	**.10985**	**.00571**	**.04917**	**.00620**	**.00106**	**.26065**	**.00089**
Stddev	.00127	.00162	.00230	.00411	.00118	.00006	.00949	.00033
%RSD	28.321	1.4715	40.281	8.3523	19.022	5.6355	3.6395	36.969
#1	.00474	.11137	.00311	.05012	.00503	.00099	.27135	.00103
#2	.00310	.11004	.00654	.04467	.00617	.00110	.25729	.00113
#3	.00560	.10815	.00748	.05272	.00739	.00110	.25329	.00051
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00238**	**.00094**	**.00279**	**.06802**	**.57801**	**.05806**	**.16233**	**.00530**
Stddev	.00047	.00150	.00106	.01551	.02922	.00418	.07856	.00090
%RSD	19.832	160.07	38.100	22.795	5.0560	7.1929	48.394	17.065
#1	.00214	.00122	.00395	.07515	.57512	.05940	.12615	.00492
#2	.00207	.00227	.00186	.07868	.60857	.05338	.25246	.00633
#3	.00292	-.00068	.00257	.05024	.55033	.06141	.10839	.00465
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00451**	**.24438**	**.00995**	**.51303**	**.00409**	**.05914**	**.01601**	**.46753**
Stddev	.00024	.01144	.00085	.00233	.00410	.00512	.00779	.00431
%RSD	5.3201	4.6830	8.5609	.45351	100.09	8.6641	48.684	.92215
#1	.00438	.25493	.00964	.51334	.00056	.06183	.02097	.47229
#2	.00478	.24599	.00930	.51518	.00859	.06237	.00703	.46640
#3	.00436	.23221	.01091	.51056	.00314	.05323	.02003	.46389
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: LLCCV Acquired: 8/29/2017 16:06:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.26329**	**.02593**	**.02016**	**.09777**	**.00557**	**.00955**	**20.438**
Stddev	.00144	.00043	.00566	.00454	.00093	.00024	.097
%RSD	.54846	1.6430	28.105	4.6449	16.772	2.4863	.47470
#1	.26474	.02640	.01606	.09603	.00657	.00930	20.504
#2	.26186	.02582	.02662	.10292	.00544	.00976	20.327
#3	.26328	.02557	.01778	.09435	.00471	.00960	20.484
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10094.**	**80829.**	**6978.6**
Stddev	22.	73.	19.0
%RSD	.21633	.08978	.27270
#1	10068.	80911.	6974.0
#2	10107.	80800.	6999.4
#3	10105.	80775.	6962.2

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: LLCCV Acquired: 8/29/2017 16:10:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00903**	**.11560**	**.00553**	**.04667**	**.00501**	**.00105**	**.23490**	**.00096**
Stddev	.00175	.00739	.00033	.00202	.00123	.00006	.00978	.00020
%RSD	19.350	6.3909	6.0133	4.3376	24.549	5.5652	4.1656	20.467
#1	.00887	.11191	.00584	.04900	.00538	.00098	.23664	.00111
#2	.00736	.12410	.00555	.04535	.00364	.00109	.24369	.00074
#3	.01084	.11078	.00518	.04567	.00601	.00108	.22436	.00104
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00279**	**.00180**	**.00254**	**.07161**	**.61348**	**.05709**	**.23058**	**.00447**
Stddev	.00068	.00059	.00080	.01710	.08267	.00281	.03288	.00227
%RSD	24.224	32.855	31.548	23.881	13.475	4.9201	14.260	50.783
#1	.00263	.00128	.00165	.09121	.68709	.05957	.26853	.00672
#2	.00353	.00167	.00278	.05972	.52405	.05404	.21280	.00452
#3	.00221	.00244	.00320	.06391	.62931	.05767	.21042	.00218
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00469**	**.26298**	**.01090**	**.49703**	**.00701**	**.05252**	**.01823**	**.46567**
Stddev	.00056	.00829	.00050	.00578	.00218	.00249	.00509	.00209
%RSD	11.975	3.1508	4.6153	1.1633	31.128	4.7503	27.938	.44794
#1	.00444	.27250	.01044	.50342	.00713	.05344	.02411	.46610
#2	.00429	.25740	.01080	.49551	.00478	.04969	.01551	.46750
#3	.00533	.25904	.01144	.49216	.00914	.05442	.01508	.46340
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017

Sample Name: LLCCV Acquired: 8/29/2017 16:10:35 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.26106**	**.02636**	**.01754**	**.10185**	**.00574**	**.01013**	**20.266**
Stddev	.00176	.00009	.00311	.00342	.00071	.00013	.431
%RSD	.67240	.34541	17.735	3.3561	12.330	1.2751	2.1274
#1	.26113	.02635	.02068	.10579	.00493	.00998	20.647
#2	.26279	.02645	.01446	.09979	.00609	.01015	20.352
#3	.25928	.02627	.01750	.09996	.00621	.01024	19.798
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10128.**	**81239.**	**6993.4**
Stddev	24.	166.	25.6
%RSD	.23510	.20383	.36674
#1	10103.	81282.	6973.4
#2	10130.	81379.	6984.4
#3	10150.	81057.	7022.3

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: PBW 54 Acquired: 8/29/2017 16:14:21 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00049**	**.00526**	**.00078**	**.00032**	**.00018**	**.00006**	**-.00590**
Stddev	.00057	.00719	.00130	.00251	.00079	.00002	.02423
%RSD	116.23	136.68	167.69	797.07	435.90	31.379	410.35
#1	.00108	.01003	.00227	.00300	-.00072	.00008	.00947
#2	.00043	.00876	.00021	-.00008	.00073	.00005	-.03383
#3	-.00005	-.00301	-.00014	-.00198	.00054	.00005	.00665
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00006**	**-.00004**	**-.00045**	**.00077**	**.00498**	**.15033**	**.00338**
Stddev	.00006	.00033	.00050	.00151	.00655	.05880	.00164
%RSD	106.42	830.54	110.96	196.60	131.39	39.114	48.571
#1	.00010	-.00034	.00012	-.00071	.00012	.11869	.00367
#2	.00009	-.00009	-.00081	.00231	.01243	.21818	.00485
#3	-.00001	.00031	-.00068	.00070	.00240	.11413	.00161
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.15318**	**.00048**	**-.00040**	**-.00571**	**-.00006**	**-.01062**	**-.00080**
Stddev	.03913	.00065	.00021	.03074	.00161	.00927	.00234
%RSD	25.543	134.42	51.392	538.58	2790.2	87.275	291.02
#1	-.12406	.00104	-.00019	-.03059	-.00102	-.01428	.00154
#2	-.19766	.00065	-.00060	-.01519	.00180	-.00008	-.00314
#3	-.13782	-.00023	-.00043	.02866	-.00096	-.01749	-.00081
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	900.00						
Low Limit	-.10000						

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: PBW 54 Acquired: 8/29/2017 16:14:21 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-02

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00070**	**.01063**	**-.00064**	**-.00048**	**.00047**	**.00513**	**-.00102**
Stddev	.00718	.00542	.00184	.00118	.00031	.00165	.00290
%RSD	1029.4	51.043	286.69	245.68	65.110	32.089	283.79
#1	.00553	.01265	.00148	-.00034	.00029	.00584	-.00119
#2	-.00855	.01475	-.00163	.00062	.00083	.00325	.00196
#3	.00093	.00448	-.00177	-.00172	.00030	.00630	-.00383
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00043**	**-.00068**	**-.02110**
Stddev	.00075	.00006	.15123
%RSD	173.95	8.4636	716.79
#1	.00067	-.00071	-.08704
#2	.00104	-.00072	-.12816
#3	-.00041	-.00062	.15191
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10159.**	**81763.**	**6993.1**
Stddev	10.	390.	57.7
%RSD	.09637	.47672	.82560
#1	10170.	82213.	6949.4
#2	10155.	81556.	6971.4
#3	10151.	81521.	7058.6

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

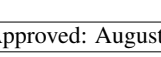
Sample Name: LCSW 54 Acquired: 8/29/2017 16:18:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19804**	**5.0959**	**.19712**	**.94870**	**.50567**	**.02444**	**4.9265**	**.02480**
Stddev	.00236	.0128	.00309	.00517	.00203	.00004	.0266	.00020
%RSD	1.1932	.25149	1.5666	.54492	.40187	.14977	.53934	.79748
#1	.20066	5.0952	.19908	.94698	.50564	.02446	4.8986	.02458
#2	.19738	5.1090	.19872	.95451	.50365	.02440	4.9515	.02484
#3	.19608	5.0834	.19356	.94462	.50771	.02447	4.9294	.02497
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

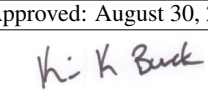
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.10113**	**.24998**	**.25052**	**2.0208**	**25.160**	**.50483**	**4.9876**	**.25244**
Stddev	.00045	.00225	.00322	.0036	.130	.00276	.0710	.00092
%RSD	.44531	.90131	1.2845	.17954	.51676	.54711	1.4227	.36426
#1	.10121	.25221	.25040	2.0232	25.193	.50178	4.9915	.25293
#2	.10154	.25003	.24737	2.0225	25.016	.50556	5.0565	.25302
#3	.10065	.24771	.25380	2.0166	25.270	.50716	4.9147	.25138
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49174**	**25.346**	**.25157**	**4.8203**	**.25572**	**.59650**	**.19764**	**2.4793**
Stddev	.00050	.072	.00260	.0051	.00065	.00744	.01213	.0057
%RSD	.10072	.28281	1.0337	.10648	.25421	1.2476	6.1360	.23206
#1	.49227	25.384	.25211	4.8199	.25577	.60025	.20575	2.4777
#2	.49129	25.263	.25387	4.8153	.25635	.60133	.20347	2.4745
#3	.49165	25.390	.24875	4.8256	.25505	.58793	.18370	2.4857
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: LCSW 54 Acquired: 8/29/2017 16:18:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-03

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50823**	**.50432**	**.50309**	**.25064**	**.49788**	**.49715**	**.73237**
Stddev	.00078	.00127	.01095	.00416	.00103	.00043	.08379
%RSD	.15286	.25105	2.1757	1.6601	.20679	.08574	11.441
#1	.50733	.50311	.49571	.25254	.49859	.49751	.80092
#2	.50870	.50421	.49789	.24586	.49670	.49727	.75724
#3	.50865	.50564	.51566	.25350	.49835	.49668	.63897
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10042.**	**80260.**	**6919.1**
Stddev	8.	186.	12.5
%RSD	.07812	.23112	.18110
#1	10047.	80114.	6912.0
#2	10047.	80198.	6911.6
#3	10033.	80469.	6933.5

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

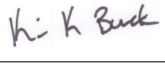
Sample Name: FLTBLK Acquired: 8/29/2017 16:21:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-04

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00002**	**.00171**	**.00229**	**.00108**	**-.00107**	**.00009**	**-.00421**	**.00037**
Stddev	.00044	.00948	.00056	.00197	.00091	.00004	.02037	.00029
%RSD	1745.2	553.57	24.481	183.17	85.034	47.115	484.45	76.558
#1	.00049	-.00803	.00257	.00318	-.00126	.00004	-.02213	.00026
#2	-.00003	.01090	.00265	-.00074	-.00186	.00011	.01795	.00070
#3	-.00038	.00227	.00164	.00080	-.00008	.00011	-.00844	.00016
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

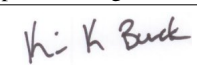
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00032**	**.00064**	**.00071**	**.00269**	**.13810**	**.00492**	**-.01795**	**.00077**
Stddev	.00037	.00047	.00158	.02016	.09607	.00324	.03784	.00124
%RSD	115.91	72.798	221.60	748.56	69.563	65.924	210.82	160.63
#1	.00073	.00017	-.00017	.00932	.08004	.00126	.01837	.00147
#2	.00025	.00065	-.00023	-.01995	.24899	.00606	-.05715	.00149
#3	-.00001	.00110	.00254	.01871	.08528	.00744	-.01507	-.00066
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00029**	**.09889**	**-.00057**	**-.00235**	**.00001**	**.00039**	**.00922**	**.00667**
Stddev	.00057	.02339	.00083	.00488	.00260	.00921	.00272	.00396
%RSD	198.58	23.655	146.20	207.98	17861.	2347.8	29.551	59.438
#1	-.00078	.11747	-.00116	-.00768	-.00031	-.00884	.01198	.00466
#2	.00033	.07262	-.00094	-.00125	.00276	.00043	.00915	.01123
#3	-.00041	.10657	.00038	.00189	-.00240	.00959	.00653	.00411
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: FLTBLK Acquired: 8/29/2017 16:21:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-04

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00046**	**.00021**	**.00086**	**-.00123**	**.00041**	**.00055**	**.30832**
Stddev	.00124	.00043	.00342	.00341	.00019	.00035	.12765
%RSD	266.94	205.57	396.00	278.55	47.030	63.053	41.402
#1	-.00071	.00042	.00163	-.00341	.00028	.00024	.16613
#2	.00176	.00050	-.00287	-.00298	.00032	.00093	.34579
#3	.00034	-.00029	.00383	.00271	.00064	.00048	.41305
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10204.**	**82185.**	**6951.5**
Stddev	49.	154.	69.5
%RSD	.47681	.18764	.99964
#1	10150.	82298.	7031.3
#2	10244.	82010.	6918.4
#3	10218.	82249.	6904.7

Approved: August 30, 2017

Approved: August 30, 2017

Sample Name: FBLK1 Acquired: 8/29/2017 16:25:28 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627396-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00080**	**.02123**	**.00166**	**.00006**	**.00007**	**.00004**	**-.00234**	**-.00006**
Stddev	.00309	.01079	.00141	.00209	.00101	.00006	.02912	.00032
%RSD	387.73	50.839	85.289	3490.8	1502.3	130.79	1246.1	555.74
#1	-.00258	.02234	.00035	.00096	.00073	.00011	.02154	-.00042
#2	.00277	.03142	.00316	-.00233	.00057	.00000	-.03477	.00005
#3	-.00258	.00992	.00146	.00155	-.00110	.00002	.00622	.00019
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00065**	**-.00021**	**.00059**	**.02547**	**.01400**	**.00381**	**-.06695**	**.00041**
Stddev	.00012	.00061	.00238	.00634	.04005	.00209	.03490	.00167
%RSD	18.942	292.16	400.25	24.891	286.12	54.804	52.136	412.55
#1	-.00065	.00003	.00061	.02075	-.02633	.00621	-.10696	.00224
#2	-.00078	-.00090	.00297	.03268	.05376	.00263	-.04272	.00002
#3	-.00053	.00024	-.00179	.02298	.01457	.00257	-.05117	-.00104
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00016**	**142.34**	**-.00018**	**-.00603**	**.00105**	**-.00358**	**.01358**	**.00422**
Stddev	.00022	.72	.00120	.00455	.00278	.00250	.00260	.00240
%RSD	143.60	.50854	660.11	75.472	264.64	69.825	19.122	57.036
#1	.00010	141.69	.00079	-.00987	.00339	-.00384	.01608	.00682
#2	-.00029	143.12	-.00153	-.00100	.00179	-.00096	.01090	.00373
#3	-.00028	142.20	.00019	-.00721	-.00202	-.00595	.01375	.00209
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

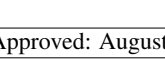
Approved: August 30, 2017

Sample Name: FBLK1 Acquired: 8/29/2017 16:25:28 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627396-01

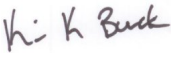
Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00002**	**.00027**	**.00362**	**.00188**	**.00020**	**.00103**	**.43204**
Stddev	.00109	.00016	.00084	.00301	.00008	.00006	.15879
%RSD	4653.9	59.306	23.338	160.30	39.765	5.9088	36.753
#1	-.00007	.00042	.00309	-.00124	.00018	.00103	.50328
#2	-.00109	.00010	.00459	.00211	.00029	.00097	.25011
#3	.00109	.00028	.00317	.00477	.00013	.00109	.54273
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10015.**	**79167.**	**7017.0**
Stddev	22.	515.	29.0
%RSD	.21931	.65087	.41343
#1	9991.0	78573.	7020.2
#2	10019.	79430.	6986.6
#3	10034.	79498.	7044.3

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: FBLK2 Acquired: 8/29/2017 16:29:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627396-02

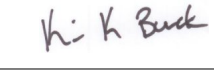
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00032**	**.00299**	**.00183**	**.00098**	**-.00062**	**.00008**	**.00458**	**.00005**
Stddev	.00154	.00382	.00246	.00155	.00065	.00010	.03244	.00019
%RSD	485.97	127.95	134.42	158.87	104.18	115.68	708.01	382.70
#1	-.00177	.00421	.00033	.00162	-.00053	.00013	.04056	.00007
#2	-.00048	.00605	.00049	.00210	-.00132	.00015	-.00438	-.00015
#3	.00130	-.00130	.00466	-.00079	-.00003	-.00003	-.02243	.00023
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00047**	**-.00096**	**.00041**	**.00397**	**-.01046**	**.00413**	**-.06507**	**-.00179**
Stddev	.00052	.00026	.00139	.00783	.03803	.00170	.03424	.00170
%RSD	109.38	26.702	342.05	197.40	363.63	41.144	52.621	94.921
#1	.00011	-.00084	.00200	.00705	-.03687	.00228	-.06652	-.00235
#2	-.00088	-.00078	-.00056	.00978	-.02763	.00562	-.03012	.00012
#3	-.00066	-.00125	-.00023	-.00493	.03312	.00449	-.09855	-.00313
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00012**	**.04824**	**.00013**	**-.00841**	**.00104**	**.00038**	**.01368**	**.00484**
Stddev	.00019	.03619	.00085	.00864	.00359	.00523	.00472	.00070
%RSD	153.57	75.019	642.82	102.67	345.88	1388.1	34.519	14.412
#1	.00027	.03186	.00099	-.01719	.00296	.00280	.00905	.00555
#2	-.00009	.02314	.00012	-.00814	-.00311	.00395	.01849	.00416
#3	.00018	.08972	-.00071	.00008	.00326	-.00562	.01350	.00481
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: FBLK2 Acquired: 8/29/2017 16:29:15 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627396-02

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00017**	**.00001**	**.00481**	**.00316**	**-.00017**	**.00081**	**.26768**
Stddev	.00049	.00028	.00437	.00352	.00052	.00009	.11676
%RSD	294.13	3104.3	90.828	111.57	306.89	10.677	43.619
#1	-.00037	.00028	.00580	.00627	-.00052	.00073	.18807
#2	.00059	.00001	.00003	.00386	-.00041	.00090	.21326
#3	.00028	-.00027	.00861	-.00066	.00043	.00079	.40172
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10320.**	**82913.**	**7151.1**
Stddev	13.	427.	14.2
%RSD	.12489	.51524	.19848
#1	10335.	82898.	7135.1
#2	10313.	83348.	7161.9
#3	10312.	82494.	7156.4

Approved: August 30, 2017
Ki K Buck

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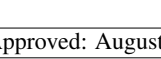
Sample Name: L1708131101 Acquired: 8/29/2017 16:33:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00113**	**.01896**	**-.00039**	**.07415**	**.04614**	**.00010**	**32.432**	**.00049**
Stddev	.00257	.00939	.00389	.00245	.00144	.00003	.613	.00028
%RSD	228.14	49.547	992.64	3.2989	3.1289	25.843	1.8908	56.265
#1	-.00176	.01272	-.00484	.07697	.04549	.00012	32.382	.00072
#2	.00318	.02976	.00241	.07292	.04515	.00011	31.845	.00019
#3	.00196	.01439	.00125	.07257	.04780	.00007	33.068	.00056
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

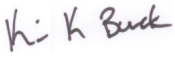
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00044**	**-.00067**	**-.00089**	**.68094**	**.90434**	**.01551**	**6.0599**	**.15141**
Stddev	.00032	.00129	.00057	.02830	.12648	.00384	.0810	.00075
%RSD	72.520	192.48	64.816	4.1560	13.986	24.743	1.3375	.49494
#1	-.00078	.00017	-.00089	.65429	.88026	.01562	6.0586	.15220
#2	-.00040	-.00002	-.00031	.67789	.79163	.01928	5.9795	.15072
#3	-.00014	-.00215	-.00146	.71064	1.0411	.01161	6.1416	.15130
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00061**	**65.396**	**-.00105**	**.01872**	**.00029**	**.00239**	**.01299**	**4.2117**
Stddev	.00065	1.354	.00132	.00978	.00381	.00055	.01507	.0076
%RSD	107.35	2.0704	124.88	52.271	1325.6	22.979	116.00	.17921
#1	.00133	64.974	-.00022	.03000	.00062	.00178	-.00426	4.2180
#2	.00040	64.303	-.00257	.01352	-.00368	.00255	.02360	4.2034
#3	.00008	66.911	-.00037	.01263	.00392	.00284	.01964	4.2138
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708131101 Acquired: 8/29/2017 16:33:03 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00014**	**.23835**	**.00562**	**-.00136**	**.00028**	**-.00028**	**.04162**
Stddev	.00108	.00502	.00556	.00249	.00046	.00007	.34914
%RSD	758.77	2.1069	99.057	183.16	166.10	25.842	838.83
#1	.00071	.23744	-.00072	-.00071	.00060	-.00037	-.27583
#2	.00082	.23385	.00784	.00074	-.00025	-.00025	-.01486
#3	-.00110	.24377	.00972	-.00412	.00048	-.00023	.41557
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9971.1**	**79341.**	**6904.1**
Stddev	20.1	201.	124.5
%RSD	.20160	.25328	1.8031
#1	9956.6	79196.	6937.1
#2	9962.7	79256.	7008.8
#3	9994.1	79570.	6766.5

Approved: August 30, 2017
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Sample Name: L1708131102 Acquired: 8/29/2017 16:36:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00150**	**.01946**	**.00118**	**.07446**	**.04361**	**.00003**	**31.723**	**.00049**
Stddev	.00054	.00294	.00232	.00104	.00107	.00004	.211	.00017
%RSD	36.280	15.114	197.54	1.3926	2.4592	125.62	.66513	34.117
#1	-.00213	.01821	-.00107	.07373	.04282	.00001	31.577	.00059
#2	-.00123	.02281	.00103	.07565	.04483	.00000	31.627	.00058
#3	-.00114	.01734	.00357	.07400	.04318	.00007	31.965	.00030
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00026**	**-.00010**	**-.00026**	**.03700**	**.80256**	**.00810**	**6.0210**	**.14670**
Stddev	.00010	.00108	.00225	.00301	.04753	.00339	.1015	.00118
%RSD	36.917	1030.2	853.07	8.1442	5.9223	41.877	1.6862	.80651
#1	.00025	.00023	.00156	.03967	.79096	.00650	6.0575	.14535
#2	.00036	.00076	.00043	.03374	.76191	.01199	5.9063	.14718
#3	.00017	-.00131	-.00278	.03759	.85482	.00580	6.0992	.14757
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00044**	**64.219**	**-.00157**	**-.00534**	**.00030**	**.00341**	**.01233**	**4.0883**
Stddev	.00034	.161	.00084	.00510	.00086	.00078	.00478	.0023
%RSD	78.311	.25132	53.466	95.502	288.71	22.930	38.784	.05690
#1	.00079	64.350	-.00223	.00050	.00025	.00259	.00727	4.0860
#2	.00041	64.038	-.00186	-.00757	-.00054	.00415	.01294	4.0885
#3	.00011	64.268	-.00063	-.00894	.00117	.00349	.01677	4.0906
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

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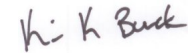

Sample Name: L1708131102 Acquired: 8/29/2017 16:36:47 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00032**	**.23228**	**.00487**	**.00006**	**-.00044**	**.00026**	**-.00542**
Stddev	.00013	.00126	.00235	.00244	.00056	.00015	.17182
%RSD	40.725	.54413	48.250	4077.2	128.22	58.339	3170.3
#1	-.00020	.23152	.00581	-.00203	.00020	.00018	.04363
#2	-.00046	.23159	.00220	.00274	-.00066	.00016	-.19643
#3	-.00029	.23374	.00661	-.00053	-.00085	.00043	.13654
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9996.2**	**79353.**	**6916.6**
Stddev	8.3	538.	17.2
%RSD	.08295	.67801	.24898
#1	10005.	78755.	6897.1
#2	9993.9	79509.	6922.6
#3	9989.3	79796.	6929.9

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Sample Name: L1708132601 Acquired: 8/29/2017 16:40:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00179**	**2.7646**	**-.00079**	**.02789**	**.42208**	**.00010**	**10.128**
Stddev	.00145	.0081	.00132	.00479	.00114	.00002	.032
%RSD	80.928	.29435	166.61	17.183	.26948	17.911	.31691
#1	-.00066	2.7687	-.00222	.02275	.42324	.00011	10.165
#2	-.00342	2.7700	-.00052	.03224	.42096	.00011	10.108
#3	-.00128	2.7553	.00037	.02867	.42204	.00008	10.111
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00024**	**.00395**	**.00008**	**-.00102**	**1.0370**	**265.14**	**.00750**
Stddev	.00046	.00044	.00191	.00101	.0086	.38	.00302
%RSD	187.43	11.092	2243.1	99.015	.83054	.14256	40.244
#1	.00017	.00360	-.00210	-.00084	1.0438	264.81	.01018
#2	.00073	.00382	.00142	-.00210	1.0400	265.55	.00810
#3	-.00017	.00444	.00093	-.00011	1.0273	265.05	.00423
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.3117**	**.33675**	**-.00022**	F **537.65**	**.01619**	**.01122**	**-.00027**
Stddev	.0418	.00258	.00074	8.47	.00094	.00476	.00566
%RSD	.66196	.76498	333.34	1.5757	5.8350	42.454	2061.7
#1	6.3320	.33757	-.00099	544.04	.01725	.00580	.00072
#2	6.2636	.33387	-.00016	540.86	.01544	.01311	.00482
#3	6.3394	.33882	.00048	528.04	.01588	.01474	-.00636
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 30, 2017
Ki K Buck

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Sample Name: L1708132601 Acquired: 8/29/2017 16:40:32 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01142**	**.01398**	**.63692**	**.00016**	**.39912**	**.00878**	**-.00142**
Stddev	.00185	.00532	.00448	.00089	.00062	.00385	.00486
%RSD	16.231	38.026	.70301	555.01	.15492	43.889	342.97
#1	.00977	.01951	.63674	-.00046	.39850	.00507	-.00541
#2	.01342	.01354	.63254	.00118	.39974	.00851	-.00283
#3	.01107	.00890	.64149	-.00024	.39912	.01276	.00399
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00002**	**.01033**	**.04593**
Stddev	.00102	.00010	.01424
%RSD	4206.1	.98177	31.011
#1	-.00004	.01041	.03765
#2	-.00096	.01021	.06237
#3	.00107	.01037	.03776
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9540.4**	**74287.**	**6886.2**
Stddev	45.4	226.	59.3
%RSD	.47598	.30358	.86144
#1	9512.5	74285.	6892.2
#2	9592.8	74514.	6824.2
#3	9515.9	74063.	6942.4

Approved: August 30, 2017
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Approved: August 30, 2017
Ki K Buck

Sample Name: L1708132601PS Acquired: 8/29/2017 16:44:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627650-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19740**	**7.1555**	**.19689**	**.98656**	**.87167**	**.02517**	**14.038**
Stddev	.00105	.0023	.00288	.00064	.00359	.00011	.090
%RSD	.53344	.03159	1.4619	.06512	.41137	.42587	.64413
#1	.19857	7.1580	.20022	.98691	.87062	.02515	13.946
#2	.19654	7.1537	.19523	.98694	.86873	.02529	14.043
#3	.19707	7.1548	.19523	.98581	.87566	.02507	14.126
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.02473**	**.09975**	**.24769**	**.24183**	**2.8914**	**261.58**	**.49327**
Stddev	.00019	.00066	.00157	.00120	.0325	.41	.00418
%RSD	.76939	.66310	.63246	.49563	1.1238	.15853	.84838
#1	.02468	.09916	.24801	.24319	2.8545	262.01	.49186
#2	.02494	.09963	.24907	.24141	2.9156	261.18	.48997
#3	.02457	.10047	.24599	.24090	2.9042	261.53	.49797
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.582**	**.54672**	**.48538**	F **505.55**	**.25491**	**5.0049**	**.24257**
Stddev	.102	.00213	.00115	6.60	.00084	.0079	.00548
%RSD	.96849	.38941	.23624	1.3061	.32995	.15768	2.2576
#1	10.697	.54590	.48471	513.01	.25410	4.9981	.24728
#2	10.552	.54512	.48472	500.44	.25578	5.0029	.24385
#3	10.499	.54913	.48670	503.21	.25484	5.0136	.23656
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: L1708132601PS Acquired: 8/29/2017 16:44:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627650-01

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.59690**	**.19690**	**3.0534**	**.49244**	**.85001**	**.49780**	**.23464**
Stddev	.01034	.01643	.0077	.00176	.00278	.00526	.00157
%RSD	1.7329	8.3434	.25360	.35653	.32715	1.0570	.67028
#1	.60884	.18599	3.0450	.49391	.84786	.50378	.23600
#2	.59134	.18893	3.0603	.49049	.84903	.49579	.23292
#3	.59053	.21580	3.0548	.49290	.85315	.49385	.23500
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.50294**	**.50811**	**.24561**
Stddev	.00118	.00056	.32208
%RSD	.23376	.10992	131.14
#1	.50168	.50860	-.12547
#2	.50313	.50750	.45265
#3	.50400	.50822	.40965
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9532.5**	**74450.**	**6774.4**
Stddev	14.2	151.	50.1
%RSD	.14930	.20278	.73891
#1	9537.9	74366.	6789.1
#2	9543.2	74625.	6815.5
#3	9516.3	74360.	6718.7

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

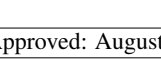
Sample Name: L1708132601SDL Acquired: 8/29/2017 16:48:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627650-02

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00061**	**.61822**	**-.00022**	**.00531**	**.08533**	**.00005**	**2.0500**	**-.00011**
Stddev	.00122	.00856	.00138	.00175	.00092	.00008	.0178	.00015
%RSD	201.94	1.3845	614.18	32.866	1.0779	167.55	.86863	127.72
#1	-.00073	.62765	.00109	.00333	.08591	.00009	2.0441	-.00014
#2	.00089	.61606	-.00166	.00662	.08427	-.00004	2.0700	.00004
#3	.00166	.61095	-.00010	.00600	.08581	.00009	2.0359	-.00024
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

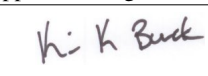
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00102**	**-.00076**	**.00007**	**.22814**	**54.025**	**.00571**	**1.2508**	**.06663**
Stddev	.00039	.00046	.00092	.00508	.171	.00660	.1072	.00239
%RSD	38.500	60.429	1399.4	2.2274	.31635	115.59	8.5688	3.5806
#1	.00146	-.00125	-.00057	.22681	54.175	.00280	1.1783	.06780
#2	.00085	-.00069	.00112	.23376	53.839	.01327	1.2003	.06821
#3	.00073	-.00034	-.00035	.22386	54.063	.00107	1.3739	.06388
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00018**	**113.78**	**.00217**	**.00540**	**-.00207**	**.00102**	**.01777**	**.12765**
Stddev	.00062	.49	.00063	.00573	.00253	.00759	.00977	.00165
%RSD	351.22	.42967	29.197	106.11	122.62	745.53	54.988	1.2923
#1	-.00087	114.32	.00147	.00943	-.00470	-.00722	.02273	.12956
#2	.00030	113.37	.00271	-.00116	.00035	.00771	.02407	.12672
#3	.00005	113.66	.00233	.00793	-.00185	.00257	.00651	.12668
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017

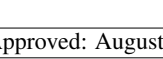


Sample Name: L1708132601SDL Acquired: 8/29/2017 16:48:08 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: 5 Custom ID2: Custom ID3:
Comment: WG627650-02

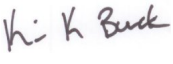
Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00048**	**.08060**	**.00144**	**.00096**	**.00005**	**.00096**	**.00100**
Stddev	.00063	.00018	.00117	.00506	.00060	.00004	.26243
%RSD	130.40	.22255	81.320	528.69	1270.6	3.7401	26331.
#1	.00018	.08074	.00168	-.00471	-.00007	.00097	-.30174
#2	-.00055	.08040	.00017	.00257	-.00049	.00100	.14097
#3	-.00107	.08067	.00247	.00502	.00070	.00093	.16376
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9965.2**	**78006.**	**6960.7**
Stddev	14.8	1008.	28.4
%RSD	.14891	1.2916	.40766
#1	9948.6	76859.	6974.0
#2	9969.7	78748.	6980.0
#3	9977.2	78411.	6928.1

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: CCV Acquired: 8/29/2017 16:51:54 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

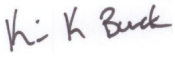
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.40184**	**10.201**	**.39974**	**.50050**	**1.0024**	**.05047**	**9.9244**	**.05035**
Stddev	.00113	.019	.00176	.00125	.0012	.00007	.0916	.00037
%RSD	.28185	.18418	.44125	.24987	.11677	.12958	.92338	.74303
#1	.40143	10.179	.40045	.50194	1.0025	.05041	10.023	.05014
#2	.40312	10.210	.40103	.49968	1.0011	.05054	9.8421	.05079
#3	.40097	10.213	.39773	.49987	1.0035	.05046	9.9080	.05013
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20170**	**.50361**	**.50408**	**4.0117**	**50.543**	**1.0097**	**10.045**	**.50149**
Stddev	.00077	.00083	.00171	.0411	.174	.0028	.050	.00421
%RSD	.37962	.16486	.33956	1.0247	.34372	.27698	.50073	.83966
#1	.20231	.50407	.50459	4.0094	50.424	1.0115	10.011	.50151
#2	.20084	.50265	.50547	3.9718	50.742	1.0065	10.103	.49727
#3	.20195	.50411	.50217	4.0539	50.462	1.0111	10.022	.50569
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.0128**	**50.660**	**.50594**	**10.032**	**.50540**	**1.2164**	**.39571**	**5.0777**
Stddev	.0004	.130	.00177	.009	.00528	.0010	.00497	.0045
%RSD	.03480	.25618	.35008	.09167	1.0453	.07959	1.2550	.08795
#1	1.0131	50.511	.50542	10.027	.50520	1.2166	.39078	5.0750
#2	1.0124	50.734	.50792	10.026	.51078	1.2153	.40071	5.0828
#3	1.0129	50.736	.50449	10.042	.50022	1.2172	.39565	5.0753
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: CCV Acquired: 8/29/2017 16:51:54 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.0166**	**1.0033**	**1.0143**	**.51062**	**1.0068**	**1.0120**	**.97694**
Stddev	.0010	.0020	.0058	.00175	.0033	.0004	.21692
%RSD	.09671	.19966	.57229	.34335	.33082	.04433	22.204
#1	1.0155	1.0050	1.0154	.51227	1.0047	1.0119	1.0221
#2	1.0169	1.0011	1.0195	.51082	1.0107	1.0126	.74101
#3	1.0174	1.0037	1.0080	.50878	1.0051	1.0117	1.1678
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9989.5**	**78525.**	**6971.1**
Stddev	28.3	97.	19.0
%RSD	.28312	.12298	.27318
#1	9970.0	78571.	6987.0
#2	9976.4	78414.	6950.0
#3	10022.	78590.	6976.3

Approved: August 30, 2017
Ki K Buck

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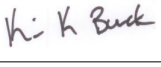
Sample Name: CCB Acquired: 8/29/2017 16:55:23 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00087**	**.01918**	**-.00154**	**.00066**	**-.00008**	**.00007**	**-.00389**
Stddev	.00176	.00304	.00106	.00261	.00048	.00003	.03117
%RSD	202.04	15.845	68.761	397.76	605.23	47.860	801.10
#1	-.00141	.01883	-.00077	.00368	-.00064	.00007	-.01843
#2	.00110	.01634	-.00110	-.00085	.00018	.00010	-.02513
#3	-.00229	.02238	-.00275	-.00086	.00022	.00003	.03189
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

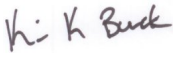
Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00015**	**.00003**	**-.00003**	**-.00044**	**-.00104**	**.32403**	**.00311**
Stddev	.00046	.00033	.00107	.00171	.00930	.09455	.00126
%RSD	313.84	1029.5	3542.4	385.97	895.08	29.179	40.450
#1	-.00003	-.00033	.00069	.00145	-.00281	.41263	.00215
#2	.00067	.00031	-.00126	-.00090	.00902	.22448	.00264
#3	-.00020	.00012	.00048	-.00188	-.00933	.33497	.00453
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.10861**	**.00013**	**-.00012**	**.07184**	**.00079**	**.00075**	**.00147**
Stddev	.11188	.00063	.00028	.02703	.00043	.00420	.00459
%RSD	103.01	502.86	232.91	37.627	54.017	558.38	311.60
#1	-.08112	-.00058	-.00010	.08216	.00100	-.00408	-.00091
#2	-.23167	.00065	-.00041	.04117	.00107	.00277	.00677
#3	-.01304	.00030	.00015	.09220	.00030	.00356	-.00143
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: CCB Acquired: 8/29/2017 16:55:23 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00492**	**.01120**	**.00185**	**.00015**	**.00050**	**.00201**	**.00373**
Stddev	.00373	.00541	.00185	.00050	.00042	.00495	.00071
%RSD	75.730	48.260	99.816	329.87	85.283	245.64	18.958
#1	.00419	.00740	.00057	.00017	.00095	.00174	.00400
#2	.00895	.01739	.00397	-.00036	.00044	.00709	.00426
#3	.00161	.00881	.00101	.00065	.00011	-.00279	.00293
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00021**	**-.00060**	F **.23909**
Stddev	.00045	.00011	.18135
%RSD	211.88	18.477	75.849
#1	-.00007	-.00052	.43467
#2	.00073	-.00073	.07650
#3	-.00003	-.00055	.20611
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9991.9**	**81230.**	**6901.2**
Stddev	187.1	348.	170.0
%RSD	1.8723	.42783	2.4634
#1	10082.	81244.	6706.9
#2	9776.8	81571.	6973.9
#3	10117.	80876.	7022.8

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708132602 Acquired: 8/29/2017 16:59:11 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00097**	**9.2452**	**.00159**	**.02186**	**.26865**	**.00005**	**232.28**
Stddev	.00075	.0165	.00165	.00160	.00065	.00004	.54
%RSD	77.362	.17905	103.87	7.3265	.24247	74.827	.23096
#1	-.00035	9.2465	-.00011	.02294	.26905	.00001	231.89
#2	-.00076	9.2611	.00319	.02262	.26900	.00008	232.89
#3	-.00181	9.2281	.00170	.02002	.26790	.00004	232.06
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00070**	**.00066**	**.00064**	**.01168**	**.01640**	**291.71**	**.02988**
Stddev	.00008	.00026	.00153	.00229	.01044	.22	.00488
%RSD	11.534	39.689	239.02	19.631	63.645	.07430	16.325
#1	.00078	.00037	.00000	.01421	.02757	291.72	.02613
#2	.00071	.00087	-.00047	.01108	.01472	291.93	.02812
#3	.00062	.00075	.00238	.00974	.00690	291.50	.03540
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.03647**	**.00138**	**.00784**	F **305.75**	**-.00160**	**.02877**	**.00246**
Stddev	.02212	.00101	.00056	.24	.00091	.00454	.00222
%RSD	60.639	73.530	7.0830	.07828	56.816	15.779	90.408
#1	.06049	.00043	.00848	305.66	-.00167	.02827	.00270
#2	.03200	.00126	.00760	305.56	-.00247	.02449	.00455
#3	.01694	.00244	.00744	306.02	-.00066	.03353	.00012
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

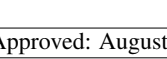
Sample Name: L1708132602 Acquired: 8/29/2017 16:59:11 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00272**	**.00395**	**.29854**	**.00047**	**.45671**	**-.00722**	**.00062**
Stddev	.00581	.01163	.00909	.00064	.00073	.00878	.00143
%RSD	213.12	294.50	3.0457	136.28	.15975	121.56	230.66
#1	.00003	.00170	.30904	.00004	.45593	-.00041	.00222
#2	-.00125	.01653	.29331	.00120	.45737	-.01713	-.00055
#3	.00939	-.00639	.29327	.00016	.45684	-.00412	.00019
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

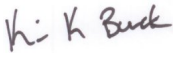
Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00008**	**.01225**	**.05743**
Stddev	.00160	.00031	.15676
%RSD	2097.0	2.4916	272.97
#1	.00153	.01258	.23511
#2	-.00009	.01198	-.06130
#3	-.00168	.01218	-.00153
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9584.4**	**75132.**	**6975.0**
Stddev	44.9	210.	13.7
%RSD	.46819	.28003	.19635
#1	9635.7	74911.	6990.5
#2	9552.1	75330.	6964.5
#3	9565.6	75154.	6969.9

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708132603 Acquired: 8/29/2017 17:02:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.00432**	**.16919**	**.00358**	**.12191**	**1.7351**	**.00007**	**28.715**
Stddev	.00345	.00134	.00605	.00300	.0052	.00001	.044
%RSD	79.866	.79176	168.73	2.4595	.29765	9.6201	.15475
#1	-.00289	.16824	-.00208	.11846	1.7292	.00007	28.700
#2	-.00826	.16861	.00287	.12337	1.7388	.00006	28.765
#3	-.00182	.17073	.00995	.12390	1.7372	.00007	28.680
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	4.0000						
Low Limit	-.00400						

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00055**	**.00093**	**-.00029**	**.00074**	**.02350**	**284.44**	**.04345**
Stddev	.00009	.00030	.00051	.00157	.00467	.39	.00373
%RSD	16.567	32.097	177.24	212.87	19.852	.13822	8.5908
#1	.00057	.00126	-.00078	.00054	.02067	283.99	.04349
#2	.00063	.00067	-.00033	-.00072	.02095	284.72	.03969
#3	.00045	.00087	.00024	.00240	.02888	284.60	.04715
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**82.851**	**.07156**	**-.00043**	F **498.32**	**-.00049**	**.15255**	**-.00050**
Stddev	.695	.00038	.00068	3.30	.00123	.00633	.00136
%RSD	.83874	.52773	159.62	.66183	250.35	4.1514	273.45
#1	82.108	.07171	.00035	499.14	-.00036	.14605	.00012
#2	82.959	.07113	-.00092	501.14	-.00177	.15291	.00044
#3	83.486	.07184	-.00071	494.69	.00067	.15870	-.00205
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708132603 Acquired: 8/29/2017 17:02:56 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00239**	**.00872**	**1.9608**	**.00068**	**1.3858**	**.00783**	**.00105**
Stddev	.00437	.00519	.0070	.00065	.0057	.00236	.00684
%RSD	182.66	59.478	.35607	95.860	.41359	30.146	653.88
#1	-.00173	.00438	1.9627	.00086	1.3796	.00800	.00665
#2	.00194	.00732	1.9531	-.00004	1.3909	.00539	.00306
#3	.00697	.01446	1.9667	.00122	1.3869	.01010	-.00657
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00017**	**.00032**	**.00873**
Stddev	.00049	.00010	.22644
%RSD	283.74	32.314	2594.3
#1	.00045	.00043	-.05471
#2	.00047	.00022	-.17922
#3	-.00040	.00030	.26012
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9434.4**	**73914.**	**6915.5**
Stddev	6.9	351.	5.8
%RSD	.07309	.47498	.08354
#1	9427.2	74270.	6921.1
#2	9434.9	73905.	6909.6
#3	9441.0	73568.	6915.7

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708132604 Acquired: 8/29/2017 17:06:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00191**	**.20948**	**-.00104**	**.11869**	**1.9029**	**.00008**	**30.690**
Stddev	.00206	.01328	.00430	.00442	.0011	.00003	.033
%RSD	107.39	6.3391	413.14	3.7211	.05760	31.804	.10718
#1	-.00199	.20073	-.00532	.11550	1.9018	.00008	30.684
#2	-.00393	.22476	.00328	.12373	1.9040	.00011	30.726
#3	.00018	.20296	-.00108	.11685	1.9028	.00006	30.661
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00066**	**.00141**	**-.00011**	**-.00281**	**.01766**	**336.02**	**.04015**
Stddev	.00042	.00008	.00094	.00082	.02228	1.17	.00368
%RSD	64.054	5.3997	838.37	29.070	126.15	.34779	9.1704
#1	.00114	.00140	.00082	-.00281	.03326	337.20	.04344
#2	.00038	.00149	-.00009	-.00200	.02757	334.86	.03618
#3	.00045	.00134	-.00107	-.00363	-.00785	335.99	.04084
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**74.967**	**.10095**	**-.00058**	F **581.46**	**-.00107**	**.15877**	**.00245**
Stddev	.193	.00054	.00050	8.19	.00165	.00282	.00220
%RSD	.25734	.53705	87.165	1.4084	155.27	1.7749	90.006
#1	74.966	.10071	-.00041	587.24	-.00248	.15957	.00499
#2	74.774	.10157	-.00018	572.09	.00075	.16111	.00115
#3	75.160	.10056	-.00114	585.05	-.00147	.15564	.00120
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit				270.00			
Low Limit				-.50000			

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Ki K Buck

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Ki K Buck

Sample Name: L1708132604 Acquired: 8/29/2017 17:06:49 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00328**	**.02347**	**2.4343**	**-.00023**	**1.5091**	**.00606**	**-.00016**
Stddev	.00256	.01129	.0034	.00077	.0019	.00621	.00167
%RSD	78.076	48.101	.13822	335.63	.12723	102.51	1017.8
#1	.00358	.03598	2.4305	-.00097	1.5102	.00377	-.00126
#2	.00569	.01404	2.4354	-.00030	1.5102	.00132	-.00100
#3	.00058	.02040	2.4370	.00057	1.5069	.01309	.00176
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00031**	**.00039**	**.01452**
Stddev	.00166	.00026	.01749
%RSD	529.07	66.428	120.46
#1	.00223	.00069	-.00432
#2	-.00059	.00022	.01765
#3	-.00070	.00026	.03023
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9425.1**	**72994.**	**6770.4**
Stddev	19.8	109.	66.8
%RSD	.21052	.14947	.98684
#1	9409.0	73046.	6778.8
#2	9419.1	72869.	6832.6
#3	9447.3	73067.	6699.8

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708136401 Acquired: 8/29/2017 17:10:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00024**	**.15362**	**-.00036**	**.03168**	**.01951**	**.00009**	**16.287**
Stddev	.00199	.00463	.00235	.00181	.00075	.00009	.024
%RSD	830.31	3.0145	651.51	5.7134	3.8641	100.69	.14990
#1	-.00219	.15786	-.00141	.03263	.01878	.00007	16.297
#2	.00179	.15432	.00234	.03282	.02029	.00001	16.259
#3	-.00031	.14868	-.00201	.02960	.01945	.00018	16.304
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00065**	**.00021**	**-.00017**	**.00926**	**.01588**	**1.9843**	**.00299**
Stddev	.00032	.00004	.00196	.00167	.01824	.0665	.00207
%RSD	49.011	19.145	1129.9	17.974	114.87	3.3507	69.176
#1	.00028	.00019	.00160	.01110	-.00429	2.0610	.00443
#2	.00080	.00025	.00016	.00883	.03120	1.9430	.00393
#3	.00086	.00018	-.00228	.00786	.02072	1.9489	.00062
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.2588**	**.07027**	**-.00026**	**140.80**	**.00301**	**.04332**	**.00205**
Stddev	.0252	.00074	.00055	.14	.00149	.00152	.00573
%RSD	.59244	1.0556	211.07	.10291	49.381	3.5067	279.77
#1	4.2424	.06980	-.00057	140.67	.00268	.04217	.00766
#2	4.2463	.06989	-.00059	140.77	.00463	.04504	-.00379
#3	4.2879	.07113	.00037	140.95	.00172	.04275	.00227
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017

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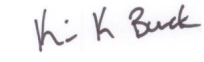

Sample Name: L1708136401 Acquired: 8/29/2017 17:10:40 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00158**	**.01562**	**3.2229**	**-.00031**	**.11992**	**.00643**	**-.00310**
Stddev	.00567	.00670	.0039	.00132	.00042	.00628	.00186
%RSD	359.43	42.856	.11931	430.44	.35206	97.741	59.889
#1	-.00337	.02100	3.2269	.00039	.12040	.01044	-.00119
#2	.00034	.01774	3.2226	.00052	.11962	.00965	-.00321
#3	.00777	.00812	3.2193	-.00183	.11973	-.00081	-.00490
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00087**	**.21125**	F **-.06823**
Stddev	.00047	.00015	.13103
%RSD	53.432	.07116	192.04
#1	.00141	.21112	.08267
#2	.00064	.21141	-.15323
#3	.00057	.21122	-.13411
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			45.000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9984.3**	**79155.**	**7012.3**
Stddev	3.2	192.	32.9
%RSD	.03216	.24314	.46977
#1	9982.5	78956.	7048.6
#2	9988.0	79340.	6984.2
#3	9982.4	79168.	7004.2

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Ki K Buck

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Sample Name: L1708140501 Acquired: 8/29/2017 17:14:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00056**	**.02902**	**.00157**	**.01536**	**.06607**	**.00013**	**171.16**	**.00052**
Stddev	.00109	.00429	.00131	.00205	.00136	.00007	.27	.00006
%RSD	196.25	14.768	83.119	13.367	2.0540	53.068	.15791	12.264
#1	.00056	.03374	.00294	.01463	.06714	.00011	171.07	.00058
#2	-.00162	.02795	.00033	.01768	.06652	.00021	170.94	.00052
#3	-.00062	.02537	.00145	.01377	.06454	.00007	171.46	.00045
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00171**	**.00001**	**.00130**	**.09122**	**.80420**	**.01114**	**1.8650**	**.23590**
Stddev	.00044	.00044	.00038	.00684	.04333	.00283	.0664	.00120
%RSD	25.850	3795.9	29.030	7.4958	5.3878	25.448	3.5582	.50767
#1	.00221	-.00019	.00142	.08338	.77418	.01138	1.9400	.23521
#2	.00158	.00052	.00088	.09593	.78453	.00819	1.8140	.23728
#3	.00135	-.00029	.00160	.09436	.85387	.01384	1.8409	.23521
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00016**	**2.6151**	**.00241**	**-.00405**	**.00167**	**-.00007**	**.01965**	**.28910**
Stddev	.00035	.0285	.00138	.01211	.00144	.00182	.00464	.00268
%RSD	219.55	1.0888	57.459	298.78	86.471	2626.5	23.639	.92540
#1	-.00045	2.5823	.00282	.00986	.00017	-.00212	.01537	.29196
#2	.00023	2.6334	.00087	-.00975	.00179	.00138	.02459	.28665
#3	-.00026	2.6296	.00354	-.01227	.00304	.00053	.01899	.28870
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

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Sample Name: L1708140501 Acquired: 8/29/2017 17:14:23 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00065**	**.19884**	**-.00494**	**-.00099**	**.00053**	**.01795**	**.29786**
Stddev	.00105	.00059	.00046	.00062	.00078	.00005	.09416
%RSD	161.20	.29688	9.3315	62.392	147.60	.28494	31.613
#1	-.00030	.19937	-.00510	-.00166	.00127	.01791	.26662
#2	-.00183	.19896	-.00530	-.00046	-.00028	.01801	.40367
#3	.00018	.19821	-.00442	-.00084	.00058	.01795	.22328
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9943.6**	**79602.**	**6951.9**
Stddev	5.2	177.	48.1
%RSD	.05265	.22192	.69212
#1	9947.8	79401.	6955.7
#2	9945.2	79731.	6901.9
#3	9937.7	79676.	6997.9

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Ki K Buck

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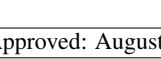
Sample Name: L1708140503 Acquired: 8/29/2017 17:18:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-01

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00049**	**.03612**	**.00100**	**.01209**	**.07752**	**.00008**	**68.618**	**.00018**
Stddev	.00269	.00084	.00220	.00372	.00054	.00004	.257	.00029
%RSD	547.70	2.3261	220.49	30.804	.69043	51.468	.37417	157.71
#1	.00262	.03691	-.00138	.01518	.07693	.00010	68.369	.00005
#2	-.00196	.03623	.00140	.00795	.07798	.00003	68.603	.00052
#3	-.00214	.03524	.00297	.01313	.07765	.00011	68.882	-.00001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

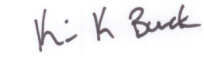
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00087**	**.00029**	**-.00094**	**.00842**	**.82660**	**.00445**	**1.0541**	**.13847**
Stddev	.00066	.00093	.00057	.01087	.00338	.00328	.0868	.00097
%RSD	75.424	315.18	61.088	129.06	.40906	73.752	8.2396	.69894
#1	.00160	-.00009	-.00031	-.00149	.82727	.00782	1.0979	.13736
#2	.00032	-.00038	-.00106	.00670	.82294	.00428	1.1104	.13888
#3	.00069	.00136	-.00144	.02005	.82960	.00126	.95408	.13916
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00003**	**143.49**	**-.00076**	**.00921**	**.00090**	**.00086**	**.01215**	**.52644**
Stddev	.00030	.31	.00128	.00603	.00245	.00396	.00860	.00362
%RSD	1147.1	.21789	169.58	65.441	273.03	457.95	70.811	.68780
#1	.00019	143.81	-.00176	.00283	-.00134	.00497	.00222	.53062
#2	-.00038	143.18	.00069	.01001	.00052	.00053	.01741	.52428
#3	.00011	143.50	-.00119	.01480	.00351	-.00291	.01681	.52443
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708140503 Acquired: 8/29/2017 17:18:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-01

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00071**	**.09638**	**-.00252**	**-.00312**	**.00070**	**.00347**	**2.4893**
Stddev	.00050	.00036	.00558	.00374	.00003	.00014	.0689
%RSD	71.063	.37797	220.98	119.99	3.6295	3.8879	2.7679
#1	-.00128	.09610	.00392	-.00323	.00071	.00332	2.4296
#2	-.00050	.09679	-.00568	-.00681	.00071	.00358	2.5647
#3	-.00034	.09625	-.00580	.00068	.00067	.00352	2.4735
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9881.4**	**78529.**	**6927.4**
Stddev	23.2	411.	20.2
%RSD	.23483	.52359	.29186
#1	9856.7	78091.	6926.5
#2	9884.6	78906.	6948.0
#3	9902.8	78590.	6907.6

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

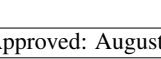
Sample Name: L1708140503MS Acquired: 8/29/2017 17:21:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-05

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20167**	**4.9796**	**.19731**	**.98486**	**.57829**	**.02549**	**72.999**	**.02492**
Stddev	.00327	.0211	.00122	.00611	.00181	.00010	.161	.00014
%RSD	1.6209	.42387	.61688	.62032	.31367	.41131	.22043	.57488
#1	.20527	4.9624	.19770	.98049	.57708	.02538	72.977	.02499
#2	.19889	4.9733	.19594	.98225	.58038	.02558	73.170	.02475
#3	.20085	5.0032	.19828	.99184	.57742	.02552	72.850	.02501
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

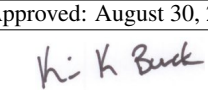
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09944**	**.25291**	**.24802**	**1.9896**	**26.294**	**.50622**	**6.0525**	**.38405**
Stddev	.00040	.00155	.00285	.0194	.085	.00606	.0671	.00295
%RSD	.40128	.61381	1.1498	.97394	.32229	1.1980	1.1089	.76751
#1	.09923	.25153	.24518	1.9775	26.362	.50936	6.1282	.38319
#2	.09990	.25260	.24801	1.9794	26.321	.51007	6.0003	.38733
#3	.09918	.25459	.25089	2.0120	26.199	.49923	6.0290	.38163
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50289**	**167.94**	**.24595**	**5.0413**	**.24865**	**.60289**	**.18962**	**3.0613**
Stddev	.00076	.39	.00078	.0050	.00094	.00415	.01423	.0086
%RSD	.15135	.23443	.31694	.09955	.37774	.68810	7.5031	.27975
#1	.50202	167.57	.24578	5.0456	.24771	.59841	.19500	3.0579
#2	.50343	167.90	.24680	5.0358	.24865	.60659	.20036	3.0551
#3	.50322	168.35	.24527	5.0425	.24959	.60366	.17348	3.0711
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708140503MS Acquired: 8/29/2017 17:21:55 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-05

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50993**	**.59672**	**.50730**	**.24334**	**.51318**	**.50699**	**.67745**
Stddev	.00128	.00208	.00598	.00489	.00199	.00075	.14166
%RSD	.25083	.34835	1.1783	2.0107	.38720	.14773	20.910
#1	.50847	.59721	.50048	.23914	.51139	.50626	.83966
#2	.51088	.59851	.51165	.24871	.51532	.50695	.57814
#3	.51043	.59444	.50976	.24216	.51284	.50775	.61455
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9872.6**	**77879.**	**6956.3**
Stddev	10.4	96.	42.2
%RSD	.10521	.12390	.60702
#1	9863.0	77857.	6968.3
#2	9871.0	77985.	6991.2
#3	9883.6	77796.	6909.4

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708140503MSD Acquired: 8/29/2017 17:25:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-06

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19904**	**4.9417**	**.20046**	**.98583**	**.57889**	**.02536**	**74.735**	**.02470**
Stddev	.00165	.0023	.00184	.00527	.00148	.00008	.045	.00052
%RSD	.82679	.04679	.91776	.53435	.25541	.31942	.06040	2.0858
#1	.19996	4.9390	.19893	.98136	.57720	.02531	74.692	.02416
#2	.19714	4.9432	.19995	.99164	.57957	.02545	74.732	.02475
#3	.20001	4.9428	.20250	.98450	.57991	.02531	74.782	.02519
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.09837**	**.25183**	**.24540**	**1.9859**	**26.173**	**.50181**	**6.0110**	**.38625**
Stddev	.00051	.00057	.00143	.0137	.141	.00614	.0933	.00315
%RSD	.52238	.22588	.58378	.69045	.53761	1.2240	1.5520	.81434
#1	.09876	.25223	.24376	1.9716	26.061	.49547	5.9236	.38664
#2	.09778	.25118	.24607	1.9873	26.127	.50221	6.1092	.38293
#3	.09855	.25209	.24637	1.9989	26.331	.50774	6.0001	.38919
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49974**	**170.75**	**.24591**	**5.0409**	**.24691**	**.60578**	**.20312**	**3.0583**
Stddev	.00106	.45	.00189	.0109	.00519	.00251	.00833	.0037
%RSD	.21289	.26611	.76694	.21600	2.1006	.41516	4.1018	.11979
#1	.50021	170.43	.24661	5.0488	.25228	.60312	.21168	3.0620
#2	.49852	170.55	.24378	5.0285	.24193	.60610	.19504	3.0580
#3	.50049	171.27	.24735	5.0455	.24651	.60812	.20265	3.0547
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: L1708140503MSD Acquired: 8/29/2017 17:25:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment: WG627573-06

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.50831**	**.59875**	**.50651**	**.24513**	**.51124**	**.50608**	**.31520**
Stddev	.00156	.00137	.00452	.00100	.00060	.00044	.41677
%RSD	.30758	.22815	.89202	.40667	.11792	.08639	132.22
#1	.50954	.59758	.50410	.24459	.51186	.50606	.76887
#2	.50655	.59842	.51173	.24452	.51121	.50565	-.05068
#3	.50884	.60025	.50372	.24628	.51065	.50653	.22742
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9819.6**	**78097.**	**7022.8**
Stddev	17.3	82.	31.2
%RSD	.17655	.10555	.44432
#1	9804.1	78157.	7054.3
#2	9816.4	78003.	6991.9
#3	9838.3	78130.	7022.3

Approved: August 30, 2017
Ki K Buck

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Ki K Buck

Sample Name: L1708140604 Acquired: 8/29/2017 17:28:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00043**	**.04202**	**.00027**	**.01573**	**.05456**	**.00004**	**2.7194**	**.00039**
Stddev	.00084	.00416	.00276	.00328	.00121	.00003	.0278	.00041
%RSD	192.43	9.8895	1041.8	20.829	2.2137	75.877	1.0225	104.45
#1	-.00035	.04027	-.00209	.01844	.05442	.00007	2.7377	.00085
#2	.00132	.04676	-.00042	.01667	.05584	.00003	2.7330	.00007
#3	.00033	.03902	.00330	.01209	.05344	.00002	2.6874	.00026
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00164**	**-.00008**	**-.00043**	**.01590**	**.92464**	**.00438**	**.26816**	**.28445**
Stddev	.00009	.00045	.00082	.01047	.01938	.00207	.06551	.00072
%RSD	5.6541	559.31	189.77	65.841	2.0957	47.165	24.429	.25254
#1	.00156	.00036	-.00017	.00487	.91633	.00473	.20150	.28364
#2	.00174	-.00055	-.00136	.01714	.94678	.00216	.27052	.28502
#3	.00163	-.00006	.00023	.02571	.91080	.00625	.33245	.28469
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00009**	**144.07**	**-.00007**	**-.00684**	**-.00184**	**.00053**	**.01051**	**.11011**
Stddev	.00018	.59	.00129	.00338	.00434	.00521	.00871	.00187
%RSD	205.41	.41196	1919.0	49.380	236.11	978.07	82.888	1.6996
#1	-.00007	143.84	.00076	-.00680	-.00652	.00591	.01073	.10805
#2	.00008	144.74	.00059	-.00348	.00206	-.00448	.01912	.11170
#3	-.00028	143.62	-.00155	-.01023	-.00106	.00017	.00169	.11058
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017
Kim K Buck

Approved: August 30, 2017
Kim K Buck

Sample Name: L1708140604 Acquired: 8/29/2017 17:28:59 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00021**	**.01372**	**.00506**	**-.00581**	**-.00002**	**.00425**	**.27842**
Stddev	.00048	.00049	.00286	.00240	.00040	.00018	.20227
%RSD	233.18	3.5390	56.454	41.289	2069.4	4.1846	72.651
#1	-.00013	.01375	.00176	-.00406	-.00002	.00408	.07278
#2	.00076	.01322	.00666	-.00854	-.00041	.00425	.47716
#3	-.00001	.01419	.00676	-.00482	.00038	.00444	.28531
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9995.2**	**79535.**	**7029.3**
Stddev	14.0	357.	28.9
%RSD	.13997	.44910	.41054
#1	10011.	79203.	7030.9
#2	9984.8	79913.	6999.6
#3	9989.6	79490.	7057.2

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: L1708146001 Acquired: 8/29/2017 17:32:45 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

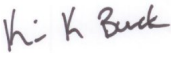
Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00024**	**.22640**	**.00066**	**.03047**	**.07989**	**.00002**	**24.680**	**.00046**
Stddev	.00306	.00697	.00070	.00253	.00047	.00003	.083	.00033
%RSD	1249.3	3.0787	106.01	8.2955	.58574	196.84	.33467	71.781
#1	.00118	.23355	-.00008	.03326	.08001	.00000	24.619	.00059
#2	-.00317	.21962	.00132	.02832	.07938	.00006	24.647	.00009
#3	.00272	.22603	.00075	.02984	.08029	-.00001	24.774	.00071
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00095**	**.00025**	**.00229**	**8.3653**	**1.7614**	**.00394**	**7.5323**	**3.3262**
Stddev	.00033	.00095	.00155	.0353	.0307	.00253	.0460	.0100
%RSD	34.565	374.85	67.801	.42236	1.7446	64.139	.61056	.30177
#1	.00087	-.00035	.00057	8.4032	1.7796	.00654	7.5142	3.3161
#2	.00132	-.00024	.00272	8.3594	1.7259	.00150	7.5846	3.3361
#3	.00067	.00135	.00358	8.3333	1.7787	.00378	7.4982	3.3264
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00097**	**31.972**	**-.00127**	**.12000**	**.00246**	**-.00117**	**.01258**	**2.9990**
Stddev	.00060	.016	.00084	.00583	.00755	.00113	.00831	.0114
%RSD	61.795	.05101	66.282	4.8608	306.76	95.789	66.022	.37963
#1	-.00040	31.968	-.00207	.12604	-.00543	-.00117	.02216	2.9988
#2	-.00091	31.958	-.00135	.11440	.00962	-.00230	.00815	3.0104
#3	-.00160	31.990	-.00039	.11956	.00319	-.00005	.00743	2.9876
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017

Approved: August 30, 2017



Sample Name: L1708146001 Acquired: 8/29/2017 17:32:45 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00048**	**.11020**	**.01154**	**-.00173**	**.00009**	**.24351**	**.15304**
Stddev	.00018	.00044	.00618	.00217	.00043	.00020	.25290
%RSD	37.801	.39787	53.506	125.65	470.93	.08063	165.25
#1	.00057	.10986	.01440	-.00418	.00058	.24373	.34741
#2	.00027	.11070	.01578	-.00091	-.00021	.24334	-.13289
#3	.00059	.11004	.00446	-.00008	-.00010	.24347	.24460
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10096.**	**81090.**	**6856.6**
Stddev	22.	81.	46.3
%RSD	.21767	.09988	.67557
#1	10072.	81162.	6886.5
#2	10101.	81106.	6803.2
#3	10115.	81002.	6880.0

Approved: August 30, 2017

Approved: August 30, 2017

Sample Name: CCV Acquired: 8/29/2017 17:36:29 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.39931**	**10.249**	**.39510**	**.49513**	**.99971**	**.05039**	**9.8976**	**.04993**
Stddev	.00162	.015	.00094	.00372	.00336	.00016	.0770	.00029
%RSD	.40492	.14329	.23906	.75091	.33627	.32414	.77743	.57808
#1	.40020	10.264	.39408	.49403	.99980	.05021	9.9509	.04994
#2	.39745	10.248	.39594	.49928	.99630	.05051	9.8094	.04963
#3	.40029	10.235	.39527	.49209	1.0030	.05047	9.9324	.05021
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.20049**	**.50313**	**.50167**	**3.9914**	**50.560**	**1.0040**	**10.013**	**.49561**
Stddev	.00015	.00079	.00294	.0277	.220	.0058	.013	.00067
%RSD	.07556	.15637	.58512	.69471	.43575	.58219	.13290	.13449
#1	.20037	.50292	.49925	3.9778	50.583	1.0059	10.027	.49629
#2	.20044	.50247	.50083	3.9730	50.329	.99739	10.010	.49496
#3	.20066	.50400	.50494	4.0233	50.768	1.0086	10.001	.49556
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.0171**	**50.988**	**.49743**	**9.9676**	**.50145**	**1.2083**	**.39342**	**5.0460**
Stddev	.0019	.319	.00074	.0048	.00695	.0065	.02106	.0040
%RSD	.18355	.62482	.14904	.04842	1.3870	.53778	5.3534	.07946
#1	1.0150	51.044	.49695	9.9644	.49391	1.2158	.41531	5.0450
#2	1.0178	50.645	.49704	9.9653	.50282	1.2049	.37330	5.0427
#3	1.0185	51.274	.49828	9.9732	.50761	1.2042	.39163	5.0505
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

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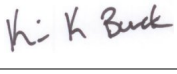

Sample Name: CCV Acquired: 8/29/2017 17:36:29 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.0179**	**1.0002**	**1.0066**	**.51002**	**1.0044**	**1.0101**	**.99200**
Stddev	.0025	.0017	.0098	.00385	.0042	.0012	.02883
%RSD	.24483	.17443	.97553	.75433	.41270	.11672	2.9066
#1	1.0165	.99826	1.0013	.50926	1.0090	1.0088	1.0213
#2	1.0164	1.0006	1.0007	.50661	1.0008	1.0112	.96362
#3	1.0208	1.0017	1.0180	.51419	1.0036	1.0102	.99110
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9866.8**	**78070.**	**6794.6**
Stddev	13.2	45.	49.4
%RSD	.13415	.05772	.72734
#1	9858.5	78030.	6798.9
#2	9882.1	78119.	6841.7
#3	9859.8	78063.	6743.1

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Sample Name: CCB Acquired: 8/29/2017 17:39:56 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00032**	**.00228**	**-.00059**	**.00169**	**.00067**	**.00006**	**-.01960**
Stddev	.00089	.00927	.00219	.00272	.00025	.00007	.03057
%RSD	274.60	406.66	371.72	160.53	37.181	105.80	155.92
#1	.00063	.01281	-.00081	.00366	.00039	-.00001	-.05255
#2	.00102	-.00464	-.00267	.00284	.00078	.00008	.00784
#3	-.00068	-.00134	.00170	-.00141	.00085	.00012	-.01410
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00011**	**.00038**	**.00066**	**.00006**	**.01828**	**.17234**	**.00020**
Stddev	.00058	.00033	.00059	.00165	.01346	.05884	.00072
%RSD	516.71	87.241	88.292	2788.4	73.655	34.141	366.97
#1	-.00039	.00052	.00105	.00170	.01996	.20855	-.00036
#2	.00075	.00000	.00095	-.00160	.03082	.10445	-.00006
#3	-.00002	.00063	-.00001	.00008	.00405	.20402	.00101
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.12916**	**.00185**	**-.00052**	**.06837**	**-.00021**	**-.00586**	**.00023**
Stddev	.00436	.00301	.00055	.01774	.00058	.00807	.00434
%RSD	3.3775	162.66	105.91	25.950	271.69	137.70	1886.7
#1	-.12413	.00254	.00008	.08826	.00024	-.00284	-.00364
#2	-.13163	.00446	-.00063	.05417	-.00002	-.01500	-.00059
#3	-.13173	-.00145	-.00100	.06269	-.00086	.00026	.00492
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

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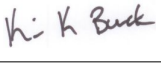

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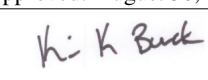

Sample Name: CCB Acquired: 8/29/2017 17:39:56 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00254**	**-.00127**	**-.00133**	**-.00084**	**.00051**	**.00561**	**-.00053**
Stddev	.00405	.01216	.00135	.00058	.00056	.00368	.00350
%RSD	159.53	954.69	101.38	69.804	108.93	65.692	660.60
#1	-.00455	.01230	-.00013	-.00124	.00116	.00983	.00094
#2	-.00519	-.01120	-.00107	-.00111	.00021	.00307	.00200
#3	.00212	-.00492	-.00279	-.00017	.00017	.00392	-.00453
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00027**	**-.00058**	F **.11577**
Stddev	.00037	.00010	.33736
%RSD	139.10	17.000	291.40
#1	-.00016	-.00057	-.26172
#2	-.00068	-.00068	.22122
#3	.00004	-.00048	.38782
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10001.**	**80109.**	**6821.9**
Stddev	28.	227.	49.9
%RSD	.28425	.28335	.73194
#1	9969.5	79933.	6823.5
#2	10007.	80365.	6871.0
#3	10025.	80028.	6771.2

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Sample Name: L1708146401 Acquired: 8/29/2017 17:43:46 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00287**	**.69814**	**.00245**	**.05010**	**.03290**	**.00159**	**17.861**	**.00059**
Stddev	.00213	.00887	.00219	.00410	.00121	.00006	.020	.00025
%RSD	74.128	1.2703	89.612	8.1784	3.6828	3.7359	.11077	41.452
#1	-.00184	.69757	-.00004	.05231	.03270	.00166	17.883	.00032
#2	-.00532	.68958	.00410	.04537	.03420	.00156	17.855	.00080
#3	-.00146	.70729	.00328	.05261	.03181	.00156	17.845	.00066
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.04574**	**.00072**	**.00665**	**.83107**	**2.3827**	**.00741**	**9.8561**	**.36195**
Stddev	.00022	.00084	.00149	.00716	.0592	.00053	.1381	.00161
%RSD	.49006	116.98	22.383	.86127	2.4854	7.1171	1.4013	.44483
#1	.04566	.00117	.00537	.82423	2.4076	.00765	10.005	.36025
#2	.04556	-.00025	.00631	.83851	2.4254	.00680	9.7326	.36214
#3	.04599	.00125	.00829	.83048	2.3151	.00777	9.8305	.36345
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00021**	**39.245**	**.03168**	**.02549**	**.00230**	**-.00029**	**.01003**	**5.6587**
Stddev	.00018	.165	.00013	.00139	.00387	.00275	.00422	.0012
%RSD	87.029	.42152	.42130	5.4644	167.89	956.52	42.030	.02026
#1	-.00011	39.361	.03182	.02654	.00640	.00281	.01074	5.6600
#2	-.00010	39.055	.03167	.02602	-.00128	-.00245	.00551	5.6584
#3	-.00042	39.317	.03156	.02391	.00179	-.00123	.01385	5.6577
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

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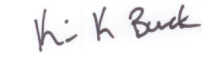

Sample Name: L1708146401 Acquired: 8/29/2017 17:43:46 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00051**	**.10194**	**.02201**	**-.00113**	**.00105**	**.17180**	**.35052**
Stddev	.00071	.00022	.00207	.00104	.00019	.00006	.44408
%RSD	138.68	.21812	9.4059	92.110	17.977	.03326	126.69
#1	.00083	.10217	.02070	-.00075	.00123	.17175	.84034
#2	-.00030	.10193	.02440	-.00033	.00105	.17179	-.02578
#3	.00101	.10173	.02094	-.00230	.00086	.17186	.23699
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10125.**	**80582.**	**6928.3**
Stddev	21.	102.	45.5
%RSD	.21223	.12648	.65673
#1	10127.	80683.	6876.1
#2	10102.	80584.	6959.5
#3	10145.	80479.	6949.2

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Sample Name: L1708146601 Acquired: 8/29/2017 17:47:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00400**	**4.1733**	**.01109**	**.04788**	**.06564**	**.00039**	**11.634**	**.00058**
Stddev	.00058	.0047	.00268	.00323	.00077	.00005	.054	.00042
%RSD	14.511	.11389	24.148	6.7378	1.1705	13.443	.46294	72.423
#1	-.00462	4.1775	.01391	.05143	.06479	.00034	11.612	.00020
#2	-.00348	4.1681	.00858	.04513	.06585	.00041	11.695	.00103
#3	-.00390	4.1743	.01079	.04709	.06628	.00044	11.594	.00051
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.01596**	**.01129**	**.02239**	**38.741**	**2.1098**	**.01200**	**5.5109**	**.97162**
Stddev	.00042	.00065	.00123	.102	.0613	.00611	.0285	.00370
%RSD	2.6204	5.7805	5.4910	.26258	2.9063	50.939	.51668	.38046
#1	.01614	.01202	.02106	38.771	2.1225	.00868	5.5266	.97267
#2	.01626	.01076	.02347	38.825	2.1638	.01905	5.4780	.97467
#3	.01548	.01109	.02265	38.628	2.0431	.00826	5.5281	.96751
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00016**	**51.820**	**.01043**	**.20426**	**.01026**	**.00170**	**.00840**	**10.453**
Stddev	.00013	.211	.00098	.00398	.00268	.00023	.00371	.017
%RSD	79.072	.40645	9.4195	1.9503	26.143	13.269	44.180	.16716
#1	.00019	51.878	.01027	.20882	.01231	.00153	.00853	10.454
#2	.00002	51.997	.00953	.20245	.00722	.00162	.00463	10.469
#3	.00028	51.587	.01148	.20150	.01125	.00196	.01205	10.435
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

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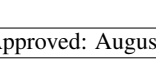

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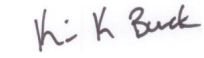

Sample Name: L1708146601 Acquired: 8/29/2017 17:47:27 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00069**	**.06115**	**.06458**	**.00023**	**.00738**	**.10314**	**.56186**
Stddev	.00071	.00059	.00386	.00298	.00062	.00014	.17924
%RSD	103.29	.97154	5.9793	1319.0	8.3528	.13187	31.901
#1	.00003	.06102	.06718	-.00306	.00808	.10298	.35917
#2	.00144	.06180	.06015	.00099	.00692	.10323	.62697
#3	.00060	.06063	.06642	.00275	.00715	.10321	.69945
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10182.**	**81361.**	**7075.3**
Stddev	17.	219.	62.1
%RSD	.16269	.26941	.87835
#1	10186.	81436.	7055.9
#2	10197.	81533.	7025.1
#3	10164.	81114.	7144.8

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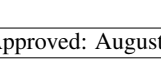
Sample Name: L1708146901 Acquired: 8/29/2017 17:51:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00186**	**1.3825**	**.00647**	**.01680**	**.18700**	**.00020**	**56.780**	**.00058**
Stddev	.00012	.0071	.00082	.00258	.00167	.00007	.292	.00010
%RSD	6.6935	.51659	12.635	15.333	.89335	35.999	.51514	16.969
#1	.00181	1.3906	.00555	.01450	.18587	.00025	56.660	.00069
#2	.00177	1.3771	.00674	.01632	.18620	.00024	56.566	.00054
#3	.00200	1.3798	.00711	.01958	.18892	.00012	57.113	.00051
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

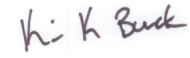
Elem	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00458**	**.00284**	**.01793**	**5.2267**	**1.3376**	**.01022**	**6.9816**	**1.4790**
Stddev	.00034	.00064	.00128	.0041	.0495	.00688	.1391	.0012
%RSD	7.5245	22.444	7.1321	.07788	3.7019	67.356	1.9926	.08307
#1	.00425	.00222	.01880	5.2243	1.3659	.01559	6.8927	1.4804
#2	.00454	.00282	.01646	5.2314	1.3665	.01262	7.1419	1.4785
#3	.00494	.00349	.01852	5.2244	1.2805	.00246	6.9103	1.4781
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Mo2020	Na5895	Ni2316	P_2149	Pb2203	Sb2068	Se1960	Si2124
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.00056**	**6.3274**	**.00653**	**.09343**	**.00786**	**.00490**	**-.00261**	**5.2942**
Stddev	.00063	.0245	.00032	.00428	.00298	.00264	.00706	.0088
%RSD	111.01	.38689	4.8301	4.5828	37.894	53.854	271.10	.16665
#1	-.00116	6.3417	.00628	.08917	.01098	.00482	-.00383	5.2845
#2	-.00061	6.3413	.00642	.09340	.00505	.00758	.00499	5.2962
#3	.00008	6.2991	.00688	.09773	.00755	.00230	-.00898	5.3018
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Approved: August 30, 2017



Approved: August 30, 2017



Sample Name: L1708146901 Acquired: 8/29/2017 17:51:09 Type: Unk
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Sr4077	Ti3372	Tl1908	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00023**	**.18201**	**.04011**	**-.00107**	**.00223**	**.03417**	**1.2735**
Stddev	.00031	.00062	.00507	.00152	.00083	.00017	.3803
%RSD	132.00	.34128	12.632	141.42	37.310	.49874	29.863
#1	.00040	.18270	.04559	-.00275	.00155	.03404	1.3159
#2	.00042	.18182	.03560	-.00065	.00198	.03436	1.6309
#3	-.00012	.18150	.03913	.00019	.00316	.03410	.87381
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10004.**	**79991.**	**6943.1**
Stddev	13.	143.	37.3
%RSD	.12589	.17916	.53732
#1	10003.	79907.	6984.5
#2	9992.4	80156.	6912.0
#3	10017.	79910.	6932.8

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSA Acquired: 8/29/2017 17:54:52 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-.00963**	**248.15**	**-.00004**	**-.01488**	**-.00008**	**.00008**	**236.54**
Stddev	.00252	.37	.00161	.00122	.00055	.00007	.61
%RSD	26.198	.15095	4010.8	8.1872	733.81	83.049	.25836
#1	-.01251	247.74	-.00141	-.01526	-.00048	.00013	235.93
#2	-.00861	248.46	-.00046	-.01351	.00055	.00000	237.15
#3	-.00778	248.26	.00174	-.01586	-.00030	.00011	236.55
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	.00400						
Low Limit	-.00400						

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **.00111**	**-.00030**	**-.00157**	F **.01604**	**95.597**	**.12715**	**.00613**
Stddev	.00024	.00031	.00066	.00089	.315	.05703	.00304
%RSD	21.587	102.91	41.943	5.5287	.32972	44.855	49.698
#1	.00130	-.00003	-.00163	.01503	95.236	.07588	.00866
#2	.00084	-.00023	-.00088	.01669	95.737	.11699	.00697
#3	.00120	-.00064	-.00219	.01640	95.819	.18858	.00275
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit	.00080			.00400			
Low Limit	-.00080			-.00400			

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**245.36**	**-.00140**	**-.00166**	**.17657**	**-.00305**	**.02259**	**.00007**
Stddev	1.31	.00089	.00032	.02461	.00187	.00964	.00492
%RSD	.53464	63.756	19.368	13.937	61.128	42.678	7254.0
#1	243.85	-.00138	-.00134	.15139	-.00092	.01207	.00416
#2	246.14	-.00052	-.00168	.17776	-.00384	.02470	-.00539
#3	246.10	-.00230	-.00198	.20056	-.00440	.03100	.00144
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSA Acquired: 8/29/2017 17:54:52 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00702**	F **-.01203**	**.00745**	**-.00013**	**.00115**	**.00676**	**.00284**
Stddev	.00140	.02476	.00322	.00042	.00021	.00456	.00325
%RSD	19.915	205.76	43.145	316.29	17.975	67.504	114.48
#1	.00607	.00956	.00421	-.00024	.00100	.00379	.00111
#2	.00637	-.00660	.01064	.00033	.00139	.00448	.00658
#3	.00863	-.03905	.00750	-.00049	.00106	.01201	.00082
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit		.00800					
Low Limit		-.00800					

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**-.00468**	**.00315**	F **-3.8767**
Stddev	.00130	.00003	.2298
%RSD	27.886	.93988	5.9288
#1	-.00547	.00312	-3.6245
#2	-.00538	.00318	-3.9313
#3	-.00317	.00316	-4.0744
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02000
Low Limit			-.02000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9523.3**	**74396.**	**6823.1**
Stddev	15.8	339.	49.8
%RSD	.16622	.45586	.72929
#1	9507.0	74008.	6870.2
#2	9524.1	74544.	6771.0
#3	9538.7	74636.	6828.1

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSAB Acquired: 8/29/2017 17:58:35 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.49975**	**243.75**	**.23812**	**.46627**	**.24340**	**.25266**	**232.08**
Stddev	.00193	.06	.00115	.00246	.00126	.00004	.38
%RSD	.38677	.02634	.48148	.52740	.51687	.01676	.16528
#1	.50078	243.75	.23906	.46910	.24484	.25267	231.71
#2	.50095	243.68	.23685	.46470	.24252	.25270	232.06
#3	.49752	243.81	.23846	.46501	.24285	.25261	232.48
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.46395**	**.22979**	**.24193**	**.24920**	**93.888**	**5.1397**	**.00921**
Stddev	.00054	.00043	.00052	.00063	.371	.0552	.00413
%RSD	.11703	.18824	.21301	.25224	.39509	1.0731	44.803
#1	.46355	.22935	.24186	.24965	93.552	5.1234	.01242
#2	.46457	.23021	.24146	.24848	93.826	5.0946	.01066
#3	.46374	.22981	.24248	.24946	94.286	5.2012	.00455
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**241.24**	**.23103**	**-.00078**	**5.1364**	**.45646**	**-.01544**	**.46575**
Stddev	.39	.00165	.00044	.0199	.00131	.01077	.00592
%RSD	.16310	.71619	55.768	.38781	.28766	69.726	1.2714
#1	240.86	.23261	-.00111	5.1161	.45496	-.00738	.47126
#2	241.22	.22931	-.00095	5.1372	.45737	-.02767	.46649
#3	241.65	.23116	-.00029	5.1559	.45706	-.01128	.45949
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: ICSAB Acquired: 8/29/2017 17:58:35 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.48948**	**.23492**	**.01000**	**.47855**	**.00116**	**.00877**	**.43551**
Stddev	.00619	.03274	.00378	.00155	.00026	.00584	.00258
%RSD	1.2643	13.937	37.803	.32493	22.349	66.602	.59202
#1	.48463	.20994	.00622	.47703	.00090	.01449	.43394
#2	.48737	.22284	.01000	.48014	.00142	.00902	.43411
#3	.49645	.27198	.01378	.47846	.00115	.00281	.43849
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.24186**	**.46093**	F **-3.3972**
Stddev	.00131	.00085	.1014
%RSD	.54083	.18502	2.9853
#1	.24100	.46048	-3.3712
#2	.24122	.46191	-3.3114
#3	.24337	.46038	-3.5091
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.02500
Low Limit			-.02500

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9477.4**	**74126.**	**6778.2**
Stddev	3.8	152.	47.3
%RSD	.04025	.20467	.69778
#1	9481.7	73951.	6816.3
#2	9474.2	74202.	6725.3
#3	9476.4	74224.	6793.0

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

Sample Name: CCV Acquired: 8/29/2017 18:02:11 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.39959**	**10.134**	**.39662**	**.49588**	**.99865**	**.05013**	**9.8796**
Stddev	.00278	.017	.00159	.00233	.00225	.00004	.0248
%RSD	.69539	.16870	.40192	.46960	.22484	.08030	.25092
#1	.39878	10.145	.39622	.49829	.99962	.05009	9.8971
#2	.40268	10.143	.39526	.49571	1.0002	.05012	9.8905
#3	.39731	10.114	.39837	.49364	.99608	.05017	9.8512
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.05011**	**.20056**	**.50076**	**.50118**	**3.9738**	**50.635**	**1.0128**
Stddev	.00026	.00015	.00114	.00080	.0063	.224	.0057
%RSD	.51134	.07619	.22821	.15941	.15801	.44330	.56094
#1	.05039	.20041	.49979	.50085	3.9689	50.894	1.0192
#2	.04988	.20055	.50202	.50210	3.9809	50.519	1.0083
#3	.05006	.20071	.50047	.50061	3.9716	50.493	1.0109
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.021**	**.49422**	**1.0156**	**50.982**	**.49666**	**9.9128**	**.50060**
Stddev	.062	.00283	.0021	.087	.00264	.0110	.00205
%RSD	.62014	.57198	.20828	.17157	.53234	.11073	.40954
#1	9.9497	.49251	1.0134	50.993	.49482	9.9184	.49824
#2	10.061	.49748	1.0176	50.890	.49548	9.9001	.50192
#3	10.054	.49267	1.0157	51.063	.49969	9.9198	.50164
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Approved: August 30, 2017

Approved: August 30, 2017

Sample Name: CCV Acquired: 8/29/2017 18:02:11 Type: QC
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2031**	**.38678**	**5.0298**	**1.0152**	**.99863**	**1.0038**	**.50575**
Stddev	.0096	.01324	.0094	.0032	.00073	.0068	.00711
%RSD	.79953	3.4233	.18703	.31000	.07354	.68155	1.4059
#1	1.1964	.40206	5.0211	1.0129	.99782	1.0086	.50239
#2	1.2141	.37884	5.0398	1.0139	.99925	.99597	.50095
#3	1.1988	.37943	5.0284	1.0188	.99881	1.0069	.51392
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.99849**	**1.0070**	F **.83398**
Stddev	.00118	.0008	.39170
%RSD	.11836	.07639	46.967
#1	.99985	1.0069	.90883
#2	.99776	1.0063	1.1829
#3	.99785	1.0078	.41026
Check ?	Chk Pass	Chk Pass	Chk Fail
Value			1.0000
Range			-10.000%

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**9907.1**	**78428.**	**6849.2**
Stddev	9.8	94.	23.4
%RSD	.09908	.11934	.34180
#1	9896.0	78412.	6831.0
#2	9910.3	78528.	6875.6
#3	9914.8	78343.	6841.1

Approved: August 30, 2017
Ki K Buck

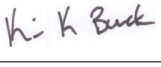
Approved: August 30, 2017
Ki K Buck

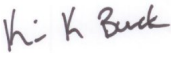
Sample Name: CCB Acquired: 8/29/2017 18:05:40 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ag3280	Al3082	As1890	B_2496	Ba4554	Be3131	Ca4226
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00061**	**.02078**	**.00033**	**.00250**	**.00074**	**.00015**	**-.01236**
Stddev	.00382	.01115	.00287	.00100	.00040	.00006	.02666
%RSD	622.11	53.659	874.02	40.086	53.455	40.814	215.79
#1	-.00072	.01107	.00359	.00217	.00055	.00008	-.03861
#2	-.00236	.01831	-.00077	.00170	.00048	.00019	-.01316
#3	.00493	.03296	-.00184	.00362	.00120	.00019	.01470
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cd2288	Co2286	Cr2677	Cu2247	Fe2611	K_7664	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00012**	**.00010**	**-.00043**	**-.00043**	**-.00129**	**.21374**	**.00036**
Stddev	.00007	.00047	.00125	.00080	.01463	.09910	.00520
%RSD	58.649	457.12	291.61	185.02	1137.6	46.363	1434.4
#1	.00005	.00017	-.00163	-.00080	-.01559	.21402	-.00552
#2	.00020	.00054	-.00052	-.00099	.01365	.11450	.00227
#3	.00013	-.00040	.00086	.00049	-.00192	.31269	.00433
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mg2790	Mn2576	Mo2020	Na5895	Ni2316	P_2149	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.03182**	**.00051**	**-.00023**	**.02551**	**-.00073**	**.00214**	**.00158**
Stddev	.04190	.00136	.00060	.02279	.00110	.00509	.00246
%RSD	131.67	264.60	263.87	89.324	150.79	237.81	156.15
#1	.01489	.00174	.00038	.04842	-.00039	.00775	.00142
#2	-.04425	.00074	-.00082	.02529	.00016	.00087	-.00081
#3	-.06610	-.00094	-.00024	.00284	-.00197	-.00219	.00411
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Approved: August 30, 2017


Approved: August 30, 2017


Sample Name: CCB Acquired: 8/29/2017 18:05:40 Type: Blank
Method: ICP-THERMO4_6010_200.7WATER_3YLINES(v471) Mode: CONC Corr. Factor: 1.00000(
User: KKB Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sb2068	Se1960	Si2124	Sn1899	Sr4077	Ti3372	Tl1908
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.00069**	**.00930**	**.00514**	**.00015**	**.00047**	**.00507**	**-.00094**
Stddev	.00264	.00462	.00666	.00091	.00031	.00441	.00271
%RSD	380.89	49.689	129.50	592.44	64.647	86.986	288.82
#1	-.00215	.00704	.01283	-.00074	.00012	.00955	.00051
#2	.00306	.01462	.00142	.00108	.00066	.00491	.00074
#3	.00118	.00624	.00118	.00012	.00064	.00074	-.00407
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	V_2924	Zn2062	Zr3391
Units	ppm	ppm	ppm
Avg	**.00040**	**-.00032**	F **.59273**
Stddev	.00123	.00062	.06935
%RSD	303.72	197.69	11.701
#1	.00119	.00041	.66264
#2	.00103	-.00068	.52394
#3	-.00101	-.00067	.59160
Check ?	Chk Pass	Chk Pass	Chk Fail
High Limit			.04000
Low Limit			-.04000

Int. Std.	Y_2243	Y_3600	Y_3774
Units	Cts/S	Cts/S	Cts/S
Avg	**10095.**	**80665.**	**6921.0**
Stddev	30.	415.	79.0
%RSD	.29914	.51443	1.1420
#1	10130.	80571.	6866.2
#2	10078.	81118.	7011.6
#3	10077.	80304.	6885.1

Approved: August 30, 2017
Ki K Buck

Approved: August 30, 2017
Ki K Buck

2.3.2 Metals ICP-MS Data

2.3.2.1 Summary Data

Login Number: L17081305
Department: Metals
Analyst: Ji Hu

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6020

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

Low Level Check: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG627431 - All acceptance criteria were met.

WG627433 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: WG627433 - Client samples 12 and 13 required dilution analyses in order to obtain results for arsenic within the linear range. Due to the dark color of the digestate and high levels of nontarget analytes which can contribute to undercorrected interferences and instrument malfunctions, client samples 08 and 09 were analyzed at dilutions for all analytes.

Narrative ID: 128821
Approved By: Kerri Buck

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 15:56
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** NI.082917.155648
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00820		0.00100	0.000500
Chromium, Total	7440-47-3	0.00486		0.00200	0.00100

Sample #: L17081305-02 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ06-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 15:59
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** NI.082917.155953
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00387		0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00114	J	0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:02
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** NI.082917.160259
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00102		0.00100	0.000500
Chromium, Total	7440-47-3	0.00794		0.00200	0.00100

Sample #: L17081305-04 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: PZ04-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:06
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** NI.082917.160605
Sample Tag: 01 **Units:** mg/L

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.000718	J	0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00668		0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-05 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:09
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** NI.082917.160910
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.000972	J	0.00100	0.000500
Chromium, Total	7440-47-3	0.00872		0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-06 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: DUP-GW-082317-1 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:12
Collect Date: 08/23/2017 09:00 **Dilution:** 1 **File ID:** NI.082917.161215
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.000730	J	0.00100	0.000500
Chromium, Dissolved	7440-47-3	0.00649		0.00200	0.00100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 17:51
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** NI.082917.175125
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.0212		0.0200	0.0100

Certificate of Analysis

Sample #: L17081305-09 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW31-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 17:54
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** NI.082917.175431
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.0244		0.0200	0.0100

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/25/2017 08:49
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627431 **Analyst:** JYH **Run Date:** 08/29/2017 16:15
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** NI.082917.161520
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00296		0.00100	0.000500

Sample #: L17081305-11 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW30-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 17:57
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** NI.082917.175736
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00203		0.00100	0.000500

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/30/2017 12:39
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/30/2017 13:41
Collect Date: 08/23/2017 13:55 **Dilution:** 50 **File ID:** NI.083017.134117
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.974		0.0500	0.0250

Certificate of Analysis

Sample #: L17081305-13 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW11S-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/30/2017 12:39
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/30/2017 13:44
Collect Date: 08/23/2017 13:55 **Dilution:** 50 **File ID:** NI.083017.134422
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.935		0.0500	0.0250

Sample #: L17081305-14 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 18:06
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** NI.082917.180653
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00689		0.00100	0.000500

Sample #: L17081305-15 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: MW09R-082317 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 18:09
Collect Date: 08/23/2017 14:40 **Dilution:** 1 **File ID:** NI.082917.180959
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00365		0.00100	0.000500

Sample #: L17081305-16 **PrePrep Method:** N/A **Instrument:** ICP-MS2
Client ID: DUP-GW-082317-2 **Prep Method:** 3015A **Prep Date:** 08/28/2017 07:51
Matrix: Water **Analytical Method:** 6020A **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 **Analyst:** JYH **Run Date:** 08/29/2017 18:13
Collect Date: 08/23/2017 09:30 **Dilution:** 1 **File ID:** NI.082917.181304
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00670		0.00100	0.000500

Certificate of Analysis

Sample #: L17081305-17 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: DUP-GW-082317-2 | **Prep Method:** 3015A | **Prep Date:** 08/28/2017 07:51
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 | **Analyst:** JYH | **Run Date:** 08/29/2017 18:22
Collect Date: 08/23/2017 09:30 | **Dilution:** 1 | **File ID:** NI.082917.182224
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.00395		0.00100	0.000500

Sample #: L17081305-19 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: MW19-082317 | **Prep Method:** 3015A | **Prep Date:** 08/28/2017 07:51
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 | **Analyst:** JYH | **Run Date:** 08/29/2017 18:25
Collect Date: 08/23/2017 15:35 | **Dilution:** 1 | **File ID:** NI.082917.182529
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Total	7440-38-2	0.00445		0.00100	0.000500

Sample #: L17081305-20 | **PrePrep Method:** N/A | **Instrument:** ICP-MS2
Client ID: MW19-082317 | **Prep Method:** 3015A | **Prep Date:** 08/28/2017 07:51
Matrix: Water | **Analytical Method:** 6020A | **Cal Date:** 08/29/2017 14:30
Workgroup #: WG627433 | **Analyst:** JYH | **Run Date:** 08/29/2017 18:28
Collect Date: 08/23/2017 15:35 | **Dilution:** 1 | **File ID:** NI.082917.182835
Sample Tag: 01 | **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Arsenic, Dissolved	7440-38-2	0.0110		0.00100	0.000500

2.3.2.2 QC Summary Data

Example 6020 Calculations
Perkin Elmer NexION 300X

1.0 Initial Calibration (ICAL) Parameters
The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	100
Vi = Initial volume	40
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/L)	0.25

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	200
Vi = Initial volume	0.5
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/kg)	40

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	40
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	50

50 ug/kg = 0.050 mg/kg

Perkin Elmer NexION ICP/MS

STANDARDS KEY

QC Std 1 - ICV
QC Std 2 - ICB
QC Std 3 - LLICV
QC Std 4 - ICSA
QC Std 5 - ICSAB
QC Std 6 - CCV
QC Std 7 - CCB
QC Std 8 - LLCCV

Calibration Solutions

Analyte	Stock Conc. (mg/L)	S1 (mg/L)	S2 (mg/L)	S3 (mg/L)	S4 (mg/L)
Al	10	0	0.00005	0.05	0.1
Sb	10	0	0.00005	0.05	0.1
As	10	0	0.00005	0.05	0.1
Ba	10	0	0.00005	0.05	0.1
Be	10	0	0.00005	0.05	0.1
Ca	1000	0	0.005	5	10
Cd	10	0	0.0005	0.05	0.1
Cr	10	0	0.0005	0.05	0.1
Co	10	0	0.0005	0.05	0.1
Cu	10	0	0.0005	0.05	0.1
Fe	1000	0	0.005	5	10
Pb	10	0	0.00005	0.05	0.1
Mg	1000	0	0.005	5	10
Mn	10	0	0.00005	0.05	0.1
Ni	10	0	0.00005	0.05	0.1
K	1000	0	0.005	5	10
Se	10	0	0.00005	0.05	0.1
Ag	10	0	0.00005	0.05	0.1
Na	1000	0	0.005	5	10
Tl	10	0	0.00005	0.05	0.1
V	10	0	0.00005	0.05	0.1
U	1000	0	0.00005	0.05	0.1
Zn	10	0	0.00005	0.05	0.1

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup:	WG627191	**SOP:**	ME407 Revison 19
Analyst:	VC	**Spike Solution:**	STD80296
Spike Analyst:	VC	**Spike Witness:**	ERP
Run Date:	08/25/2017 08:49	**HNO3 Lot #:**	COA19940
Method:	3015A	**40 & 50 ML. DIGESTION TU**	COA19932
Balance:	BAL016	**MS Filters- fisher-Lot#r**	RGT40686
Instrument:	MW-3		
Instrument Start:	08/25/2017 08:55		

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG627191-03	BLANK	1	20 mL	50 mL	184.144 g	184.14 g		
2	WG627191-04	LCS	1	20 mL	50 mL	183.566 g	183.559 g	.25 mL	
3	L17081285-01	SAMP	1	20 mL	50 mL	186.032 g	186.004 g		08/31/17
4	L17081285-02	SAMP	1	20 mL	50 mL	184.497 g	184.467 g		08/31/17
5	L17081285-03	SAMP	1	20 mL	50 mL	184.88 g	184.839 g		08/31/17
6	L17081285-04	SAMP	1	20 mL	50 mL	183.692 g	183.689 g		08/31/17
7	WG627191-01	REF	1	20 mL	50 mL	182.422 g	182.417 g		
8	L17081285-05	RS01	1	20 mL	50 mL	182.422 g	182.417 g		08/31/17
9	WG627191-05	MS	1	20 mL	50 mL	182.209 g	182.194 g	.25 mL	
10	L17081285-06	MS01	1	20 mL	50 mL	182.209 g	182.194 g	.25 mL	08/31/17
11	WG627191-06	MSD	1	20 mL	50 mL	183.177 g	183.166 g	.25 mL	
12	L17081285-07	SD01	1	20 mL	50 mL	183.177 g	183.166 g	.25 mL	08/31/17
13	L17081305-01	SAMP	1	20 mL	50 mL	184.695 g	184.691 g		09/07/17
14	L17081305-02	SAMP	1	20 mL	50 mL	184.241 g	184.202 g		09/07/17
15	L17081305-03	SAMP	1	20 mL	50 mL	182.103 g	182.072 g		09/07/17
16	L17081305-04	SAMP	1	20 mL	50 mL	185.913 g	185.843 g		09/07/17
17	L17081305-05	SAMP	1	20 mL	50 mL	182.884 g	182.853 g		09/07/17
18	L17081305-06	SAMP	1	20 mL	50 mL	181.939 g	181.927 g		09/07/17
19	L17081305-10	SAMP	1	20 mL	50 mL	183.893 g	183.881 g		09/07/17
20	L17081307-02	SAMP	1	20 mL	50 mL	184.019 g	184.001 g		09/07/17
21	WG627191-02	REF	1	20 mL	50 mL	182.242 g	182.234 g		
22	L17081307-07	RS02	1	20 mL	50 mL	182.242 g	182.234 g		09/07/17
23	WG627191-07	MS	1	20 mL	50 mL	184.862 g	184.844 g	.25 mL	
24	L17081307-08	MS02	1	20 mL	50 mL	184.862 g	184.844 g	.25 mL	09/07/17
25	WG627191-08	MSD	1	20 mL	50 mL	184.453 g	184.439 g	.25 mL	
26	L17081307-09	SD02	1	20 mL	50 mL	184.453 g	184.439 g	.25 mL	09/07/17
27	L17081307-14	SAMP	1	20 mL	50 mL	183.973 g	183.948 g		09/07/17
28	L17081307-17	SAMP	1	20 mL	50 mL	182.156 g	182.125 g		09/07/17
29	L17081307-20	SAMP	1	20 mL	50 mL	183.769 g	183.746 g		09/07/17
30	L17081307-23	SAMP	1	20 mL	50 mL	181.306 g	181.272 g		09/07/17

L17081305-01	FILTERED DIGESTATE
L17081305-03	FILTERED DIGESTATE

Analyst: Vicki Collins

Reviewer: Erin Potter

MW_DIG - Modified 09/30/2009
PDF ID: 5448761
Report generated: 08/25/2017 09:47

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG627377
Analyst: VC
Spike Analyst: VC
Run Date: 08/28/2017 07:51
Method: 3015A
Balance: BAL016
Instrument: MW-3
Instrument Start: 08/28/2017 07:55

SOP: ME407 Revison 19
Spike Solution: STD80296
Spike Witness: ERP
40 & 50 ML. DIGESTION TU: COA19932
HNO3 Lot #: COA19940
MS Filters- fisher-Lot#r: RGT40686

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG627377-02	BLANK	1	20 mL	50 mL	185.051 g	185.059 g		
2	WG627377-03	LCS	1	20 mL	50 mL	184.467 g	184.484 g	.25 mL	
3	L17081212-08	SAMP	1	10 mL	50 mL	181.981 g	181.985 g		09/06/17
4	L17081212-09	SAMP	1	10 mL	50 mL	181.148 g	181.125 g		09/06/17
5	L17081305-08	SAMP	1	10 mL	50 mL	181.475 g	181.472 g		09/07/17
6	L17081305-09	SAMP	1	10 mL	50 mL	181.268 g	181.28 g		09/07/17
7	L17081305-11	SAMP	1	20 mL	50 mL	181.81 g	181.804 g		09/07/17
8	L17081305-12	SAMP	1	20 mL	50 mL	182.432 g	182.407 g		09/07/17
9	L17081305-13	SAMP	1	20 mL	50 mL	182.386 g	182.356 g		09/07/17
10	L17081305-14	SAMP	1	20 mL	50 mL	182.914 g	182.898 g		09/07/17
11	L17081305-15	SAMP	1	20 mL	50 mL	183.21 g	183.203 g		09/07/17
12	L17081305-16	SAMP	1	20 mL	50 mL	185.13 g	185.115 g		09/07/17
13	L17081305-17	SAMP	1	20 mL	50 mL	181.082 g	181.05 g		09/07/17
14	L17081305-19	SAMP	1	20 mL	50 mL	182.153 g	182.14 g		09/07/17
15	L17081305-20	SAMP	1	20 mL	50 mL	184.518 g	184.488 g		09/07/17
16	L17081354-01	SAMP	1	20 mL	50 mL	181.884 g	181.864 g		09/01/17
17	L17081354-02	SAMP	1	20 mL	50 mL	181.773 g	181.746 g		09/01/17
18	L17081354-03	SAMP	1	20 mL	50 mL	182.229 g	182.198 g		09/01/17
19	L17081354-04	SAMP	1	20 mL	50 mL	183.353 g	183.343 g		09/01/17
20	WG627377-01	REF	1	20 mL	50 mL	184.388 g	184.372 g		
21	L17081354-05	SAMP	1	20 mL	50 mL	184.388 g	184.372 g		09/01/17
22	L17081354-06	SAMP	1	20 mL	50 mL	183.438 g	183.43 g		09/01/17
23	WG627377-04	MS	1	20 mL	50 mL	183.454 g	183.416 g	.25 mL	
24	WG627377-05	MSD	1	20 mL	50 mL	183.632 g	183.629 g	.25 mL	

L17081212-08	volumeadj due to matrix,ph adj FILTERED DIGESTATE
L17081212-09	volumeadj due to matrix,ph adj FILTERED DIGESTATE
L17081305-08	volumeadj due to matrix,ph adj FILTERED DIGESTATE
L17081305-09	volumeadj due to matrix,ph adj FILTERED DIGESTATE
L17081354-05	ph adj
WG627377-01	ph adj

Analyst: Vicki Collins

Reviewer: Erin Potter

MW_DIG - Modified 09/30/2009
PDF ID: 5450262
Report generated: 08/28/2017 08:51

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 082917B.REP
Analyst1: JYH Analyst2: N/A
Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD83445 ICV Std: STD83299 Post Spike: STD83027
ICSA: STD83552 ICSAB: STD83553 Int. Std: RGT39300
CCV: STD83443 LLCCV: STD83301 Tuning Sol : STD83302
Stannous : Hydroxylamine :

Workgroups: 627431,627433

Comments:

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1	NI.082917.141816	Blank	Blank		1		08/29/17 14:18
2	NI.082917.142122	WG627739-01	Calibration Point		1		08/29/17 14:21
3	NI.082917.142427	WG627739-02	Calibration Point		1		08/29/17 14:24
4	NI.082917.142733	WG627739-03	Calibration Point		1		08/29/17 14:27
5	NI.082917.143038	WG627739-04	Calibration Point		1		08/29/17 14:30
6	NI.082917.143346	WG627739-05	Initial Calibration Verification		1		08/29/17 14:33
7	NI.082917.143653	WG627739-06	Initial Calib Blank		1		08/29/17 14:36
8	NI.082917.144000	WG627739-07	Low Level Initial Calibration V		1		08/29/17 14:40
9	NI.082917.145321	WG627739-08	Low Level Initial Calibration V		1		08/29/17 14:53
10	NI.082917.145626	WG627739-09	Interference Check		1		08/29/17 14:56
11	NI.082917.145932	WG627739-10	Interference Check		1		08/29/17 14:59
12	NI.082917.150239	WG627739-11	CCV		1		08/29/17 15:02
13	NI.082917.150544	WG627739-12	CCB		1		08/29/17 15:05
14	NI.082917.150953	WG627191-03	Method/Prep Blank	20/50	1		08/29/17 15:09
15	NI.082917.151259	WG627191-04	Laboratory Control S	20/50	1		08/29/17 15:12
16	NI.082917.151604	WG627191-01	Reference Sample		1	L17081285-05	08/29/17 15:16
17	NI.082917.151910	WG627191-05	Matrix Spike	20/50	1	L17081285-05	08/29/17 15:19
18	NI.082917.152215	WG627191-06	Matrix Spike Duplica	20/50	1	L17081285-05	08/29/17 15:22
19	NI.082917.152845	L17081285-01	BETHP-S4-MW-04	20/50	1		08/29/17 15:28
20	NI.082917.153151	L17081285-02	BETHP-S4-MW-07	20/50	1		08/29/17 15:31
21	NI.082917.153508	WG627431-01	Post Digestion Spike		1	L17081285-02	08/29/17 15:35
22	NI.082917.153813	WG627431-02	Serial Dilution		5	L17081285-02	08/29/17 15:38
23	NI.082917.154118	WG627431-02	Serial Dilution		25	L17081285-02	08/29/17 15:41
24	NI.082917.154425	WG627739-13	CCV		1		08/29/17 15:44
25	NI.082917.154730	WG627739-14	CCB		1		08/29/17 15:47
26	NI.082917.155037	L17081285-03	BETHP-S4-MW-09	20/50	1		08/29/17 15:50
27	NI.082917.155343	L17081285-04	BETHP-S4-MW-10	20/50	1		08/29/17 15:53
28	NI.082917.155648	L17081305-01	PZ06-082317	20/50	1		08/29/17 15:56
29	NI.082917.155953	L17081305-02	PZ06-082317	20/50	1		08/29/17 15:59
30	NI.082917.160259	L17081305-03	PZ04-082317	20/50	1		08/29/17 16:02
31	NI.082917.160605	L17081305-04	PZ04-082317	20/50	1		08/29/17 16:06
32	NI.082917.160910	L17081305-05	DUP-GW-082317-1	20/50	1		08/29/17 16:09
33	NI.082917.161215	L17081305-06	DUP-GW-082317-1	20/50	1		08/29/17 16:12
34	NI.082917.161520	L17081305-10	MW30-082317	20/50	1		08/29/17 16:15

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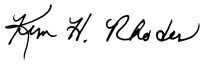

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 082917B.REP
Analyst1: JYH Analyst2: N/A
Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD83445 ICV Std: STD83299 Post Spike: STD83027
ICSA: STD83552 ICSAB: STD83553 Int. Std: RGT39300
CCV: STD83443 LLCCV: STD83301 Tuning Sol : STD83302
Stannous : Hydroxylamine :

Workgroups: 627431,627433

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	NI.082917.161826	L17081307-02	SW1A-336-14	20/50	1		08/29/17 16:18
36	NI.082917.162134	WG627739-15	CCV		1		08/29/17 16:21
37	NI.082917.162439	WG627739-16	CCB		1		08/29/17 16:24
38	NI.082917.162746	WG627191-02	Reference Sample		1	L17081307-07	08/29/17 16:27
39	NI.082917.163052	WG627191-07	Matrix Spike	20/50	1	L17081307-07	08/29/17 16:30
40	NI.082917.163358	WG627191-08	Matrix Spike Duplica	20/50	1	L17081307-07	08/29/17 16:33
41	NI.082917.163703	L17081307-14	SW3A-336-14	20/50	1		08/29/17 16:37
42	NI.082917.164009	L17081307-17	SW3B-336-14	20/50	1		08/29/17 16:40
43	NI.082917.164314	L17081307-20	SW4A-336-14	20/50	1		08/29/17 16:43
44	NI.082917.164619	L17081307-23	SW5A-336-14	20/50	1		08/29/17 16:46
45	NI.082917.164925	L17081307-23	SW5A-336-14		50		08/29/17 16:49
46	NI.082917.165231	WG627739-17	Interference Check		1		08/29/17 16:52
47	NI.082917.165537	WG627739-18	Interference Check		1		08/29/17 16:55
48	NI.082917.165844	WG627739-19	CCV		1		08/29/17 16:58
49	NI.082917.170150	WG627739-20	CCB		1		08/29/17 17:01
50	NI.082917.170457	WG627739-21	Low Level Continuing Calibra		1		08/29/17 17:04
51	NI.082917.170804	WG627377-02	Method/Prep Blank	20/50	1		08/29/17 17:08
52	NI.082917.171109	WG627377-03	Laboratory Control S	20/50	1		08/29/17 17:11
53	NI.082917.171415	WG627377-01	Reference Sample		1	L17081354-05	08/29/17 17:14
54	NI.082917.171721	WG627377-04	Matrix Spike	20/50	1	L17081354-05	08/29/17 17:17
55	NI.082917.172026	WG627377-05	Matrix Spike Duplica	20/50	1	L17081354-05	08/29/17 17:20
56	NI.082917.172332	L17081354-01	BETHP-S4-MW-03	20/50	1		08/29/17 17:23
57	NI.082917.172637	L17081354-02	BETHP-S4-MW-06	20/50	1		08/29/17 17:26
58	NI.082917.172943	WG627433-01	Post Digestion Spike		1	L17081354-02	08/29/17 17:29
59	NI.082917.173248	L17081354-02	BETHP-S4-MW-06		5		08/29/17 17:32
60	NI.082917.173554	WG627433-02	Serial Dilution		25	L17081354-02	08/29/17 17:35
61	NI.082917.173901	WG627739-22	CCV		1		08/29/17 17:39
62	NI.082917.174207	WG627739-23	CCB		1		08/29/17 17:42
63	NI.082917.174514	L17081212-08	MW21-082217	10/50	10		08/29/17 17:45
64	NI.082917.174820	L17081212-09	MW21-082217	10/50	10		08/29/17 17:48
65	NI.082917.175125	L17081305-08	MW31-082317	10/50	10		08/29/17 17:51
66	NI.082917.175431	L17081305-09	MW31-082317	10/50	10		08/29/17 17:54
67	NI.082917.175736	L17081305-11	MW30-082317	20/50	1		08/29/17 17:57
68	NI.082917.180042	L17081305-12	MW11S-082317		1		08/29/17 18:00

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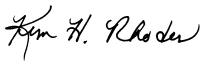

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 082917B.REP
Analyst1: JYH Analyst2: N/A
Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD83445 ICV Std: STD83299 Post Spike: STD83027
ICSA: STD83552 ICSAB: STD83553 Int. Std: RGT39300
CCV: STD83443 LLCCV: STD83301 Tuning Sol : STD83302
Stannous : Hydroxylamine :

Workgroups: 627431,627433

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
69	NI.082917.180347	L17081305-13	MW11S-082317		1		08/29/17 18:03
70	NI.082917.180653	L17081305-14	MW09R-082317	20/50	1		08/29/17 18:06
71	NI.082917.180959	L17081305-15	MW09R-082317	20/50	1		08/29/17 18:09
72	NI.082917.181304	L17081305-16	DUP-GW-082317-2	20/50	1		08/29/17 18:13
73	NI.082917.181611	WG627739-24	CCV		1		08/29/17 18:16
74	NI.082917.181917	WG627739-25	CCB		1		08/29/17 18:19
75	NI.082917.182224	L17081305-17	DUP-GW-082317-2	20/50	1		08/29/17 18:22
76	NI.082917.182529	L17081305-19	MW19-082317	20/50	1		08/29/17 18:25
77	NI.082917.182835	L17081305-20	MW19-082317	20/50	1		08/29/17 18:28
78	NI.082917.183140	L17081354-03	BETHP-S4-MW-08	20/50	1		08/29/17 18:31
79	NI.082917.183446	L17081354-04	BETHP-S4-MW-12	20/50	1		08/29/17 18:34
80	NI.082917.183752	L17081354-06	BETHP-S4-EB-002	20/50	1		08/29/17 18:37
81	NI.082917.184057	L17081354-06	BETHP-S4-EB-002		50		08/29/17 18:40
82	NI.082917.184404	WG627739-26	Interference Check		1		08/29/17 18:44
83	NI.082917.184709	WG627739-27	Interference Check		1		08/29/17 18:47
84	NI.082917.185016	WG627739-28	CCV		1		08/29/17 18:50
85	NI.082917.185322	WG627739-29	CCB		1		08/29/17 18:53
86	NI.082917.185629	WG627739-30	Low Level Continuing Calibra		1		08/29/17 18:56

Comments

Seq.	Rerun	Dil.	Reason	Analytes
8			Rerun to verify. JYH	

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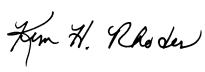

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 083017B.REP
Analyst1: JYH Analyst2: N/A
Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

Calibration Std: STD83445 ICV Std: STD83299 Post Spike: STD83027
ICSA: STD83552 ICSAB: STD83553 Int. Std: RGT39300
CCV: STD83443 LLCCV: STD83301 Tuning Sol : STD83302
Stannous : Hydroxylamine :

Workgroups: 627096,627433,627431,627822,627859

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
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3	NI.083017.123306	WG627861-02	Calibration Point		1		08/30/17 12:33
4	NI.083017.123611	WG627861-03	Calibration Point		1		08/30/17 12:36
5	NI.083017.123917	WG627861-04	Calibration Point		1		08/30/17 12:39
6	NI.083017.124224	WG627861-05	Initial Calibration Verification		1		08/30/17 12:42
7	NI.083017.124531	WG627861-06	Initial Calib Blank		1		08/30/17 12:45
8	NI.083017.124838	WG627861-07	Low Level Initial Calibration V		1		08/30/17 12:48
9	NI.083017.125143	WG627861-08	Interference Check		1		08/30/17 12:51
10	NI.083017.125449	WG627861-09	Interference Check		1		08/30/17 12:54
11	NI.083017.125756	WG627861-10	CCV		1		08/30/17 12:57
12	NI.083017.130102	WG627861-11	CCB		1		08/30/17 13:01
13	NI.083017.130408	WG627041-05	Method/Prep Blank	20/50	1		08/30/17 13:04
14	NI.083017.130714	WG627041-06	Laboratory Control S	20/50	1		08/30/17 13:07
15	NI.083017.131019	WG627041-01	Reference Sample		1	L17081212-02	08/30/17 13:10
16	NI.083017.131325	WG627041-02	Reference Sample		1	L17081212-03	08/30/17 13:13
17	NI.083017.131630	WG627041-08	Matrix Spike	20/50	1	L17081212-02	08/30/17 13:16
18	NI.083017.131935	WG627041-10	Matrix Spike	20/50	1	L17081212-03	08/30/17 13:19
19	NI.083017.132241	WG627041-09	Matrix Spike Duplica	20/50	1	L17081212-02	08/30/17 13:22
20	NI.083017.132546	WG627041-11	Matrix Spike Duplica	20/50	1	L17081212-03	08/30/17 13:25
21	NI.083017.132852	WG627096-03	Post Digestion Spike		1	L17081212-02	08/30/17 13:28
22	NI.083017.133157	WG627096-04	Serial Dilution		5	L17081212-02	08/30/17 13:31
23	NI.083017.133504	WG627861-12	CCV		1		08/30/17 13:35
24	NI.083017.133810	WG627861-13	CCB		1		08/30/17 13:38
25	NI.083017.134117	L17081305-12	MW11S-082317	20/50	50		08/30/17 13:41
26	NI.083017.134422	L17081305-13	MW11S-082317	20/50	50		08/30/17 13:44
27	NI.083017.134727	L17081354-04	BETHP-S4-MW-12	20/50	50		08/30/17 13:47
28	NI.083017.135032	L17081285-01	BETHP-S4-MW-04	20/50	100		08/30/17 13:50
29	NI.083017.135339	WG627861-14	Interference Check		1		08/30/17 13:53
30	NI.083017.135644	WG627861-15	Interference Check		1		08/30/17 13:56
31	NI.083017.135951	WG627861-16	CCV		1		08/30/17 13:59
32	NI.083017.140257	WG627861-17	CCB		1		08/30/17 14:02
33	NI.083017.140604	WG627861-18	Low Level Continuing Calibra		1		08/30/17 14:06
34	NI.083017.141339	WG627718-02	Method/Prep Blank	.25/100	1		08/30/17 14:13

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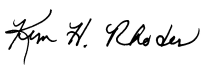


Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-MS2 Dataset: 083017B.REP
Analyst1: JYH Analyst2: N/A
Method: 6020/6020A/200.8 SOP: ME700A Rev: 3
Maintenance Log ID:

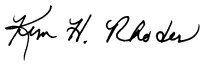
Calibration Std: STD83445 ICV Std: STD83299 Post Spike: STD83027
ICSA: STD83552 ICSAB: STD83553 Int. Std: RGT39300
CCV: STD83443 LLCCV: STD83301 Tuning Sol : STD83302
Stannous : Hydroxylamine :

Workgroups: 627096,627433,627431,627822,627859

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
35	NI.083017.141644	WG627718-03	Laboratory Control S	.25/100	1		08/30/17 14:16
36	NI.083017.141950	L17081428-01	T7H1424-01	.252/100	1		08/30/17 14:19
37	NI.083017.142256	WG627718-01	Reference Sample		100	L17081540-04	08/30/17 14:22
38	NI.083017.142601	WG627718-04	Matrix Spike		100	L17081540-04	08/30/17 14:26
39	NI.083017.142906	WG627718-05	Matrix Spike Duplica		100	L17081540-04	08/30/17 14:29
40	NI.083017.143212	L17081540-01	A1-EW03-00	.251/100	100		08/30/17 14:32
41	NI.083017.143518	WG627822-01	Post Digestion Spike		100	L17081540-01	08/30/17 14:35
42	NI.083017.143823	WG627822-02	Serial Dilution		500	L17081540-01	08/30/17 14:38
43	NI.083017.144128	WG627822-02	Serial Dilution		2500	L17081540-01	08/30/17 14:41
44	NI.083017.144435	WG627861-19	CCV		1		08/30/17 14:44
45	NI.083017.144741	WG627861-20	CCB		1		08/30/17 14:47
46	NI.083017.145048	L17081540-02	A1-EW05-00	.257/100	100		08/30/17 14:50
47	NI.083017.145354	L17081540-03	A1-EW06-00	.256/100	100		08/30/17 14:53
48	NI.083017.150051	WG627718-01	Reference Sample		1	L17081540-04	08/30/17 15:00
49	NI.083017.150357	WG627718-04	Matrix Spike	.256/100	1	L17081540-04	08/30/17 15:03
50	NI.083017.151130	WG627718-05	Matrix Spike Duplica	.254/100	1	L17081540-04	08/30/17 15:11
51	NI.083017.151436	L17081428-01	T7H1424-01	.252/100	5		08/30/17 15:14
52	NI.083017.151741	L17081428-01	T7H1424-01	.252/100	100		08/30/17 15:17
53	NI.083017.152048	WG627861-21	CCV		1		08/30/17 15:20
54	NI.083017.152353	WG627861-22	CCB		1		08/30/17 15:23
55	NI.083017.153138	WG627720-01	Method/Prep Blank	.25/100	1		08/30/17 15:31
56	NI.083017.153444	WG627720-02	Laboratory Control S	.25/100	1		08/30/17 15:34
57	NI.083017.153749	WG627720-03	Laboratory Control S	.25/100	1		08/30/17 15:37
58	NI.083017.154055	L17081428-01	T7H1424-01	.252/100	1		08/30/17 15:40
59	NI.083017.154401	WG627859-01	Post Digestion Spike		1	L17081428-01	08/30/17 15:44
60	NI.083017.154706	WG627859-02	Serial Dilution		5	L17081428-01	08/30/17 15:47
61	NI.083017.155012	WG627859-02	Serial Dilution		25	L17081428-01	08/30/17 15:50
62	NI.083017.155722	L17081540-01	A1-EW03-00	.251/100	1		08/30/17 15:57
63	NI.083017.160028	WG627822-01	Post Digestion Spike		1	L17081540-01	08/30/17 16:00
64	NI.083017.160333	WG627822-02	Serial Dilution		5	L17081540-01	08/30/17 16:03
65	NI.083017.160640	WG627861-23	CCV		1		08/30/17 16:06
66	NI.083017.160946	WG627861-24	CCB		1		08/30/17 16:09

Page: 2 Approved: August 31, 2017



Microbac Laboratories Inc.

Data Checklist

Date: 29-AUG-2017
Analyst: JYH
Analyst: NA
Method: 6010B/6010C/200.7
Instrument: ICP-MS2
Curve Workgroup: 627739
Runlog ID: 84268
Analytical Workgroups: 627431,627433

STD ID#s on Runlog	X
Calibration/Linearity	X
ICV/CCV	X
ICV RSD < 3% (EPA 200.7 only)	
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	1285,1305,1212,1354
Client Forms	X
Level X	
Level 3	
Level 4	1285,1305,1212,1354
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	KHR
Comments	

Primary Reviewer:

Secondary Reviewer:
31-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-31-2017 09:36:46

Microbac Laboratories Inc.

Data Checklist

Date: 30-AUG-2017
Analyst: JYH
Analyst: NA
Method: 6020/6020A/200.8
Instrument: ICP-MS
Curve Workgroup: 627861
Runlog ID: 84291
Analytical Workgroups: 627096,627433,627431,627822,627859

STD ID#s on Runlog	X
Calibration/Linearity	X
ICV/CCV	X
ICV RSD < 3% (EPA 200.7 only)	
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	1428,1540
Client Forms	X
Level X	
Level 3	
Level 4	1212,1305.1354,1285
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	KHR
Comments	

Primary Reviewer:

Secondary Reviewer:
31-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-31-2017 12:38:47

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6020A AAB#: WG627431

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/25/2017	2	180		08/29/17	6.3	180	
PZ06-082317	02	08/23/17					08/25/2017	2	180		08/29/17	6.3	180	
PZ04-082317	03	08/23/17					08/25/2017	1.9	180		08/29/17	6.2	180	
PZ04-082317	04	08/23/17					08/25/2017	1.9	180		08/29/17	6.2	180	
DUP-GW-082317-1	05	08/23/17					08/25/2017	2	180		08/29/17	6.3	180	
DUP-GW-082317-1	06	08/23/17					08/25/2017	2	180		08/29/17	6.3	180	
MW30-082317	10	08/23/17					08/25/2017	1.8	180		08/29/17	6.1	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5454072
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6020A AAB#: WG627433

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
MW31-082317	08	08/23/17					08/28/2017	4.9	180		08/29/17	6.3	180	
MW31-082317	09	08/23/17					08/28/2017	4.9	180		08/29/17	6.3	180	
MW30-082317	11	08/23/17					08/28/2017	4.8	180		08/29/17	6.2	180	
MW11S-082317	12	08/23/17					08/28/2017	4.7	180		08/30/17	7	180	
MW11S-082317	13	08/23/17					08/28/2017	4.7	180		08/30/17	7	180	
MW09R-082317	14	08/23/17					08/28/2017	4.7	180		08/29/17	6.1	180	
MW09R-082317	15	08/23/17					08/28/2017	4.7	180		08/29/17	6.1	180	
DUP-GW-082317-2	16	08/23/17					08/28/2017	4.9	180		08/29/17	6.4	180	
DUP-GW-082317-2	17	08/23/17					08/28/2017	4.9	180		08/29/17	6.4	180	
MW19-082317	19	08/23/17					08/28/2017	4.7	180		08/29/17	6.1	180	
MW19-082317	20	08/23/17					08/28/2017	4.7	180		08/29/17	6.1	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5454072
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627431
Blank File ID: NI.082917.150953
Blank Sample ID: WG627191-03
Prep Date: 08/25/17 08:49
Instrument ID: ICP-MS2
Analyzed Date: 08/29/17 15:09
Method: 6020A
Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627191-04	NI.082917.151259	08/29/17 15:12	01
PZ06-082317	L17081305-01	NI.082917.155648	08/29/17 15:56	01
PZ06-082317	L17081305-02	NI.082917.155953	08/29/17 15:59	01
PZ04-082317	L17081305-03	NI.082917.160259	08/29/17 16:02	01
PZ04-082317	L17081305-04	NI.082917.160605	08/29/17 16:06	01
DUP-GW-082317-1	L17081305-05	NI.082917.160910	08/29/17 16:09	01
DUP-GW-082317-1	L17081305-06	NI.082917.161215	08/29/17 16:12	01
MW30-082317	L17081305-10	NI.082917.161520	08/29/17 16:15	01

Report Name: BLANK_SUMMARY
PDF File ID: 5454073
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627433
Blank File ID: NI.082917.170804
Blank Sample ID: WG627377-02
Prep Date: 08/28/17 07:51
Instrument ID: ICP-MS2
Analyzed Date: 08/29/17 17:08
Method: 6020A
Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627377-03	NI.082917.171109	08/29/17 17:11	01
MW31-082317	L17081305-08	NI.082917.175125	08/29/17 17:51	DL01
MW31-082317	L17081305-09	NI.082917.175431	08/29/17 17:54	DL01
MW30-082317	L17081305-11	NI.082917.175736	08/29/17 17:57	01
MW09R-082317	L17081305-14	NI.082917.180653	08/29/17 18:06	01
MW09R-082317	L17081305-15	NI.082917.180959	08/29/17 18:09	01
DUP-GW-082317-2	L17081305-16	NI.082917.181304	08/29/17 18:13	01
DUP-GW-082317-2	L17081305-17	NI.082917.182224	08/29/17 18:22	01
MW19-082317	L17081305-19	NI.082917.182529	08/29/17 18:25	01
MW19-082317	L17081305-20	NI.082917.182835	08/29/17 18:28	01
MW11S-082317	L17081305-12	NI.083017.134117	08/30/17 13:41	DL01
MW11S-082317	L17081305-13	NI.083017.134422	08/30/17 13:44	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 5454073
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/25/17 08:49 Sample ID: WG627191-03
Instrument ID: ICP-MS2 Run Date: 08/29/17 15:09 Prep Method: 3015A
File ID: NI.082917.150953 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG627431 Matrix: Water Units: mg/L
Contract #: Cal ID: ICP-MS-29-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Arsenic, Total	0.000500	0.00100	0.000500	1	U
Chromium, Total	0.00100	0.00200	0.00100	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5454074
30-AUG-2017 14:53

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/28/17 07:51 Sample ID: WG627377-02
Instrument ID: ICP-MS2 Run Date: 08/29/17 17:08 Prep Method: 3015A
File ID: NI.082917.170804 Analyst: JYH Method: 6020A
Workgroup (AAB#): WG627433 Matrix: Water Units: mg/L
Contract #: Cal ID: ICP-MS-29-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Arsenic, Total	0.000500	0.00100	0.000500	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5454074
30-AUG-2017 14:53

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Run Date:** 08/29/2017 **Sample ID:** WG627191-04
Instrument ID: ICP-MS2 **Run Time:** 15:12 **Prep Method:** 3015A
File ID: NI.082917.151259 **Analyst:** JYH **Method:** 6020A
Workgroup (AAB#): WG627431 **Matrix:** Water **Units:** mg/L
QC Key: WATERLOO **Lot#:** STD80296 **Cal ID:** ICP-MS-29-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Arsenic, Total	0.125	0.120	95.8	80 - 120	
Chromium, Total	0.125	0.124	99.3	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5454075
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Run Date:** 08/29/2017 **Sample ID:** WG627377-03
Instrument ID: ICP-MS2 **Run Time:** 17:11 **Prep Method:** 3015A
File ID: NI.082917.171109 **Analyst:** JYH **Method:** 6020A
Workgroup (AAB#): WG627433 **Matrix:** Water **Units:** mg/L
QC Key: WATERLOO **Lot#:** STD80296 **Cal ID:** ICP-MS-29-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Arsenic, Total	0.125	0.123	98.7	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 5454075
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L17081305 Cal ID:ICP-MS2- Worknum:WG627433

Instrument ID:ICP-MS2 Contract #: Method:6020A

Parent ID:WG627377-01 File ID:NI.082917.171415 Dil:1 Matrix:WATER

Sample ID:WG627377-04 MS File ID:NI.082917.171721 Dil:1 Units:mg/L

Sample ID:WG627377-05 MSD File ID:NI.082917.172026 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Arsenic	ND	0.125	0.120	96.2	0.125	0.121	96.5	0.290	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011

PDF File ID:5454076

Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L17081305 Cal ID:ICP-MS2- Worknum:WG627431

Instrument ID:ICP-MS2 Contract #: Method:6020A

Parent ID:WG627191-01 File ID:NI.082917.151604 Dil:1 Matrix:WATER

Sample ID:WG627191-05 MS File ID:NI.082917.151910 Dil:1 Units:mg/L

Sample ID:WG627191-06 MSD File ID:NI.082917.152215 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Arsenic	ND	0.125	0.124	99.0	0.125	0.124	99.5	0.511	80 - 120	20	
Chromium	0.0112	0.125	0.132	96.3	0.125	0.132	96.4	0.139	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011

PDF File ID:5454076

Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L17081305 Cal ID:ICP-MS2- Worknum:WG627431

Instrument ID:ICP-MS2 Contract #: Method:6020A

Parent ID:WG627191-02 File ID:NI.082917.162746 Dil:1 Matrix:WATER

Sample ID:WG627191-07 MS File ID:NI.082917.163052 Dil:1 Units:mg/L

Sample ID:WG627191-08 MSD File ID:NI.082917.163358 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Arsenic	ND	0.125	0.122	97.8	0.125	0.122	97.7	0.124	80 - 120	20	
Chromium	ND	0.125	0.123	98.4	0.125	0.123	98.4	0.0268	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011

PDF File ID:5454076

Report generated 08/30/2017 14:53

Microbac Laboratories Inc.
Serial Dilution Report

Login: L17081305 **Worknum:** WG627433
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG627433-02 **File ID:** NI.082917.173554 **Dil:** 25 **Units:** ug/L
Sample: L17081354-02 **File ID:** NI.082917.173248 **Dil:** 5

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Arsenic	ND	U	ND	U		
Chromium	-0.957		ND			

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5454070
08/30/2017 14:53

Microbac Laboratories Inc.
Serial Dilution Report

Login: L17081305 **Worknum:** WG627431
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG627431-02 **File ID:** NI.082917.153813 **Dil:** 5 **Units:** ug/L
Sample: L17081285-02 **File ID:** NI.082917.153151 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Arsenic	ND	U	ND	U		
Chromium	ND	U	ND	U		

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5454070
08/30/2017 14:53

Microbac Laboratories Inc.
Serial Dilution Report

Login: L17081305 **Worknum:** WG627433
Instrument: ICP-MS2 **Method:** 6020A
Serial Dil: WG627433-02 **File ID:** NI.082917.173248 **Dil:** 5 **Units:** ug/L
Sample: L17081354-02 **File ID:** NI.082917.172637 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Arsenic	0.206	F	ND	U		
Chromium	0.114		ND			

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 5454070
08/30/2017 14:53

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L17081305 **Worknum:** WG627431
Instrument ID: ICP-MS2 **Method:** 6020A
Post Spike ID: WG627431-01 **File ID:** NI.082917.153508 **Dil:** 1 **Units:** ug/L
Sample ID: L17081285-02 **File ID:** NI.082917.153151 **Dil:** 1 **Matrix:** Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ARSENIC	51.4		0	U	50	102.7	75 - 125	
CHROMIUM	50.5		0	U	50	101.0	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 5454071
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L17081305 **Worknum:** WG627433
Instrument ID: ICP-MS2 **Method:** 6020A
Post Spike ID: WG627433-01 **File ID:** NI.082917.172943 **Dil:** 1 **Units:** ug/L
Sample ID: L17081354-02 **File ID:** NI.082917.172637 **Dil:** 1 **Matrix:** Water

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ARSENIC	51.5		0.206	F	50	102.6	75 - 125	
CHROMIUM	49.7		0	U	50	99.5	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 5454071
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L17081305**	Workgroup (AAB#):	**WG627431**
Analytical Method:	**6020A**	Instrument ID:	**ICP-MS2**
ICAL Worknum:	**WG627739**	Initial Calibration Date:	**29-AUG-2017 14:30**

	WG627739-01		WG627739-02		WG627739-03		WG627739-04			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ARSENIC	0	-79.8	.4	-24.3	50	43200	100	87900	.999918	
CHROMIUM	0	7760	.4	7950	50	323000	100	639000	.999991	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5454079
Report generated: 30-AUG-2017 14:53

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L17081305**	Workgroup (AAB#):	**WG627433**
Analytical Method:	**6020A**	Instrument ID:	**ICP-MS2**
ICAL Worknum:	**WG627739**	Initial Calibration Date:	**29-AUG-2017 14:30**

	WG627739-01		WG627739-02		WG627739-03		WG627739-04			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ARSENIC	0	-79.8	.4	-24.3	50	43200	100	87900	.999918	
CHROMIUM	0	7760	.4	7950	50	323000	100	639000	.999991	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5454079
Report generated: 30-AUG-2017 14:53

Microbac Laboratories Inc.
Initial Calibration Summary

Login:	**L17081305**	Workgroup (AAB#):	**WG627433**
Analytical Method:	**6020A**	Instrument ID:	**ICP-MS2**
ICAL Worknum:	**WG627861**	Initial Calibration Date:	**30-AUG-2017 12:39**

	WG627861-01		WG627861-02		WG627861-03		WG627861-04			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ARSENIC	0	-69.6	.4	-28.7	50	36800	100	74800	.999978	
CHROMIUM	0	7510	.4	7920	50	298000	100	580000	.999963	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 5454079
Report generated: 30-AUG-2017 14:53

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L17081305
Instrument ID: ICP-MS2
File ID: NI.082917.143653
Workgroup (AAB#): WG627431
Matrix: WATER

Run Date: 08/29/2017
Run Time: 14:36
Analyst: JYH
Cal ID: ICP-MS2 - 29-AUG-17

Sample ID: WG627739-06
Method: 6020A
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.2	.4	.2	U
CHROMIUM	.4	.8	.4	U

ICB - Modified 07/14/2009
PDF File ID: 5454081
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-06
Instrument ID: ICP-MS2 Run Time: 14:36 Method: 6020A
File ID: NI.082917.143653 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG627433 Cal ID: ICP-MS2 - 29-AUG-17
Matrix: WATER

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.2	.4	.2	U

ICB - Modified 07/14/2009
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INITIAL CALIBRATION BLANK (ICB)

Login Number:	L17081305	**Run Date:**	08/30/2017	**Sample ID:**	WG627861-06
Instrument ID:	ICP-MS2	**Run Time:**	12:45	**Method:**	6020A
File ID:	NI.083017.124531	**Analyst:**	JYH	**Units:**	ug/L
Workgroup (AAB#):	WG627433	**Cal ID:**	ICP-MS2 - 30-AUG-17		
Matrix:	WATER				

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.2	.4	.2	U

ICB - Modified 07/14/2009
PDF File ID: 5454081
Report generated 08/30/2017 14:53

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CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/29/2017	Sample ID:	WG627739-12
Instrument ID:	ICP-MS2	Run Time:	15:05	Method:	6020A
File ID:	NI.082917.150544	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG627431	Cal ID:	ICP-MS - 29-AUG-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U
Chromium	0.400	0.800	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5454084
Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-14

Instrument ID: ICP-MS2 Run Time: 15:47 Method: 6020A

File ID: NI.082917.154730 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U
Chromium	0.400	0.800	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5454084
Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/29/2017	Sample ID:	WG627739-16
Instrument ID:	ICP-MS2	Run Time:	16:24	Method:	6020A
File ID:	NI.082917.162439	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG627431	Cal ID:	ICP-MS - 29-AUG-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U
Chromium	0.400	0.800	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-20

Instrument ID: ICP-MS2 Run Time: 17:01 Method: 6020A

File ID: NI.082917.170150 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U
Chromium	0.400	0.800	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-25

Instrument ID: ICP-MS2 Run Time: 18:19 Method: 6020A

File ID: NI.082917.181917 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U
Chromium	0.400	0.800	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-29

Instrument ID: ICP-MS2 Run Time: 18:53 Method: 6020A

File ID: NI.082917.185322 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U
Chromium	0.400	0.800	0.400	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5454084
Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-12

Instrument ID: ICP-MS2 Run Time: 15:05 Method: 6020A

File ID: NI.082917.150544 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5454084
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/29/2017	Sample ID:	WG627739-16
Instrument ID:	ICP-MS2	Run Time:	16:24	Method:	6020A
File ID:	NI.082917.162439	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG627433	Cal ID:	ICP-MS - 29-AUG-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
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CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/29/2017	Sample ID:	WG627739-20
Instrument ID:	ICP-MS2	Run Time:	17:01	Method:	6020A
File ID:	NI.082917.170150	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG627433	Cal ID:	ICP-MS - 29-AUG-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-23

Instrument ID: ICP-MS2 Run Time: 17:42 Method: 6020A

File ID: NI.082917.174207 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-25

Instrument ID: ICP-MS2 Run Time: 18:19 Method: 6020A

File ID: NI.082917.181917 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-29

Instrument ID: ICP-MS2 Run Time: 18:53 Method: 6020A

File ID: NI.082917.185322 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/30/2017	Sample ID:	WG627861-11
Instrument ID:	ICP-MS2	Run Time:	13:01	Method:	6020A
File ID:	NI.083017.130102	Analyst:	JYH	Units:	ug/L
Workgroup (AAB#):	WG627433	Cal ID:	ICP-MS - 30-AUG-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

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PDF File ID: 5454084
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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-13

Instrument ID: ICP-MS2 Run Time: 13:38 Method: 6020A

File ID: NI.083017.133810 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5454084
Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-17

Instrument ID: ICP-MS2 Run Time: 14:02 Method: 6020A

File ID: NI.083017.140257 Analyst: JYH Units: ug/L

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.200	0.400	0.200	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5454084
Report generated 08/30/2017 14:54

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INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-05
Instrument ID: ICP-MS2 Run Time: 14:33 Method: 6020A
File ID: NI.082917.143346 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17
QC Key: WATERLOO

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	49.2	98.4	90 - 110	
Chromium		50	49.5	99.1	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5454080
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-05
Instrument ID: ICP-MS2 Run Time: 14:33 Method: 6020A
File ID: NI.082917.143346 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17
QC Key: WATERLOO

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	49.2	98.4	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5454080
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-05
Instrument ID: ICP-MS2 Run Time: 12:42 Method: 6020A
File ID: NI.083017.124224 Analyst: JYH Units: ug/L
Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17
QC Key: WATERLOO

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	49.0	97.9	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 5454080
Report generated 08/30/2017 14:53

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-11

Instrument ID: ICP-MS2 Run Time: 15:02 Method: 6020A

File ID: NI.082917.150239 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0494	mg/L	98.8	90 - 110		
Chromium		0.0500	0.0503	mg/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-13

Instrument ID: ICP-MS2 Run Time: 15:44 Method: 6020A

File ID: NI.082917.154425 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0493	mg/L	98.6	90 - 110		
Chromium		0.0500	0.0499	mg/L	99.8	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-15

Instrument ID: ICP-MS2 Run Time: 16:21 Method: 6020A

File ID: NI.082917.162134 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0491	mg/L	98.2	90 - 110		
Chromium		0.0500	0.0504	mg/L	101	90 - 110		

* Exceeds LIMITS Criteria

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-19

Instrument ID: ICP-MS2 Run Time: 16:58 Method: 6020A

File ID: NI.082917.165844 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0485	mg/L	97.0	90 - 110		
Chromium		0.0500	0.0491	mg/L	98.3	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-24

Instrument ID: ICP-MS2 Run Time: 18:16 Method: 6020A

File ID: NI.082917.181611 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0490	mg/L	98.1	90 - 110		
Chromium		0.0500	0.0506	mg/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-28

Instrument ID: ICP-MS2 Run Time: 18:50 Method: 6020A

File ID: NI.082917.185016 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0492	mg/L	98.3	90 - 110		
Chromium		0.0500	0.0500	mg/L	100	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-11

Instrument ID: ICP-MS2 Run Time: 15:02 Method: 6020A

File ID: NI.082917.150239 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0494	mg/L	98.8	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

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Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-15

Instrument ID: ICP-MS2 Run Time: 16:21 Method: 6020A

File ID: NI.082917.162134 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0491	mg/L	98.2	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-19

Instrument ID: ICP-MS2 Run Time: 16:58 Method: 6020A

File ID: NI.082917.165844 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0485	mg/L	97.0	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-22

Instrument ID: ICP-MS2 Run Time: 17:39 Method: 6020A

File ID: NI.082917.173901 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0488	mg/L	97.7	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-24

Instrument ID: ICP-MS2 Run Time: 18:16 Method: 6020A

File ID: NI.082917.181611 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0490	mg/L	98.1	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-28

Instrument ID: ICP-MS2 Run Time: 18:50 Method: 6020A

File ID: NI.082917.185016 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0492	mg/L	98.3	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-10

Instrument ID: ICP-MS2 Run Time: 12:57 Method: 6020A

File ID: NI.083017.125756 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0496	mg/L	99.2	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-12

Instrument ID: ICP-MS2 Run Time: 13:35 Method: 6020A

File ID: NI.083017.133504 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0493	mg/L	98.5	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-16

Instrument ID: ICP-MS2 Run Time: 13:59 Method: 6020A

File ID: NI.083017.135951 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.0500	0.0494	mg/L	98.7	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008

PDF File ID: 5454083

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-08

Instrument ID: ICP-MS2 Run Time: 14:53 Method: 6020A

File ID: NI.082917.145321 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.368	ug/L	91.9	50 - 150		
Chromium		0.800	0.915	ug/L	114	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5454115

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-21

Instrument ID: ICP-MS2 Run Time: 17:04 Method: 6020A

File ID: NI.082917.170457 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.378	ug/L	94.6	50 - 150		
Chromium		0.800	0.914	ug/L	114	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5454115

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-30

Instrument ID: ICP-MS2 Run Time: 18:56 Method: 6020A

File ID: NI.082917.185629 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627431 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.384	ug/L	96.1	50 - 150		
Chromium		0.800	0.854	ug/L	107	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5454115

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-08
Instrument ID: ICP-MS2 Run Time: 14:53 Method: 6020A
File ID: NI.082917.145321 Analyst: JYH QC Key: WATERLOO
Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.368	ug/L	91.9	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5454115
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-21
Instrument ID: ICP-MS2 Run Time: 17:04 Method: 6020A
File ID: NI.082917.170457 Analyst: JYH QC Key: WATERLOO
Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17
Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.378	ug/L	94.6	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010
PDF File ID: 5454115
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/29/2017 Sample ID: WG627739-30

Instrument ID: ICP-MS2 Run Time: 18:56 Method: 6020A

File ID: NI.082917.185629 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 29-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.384	ug/L	96.1	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5454115

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-07

Instrument ID: ICP-MS2 Run Time: 12:48 Method: 6020A

File ID: NI.083017.124838 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.409	ug/L	102	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5454115

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

LOW LEVEL CALIBRATION VERIFICATION

Login Number: L17081305 Run Date: 08/30/2017 Sample ID: WG627861-18

Instrument ID: ICP-MS2 Run Time: 14:06 Method: 6020A

File ID: NI.083017.140604 Analyst: JYH QC Key: WATERLOO

Workgroup (AAB#): WG627433 Cal ID: ICP-MS - 30-AUG-17

Matrix: WATER

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.449	ug/L	112	50 - 150		

* Exceeds LIMITS Criteria

LLCCV - Modified 1/7/2010

PDF File ID: 5454115

Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627431
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627739-09 **File ID:** NI.082917.145626 **Units:** ug/L
Sol. AB : WG627739-10 **File ID:** NI.082917.145932 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0470	NS	100	101	101	
Chromium	NS	-0.221	NS	100	95.9	95.9	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627431
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627739-17 **File ID:** NI.082917.165231 **Units:** ug/L
Sol. AB : WG627739-18 **File ID:** NI.082917.165537 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0948	NS	100	102	102	
Chromium	NS	-0.119	NS	100	98.6	98.6	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627431
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627739-26 **File ID:** NI.082917.184404 **Units:** ug/L
Sol. AB : WG627739-27 **File ID:** NI.082917.184709 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0379	NS	100	102	102	
Chromium	NS	-0.153	NS	100	97.7	97.7	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627433
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627739-09 **File ID:** NI.082917.145626 **Units:** ug/L
Sol. AB : WG627739-10 **File ID:** NI.082917.145932 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0470	NS	100	101	101	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627433
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627739-17 **File ID:** NI.082917.165231 **Units:** ug/L
Sol. AB : WG627739-18 **File ID:** NI.082917.165537 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0948	NS	100	102	102	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627433
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627739-26 **File ID:** NI.082917.184404 **Units:** ug/L
Sol. AB : WG627739-27 **File ID:** NI.082917.184709 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0379	NS	100	102	102	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627433
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627861-08 **File ID:** NI.083017.125143 **Units:** ug/L
Sol. AB : WG627861-09 **File ID:** NI.083017.125449 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0519	NS	100	102	102	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L17081305 **Workgroup (AAB#):** WG627433
Instrument ID: ICP-MS2 **Method:** 6020A
Sol. A : WG627861-14 **File ID:** NI.083017.135339 **Units:** ug/L
Sol. AB : WG627861-15 **File ID:** NI.083017.135644 **Matrix:** Water

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0290	NS	100	101	101	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).
+ = Result for unspiked element is outside the acceptance limits of (+/-) 2 times the project method detection limit (MDL). This criteria is only applicable to specific QAPPs.

ICS - Modified 03/06/2008
PDF File ID: 5454082
Report generated 08/30/2017 14:54

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L17081305 **Analytical Method:** 6020
Analytical Workgroup: WG627431 **Matrix:** 1
Instrument: ICP-MS2 **Analyst:** JYH
ICAL Date: 29-AUG-2017 14:21

			BISMUTH	GERMANIUM	INDIUM
Sample	Type	Run Date	% Rec	% Rec	% Rec
L17081285-02	SAMP	29-AUG-2017 15:31	97.988	98.015	101.683
L17081305-01	SAMP	29-AUG-2017 15:56	92.861	94.332	100.111
L17081305-02	SAMP	29-AUG-2017 15:59	93.118	94.267	99.292
L17081305-03	SAMP	29-AUG-2017 16:02	86.705	89.563	97.723
L17081305-04	SAMP	29-AUG-2017 16:06	88.47	90.161	101.403
L17081305-05	SAMP	29-AUG-2017 16:09	88.263	89.984	102.334
L17081305-06	SAMP	29-AUG-2017 16:12	86.484	88.505	101.29
L17081305-10	SAMP	29-AUG-2017 16:15	90.92	93.196	105.142
WG627191-03	BLANK	29-AUG-2017 15:09	98.479	96.769	100.648
WG627191-04	LCS	29-AUG-2017 15:12	98.834	95.926	100.002
WG627431-01	PSPK	29-AUG-2017 15:35	97.171	97.211	101.259
WG627431-02	SERIAL	29-AUG-2017 15:38	93.215	90.567	96.331
WG627739-05	ICV	29-AUG-2017 14:33	98.921	96.955	101.543
WG627739-06	ICB	29-AUG-2017 14:36	99.923	98.234	102.488
WG627739-08	LLICV	29-AUG-2017 14:53	106.111	104.133	104.34
WG627739-09	ICS	29-AUG-2017 14:56	92.505	89.656	95.314
WG627739-10	ICS	29-AUG-2017 14:59	98.436	95.96	99.863
WG627739-11	CCV	29-AUG-2017 15:02	101.072	98.011	104.036
WG627739-12	CCB	29-AUG-2017 15:05	99.292	96.862	102.008
WG627739-13	CCV	29-AUG-2017 15:44	99.112	96.9	101.66
WG627739-14	CCB	29-AUG-2017 15:47	99.677	97.09	102.091
WG627739-15	CCV	29-AUG-2017 16:21	99.329	94.87	109.186
WG627739-16	CCB	29-AUG-2017 16:24	100.784	94.011	108.04
WG627739-17	ICS	29-AUG-2017 16:52	89.503	83.659	95.524
WG627739-18	ICS	29-AUG-2017 16:55	95.657	90.264	101.598
WG627739-19	CCV	29-AUG-2017 16:58	99.925	96.144	106.676
WG627739-20	CCB	29-AUG-2017 17:01	101.643	94.488	105.953
WG627739-21	LLCCV	29-AUG-2017 17:04	101.607	95.699	107.355
WG627739-24	CCV	29-AUG-2017 18:16	98.907	95.484	108.311
WG627739-25	CCB	29-AUG-2017 18:19	101.117	95.47	107.511
WG627739-26	ICS	29-AUG-2017 18:44	91.861	85.637	96.868
WG627739-27	ICS	29-AUG-2017 18:47	94.988	90.852	100.992
WG627739-28	CCV	29-AUG-2017 18:50	99.451	94.712	106.097
WG627739-29	CCB	29-AUG-2017 18:53	100.802	94.359	104.964
WG627739-30	LLCCV	29-AUG-2017 18:56	101.702	96.156	105.91

Acceptance criteria: 30% - 120% Underlined recoveries are out of range
Acceptance criteria for CCVs and CCBs for method SW846-6020: 80% - 120%

INT_STD_ICPMS - Modified 07/28/2010
PDF File ID: 5454078
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L17081305 **Analytical Method:** 6020
Analytical Workgroup: WG627433 **Matrix:** 1
Instrument: ICP-MS2 **Analyst:** JYH
ICAL Date: 29-AUG-2017 14:21

			BISMUTH	GERMANIUM	INDIUM
Sample	Type	Run Date	% Rec	% Rec	% Rec
L17081305-08	SAMP	29-AUG-2017 17:51	91.219	86.824	97.066
L17081305-09	SAMP	29-AUG-2017 17:54	90.8	87.318	96.676
L17081305-11	SAMP	29-AUG-2017 17:57	90.254	90.072	99.316
L17081305-14	SAMP	29-AUG-2017 18:06	85.787	87.538	100.696
L17081305-15	SAMP	29-AUG-2017 18:09	87.483	90.001	101.006
L17081305-16	SAMP	29-AUG-2017 18:13	85.766	89.285	101.43
L17081305-17	SAMP	29-AUG-2017 18:22	85.695	90.328	100.417
L17081305-19	SAMP	29-AUG-2017 18:25	95.618	95.467	104.914
L17081305-20	SAMP	29-AUG-2017 18:28	94.645	93.999	103.813
L17081354-02	SAMP	29-AUG-2017 17:26	97.982	94.935	104.299
L17081354-02	SAMP	29-AUG-2017 17:32	94.526	88.513	99.31
WG627377-02	BLANK	29-AUG-2017 17:08	101.16	94.279	105.518
WG627377-03	LCS	29-AUG-2017 17:11	101.347	95.98	106.031
WG627433-01	PSPK	29-AUG-2017 17:29	98.992	95.298	104.259
WG627433-02	SERIAL	29-AUG-2017 17:32	94.526	88.513	99.31
WG627433-02	SERIAL	29-AUG-2017 17:35	94.232	86.725	98.035
WG627739-05	ICV	29-AUG-2017 14:33	98.921	96.955	101.543
WG627739-06	ICB	29-AUG-2017 14:36	99.923	98.234	102.488
WG627739-08	LLICV	29-AUG-2017 14:53	106.111	104.133	104.34
WG627739-09	ICS	29-AUG-2017 14:56	92.505	89.656	95.314
WG627739-10	ICS	29-AUG-2017 14:59	98.436	95.96	99.863
WG627739-11	CCV	29-AUG-2017 15:02	101.072	98.011	104.036
WG627739-12	CCB	29-AUG-2017 15:05	99.292	96.862	102.008
WG627739-15	CCV	29-AUG-2017 16:21	99.329	94.87	109.186
WG627739-16	CCB	29-AUG-2017 16:24	100.784	94.011	108.04
WG627739-17	ICS	29-AUG-2017 16:52	89.503	83.659	95.524
WG627739-18	ICS	29-AUG-2017 16:55	95.657	90.264	101.598
WG627739-19	CCV	29-AUG-2017 16:58	99.925	96.144	106.676
WG627739-20	CCB	29-AUG-2017 17:01	101.643	94.488	105.953
WG627739-21	LLCCV	29-AUG-2017 17:04	101.607	95.699	107.355
WG627739-22	CCV	29-AUG-2017 17:39	100.411	95.87	104.682
WG627739-23	CCB	29-AUG-2017 17:42	100.85	94.247	103.969
WG627739-24	CCV	29-AUG-2017 18:16	98.907	95.484	108.311
WG627739-25	CCB	29-AUG-2017 18:19	101.117	95.47	107.511
WG627739-26	ICS	29-AUG-2017 18:44	91.861	85.637	96.868
WG627739-27	ICS	29-AUG-2017 18:47	94.988	90.852	100.992
WG627739-28	CCV	29-AUG-2017 18:50	99.451	94.712	106.097
WG627739-29	CCB	29-AUG-2017 18:53	100.802	94.359	104.964
WG627739-30	LLCCV	29-AUG-2017 18:56	101.702	96.156	105.91

Acceptance criteria: 30% - 120% Underlined recoveries are out of range
Acceptance criteria for CCVs and CCBs for method SW846-6020: 80% - 120%

INT_STD_ICPMS - Modified 07/28/2010
PDF File ID: 5454078
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L17081305 **Analytical Method:** 6020
Analytical Workgroup: WG627433 **Matrix:** 1
Instrument: ICP-MS2 **Analyst:** JYH
ICAL Date: 30-AUG-2017 12:30

			BISMUTH	GERMANIUM	INDIUM
Sample	Type	Run Date	% Rec	% Rec	% Rec
L17081305-12	SAMP	30-AUG-2017 13:41	92.937	90.982	96.72
L17081305-13	SAMP	30-AUG-2017 13:44	93.984	91.033	96.733
WG627861-05	ICV	30-AUG-2017 12:42	98.492	99.805	101.688
WG627861-06	ICB	30-AUG-2017 12:45	98.913	99.235	101.672
WG627861-07	LLICV	30-AUG-2017 12:48	100.028	100.728	102.053
WG627861-08	ICS	30-AUG-2017 12:51	91.09	90.677	95.592
WG627861-09	ICS	30-AUG-2017 12:54	94.306	92.85	96.733
WG627861-10	CCV	30-AUG-2017 12:57	98.046	98.866	102.55
WG627861-11	CCB	30-AUG-2017 13:01	99.671	98.298	102.188
WG627861-12	CCV	30-AUG-2017 13:35	99.639	98.566	105.346
WG627861-13	CCB	30-AUG-2017 13:38	101.271	98.33	103.909
WG627861-14	ICS	30-AUG-2017 13:53	96.638	94.234	100.245
WG627861-15	ICS	30-AUG-2017 13:56	95.987	95.466	99.177
WG627861-16	CCV	30-AUG-2017 13:59	99.689	99.095	103.531
WG627861-17	CCB	30-AUG-2017 14:02	99.942	98.876	103.093
WG627861-18	LLCCV	30-AUG-2017 14:06	100.692	99.204	103.017

Acceptance criteria: 30% - 120% Underlined recoveries are out of range
Acceptance criteria for CCVs and CCBs for method SW846-6020: 80% - 120%

INT_STD_ICPMS - Modified 07/28/2010
PDF File ID: 5454078
Report generated: 08/30/2017 14:53

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L17081305 **Date:** 04/12/2017
Insturment ID: ICP-MS2 **Method:** 6020A

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Antimony	1.00	100.0
Arsenic	1.00	100.0
Barium	1.00	100.0
Cadmium	1.00	100.0
Chromium	1.00	100.0
Cobalt	1.00	100.0
Copper	1.00	100.0
Lead	1.00	100.0
Manganese	1.00	100.0
Nickel	1.00	100.0
Selenium	1.00	100.0
Silver	1.00	100.0
Thallium	1.00	100.0
Uranium	1.00	100.0
Vanadium	1.00	100.0
Zinc	1.00	100.0

Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: 5454077
Report generated: 08/30/2017 14:53

2.3.2.3 Raw Data

MassCal File Name

Mass Calibration File Name Default.tun
MassCal File Path C:\NexION Data\MassCal\Default.tun
Peak Search Window: 1.00

Sample Information

Sample Date/Time: Tuesday, August 29, 2017 10:01:40

Mass Calibration and Resolution

Analyte	E Mass	Meas Mass	Mass C	DAC Val	Res DAC Value	Meas Peak W	Custom Res
Li	7.016	7.025	1317	2026	0.698		
Mg	23.985	23.975	4500	2020	0.710		
Co	58.933	58.925	11684	2022	0.704		
In	114.904	114.925	22865	2027	0.708		
U	238.050	238.075	47452	2044	0.696		

Relative Std. Dev.

Mass	Meas. Intens. RSD
5.525	9.572
5.575	4.182
5.625	3.906
5.675	3.230
5.725	2.042
5.775	1.105
5.825	0.760
5.875	1.180
5.925	1.886
5.975	0.941
6.025	1.126
6.075	1.317
6.125	0.767
6.175	1.993
6.225	1.909
6.275	3.392
6.325	9.214
6.375	88.928
6.425	93.154
6.475	28.331
6.525	28.298
6.575	11.093
6.625	5.718
6.675	2.473
6.725	2.461
6.775	1.431
6.825	0.782

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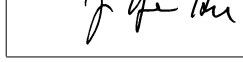

6.875	0.799
6.925	0.603
6.975	0.383
7.025	1.333
7.075	1.659
7.125	1.485
7.175	0.768
7.225	1.004
7.275	1.091
7.325	0.976
7.375	3.240
7.425	33.840
7.475	52.524
7.525	73.023
7.575	45.799
7.625	20.963
7.675	52.322
7.725	58.736
7.775	44.304
7.825	19.444
7.875	62.361
7.925	52.705
7.975	70.711
8.025	111.232
8.075	37.268
8.125	33.535
8.175	20.328
8.225	77.579
8.275	75.691
8.325	77.055
8.375	55.902
8.425	62.361
8.475	29.881
22.525	136.931
22.575	37.268
22.625	57.601
22.675	22.017
22.725	33.165
22.775	20.360
22.825	30.842
22.875	52.408
22.925	26.716
22.975	18.109
23.025	33.072
23.075	47.394
23.125	25.272
23.175	30.829

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23.225	26.816
23.275	42.153
23.325	18.566
23.375	9.182
23.425	22.774
23.475	12.275
23.525	5.044
23.575	3.567
23.625	2.145
23.675	1.217
23.725	1.654
23.775	1.100
23.825	1.438
23.875	0.071
23.925	0.686
23.975	0.519
24.025	1.091
24.075	0.765
24.125	0.480
24.175	0.370
24.225	1.005
24.275	0.658
24.325	18.146
24.375	55.065
24.425	19.921
24.475	8.309
24.525	2.699
24.575	2.610
24.625	1.705
24.675	1.744
24.725	1.789
24.775	1.848
24.825	2.218
24.875	1.227
24.925	1.026
24.975	2.234
25.025	1.214
25.075	1.788
25.125	0.148
25.175	1.062
25.225	3.117
25.275	9.348
25.325	66.069
25.375	34.312
25.425	48.914
25.475	20.068
57.525	16.835

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57.575	8.586
57.625	4.465
57.675	3.687
57.725	3.141
57.775	1.628
57.825	2.412
57.875	2.494
57.925	2.301
57.975	1.249
58.025	1.527
58.075	1.943
58.125	2.672
58.175	2.881
58.225	3.464
58.275	1.568
58.325	22.639
58.375	61.172
58.425	41.458
58.475	12.392
58.525	6.857
58.575	4.401
58.625	2.387
58.675	2.137
58.725	3.199
58.775	1.974
58.825	3.369
58.875	0.418
58.925	3.178
58.975	0.909
59.025	1.560
59.075	2.198
59.125	2.108
59.175	1.907
59.225	2.985
59.275	9.327
59.325	33.919
59.375	84.984
59.425	63.246
59.475	25.705
59.525	17.982
59.575	4.339
59.625	5.480
59.675	5.571
59.725	4.320
59.775	5.272
59.825	3.427
59.875	2.493

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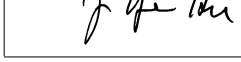

59.925	4.652
59.975	2.976
60.025	3.432
60.075	1.508
60.125	2.616
60.175	3.027
60.225	4.905
60.275	14.537
60.325	25.000
60.375	50.047
60.425	72.436
60.475	26.146
113.525	12.922
113.575	3.115
113.625	3.352
113.675	3.690
113.725	3.458
113.775	2.932
113.825	3.283
113.875	5.640
113.925	4.023
113.975	2.167
114.025	2.264
114.075	3.968
114.125	3.704
114.175	3.680
114.225	5.452
114.275	16.989
114.325	37.318
114.375	39.754
114.425	13.183
114.475	2.125
114.525	1.588
114.575	1.221
114.625	2.486
114.675	1.680
114.725	2.334
114.775	1.226
114.825	1.947
114.875	1.559
114.925	1.387
114.975	2.259
115.025	1.155
115.075	1.286
115.125	1.753
115.175	3.349
115.225	2.827

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115.275	7.081
115.325	23.547
115.375	40.074
115.425	55.902
115.475	35.315
115.525	22.641
115.575	9.540
115.625	11.084
115.675	7.821
115.725	10.464
115.775	2.406
115.825	1.609
115.875	1.500
115.925	1.746
115.975	2.627
116.025	1.336
116.075	1.564
116.125	6.854
116.175	10.853
116.225	15.315
116.275	19.948
116.325	40.825
116.375	36.377
116.425	56.845
116.475	25.074
236.525	223.607
236.575	15.901
236.625	32.609
236.675	23.055
236.725	27.741
236.775	31.713
236.825	15.972
236.875	35.675
236.925	34.468
236.975	26.022
237.025	41.133
237.075	28.838
237.125	38.736
237.175	44.419
237.225	17.876
237.275	19.457
237.325	28.748
237.375	25.555
237.425	32.492
237.475	33.040
237.525	41.086
237.575	10.660

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237.625	14.790
237.675	4.970
237.725	3.644
237.775	3.172
237.825	2.103
237.875	1.492
237.925	1.612
237.975	2.079
238.025	2.392
238.075	1.277
238.125	1.879
238.175	3.274
238.225	2.448
238.275	3.279
238.325	1.716
238.375	1.666
238.425	2.353
238.475	5.687
238.525	12.866
238.575	20.976
238.625	25.635
238.675	15.972
238.725	33.431
238.775	25.979
238.825	26.702
238.875	30.288
238.925	21.022
238.975	28.328
239.025	48.247
239.075	26.307
239.125	38.870
239.175	46.147
239.225	26.336
239.275	25.685
239.325	20.787
239.375	31.991
239.425	28.284
239.475	38.955

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SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\NexIONData\Wizard\SmartTune\SmartTune Fullmicrobac.swz

Start Time: 8/29/2017 10:06:12 AM
End Time: 8/29/2017 10:08:36 AM

Daily Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9.0122): 5166.35
Obtained Intensity (Mg 23.985): 229417.95
Obtained Intensity (In 114.904): 86535.83
Obtained Intensity (U 238.05): 66874.26
Obtained Intensity (Bkgd 220): 0.53
Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=1353.86 / 76499.18)
Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.006 (=474.54 / 76499.18)

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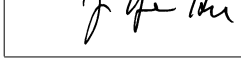

SmartTune Wizard - Details

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Optimization Details

SmartTune file: C:\NexIONData\Wizard\SmartTune\SmartTune Fullmicrobac.swz

Optimization Status

Start Time: 8/29/2017 10:06:12 AM

Daily Performance Check
        Optimization Settings:
                Method: C:\NexIONData\Method\ESI Daily Performance.mth.
                Intensity Criterion: Be 9.0122 > 2000
                Intensity Criterion: Mg 23.985 > 15000
                Intensity Criterion: In 114.904 > 40000
                Intensity Criterion: U 238.05 > 30000
                Intensity Criterion: Bkgd 220 <= 5
                Formula Criterion: CeO 155.9 / Ce 139.905 <= 0.025
                Formula Criterion: Ce++ 69.9527 / Ce 139.905 <= 0.03

        Optimization Results:
        Initial Try
                Obtained Intensity (Be 9.0122): 5166.35
                Obtained Intensity (Mg 23.985): 229417.95
                Obtained Intensity (In 114.904): 86535.83
                Obtained Intensity (U 238.05): 66874.26
                Obtained Intensity (Bkgd 220): 0.53
                Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=1353.86 / 76499.18)
                Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.006 (=474.54 / 76499.18)
[Passed]  Optimum value(s): N/A

End Time: 8/29/2017 10:08:36 AM
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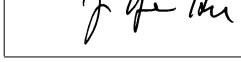

Method 6020 - Summary Report

Sample ID: Blank
Sample Date/Time: Tuesday, August 29, 2017 14:18:16
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	143052.2	1.4				ug/L		Standard
	Be	9	40.0	33.1				ug/L		Standard
	Al	27	2645.2	6.4				ug/L		Standard
	Sc	45	21012.9	2.6				ug/L		Standard
	Ti	47	26.7	22.6				ug/L		Standard
	V	51	1320.9	9.6				ug/L		Standard
	Cr	52	7641.6	0.6				ug/L		Standard
	Cr	53	1230.1	10.8				ug/L		Standard
	Mn	55	1599.4	3.5				ug/L		Standard
	Co	59	404.3	2.2				ug/L		Standard
	Ni	60	288.0	8.1				ug/L		Standard
	Cu	65	181.0	14.6				ug/L		Standard
	Zn	66	165.7	10.8				ug/L		Standard
>	Ge	72	360328.4	3.5				ug/L		Standard
	As	75	-73.8	35.9				ug/L		Standard
	Se	82	14.6	26.6				ug/L		Standard
	Se-1	77	139.0	5.0				ug/L		Standard
>	Ga	71	63.3	16.4				mg/L		Standard
	Rb	85	31.7	48.2				ug/L		Standard
	Y	89	315671.2	0.6				ug/L		Standard
>	Rh	103	36.7	7.9				ug/L		Standard
	Mo	98	143.3	32.6				ug/L		Standard
	Ag	107	124.7	17.2				ug/L		Standard
	Cd	111	9.5	32.4				mg/L		Standard
	Cd	114	38.8	70.4				ug/L		Standard
>	In	115	367585.9	1.7				ug/L		Standard
	Sn	118	106.7	21.3				ug/L		Standard
	Sb	123	224.7	24.0				ug/L		Standard
	Ba	135	39.3	15.3				ug/L		Standard
	Ce	140	11.7	65.5				ug/L		Standard
>	Tb	159	627636.3	3.6				ug/L		Standard
	Ho	165	13.3	78.1				ug/L		Standard
	Tl	203	76.3	26.3				ug/L		Standard
	Tl	205	161.7	31.7				ug/L		Standard
	Pb	206	362.0	6.0				ug/L		Standard
	Pb	207	280.7	2.4				ug/L		Standard
	Pb	208	515.3	2.5				ug/L		Standard
	U	238	32.3	49.7				ug/L		Standard
>	Bi	209	501979.7	1.4				ug/L		Standard

Sample ID: Blank
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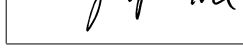

	Na	23	3.3	86.6	mg/L	Standard
	Mg	24	35.0	65.5	mg/L	Standard
	K	39	11.7	99.0	mg/L	Standard
	Ca	43	28.3	50.9	mg/L	Standard
	Fe	54	37.6	54.3	mg/L	Standard
	Fe	57	668.3	8.2	mg/L	Standard
>	**Sc-1**	45	21012.9	2.6	mg/L	Standard
	Cl	35	2.0	173.2	ug/L	Standard
	Kr	83	6.3	48.2	ug/L	Standard
	Br	81	1013.4	6.7	ug/L	Standard
	P	31	70.0	18.9	ug/L	Standard
	S	34	58.3	24.7	ug/L	Standard
	Sr	88	293.3	8.6	ug/L	Standard
	C	12	20.0	0.0	mg/L	Standard
	N	14	3.3	173.2	mg/L	Standard
	Hg	202	3.3	173.2	mg/L	Standard
	Dy	164	-0.2	173.2	mg/L	Standard
	Ho-1	165	13.3	78.1	mg/L	Standard
	Er	166	3.3	173.2	mg/L	Standard
	I	127	10151.7	5.7	mg/L	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: Blank
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Method 6020 - Summary Report

Sample ID: Standard 1
Sample Date/Time: Tuesday, August 29, 2017 14:21:22
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	144248.4	0.4				ug/L	143052	Standard
	Be	9	25.0	52.9				ug/L	40	Standard
	Al	27	2668.6	8.6				ug/L	2645	Standard
	Sc	45	20842.7	3.2				ug/L	21013	Standard
	Ti	47	24.0	12.5				ug/L	27	Standard
	V	51	1428.2	4.5				ug/L	1321	Standard
	Cr	52	7764.0	2.2				ug/L	7642	Standard
	Cr	53	1190.0	9.1				ug/L	1230	Standard
	Mn	55	1509.4	6.4				ug/L	1599	Standard
	Co	59	382.7	2.0				ug/L	404	Standard
	Ni	60	283.7	3.3				ug/L	288	Standard
	Cu	65	174.7	0.9				ug/L	181	Standard
	Zn	66	198.3	4.3				ug/L	166	Standard
>	Ge	72	353300.4	2.6				ug/L	360328	Standard
	As	75	-79.8	64.3				ug/L	-74	Standard
	Se	82	12.5	48.6				ug/L	15	Standard
	Se-1	77	144.3	3.8				ug/L	139	Standard
>	Ga	71	36.7	7.9				mg/L	63	Standard
	Rb	85	28.3	27.0				ug/L	32	Standard
	Y	89	315665.9	2.7				ug/L	315671	Standard
>	Rh	103	40.0	82.0				ug/L	37	Standard
	Mo	98	74.5	32.2				ug/L	143	Standard
	Ag	107	119.3	15.9				ug/L	125	Standard
	Cd	111	9.6	57.2				mg/L	10	Standard
	Cd	114	20.9	27.2				ug/L	39	Standard
>	In	115	374855.6	0.5				ug/L	367586	Standard
	Sn	118	89.0	6.8				ug/L	107	Standard
	Sb	123	96.2	24.5				ug/L	225	Standard
	Ba	135	73.7	81.8				ug/L	39	Standard
	Ce	140	8.3	34.6				ug/L	12	Standard
>	Tb	159	643750.9	1.3				ug/L	627636	Standard
	Ho	165	16.7	34.6				ug/L	13	Standard
	Tl	203	55.7	28.4				ug/L	76	Standard
	Tl	205	106.7	45.5				ug/L	162	Standard
	Pb	206	366.0	7.4				ug/L	362	Standard
	Pb	207	291.7	3.1				ug/L	281	Standard
	Pb	208	513.0	2.0				ug/L	515	Standard
	U	238	19.7	85.3				ug/L	32	Standard
>	Bi	209	506780.0	1.4				ug/L	501980	Standard

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Na	23	1.7	173.2	mg/L	3	Standard
Mg	24	41.7	50.0	mg/L	35	Standard
K	39	8.3	34.6	mg/L	12	Standard
Ca	43	56.7	62.6	mg/L	28	Standard
Fe	54	29.3	17.3	mg/L	38	Standard
Fe	57	571.7	15.8	mg/L	668	Standard
Sc-1	45	20842.7	3.2	mg/L	21013	Standard
Cl	35	1.3	86.6	ug/L	2	Standard
Kr	83	6.0	28.9	ug/L	6	Standard
Br	81	906.7	3.4	ug/L	1013	Standard
P	31	88.3	34.1	ug/L	70	Standard
S	34	81.7	3.5	ug/L	58	Standard
Sr	88	318.3	8.7	ug/L	293	Standard
C	12	0.0		mg/L	20	Standard
N	14	0.0		mg/L	3	Standard
Hg	202	3.3	173.2	mg/L	3	Standard
Dy	164	15.7	70.9	mg/L	-0	Standard
Ho-1	165	16.7	34.6	mg/L	13	Standard
Er	166	20.0	50.0	mg/L	3	Standard
I	127	10445.3	6.9	mg/L	10152	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 2
Sample Date/Time: Tuesday, August 29, 2017 14:24:27
Number of Replicates: 3
Autosampler Position: 2
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	143442.5	1.0				ug/L	143052	Standard
	Be	9	113.3	45.9				ug/L	40	Standard
	Al	27	8954.3	4.2				ug/L	2645	Standard
	Sc	45	20051.6	3.2				ug/L	21013	Standard
	Ti	47	41.3	8.5				ug/L	27	Standard
	V	51	1701.9	7.5				ug/L	1321	Standard
	Cr	52	7954.4	1.4				ug/L	7642	Standard
	Cr	53	1206.7	8.6				ug/L	1230	Standard
	Mn	55	2016.1	1.3				ug/L	1599	Standard
	Co	59	791.0	1.9				ug/L	404	Standard
	Ni	60	361.0	5.8				ug/L	288	Standard
	Cu	65	251.7	2.8				ug/L	181	Standard
	Zn	66	219.7	7.0				ug/L	166	Standard
>	**Ge**	72	352660.8	1.4				ug/L	360328	Standard
	As	75	-24.3	217.6				ug/L	-74	Standard
	Se	82	18.6	27.6				ug/L	15	Standard
	Se-1	77	147.7	5.8				ug/L	139	Standard
>	**Ga**	71	43.3	43.7				mg/L	63	Standard
	Rb	85	30.0	16.7				ug/L	32	Standard
	Y	89	313591.6	2.5				ug/L	315671	Standard
>	**Rh**	103	41.7	18.3				ug/L	37	Standard
	Mo	98	341.0	7.6				ug/L	143	Standard
	Ag	107	351.3	7.6				ug/L	125	Standard
	Cd	111	65.7	19.8				mg/L	10	Standard
	Cd	114	184.9	13.4				ug/L	39	Standard
>	**In**	115	373696.1	0.9				ug/L	367586	Standard
	Sn	118	127.7	3.2				ug/L	107	Standard
	Sb	123	264.6	10.1				ug/L	225	Standard
	Ba	135	114.7	18.8				ug/L	39	Standard
	Ce	140	18.3	41.7				ug/L	12	Standard
>	**Tb**	159	647287.0	1.9				ug/L	627636	Standard
	Ho	165	5.0	100.0				ug/L	13	Standard
	Tl	203	470.7	0.9				ug/L	76	Standard
	Tl	205	1180.0	11.3				ug/L	162	Standard
	Pb	206	678.0	4.1				ug/L	362	Standard
	Pb	207	568.7	4.7				ug/L	281	Standard
	Pb	208	993.3	3.7				ug/L	515	Standard
	U	238	482.0	4.9				ug/L	32	Standard
>	**Bi**	209	497843.5	2.0				ug/L	501980	Standard

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Na	23	0.0		mg/L	3	Standard
Mg	24	28.3	66.8	mg/L	35	Standard
K	39	10.0	50.0	mg/L	12	Standard
Ca	43	21.7	70.5	mg/L	28	Standard
Fe	54	22.6	32.6	mg/L	38	Standard
Fe	57	645.0	9.4	mg/L	668	Standard
Sc-1	45	20051.6	3.2	mg/L	21013	Standard
Cl	35	2.0	0.0	ug/L	2	Standard
Kr	83	5.3	28.6	ug/L	6	Standard
Br	81	1063.4	7.3	ug/L	1013	Standard
P	31	61.7	24.8	ug/L	70	Standard
S	34	56.7	53.9	ug/L	58	Standard
Sr	88	380.0	16.5	ug/L	293	Standard
C	12	6.7	86.6	mg/L	20	Standard
N	14	0.0		mg/L	3	Standard
Hg	202	0.0		mg/L	3	Standard
Dy	164	12.4	46.7	mg/L	-0	Standard
Ho-1	165	5.0	100.0	mg/L	13	Standard
Er	166	20.0	0.0	mg/L	3	Standard
I	127	6913.2	5.5	mg/L	10152	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 3
Sample Date/Time: Tuesday, August 29, 2017 14:27:33
Number of Replicates: 3
Autosampler Position: 3
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	146309.7	0.5				ug/L	143052	Standard
	Be	9	83385.5	1.6	50.0000	0.588	1.2	ug/L	40	Standard
	Al	27	6585000.8	1.8	50.0000	0.621	1.2	ug/L	2645	Standard
	Sc	45	20949.5	1.0				ug/L	21013	Standard
	Ti	47	18373.1	1.6	100.0000	3.419	3.4	ug/L	27	Standard
	V	51	334891.8	1.0	50.0000	1.428	2.9	ug/L	1321	Standard
	Cr	52	323202.7	1.7	50.0000	1.758	3.5	ug/L	7642	Standard
	Cr	53	42228.8	1.7	50.0000	1.786	3.6	ug/L	1230	Standard
	Mn	55	514203.8	1.4	50.0000	1.569	3.1	ug/L	1599	Standard
	Co	59	411873.8	0.6	50.0000	0.910	1.8	ug/L	404	Standard
	Ni	60	87924.4	0.4	50.0000	1.101	2.2	ug/L	288	Standard
	Cu	65	80082.1	1.0	50.0000	1.422	2.8	ug/L	181	Standard
	Zn	66	42563.4	0.5	50.0000	1.131	2.3	ug/L	166	Standard
>	Ge	72	351952.7	1.9				ug/L	360328	Standard
	As	75	43156.0	1.0	50.0000	1.428	2.9	ug/L	-74	Standard
	Se	82	3705.1	1.6	50.0000	1.709	3.4	ug/L	15	Standard
	Se-1	77	2825.6	1.2	50.0000	1.241	2.5	ug/L	139	Standard
>	Ga	71	73.3	17.2				mg/L	63	Standard
	Rb	85	653.3	1.6				ug/L	32	Standard
	Y	89	314921.3	1.5				ug/L	315671	Standard
>	Rh	103	58.3	24.7				ug/L	37	Standard
	Mo	98	306103.9	1.0	100.0000	0.865	0.9	ug/L	143	Standard
	Ag	107	244927.9	1.0	50.0000	0.389	0.8	ug/L	125	Standard
	Cd	111	55574.1	1.3	50.0000	0.576	1.2	mg/L	10	Standard
	Cd	114	154522.2	1.9	50.0000	0.884	1.8	ug/L	39	Standard
>	In	115	374995.6	0.2				ug/L	367586	Standard
	Sn	118	40119.7	2.4	50.0000	1.121	2.2	ug/L	107	Standard
	Sb	123	180014.1	1.9	50.0000	0.889	1.8	ug/L	225	Standard
	Ba	135	71698.3	2.1	50.0000	0.953	1.9	ug/L	39	Standard
	Ce	140	73.3	14.2				ug/L	12	Standard
>	Tb	159	656535.5	1.8				ug/L	627636	Standard
	Ho	165	6.7	86.6				ug/L	13	Standard
	Tl	203	444277.8	0.9	50.0000	0.709	1.4	ug/L	76	Standard
	Tl	205	1039197.4	0.8	50.0000	0.564	1.1	ug/L	162	Standard
	Pb	206	335309.9	0.9	50.0000	0.728	1.5	ug/L	362	Standard
	Pb	207	296817.6	0.8	50.0000	0.687	1.4	ug/L	281	Standard
	Pb	208	520533.3	2.8	50.0000	2.309	4.6	ug/L	515	Standard
	U	238	479102.1	1.6	50.0000	1.689	3.4	ug/L	32	Standard
>	Bi	209	493321.2	1.9				ug/L	501980	Standard

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	Na	23	20.0	50.0	**5.0000**	2.456	49.1	mg/L	3	Standard
	Mg	24	333.3	24.8	**5.0000**	1.397	27.9	mg/L	35	Standard
	K	39	438.3	4.6	**5.0000**	0.241	4.8	mg/L	12	Standard
	Ca	43	28.3	44.4	**5.0000**	10.602	212.0	mg/L	28	Standard
	Fe	54	272.2	8.5	**5.0000**	0.470	9.4	mg/L	38	Standard
	Fe	57	740.0	13.6	**5.0000**	7.444	148.9	mg/L	668	Standard
>	**Sc-1**	45	20949.5	1.0				mg/L	21013	Standard
	Cl	35	1.3	173.2				ug/L	2	Standard
	Kr	83	4.7	86.6				ug/L	6	Standard
	Br	81	950.0	4.8				ug/L	1013	Standard
	P	31	56.7	13.5				ug/L	70	Standard
	S	34	70.0	21.4				ug/L	58	Standard
	Sr	88	331.7	12.8				ug/L	293	Standard
	C	12	20.0	50.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	2.4	243.9				mg/L	-0	Standard
	Ho-1	165	6.7	86.6				mg/L	13	Standard
	Er	166	20.0	50.0				mg/L	3	Standard
	I	127	2076.8	6.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 4
Sample Date/Time: Tuesday, August 29, 2017 14:30:38
Number of Replicates: 3
Autosampler Position: 4
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	142693.8	1.2				ug/L	143052	Standard
	Be	9	165657.8	2.7	**100.9395**	3.699	3.7	ug/L	40	Standard
	Al	27	13136700.4	1.2	**101.1425**	2.006	2.0	ug/L	2645	Standard
	Sc	45	20654.1	0.5				ug/L	21013	Standard
	Ti	47	37164.5	0.9	**201.9966**	4.888	2.4	ug/L	27	Standard
	V	51	663620.0	1.1	**100.0435**	2.396	2.4	ug/L	1321	Standard
	Cr	52	639186.8	0.4	**100.4347**	1.843	1.8	ug/L	7642	Standard
	Cr	53	81399.8	1.2	**99.2418**	2.742	2.8	ug/L	1230	Standard
	Mn	55	1037236.0	0.8	**100.9049**	2.434	2.4	ug/L	1599	Standard
	Co	59	822854.9	0.7	**100.3767**	1.826	1.8	ug/L	404	Standard
	Ni	60	176674.1	0.4	**100.7191**	1.964	2.0	ug/L	288	Standard
	Cu	65	159548.6	0.1	**100.2617**	1.583	1.6	ug/L	181	Standard
	Zn	66	85850.9	0.9	**100.9370**	2.377	2.4	ug/L	166	Standard
>	Ge	72	349080.5	1.6				ug/L	360328	Standard
	As	75	87922.1	1.5	**101.2804**	1.637	1.6	ug/L	-74	Standard
	Se	82	7487.0	2.5	**101.0097**	2.347	2.3	ug/L	15	Standard
	Se-1	77	5427.3	2.8	**99.6655**	2.521	2.5	ug/L	139	Standard
>	Ga	71	111.7	36.5				mg/L	63	Standard
	Rb	85	515.0	6.1				ug/L	32	Standard
	Y	89	306448.6	1.7				ug/L	315671	Standard
>	Rh	103	75.0	26.7				ug/L	37	Standard
	Mo	98	616665.5	0.9	**200.7579**	2.271	1.1	ug/L	143	Standard
	Ag	107	486591.0	0.4	**99.6891**	0.207	0.2	ug/L	125	Standard
	Cd	111	111326.4	1.3	**100.0962**	0.991	1.0	mg/L	10	Standard
	Cd	114	309291.5	2.4	**100.0552**	1.956	2.0	ug/L	39	Standard
>	In	115	374906.8	0.4				ug/L	367586	Standard
	Sn	118	80132.4	2.5	**99.9989**	2.128	2.1	ug/L	107	Standard
	Sb	123	350466.4	2.6	**98.6767**	2.218	2.2	ug/L	225	Standard
	Ba	135	145004.2	2.6	**100.5825**	2.258	2.2	ug/L	39	Standard
	Ce	140	460.0	8.5				ug/L	12	Standard
>	Tb	159	662568.3	1.8				ug/L	627636	Standard
	Ho	165	10.0					ug/L	13	Standard
	Tl	203	879586.0	0.8	**100.1192**	2.579	2.6	ug/L	76	Standard
	Tl	205	2161476.2	1.0	**102.5812**	1.849	1.8	ug/L	162	Standard
	Pb	206	684335.4	0.8	**101.6627**	2.670	2.6	ug/L	362	Standard
	Pb	207	570475.2	0.3	**98.6549**	2.028	2.1	ug/L	281	Standard
	Pb	208	1034260.7	3.4	**100.3155**	5.262	5.2	ug/L	515	Standard
	U	238	963854.5	1.5	**100.9106**	3.382	3.4	ug/L	32	Standard
>	Bi	209	487266.6	1.9				ug/L	501980	Standard

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	Na	23	40.0	57.3	**10.0736**	5.722	56.8	mg/L	3	Standard
	Mg	24	596.7	3.4	**9.7239**	0.301	3.1	mg/L	35	Standard
	K	39	795.0	13.8	**9.6365**	1.369	14.2	mg/L	12	Standard
	Ca	43	33.3	22.9	**9.8810**	6.696	67.8	mg/L	28	Standard
	Fe	54	626.5	5.2	**11.0313**	0.650	5.9	mg/L	38	Standard
	Fe	57	858.4	2.7	**12.0035**	1.509	12.6	mg/L	668	Standard
>	**Sc-1**	45	20654.1	0.5				mg/L	21013	Standard
	Cl	35	3.3	124.9				ug/L	2	Standard
	Kr	83	3.7	41.7				ug/L	6	Standard
	Br	81	890.0	9.8				ug/L	1013	Standard
	P	31	80.0	6.3				ug/L	70	Standard
	S	34	65.0	0.0				ug/L	58	Standard
	Sr	88	363.3	8.4				ug/L	293	Standard
	C	12	43.3	26.6				mg/L	20	Standard
	N	14	6.7	86.6				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	12.4	46.7				mg/L	-0	Standard
	Ho-1	165	10.0					mg/L	13	Standard
	Er	166	20.0	0.0				mg/L	3	Standard
	I	127	7165.0	2.5				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Corr. Coef.	Fe	54	Correlation coefficient < 0.998
Corr. Coef.	Fe	57	Correlation coefficient < 0.998

Approved: August 30, 2017

Method 6020 - Summary Report

Sample ID: QC Std 1
Sample Date/Time: Tuesday, August 29, 2017 14:33:46
Number of Replicates: 3
Autosampler Position: 201
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	146454.5	1.0				ug/L	143052	Standard
	Be	9	82633.1	1.9	**49.0435**	1.318	2.7	ug/L	40	Standard
	Al	27	6502876.8	2.3	**48.7765**	1.620	3.3	ug/L	2645	Standard
	Sc	45	20398.7	1.2				ug/L	21013	Standard
	Ti	47	18511.3	1.4	**100.4906**	3.318	3.3	ug/L	27	Standard
	V	51	330191.3	0.7	**49.6427**	1.360	2.7	ug/L	1321	Standard
	Cr	52	319323.5	0.4	**49.5400**	1.190	2.4	ug/L	7642	Standard
	Cr	53	41567.0	2.8	**49.9559**	2.409	4.8	ug/L	1230	Standard
	Mn	55	514644.1	0.8	**49.9604**	1.444	2.9	ug/L	1599	Standard
	Co	59	409089.6	1.1	**49.8520**	1.503	3.0	ug/L	404	Standard
	Ni	60	88175.5	0.9	**50.1602**	1.462	2.9	ug/L	288	Standard
	Cu	65	80657.8	0.6	**50.5991**	1.094	2.2	ug/L	181	Standard
	Zn	66	42230.8	0.8	**49.5057**	0.773	1.6	ug/L	166	Standard
>	**Ge**	72	349357.2	2.1				ug/L	360328	Standard
	As	75	42686.7	0.9	**49.1768**	0.666	1.4	ug/L	-74	Standard
	Se	82	3663.8	1.2	**49.2911**	0.430	0.9	ug/L	15	Standard
	Se-1	77	2814.6	1.3	**50.3532**	1.211	2.4	ug/L	139	Standard
>	**Ga**	71	68.3	47.6				mg/L	63	Standard
	Rb	85	685.0	11.5				ug/L	32	Standard
	Y	89	315354.8	0.9				ug/L	315671	Standard
>	**Rh**	103	66.7	28.4				ug/L	37	Standard
	Mo	98	304671.3	0.6	**99.6181**	0.442	0.4	ug/L	143	Standard
	Ag	107	244114.6	1.1	**50.2221**	0.394	0.8	ug/L	125	Standard
	Cd	111	55989.7	1.3	**50.5616**	0.704	1.4	mg/L	10	Standard
	Cd	114	155376.3	2.0	**50.4813**	0.749	1.5	ug/L	39	Standard
>	**In**	115	373259.5	0.8				ug/L	367586	Standard
	Sn	118	40418.9	2.2	**50.6096**	1.011	2.0	ug/L	107	Standard
	Sb	123	183332.3	1.9	**51.8363**	0.834	1.6	ug/L	225	Standard
	Ba	135	71760.6	1.9	**49.9834**	0.793	1.6	ug/L	39	Standard
	Ce	140	78.3	20.5				ug/L	12	Standard
>	**Tb**	159	653183.0	1.6				ug/L	627636	Standard
	Ho	165	8.3	91.7				ug/L	13	Standard
	Tl	203	445049.8	0.6	**49.7095**	1.270	2.6	ug/L	76	Standard
	Tl	205	1026797.6	1.0	**47.8259**	1.445	3.0	ug/L	162	Standard
	Pb	206	337427.3	0.2	**49.1622**	1.085	2.2	ug/L	362	Standard
	Pb	207	300470.4	1.3	**50.9740**	1.585	3.1	ug/L	281	Standard
	Pb	208	518220.9	2.8	**49.2986**	2.314	4.7	ug/L	515	Standard
	U	238	482631.6	2.0	**49.5895**	1.976	4.0	ug/L	32	Standard
>	**Bi**	209	496565.3	2.0				ug/L	501980	Standard

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	Na	23	15.0	57.7	**3.8170**	2.181	57.1	mg/L	3	Standard
	Mg	24	315.0	24.0	**4.9551**	1.248	25.2	mg/L	35	Standard
	K	39	420.0	11.7	**5.0925**	0.552	10.8	mg/L	12	Standard
	Ca	43	26.7	65.8	**4.1803**	15.431	369.1	mg/L	28	Standard
	Fe	54	284.4	10.3	**4.8396**	0.505	10.4	mg/L	38	Standard
	Fe	57	746.7	10.9	**5.6178**	4.568	81.3	mg/L	668	Standard
>	**Sc-1**	45	20398.7	1.2				mg/L	21013	Standard
	Cl	35	3.3	91.7				ug/L	2	Standard
	Kr	83	9.0	33.3				ug/L	6	Standard
	Br	81	1100.0	6.9				ug/L	1013	Standard
	P	31	61.7	30.7				ug/L	70	Standard
	S	34	71.7	46.5				ug/L	58	Standard
	Sr	88	306.7	9.8				ug/L	293	Standard
	C	12	23.3	24.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	6.2	86.7				mg/L	-0	Standard
	Ho-1	165	8.3	91.7				mg/L	13	Standard
	Er	166	10.0	100.0				mg/L	3	Standard
	I	127	2306.8	3.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	98.087		
	Al	27	97.553		
	Sc	45			
	Ti	47	100.491		
	V	51	99.285		
	Cr	52	99.080		
	Cr	53			
	Mn	55	99.921		
	Co	59	99.704		
	Ni	60	100.320		
	Cu	65	101.198		
	Zn	66	99.011		
>	Ge	72		96.955	
	As	75	98.354		
	Se	82	98.582		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98	99.618	
|	Ag	107	100.444	
|	Cd	111	101.123	
|	Cd	114		
| >	In	115		101.543
|	Sn	118	101.219	
|	Sb	123	103.673	
⌊	Ba	135	99.967	
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203	99.419	
|	Tl	205		
|	Pb	206	98.324	
|	Pb	207	101.948	
|	Pb	208	98.597	
|	U	238	99.179	
⌊>	Bi	209		98.921
⌈	Na	23	76.339	
|	Mg	24	99.101	
|	K	39	101.849	
|	Ca	43	83.606	
|	Fe	54	96.793	
|	Fe	57	112.355	
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 1	Na	23	
QC Std 1	Mg	24	
QC Std 1	Ca	43	

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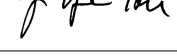

QC Std 1	Fe	57

Sample ID: QC Std 1
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Approved: August 30, 2017

Method 6020 - Summary Report

Sample ID: QC Std 2
Sample Date/Time: Tuesday, August 29, 2017 14:36:53
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144265.4	2.0				ug/L	143052	Standard
	Be	9	51.7	14.8	**0.0123**	0.005	38.1	ug/L	40	Standard
	Al	27	3170.3	6.8	**0.0055**	0.001	23.1	ug/L	2645	Standard
	Sc	45	20533.9	3.1				ug/L	21013	Standard
	Ti	47	33.7	19.8	**0.0580**	0.035	60.1	ug/L	27	Standard
	V	51	1286.5	3.9	**-0.0126**	0.011	84.3	ug/L	1321	Standard
	Cr	52	7029.0	1.3	**-0.0994**	0.029	28.8	ug/L	7642	Standard
	Cr	53	1046.7	4.4	**-0.1497**	0.078	52.2	ug/L	1230	Standard
	Mn	55	1498.4	5.4	**-0.0005**	0.006	1078.6	ug/L	1599	Standard
	Co	59	437.0	2.2	**0.0071**	0.002	26.4	ug/L	404	Standard
	Ni	60	265.3	5.5	**-0.0047**	0.005	116.2	ug/L	288	Standard
	Cu	65	233.0	6.7	**0.0377**	0.007	18.6	ug/L	181	Standard
	Zn	66	174.0	4.3	**-0.0040**	0.006	159.2	ug/L	166	Standard
>	**Ge**	72	353964.1	1.8				ug/L	360328	Standard
	As	75	-28.7	42.7	**0.0446**	0.014	31.1	ug/L	-74	Standard
	Se	82	16.7	43.5	**0.0219**	0.093	425.8	ug/L	15	Standard
	Se-1	77	127.0	8.3	**-0.3456**	0.197	56.9	ug/L	139	Standard
>	**Ga**	71	33.3	22.9				mg/L	63	Standard
	Rb	85	31.7	32.9				ug/L	32	Standard
	Y	89	317790.0	2.9				ug/L	315671	Standard
>	**Rh**	103	48.3	15.8				ug/L	37	Standard
	Mo	98	503.8	11.4	**0.1519**	0.019	12.4	ug/L	143	Standard
	Ag	107	176.7	3.9	**0.0138**	0.002	11.1	ug/L	125	Standard
	Cd	111	15.2	13.4	**0.0043**	0.002	42.5	mg/L	10	Standard
	Cd	114	42.8	47.5	**0.0038**	0.007	172.9	ug/L	39	Standard
>	**In**	115	376732.5	0.5				ug/L	367586	Standard
	Sn	118	144.3	3.9	**0.0694**	0.007	10.4	ug/L	107	Standard
	Sb	123	1053.2	6.8	**0.2705**	0.021	7.9	ug/L	225	Standard
	Ba	135	44.0	13.8	**0.0005**	0.004	870.2	ug/L	39	Standard
	Ce	140	20.0	114.6				ug/L	12	Standard
>	**Tb**	159	647095.0	2.2				ug/L	627636	Standard
	Ho	165	10.0	50.0				ug/L	13	Standard
	Tl	203	129.7	17.7	**0.0119**	0.002	19.9	ug/L	76	Standard
	Tl	205	280.0	25.9	**0.0080**	0.003	40.3	ug/L	162	Standard
	Pb	206	416.7	6.8	**0.0115**	0.004	31.6	ug/L	362	Standard
	Pb	207	363.3	10.6	**0.0147**	0.006	43.2	ug/L	281	Standard
	Pb	208	636.0	8.6	**0.0155**	0.004	28.9	ug/L	515	Standard
	U	238	112.3	11.4	**0.0120**	0.001	9.8	ug/L	32	Standard
>	**Bi**	209	501592.4	1.1				ug/L	501980	Standard

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	Na	23	5.0	173.2	**1.2435**	2.145	172.5	mg/L	3	Standard
	Mg	24	46.7	6.2	**0.3050**	0.076	24.8	mg/L	35	Standard
	K	39	21.7	26.6	**0.1437**	0.064	44.8	mg/L	12	Standard
	Ca	43	43.3	33.3	**19.2345**	14.249	74.1	mg/L	28	Standard
	Fe	54	31.0	25.7	**0.1522**	0.166	109.2	mg/L	38	Standard
	Fe	57	640.0	6.2	**-1.2322**	3.774	306.3	mg/L	668	Standard
>	**Sc-1**	45	20533.9	3.1				mg/L	21013	Standard
	Cl	35	2.0	0.0				ug/L	2	Standard
	Kr	83	5.7	44.4				ug/L	6	Standard
	Br	81	1000.0	14.7				ug/L	1013	Standard
	P	31	81.7	9.4				ug/L	70	Standard
	S	34	78.3	16.1				ug/L	58	Standard
	Sr	88	310.0	16.8				ug/L	293	Standard
	C	12	6.7	173.2				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	15.5	36.5				mg/L	-0	Standard
	Ho-1	165	10.0	50.0				mg/L	13	Standard
	Er	166	23.3	65.5				mg/L	3	Standard
	I	127	6786.5	0.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		98.234	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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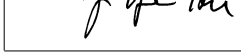

⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	102.488	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	99.923	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 2	Sb	123	
QC Std 2	Na	23	
QC Std 2	Mg	24	

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QC Std 2	K	39
QC Std 2	Ca	43
QC Std 2	Fe	54
QC Std 2	Fe	57

Sample ID: QC Std 2
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Method 6020 - Summary Report

Sample ID: QC Std 3
Sample Date/Time: Tuesday, August 29, 2017 14:40:00
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144983.7	1.0				ug/L	143052	Standard
	Be	9	440.0	9.3	**0.2449**	0.024	9.8	ug/L	40	Standard
	Al	27	2731.9	3.4	**0.0021**	0.001	26.2	ug/L	2645	Standard
	Sc	45	20882.7	1.9				ug/L	21013	Standard
	Ti	47	24.3	20.7	**0.0090**	0.026	287.9	ug/L	27	Standard
	V	51	3638.5	3.1	**0.3423**	0.020	6.0	ug/L	1321	Standard
	Cr	52	10657.7	1.6	**0.4837**	0.047	9.7	ug/L	7642	Standard
	Cr	53	1500.1	2.6	**0.4183**	0.072	17.1	ug/L	1230	Standard
	Mn	55	7004.0	1.5	**0.5341**	0.004	0.8	ug/L	1599	Standard
	Co	59	3455.4	1.4	**0.3738**	0.002	0.5	ug/L	404	Standard
	Ni	60	2961.6	1.4	**1.5279**	0.050	3.2	ug/L	288	Standard
	Cu	65	1454.1	1.3	**0.8030**	0.018	2.3	ug/L	181	Standard
	Zn	66	5362.6	2.0	**6.0779**	0.219	3.6	ug/L	166	Standard
>	**Ge**	72	350998.7	1.5				ug/L	360328	Standard
	As	75	274.5	12.9	**0.3915**	0.042	10.7	ug/L	-74	Standard
	Se	82	45.8	8.9	**0.4158**	0.061	14.6	ug/L	15	Standard
	Se-1	77	147.7	16.8	**0.0617**	0.464	751.8	ug/L	139	Standard
>	**Ga**	71	53.3	19.5				mg/L	63	Standard
	Rb	85	31.7	32.9				ug/L	32	Standard
	Y	89	309358.3	1.4				ug/L	315671	Standard
>	**Rh**	103	51.7	5.6				ug/L	37	Standard
	Mo	98	163.9	18.6	**0.0420**	0.010	23.5	ug/L	143	Standard
	Ag	107	1978.1	3.3	**0.3831**	0.013	3.5	ug/L	125	Standard
	Cd	111	266.8	3.9	**0.2307**	0.009	3.9	mg/L	10	Standard
	Cd	114	633.3	1.9	**0.1949**	0.004	1.9	ug/L	39	Standard
>	**In**	115	374879.6	0.1				ug/L	367586	Standard
	Sn	118	125.7	10.7	**0.0469**	0.017	35.2	ug/L	107	Standard
	Sb	123	1741.7	5.3	**0.4658**	0.025	5.4	ug/L	225	Standard
	Ba	135	1035.0	5.8	**0.6883**	0.041	5.9	ug/L	39	Standard
	Ce	140	18.3	68.6				ug/L	12	Standard
>	**Tb**	159	644767.6	1.1				ug/L	627636	Standard
	Ho	165	10.0	50.0				ug/L	13	Standard
	Tl	203	725.0	2.6	**0.0777**	0.002	3.2	ug/L	76	Standard
	Tl	205	1711.8	1.2	**0.0740**	0.001	1.1	ug/L	162	Standard
	Pb	206	1716.1	3.4	**0.1989**	0.006	3.1	ug/L	362	Standard
	Pb	207	1422.1	2.6	**0.1925**	0.008	4.2	ug/L	281	Standard
	Pb	208	2599.8	2.1	**0.2004**	0.007	3.7	ug/L	515	Standard
	U	238	3673.4	0.9	**0.3738**	0.002	0.7	ug/L	32	Standard
>	**Bi**	209	501952.2	1.2				ug/L	501980	Standard

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	Na	23	3.3	86.6	**0.8410**	0.724	86.1	mg/L	3	Standard
	Mg	24	46.7	12.4	**0.2909**	0.106	36.4	mg/L	35	Standard
	K	39	11.7	107.9	**0.0210**	0.156	746.2	mg/L	12	Standard
	Ca	43	25.0	20.0	**2.2475**	4.030	179.3	mg/L	28	Standard
	Fe	54	40.7	7.8	**0.3147**	0.049	15.7	mg/L	38	Standard
	Fe	57	631.7	5.3	**-2.5040**	1.369	54.7	mg/L	668	Standard
>	**Sc-1**	45	20882.7	1.9				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	4.3	35.3				ug/L	6	Standard
	Br	81	1066.7	8.4				ug/L	1013	Standard
	P	31	51.7	39.1				ug/L	70	Standard
	S	34	80.0	28.6				ug/L	58	Standard
	Sr	88	313.3	11.3				ug/L	293	Standard
	C	12	6.7	86.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	19.0	53.8				mg/L	-0	Standard
	Ho-1	165	10.0	50.0				mg/L	13	Standard
	Er	166	20.0	50.0				mg/L	3	Standard
	I	127	2365.2	0.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	122.474		
	Al	27	0.211		
	Sc	45			
	Ti	47			
	V	51	85.573		
	Cr	52	60.465		
	Cr	53			
	Mn	55	106.811		
	Co	59	93.448		
	Ni	60	95.492		
	Cu	65	100.372		
	Zn	66	97.247		
>	Ge	72		97.411	
	As	75	97.865		
	Se	82	103.958		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
> Rh	103			
Mo	98			
Ag	107	95.782		
Cd	111	96.106		
Cd	114			
> In	115		101.984	
Sn	118			
Sb	123	116.451		
Ba	135	91.779		
Ce	140			
> Tb	159			
Ho	165			
Tl	203	97.082		
Tl	205			
Pb	206			
Pb	207			
Pb	208	100.216		
U	238	93.448		
> Bi	209		99.995	
Na	23			
Mg	24			
K	39			
Ca	43			
Fe	54			
Fe	57			
> Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 3	Al	27	
QC Std 3	Cr	52	

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Method 6020 - Summary Report

Sample ID: QC Std 3
Sample Date/Time: Tuesday, August 29, 2017 14:53:21
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	147979.2	1.6				ug/L	143052	Standard
	Be	9	336.7	4.8	**0.1790**	0.013	7.0	ug/L	40	Standard
	Al	27	2491.9	4.1	**-0.0001**	0.001	572.5	ug/L	2645	Standard
	Sc	45	22067.8	4.9				ug/L	21013	Standard
	Ti	47	22.3	18.1	**-0.0093**	0.022	232.5	ug/L	27	Standard
	V	51	4004.9	0.9	**0.3588**	0.019	5.4	ug/L	1321	Standard
	Cr	52	14300.4	0.5	**0.9145**	0.057	6.3	ug/L	7642	Standard
	Cr	53	1961.8	3.2	**0.8324**	0.135	16.2	ug/L	1230	Standard
	Mn	55	8219.2	0.7	**0.6008**	0.019	3.2	ug/L	1599	Standard
	Co	59	3575.8	2.0	**0.3606**	0.012	3.4	ug/L	404	Standard
	Ni	60	2994.6	1.8	**1.4380**	0.077	5.3	ug/L	288	Standard
	Cu	65	1508.1	5.0	**0.7773**	0.071	9.2	ug/L	181	Standard
	Zn	66	5386.0	1.1	**5.7007**	0.235	4.1	ug/L	166	Standard
>	**Ge**	72	375219.0	3.2				ug/L	360328	Standard
	As	75	270.0	19.0	**0.3675**	0.064	17.4	ug/L	-74	Standard
	Se	82	44.6	21.2	**0.3635**	0.135	37.1	ug/L	15	Standard
	Se-1	77	143.0	11.9	**-0.1953**	0.336	171.9	ug/L	139	Standard
>	**Ga**	71	46.7	44.6				mg/L	63	Standard
	Rb	85	36.7	43.8				ug/L	32	Standard
	Y	89	346511.9	4.2				ug/L	315671	Standard
>	**Rh**	103	36.7	28.4				ug/L	37	Standard
	Mo	98	128.8	21.8	**0.0297**	0.009	31.2	ug/L	143	Standard
	Ag	107	1972.5	3.2	**0.3728**	0.011	2.9	ug/L	125	Standard
	Cd	111	259.2	2.0	**0.2185**	0.003	1.3	mg/L	10	Standard
	Cd	114	633.3	5.5	**0.1904**	0.012	6.4	ug/L	39	Standard
>	**In**	115	383539.9	0.8				ug/L	367586	Standard
	Sn	118	124.3	14.9	**0.0419**	0.024	57.0	ug/L	107	Standard
	Sb	123	1590.6	5.5	**0.4133**	0.027	6.6	ug/L	225	Standard
	Ba	135	1052.7	4.5	**0.6843**	0.038	5.5	ug/L	39	Standard
	Ce	140	23.3	53.9				ug/L	12	Standard
>	**Tb**	159	640942.0	1.2				ug/L	627636	Standard
	Ho	165	3.3	86.6				ug/L	13	Standard
	Tl	203	750.0	4.5	**0.0757**	0.005	6.8	ug/L	76	Standard
	Tl	205	1730.1	5.8	**0.0704**	0.007	10.0	ug/L	162	Standard
	Pb	206	1782.4	4.0	**0.1938**	0.009	4.6	ug/L	362	Standard
	Pb	207	1497.4	3.3	**0.1910**	0.016	8.5	ug/L	281	Standard
	Pb	208	2489.1	3.6	**0.1768**	0.016	9.1	ug/L	515	Standard
	U	238	3638.4	3.3	**0.3495**	0.024	7.0	ug/L	32	Standard
>	**Bi**	209	532654.1	3.7				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	40.0	25.0	**0.1366**	0.130	95.1	mg/L	35	Standard
	K	39	8.3	34.6	**-0.0274**	0.031	111.6	mg/L	12	Standard
	Ca	43	30.0	28.9	**5.5047**	8.115	147.4	mg/L	28	Standard
	Fe	54	44.3	22.3	**0.3404**	0.189	55.6	mg/L	38	Standard
	Fe	57	666.7	5.6	**-2.5240**	1.670	66.2	mg/L	668	Standard
>	**Sc-1**	45	22067.8	4.9				mg/L	21013	Standard
	Cl	35	0.7	173.2				ug/L	2	Standard
	Kr	83	4.3	48.0				ug/L	6	Standard
	Br	81	1166.7	13.0				ug/L	1013	Standard
	P	31	80.0	16.5				ug/L	70	Standard
	S	34	63.3	25.4				ug/L	58	Standard
	Sr	88	330.0	12.9				ug/L	293	Standard
	C	12	20.0	86.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	16.2	94.4				mg/L	-0	Standard
	Ho-1	165	3.3	86.6				mg/L	13	Standard
	Er	166	10.0					mg/L	3	Standard
	I	127	2328.5	3.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	89.521		
	Al	27	-0.009		
	Sc	45			
	Ti	47			
	V	51	89.691		
	Cr	52	114.316		
	Cr	53			
	Mn	55	120.157		
	Co	59	90.148		
	Ni	60	89.875		
	Cu	65	97.156		
	Zn	66	91.211		
>	Ge	72		104.133	
	As	75	91.886		
	Se	82	90.885		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98			
Ag	107	93.201		
Cd	111	91.051		
Cd	114			
In	115			104.340
Sn	118			
Sb	123	103.322		
Ba	135	91.242		
Ce	140			
Tb	159			
Ho	165			
Tl	203	94.675		
Tl	205			
Pb	206			
Pb	207			
Pb	208	88.424		
U	238	87.379		
Bi	209			106.111
Na	23			
Mg	24			
K	39			
Ca	43			
Fe	54			
Fe	57			
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 3	Al	27	

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Method 6020 - Summary Report

Sample ID: QC Std 4
Sample Date/Time: Tuesday, August 29, 2017 14:56:26
Number of Replicates: 3
Autosampler Position: 203
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	133490.6	1.4				ug/L	143052	Standard
	Be	9	23.3	53.9	**-0.0036**	0.008	231.2	ug/L	40	Standard
	Al	27	6009422.1	1.6	**49.4409**	0.143	0.3	ug/L	2645	Standard
	Sc	45	18466.2	0.6				ug/L	21013	Standard
	Ti	47	17923.9	0.9	**105.1825**	0.836	0.8	ug/L	27	Standard
	V	51	423.4	39.2	**-0.1352**	0.027	20.1	ug/L	1321	Standard
	Cr	52	5706.4	1.7	**-0.2214**	0.022	9.9	ug/L	7642	Standard
	Cr	53	3013.6	9.8	**2.5995**	0.399	15.3	ug/L	1230	Standard
	Mn	55	1519.7	8.4	**0.0155**	0.013	85.2	ug/L	1599	Standard
	Co	59	493.3	3.9	**0.0195**	0.002	11.2	ug/L	404	Standard
	Ni	60	635.0	4.7	**0.2377**	0.020	8.4	ug/L	288	Standard
	Cu	65	392.0	4.0	**0.1597**	0.009	5.6	ug/L	181	Standard
	Zn	66	996.4	1.3	**1.0619**	0.009	0.8	ug/L	166	Standard
>	**Ge**	72	323056.5	0.6				ug/L	360328	Standard
	As	75	-100.1	95.6	**-0.0470**	0.118	250.9	ug/L	-74	Standard
	Se	82	17.0	45.1	**0.0486**	0.112	231.0	ug/L	15	Standard
	Se-1	77	385.0	7.2	**5.1409**	0.606	11.8	ug/L	139	Standard
>	**Ga**	71	115.0	21.7				mg/L	63	Standard
	Rb	85	675.0	6.6				ug/L	32	Standard
	Y	89	284866.7	1.5				ug/L	315671	Standard
>	**Rh**	103	46.7	32.7				ug/L	37	Standard
	Mo	98	268634.6	0.4	**93.5889**	1.383	1.5	ug/L	143	Standard
	Ag	107	123.7	10.9	**0.0049**	0.003	57.7	ug/L	125	Standard
	Cd	111	-94.6	10.3	**-0.1003**	0.008	7.9	mg/L	10	Standard
	Cd	114	379.9	7.2	**0.1215**	0.009	7.4	ug/L	39	Standard
>	**In**	115	350360.3	1.6				ug/L	367586	Standard
	Sn	118	64.7	18.3	**-0.0238**	0.015	61.6	ug/L	107	Standard
	Sb	123	85.0	26.1	**0.0008**	0.006	767.3	ug/L	225	Standard
	Ba	135	56.3	6.7	**0.0120**	0.003	27.3	ug/L	39	Standard
	Ce	140	46.7	40.6				ug/L	12	Standard
>	**Tb**	159	633455.0	1.8				ug/L	627636	Standard
	Ho	165	8.3	69.3				ug/L	13	Standard
	Tl	203	88.3	20.4	**0.0081**	0.002	26.7	ug/L	76	Standard
	Tl	205	231.7	21.6	**0.0067**	0.003	38.3	ug/L	162	Standard
	Pb	206	456.0	7.6	**0.0225**	0.005	23.1	ug/L	362	Standard
	Pb	207	366.3	1.6	**0.0202**	0.000	2.3	ug/L	281	Standard
	Pb	208	678.0	0.4	**0.0247**	0.001	4.2	ug/L	515	Standard
	U	238	5.0	40.0	**0.0011**	0.000	18.9	ug/L	32	Standard
>	**Bi**	209	464357.3	1.2				ug/L	501980	Standard

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	Na	23	41.7	13.9	**11.7510**	1.607	13.7	mg/L	3	Standard
	Mg	24	688.3	4.2	**12.6922**	0.503	4.0	mg/L	35	Standard
	K	39	338.3	2.3	**4.5225**	0.131	2.9	mg/L	12	Standard
	Ca	43	36.7	20.8	**16.6833**	7.661	45.9	mg/L	28	Standard
	Fe	54	662.5	9.2	**13.1214**	1.259	9.6	mg/L	38	Standard
	Fe	57	866.7	4.1	**18.8936**	2.630	13.9	mg/L	668	Standard
>	**Sc-1**	45	18466.2	0.6				mg/L	21013	Standard
	Cl	35	5.3	57.3				ug/L	2	Standard
	Kr	83	8.7	24.0				ug/L	6	Standard
	Br	81	1016.7	5.9				ug/L	1013	Standard
	P	31	35.0	37.8				ug/L	70	Standard
	S	34	55.0	18.2				ug/L	58	Standard
	Sr	88	326.7	23.5				ug/L	293	Standard
	C	12	46.7	75.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	13.3	43.3				mg/L	3	Standard
	Dy	164	9.4	109.4				mg/L	-0	Standard
	Ho-1	165	8.3	69.3				mg/L	13	Standard
	Er	166	13.3	43.3				mg/L	3	Standard
	I	127	21772.3	4.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27	0.989		
	Sc	45			
	Ti	47	105.182		
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		89.656	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	93.589		
Ag	107			
Cd	111			
Cd	114			
In	115			95.314
Sn	118			
Sb	123			
Ba	135			
Ce	140			
Tb	159			
Ho	165			
Tl	203			
Tl	205			
Pb	206			
Pb	207			
Pb	208			
U	238			
Bi	209			92.505
Na	23	94.008		
Mg	24	253.844		
K	39	90.450		
Ca	43	111.222		
Fe	54	104.971		
Fe	57	151.149		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 4	Al	27	
QC Std 4	Mg	24	
QC Std 4	Fe	57	

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Method 6020 - Summary Report

Sample ID: QC Std 5
Sample Date/Time: Tuesday, August 29, 2017 14:59:32
Number of Replicates: 3
Autosampler Position: 204
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	142932.7	1.1				ug/L	143052	Standard
	Be	9	160957.4	2.2	**97.9024**	2.793	2.9	ug/L	40	Standard
	Al	27	6186949.6	2.2	**47.5498**	1.518	3.2	ug/L	2645	Standard
	Sc	45	19567.6	0.2				ug/L	21013	Standard
	Ti	47	18713.2	0.3	**102.6064**	1.032	1.0	ug/L	27	Standard
	V	51	629638.6	1.2	**95.8193**	2.404	2.5	ug/L	1321	Standard
	Cr	52	604887.5	1.1	**95.9034**	2.305	2.4	ug/L	7642	Standard
	Cr	53	80588.8	1.5	**99.1782**	2.229	2.2	ug/L	1230	Standard
	Mn	55	978002.7	0.5	**96.0287**	0.848	0.9	ug/L	1599	Standard
	Co	59	779487.6	0.7	**95.9828**	0.625	0.7	ug/L	404	Standard
	Ni	60	167392.6	0.8	**96.3259**	1.513	1.6	ug/L	288	Standard
	Cu	65	156320.6	0.5	**99.1708**	1.750	1.8	ug/L	181	Standard
	Zn	66	88131.2	0.6	**104.6099**	2.026	1.9	ug/L	166	Standard
>	Ge	72	345770.7	1.3				ug/L	360328	Standard
	As	75	87232.4	0.6	**101.4480**	1.328	1.3	ug/L	-74	Standard
	Se	82	7541.5	1.3	**102.7161**	0.098	0.1	ug/L	15	Standard
	Se-1	77	5797.4	1.8	**107.7222**	3.472	3.2	ug/L	139	Standard
>	Ga	71	151.7	18.2				mg/L	63	Standard
	Rb	85	578.3	10.2				ug/L	32	Standard
	Y	89	309356.7	1.4				ug/L	315671	Standard
>	Rh	103	78.3	20.5				ug/L	37	Standard
	Mo	98	291823.3	0.4	**97.0299**	1.288	1.3	ug/L	143	Standard
	Ag	107	252295.3	1.0	**52.7836**	0.769	1.5	ug/L	125	Standard
	Cd	111	110099.2	0.4	**101.1091**	0.608	0.6	mg/L	10	Standard
	Cd	114	298581.9	2.7	**98.6449**	1.799	1.8	ug/L	39	Standard
>	In	115	367082.4	1.0				ug/L	367586	Standard
	Sn	118	105.0	14.2	**0.0238**	0.018	74.7	ug/L	107	Standard
	Sb	123	349268.7	2.1	**100.4335**	1.089	1.1	ug/L	225	Standard
	Ba	135	140525.8	1.7	**99.5560**	0.973	1.0	ug/L	39	Standard
	Ce	140	58.3	40.5				ug/L	12	Standard
>	Tb	159	649759.3	2.3				ug/L	627636	Standard
	Ho	165	18.3	31.5				ug/L	13	Standard
	Tl	203	862094.1	0.5	**96.7539**	1.911	2.0	ug/L	76	Standard
	Tl	205	1993610.7	5.0	**93.3392**	5.988	6.4	ug/L	162	Standard
	Pb	206	667164.7	0.5	**97.7194**	1.757	1.8	ug/L	362	Standard
	Pb	207	560312.6	0.1	**95.5407**	1.430	1.5	ug/L	281	Standard
	Pb	208	994733.1	2.2	**95.1133**	3.539	3.7	ug/L	515	Standard
	U	238	933997.2	1.2	**96.4099**	2.392	2.5	ug/L	32	Standard
>	Bi	209	494127.2	1.5				ug/L	501980	Standard

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	Na	23	46.7	22.3	**12.4184**	2.747	22.1	mg/L	3	Standard
	Mg	24	686.7	9.9	**11.9223**	1.261	10.6	mg/L	35	Standard
	K	39	395.0	13.4	**4.9940**	0.677	13.6	mg/L	12	Standard
	Ca	43	35.0	42.9	**13.0822**	13.977	106.8	mg/L	28	Standard
	Fe	54	726.3	8.2	**13.5881**	1.123	8.3	mg/L	38	Standard
	Fe	57	871.7	13.5	**15.8239**	7.646	48.3	mg/L	668	Standard
>	**Sc-1**	45	19567.6	0.2				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	5.7	10.2				ug/L	6	Standard
	Br	81	970.0	2.7				ug/L	1013	Standard
	P	31	36.7	28.4				ug/L	70	Standard
	S	34	66.7	18.9				ug/L	58	Standard
	Sr	88	311.7	28.8				ug/L	293	Standard
	C	12	46.7	61.9				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	9.0	123.9				mg/L	-0	Standard
	Ho-1	165	18.3	31.5				mg/L	13	Standard
	Er	166	20.0	132.3				mg/L	3	Standard
	I	127	24474.8	2.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	97.902		
	Al	27	0.951		
	Sc	45			
	Ti	47	102.606		
	V	51	95.819		
	Cr	52	95.903		
	Cr	53			
	Mn	55	96.029		
	Co	59	95.983		
	Ni	60	96.326		
	Cu	65	99.171		
	Zn	66	104.610		
>	Ge	72		95.960	
	As	75	101.448		
	Se	82	102.716		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98	97.030	
|	Ag	107	52.784	
|	Cd	111	101.109	
|	Cd	114		
| >	In	115		99.863
|	Sn	118		
|	Sb	123	100.434	
⌊	Ba	135	99.556	
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203	96.754	
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208	95.113	
|	U	238	96.410	
⌊>	Bi	209		98.436
⌈	Na	23	99.347	
|	Mg	24	238.446	
|	K	39	99.880	
|	Ca	43	87.215	
|	Fe	54	108.705	
|	Fe	57	126.591	
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Ag	107	
QC Std 5	Na	23	

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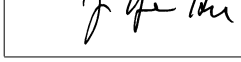

QC Std 5	Mg	24
QC Std 5	Ca	43
QC Std 5	Fe	57

Sample ID: QC Std 5
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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 15:02:39
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	145773.1	2.4				ug/L	143052	Standard
	Be	9	82582.8	1.3	**49.2459**	0.826	1.7	ug/L	40	Standard
	Al	27	6647055.7	0.9	**50.0933**	0.866	1.7	ug/L	2645	Standard
	Sc	45	20348.7	1.2				ug/L	21013	Standard
	Ti	47	18662.5	0.7	**100.2083**	2.064	2.1	ug/L	27	Standard
	V	51	337429.5	0.8	**50.1918**	1.487	3.0	ug/L	1321	Standard
	Cr	52	327431.2	0.3	**50.2731**	1.318	2.6	ug/L	7642	Standard
	Cr	53	41478.4	1.9	**49.2754**	1.128	2.3	ug/L	1230	Standard
	Mn	55	521046.3	0.7	**50.0323**	0.911	1.8	ug/L	1599	Standard
	Co	59	413046.3	0.9	**49.7867**	0.945	1.9	ug/L	404	Standard
	Ni	60	88865.2	1.4	**49.9980**	0.710	1.4	ug/L	288	Standard
	Cu	65	81291.2	0.7	**50.4482**	0.980	1.9	ug/L	181	Standard
	Zn	66	42530.6	1.8	**49.3155**	0.444	0.9	ug/L	166	Standard
>	Ge	72	353162.5	2.5				ug/L	360328	Standard
	As	75	43339.6	1.8	**49.3877**	0.355	0.7	ug/L	-74	Standard
	Se	82	3764.9	3.1	**50.1012**	0.759	1.5	ug/L	15	Standard
	Se-1	77	2839.6	3.0	**50.2299**	0.264	0.5	ug/L	139	Standard
>	Ga	71	30.0	28.9				mg/L	63	Standard
	Rb	85	626.7	7.6				ug/L	32	Standard
	Y	89	322440.5	1.7				ug/L	315671	Standard
>	Rh	103	56.7	28.4				ug/L	37	Standard
	Mo	98	312778.7	1.1	**99.8228**	1.559	1.6	ug/L	143	Standard
	Ag	107	248768.0	0.9	**49.9550**	0.649	1.3	ug/L	125	Standard
	Cd	111	56651.1	0.5	**49.9328**	0.367	0.7	mg/L	10	Standard
	Cd	114	159093.4	1.2	**50.4525**	0.494	1.0	ug/L	39	Standard
>	In	115	382420.6	0.5				ug/L	367586	Standard
	Sn	118	40593.0	1.5	**49.6070**	0.516	1.0	ug/L	107	Standard
	Sb	123	187580.9	1.5	**51.7664**	0.511	1.0	ug/L	225	Standard
	Ba	135	75725.2	3.1	**51.4800**	1.404	2.7	ug/L	39	Standard
	Ce	140	123.3	31.5				ug/L	12	Standard
>	Tb	159	653385.1	2.2				ug/L	627636	Standard
	Ho	165	11.7	49.5				ug/L	13	Standard
	Tl	203	454994.9	1.4	**49.7245**	0.394	0.8	ug/L	76	Standard
	Tl	205	1069522.3	1.9	**48.7420**	0.984	2.0	ug/L	162	Standard
	Pb	206	344870.4	1.2	**49.1663**	0.318	0.6	ug/L	362	Standard
	Pb	207	303881.1	1.4	**50.4373**	0.244	0.5	ug/L	281	Standard
	Pb	208	516275.1	2.8	**48.0624**	2.162	4.5	ug/L	515	Standard
	U	238	485497.5	0.5	**48.8083**	1.050	2.2	ug/L	32	Standard
>	Bi	209	507360.5	1.8				ug/L	501980	Standard

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	Na	23	5.0	100.0	**1.2876**	1.293	100.4	mg/L	3	Standard
	Mg	24	325.0	12.2	**5.1481**	0.626	12.2	mg/L	35	Standard
	K	39	393.3	11.0	**4.7804**	0.570	11.9	mg/L	12	Standard
	Ca	43	36.7	15.7	**13.3142**	5.112	38.4	mg/L	28	Standard
	Fe	54	342.7	8.2	**5.9391**	0.567	9.5	mg/L	38	Standard
	Fe	57	790.0	6.6	**8.4947**	3.155	37.1	mg/L	668	Standard
>	**Sc-1**	45	20348.7	1.2				mg/L	21013	Standard
	Cl	35	4.7	89.2				ug/L	2	Standard
	Kr	83	6.0	57.7				ug/L	6	Standard
	Br	81	1050.0	7.8				ug/L	1013	Standard
	P	31	61.7	23.4				ug/L	70	Standard
	S	34	56.7	31.0				ug/L	58	Standard
	Sr	88	318.3	7.4				ug/L	293	Standard
	C	12	23.3	24.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0					mg/L	3	Standard
	Dy	164	29.5	67.7				mg/L	-0	Standard
	Ho-1	165	11.7	49.5				mg/L	13	Standard
	Er	166	10.0					mg/L	3	Standard
	I	127	2535.2	8.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	98.492		
	Al	27	100.187		
	Sc	45			
	Ti	47	100.208		
	V	51	100.384		
	Cr	52	100.546		
	Cr	53			
	Mn	55	100.065		
	Co	59	99.573		
	Ni	60	99.996		
	Cu	65	100.896		
	Zn	66	98.631		
>	Ge	72		98.011	
	As	75	98.775		
	Se	82	100.202		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	99.823		
|	Ag	107	99.910		
|	Cd	111	99.866		
|	Cd	114			
| >	In	115		104.036	
|	Sn	118	99.214		
|	Sb	123	103.533		
⌊	Ba	135	102.960		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	99.449		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	96.125		
|	U	238	97.617		
⌊>	Bi	209		101.072	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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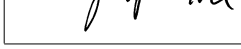

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 15:05:44
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	145862.2	1.4				ug/L	143052	Standard
	Be	9	81.7	69.6	**0.0296**	0.033	112.9	ug/L	40	Standard
	Al	27	6178.7	98.2	**0.0277**	0.045	163.0	ug/L	2645	Standard
	Sc	45	20240.2	2.5				ug/L	21013	Standard
	Ti	47	31.0	41.9	**0.0459**	0.069	151.0	ug/L	27	Standard
	V	51	1390.8	23.0	**0.0057**	0.048	836.6	ug/L	1321	Standard
	Cr	52	7295.4	2.3	**-0.0419**	0.016	39.2	ug/L	7642	Standard
	Cr	53	1156.7	5.4	**0.0040**	0.087	2189.7	ug/L	1230	Standard
	Mn	55	2007.8	42.1	**0.0508**	0.081	158.9	ug/L	1599	Standard
	Co	59	533.0	44.9	**0.0194**	0.029	147.6	ug/L	404	Standard
	Ni	60	296.7	15.6	**0.0153**	0.025	164.5	ug/L	288	Standard
	Cu	65	246.7	12.5	**0.0483**	0.018	37.2	ug/L	181	Standard
	Zn	66	198.3	16.7	**0.0276**	0.039	141.8	ug/L	166	Standard
>	**Ge**	72	349021.1	1.1				ug/L	360328	Standard
	As	75	-20.2	175.7	**0.0537**	0.041	75.7	ug/L	-74	Standard
	Se	82	11.9	55.4	**-0.0384**	0.091	238.3	ug/L	15	Standard
	Se-1	77	145.7	4.4	**0.0396**	0.108	273.4	ug/L	139	Standard
>	**Ga**	71	45.0	57.7				mg/L	63	Standard
	Rb	85	38.3	52.7				ug/L	32	Standard
	Y	89	314343.2	2.1				ug/L	315671	Standard
>	**Rh**	103	56.7	35.7				ug/L	37	Standard
	Mo	98	628.0	27.5	**0.1931**	0.056	29.2	ug/L	143	Standard
	Ag	107	243.3	56.2	**0.0276**	0.028	101.4	ug/L	125	Standard
	Cd	111	31.4	120.9	**0.0189**	0.034	180.4	mg/L	10	Standard
	Cd	114	76.7	101.6	**0.0148**	0.025	170.2	ug/L	39	Standard
>	**In**	115	374966.0	0.9				ug/L	367586	Standard
	Sn	118	121.3	22.7	**0.0416**	0.035	83.5	ug/L	107	Standard
	Sb	123	1089.7	17.5	**0.2821**	0.053	18.9	ug/L	225	Standard
	Ba	135	705.7	162.7	**0.4591**	0.795	173.2	ug/L	39	Standard
	Ce	140	16.7	69.3				ug/L	12	Standard
>	**Tb**	159	646643.8	2.4				ug/L	627636	Standard
	Ho	165	8.3	124.9				ug/L	13	Standard
	Tl	203	263.3	97.4	**0.0269**	0.029	106.5	ug/L	76	Standard
	Tl	205	706.7	101.3	**0.0279**	0.033	119.4	ug/L	162	Standard
	Pb	206	533.7	34.3	**0.0290**	0.027	92.6	ug/L	362	Standard
	Pb	207	427.0	42.6	**0.0259**	0.031	119.6	ug/L	281	Standard
	Pb	208	754.7	42.4	**0.0272**	0.031	112.1	ug/L	515	Standard
	U	238	231.3	128.0	**0.0243**	0.030	125.0	ug/L	32	Standard
>	**Bi**	209	498423.4	0.8				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	46.7	27.0	**0.3174**	0.230	72.3	mg/L	35	Standard
	K	39	11.7	107.9	**0.0251**	0.158	630.3	mg/L	12	Standard
	Ca	43	26.7	57.3	**4.2819**	13.258	309.6	mg/L	28	Standard
	Fe	54	22.4	26.7	**-0.0022**	0.114	5069.7	mg/L	38	Standard
	Fe	57	643.3	3.1	**-0.5240**	0.263	50.2	mg/L	668	Standard
>	**Sc-1**	45	20240.2	2.5				mg/L	21013	Standard
	Cl	35	4.7	24.7				ug/L	2	Standard
	Kr	83	4.7	44.6				ug/L	6	Standard
	Br	81	1063.4	4.2				ug/L	1013	Standard
	P	31	68.3	29.6				ug/L	70	Standard
	S	34	60.0	33.3				ug/L	58	Standard
	Sr	88	331.7	8.7				ug/L	293	Standard
	C	12	16.7	91.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	13.3	114.6				mg/L	3	Standard
	Dy	164	9.5	177.6				mg/L	-0	Standard
	Ho-1	165	8.3	124.9				mg/L	13	Standard
	Er	166	10.0	100.0				mg/L	3	Standard
	I	127	10285.2	3.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.862	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115	102.008	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209	99.292	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Sb	123	
QC Std 7	Ba	135	

Sample ID: QC Std 7
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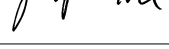

Method 6020 - Summary Report

Sample ID: PBW A8 WG627191-03
Sample Date/Time: Tuesday, August 29, 2017 15:09:53
Number of Replicates: 3
Autosampler Position: 205
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	143496.4	1.1				ug/L	143052	Standard
	Be	9	35.0	24.7	**0.0024**	0.005	231.1	ug/L	40	Standard
	Al	27	5779.4	4.3	**0.0257**	0.002	7.1	ug/L	2645	Standard
	Sc	45	19789.6	2.1				ug/L	21013	Standard
	Ti	47	31.3	25.6	**0.0479**	0.042	87.8	ug/L	27	Standard
	V	51	1208.6	13.8	**-0.0217**	0.024	111.8	ug/L	1321	Standard
	Cr	52	7368.1	1.1	**-0.0291**	0.007	23.8	ug/L	7642	Standard
	Cr	53	1183.4	7.9	**0.0382**	0.121	315.2	ug/L	1230	Standard
	Mn	55	2066.5	2.7	**0.0571**	0.003	6.0	ug/L	1599	Standard
	Co	59	342.3	2.7	**-0.0037**	0.001	20.5	ug/L	404	Standard
	Ni	60	332.7	4.4	**0.0361**	0.008	21.7	ug/L	288	Standard
	Cu	65	227.3	6.4	**0.0364**	0.008	21.3	ug/L	181	Standard
	Zn	66	1604.8	2.4	**1.6860**	0.027	1.6	ug/L	166	Standard
>	Ge	72	348687.9	1.0				ug/L	360328	Standard
	As	75	-63.3	83.4	**0.0044**	0.060	1354.7	ug/L	-74	Standard
	Se	82	10.9	60.8	**-0.0522**	0.091	173.7	ug/L	15	Standard
	Se-1	77	130.0	4.3	**-0.2526**	0.125	49.4	ug/L	139	Standard
>	Ga	71	43.3	48.0				mg/L	63	Standard
	Rb	85	50.0	17.3				ug/L	32	Standard
	Y	89	315171.3	1.3				ug/L	315671	Standard
>	Rh	103	28.3	90.6				ug/L	37	Standard
	Mo	98	222.5	17.5	**0.0620**	0.012	19.9	ug/L	143	Standard
	Ag	107	120.7	10.1	**0.0028**	0.002	83.5	ug/L	125	Standard
	Cd	111	10.8	9.1	**0.0005**	0.001	157.8	mg/L	10	Standard
	Cd	114	18.6	29.7	**-0.0039**	0.002	47.8	ug/L	39	Standard
>	In	115	369968.9	1.0				ug/L	367586	Standard
	Sn	118	113.7	14.8	**0.0338**	0.021	61.5	ug/L	107	Standard
	Sb	123	456.3	15.2	**0.1055**	0.019	18.5	ug/L	225	Standard
	Ba	135	100.7	3.8	**0.0409**	0.002	5.9	ug/L	39	Standard
	Ce	140	86.7	32.8				ug/L	12	Standard
>	Tb	159	630813.3	2.7				ug/L	627636	Standard
	Ho	165	10.0	50.0				ug/L	13	Standard
	Tl	203	46.3	31.4	**0.0027**	0.002	57.0	ug/L	76	Standard
	Tl	205	91.7	17.5	**-0.0006**	0.001	125.9	ug/L	162	Standard
	Pb	206	403.3	4.7	**0.0105**	0.002	21.9	ug/L	362	Standard
	Pb	207	366.7	2.1	**0.0162**	0.000	2.6	ug/L	281	Standard
	Pb	208	596.7	2.9	**0.0127**	0.003	19.7	ug/L	515	Standard
	U	238	12.0	30.0	**0.0018**	0.000	21.8	ug/L	32	Standard
>	Bi	209	494346.4	2.1				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	31.7	39.7	**0.0680**	0.233	343.2	mg/L	35	Standard
	K	39	16.7	34.6	**0.0906**	0.073	80.0	mg/L	12	Standard
	Ca	43	26.7	10.8	**5.0035**	2.126	42.5	mg/L	28	Standard
	Fe	54	41.0	35.3	**0.3604**	0.271	75.3	mg/L	38	Standard
	Fe	57	641.7	8.0	**0.3542**	4.100	1157.7	mg/L	668	Standard
>	**Sc-1**	45	19789.6	2.1				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	6.7	31.2				ug/L	6	Standard
	Br	81	1066.7	7.1				ug/L	1013	Standard
	P	31	61.7	40.8				ug/L	70	Standard
	S	34	55.0	24.1				ug/L	58	Standard
	Sr	88	320.0	17.4				ug/L	293	Standard
	C	12	10.0	100.0				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	12.7	93.1				mg/L	-0	Standard
	Ho-1	165	10.0	50.0				mg/L	13	Standard
	Er	166	13.3	43.3				mg/L	3	Standard
	I	127	2726.9	4.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		100.310	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.769	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	100.648
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	98.479
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: LCSW A8 WG627191-04
Sample Date/Time: Tuesday, August 29, 2017 15:12:59
Number of Replicates: 3
Autosampler Position: 206
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	142374.5	3.0				ug/L	143052	Standard
	Be	9	80334.1	2.1	**49.0530**	1.102	2.2	ug/L	40	Standard
	Al	27	6318.0	2.7	**0.0302**	0.003	8.9	ug/L	2645	Standard
	Sc	45	19460.8	3.7				ug/L	21013	Standard
	Ti	47	33.3	6.9	**0.0607**	0.013	21.6	ug/L	27	Standard
	V	51	327953.9	0.8	**49.8199**	0.462	0.9	ug/L	1321	Standard
	Cr	52	316618.0	0.6	**49.6387**	0.717	1.4	ug/L	7642	Standard
	Cr	53	41159.2	1.4	**49.9652**	0.184	0.4	ug/L	1230	Standard
	Mn	55	509515.5	1.4	**49.9723**	0.123	0.2	ug/L	1599	Standard
	Co	59	405771.5	0.7	**49.9614**	0.516	1.0	ug/L	404	Standard
	Ni	60	88080.6	0.6	**50.6314**	0.844	1.7	ug/L	288	Standard
	Cu	65	79975.5	0.9	**50.7021**	0.967	1.9	ug/L	181	Standard
	Zn	66	43033.0	1.2	**50.9925**	1.201	2.4	ug/L	166	Standard
>	**Ge**	72	345647.8	1.2				ug/L	360328	Standard
	As	75	41128.4	0.8	**47.8851**	0.209	0.4	ug/L	-74	Standard
	Se	82	3649.1	1.2	**49.6192**	0.770	1.6	ug/L	15	Standard
	Se-1	77	2780.6	3.5	**50.2800**	2.458	4.9	ug/L	139	Standard
>	**Ga**	71	36.7	34.3				mg/L	63	Standard
	Rb	85	90.0	38.9				ug/L	32	Standard
	Y	89	311325.0	3.4				ug/L	315671	Standard
>	**Rh**	103	68.3	15.2				ug/L	37	Standard
	Mo	98	159.0	13.3	**0.0414**	0.006	13.6	ug/L	143	Standard
	Ag	107	244448.5	0.2	**51.0944**	1.502	2.9	ug/L	125	Standard
	Cd	111	54848.6	1.4	**50.3134**	1.209	2.4	mg/L	10	Standard
	Cd	114	148518.0	1.2	**49.0171**	1.060	2.2	ug/L	39	Standard
>	**In**	115	367593.0	2.8				ug/L	367586	Standard
	Sn	118	114.7	7.8	**0.0361**	0.011	30.4	ug/L	107	Standard
	Sb	123	171483.6	2.2	**49.2391**	0.309	0.6	ug/L	225	Standard
	Ba	135	70537.2	3.0	**49.8885**	0.265	0.5	ug/L	39	Standard
	Ce	140	118.3	30.6				ug/L	12	Standard
>	**Tb**	159	629505.9	4.9				ug/L	627636	Standard
	Ho	165	13.3	78.1				ug/L	13	Standard
	Tl	203	453042.7	0.9	**50.6307**	0.273	0.5	ug/L	76	Standard
	Tl	205	1053990.5	0.8	**49.1182**	0.488	1.0	ug/L	162	Standard
	Pb	206	342701.4	0.7	**49.9643**	0.626	1.3	ug/L	362	Standard
	Pb	207	292491.2	0.5	**49.6476**	0.697	1.4	ug/L	281	Standard
	Pb	208	513923.4	2.5	**48.8968**	0.713	1.5	ug/L	515	Standard
	U	238	465521.5	0.8	**47.8490**	0.236	0.5	ug/L	32	Standard
>	**Bi**	209	496128.9	1.1				ug/L	501980	Standard

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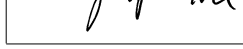

	Na	23	1.7	173.2	**0.4574**	0.784	171.3	mg/L	3	Standard
	Mg	24	38.3	30.1	**0.1952**	0.205	105.2	mg/L	35	Standard
	K	39	11.7	24.7	**0.0302**	0.042	138.9	mg/L	12	Standard
	Ca	43	31.7	45.6	**9.9432**	13.052	131.3	mg/L	28	Standard
	Fe	54	34.7	8.3	**0.2537**	0.071	28.0	mg/L	38	Standard
	Fe	57	638.3	9.1	**0.8820**	4.924	558.3	mg/L	668	Standard
>	**Sc-1**	45	19460.8	3.7				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	5.0	52.9				ug/L	6	Standard
	Br	81	966.7	9.8				ug/L	1013	Standard
	P	31	68.3	16.9				ug/L	70	Standard
	S	34	78.3	14.7				ug/L	58	Standard
	Sr	88	318.3	7.3				ug/L	293	Standard
	C	12	20.0	132.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	15.9	34.8				mg/L	-0	Standard
	Ho-1	165	13.3	78.1				mg/L	13	Standard
	Er	166	16.7	69.3				mg/L	3	Standard
	I	127	2871.9	5.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		99.526	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.926	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	100.002	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	98.834	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708128505 WG627191-01
Sample Date/Time: Tuesday, August 29, 2017 15:16:04
Number of Replicates: 3
Autosampler Position: 207
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	145148.8	2.0				ug/L	143052	Standard
	Be	9	46.7	34.4	**0.0091**	0.010	108.4	ug/L	40	Standard
	Al	27	1073756.3	1.1	**8.1123**	0.243	3.0	ug/L	2645	Standard
	Sc	45	20322.0	0.9				ug/L	21013	Standard
	Ti	47	313.3	9.1	**1.5469**	0.140	9.0	ug/L	27	Standard
	V	51	1428.1	20.0	**0.0072**	0.043	599.1	ug/L	1321	Standard
	Cr	52	36474.5	2.6	**4.4835**	0.189	4.2	ug/L	7642	Standard
	Cr	53	5811.1	4.3	**5.6179**	0.357	6.4	ug/L	1230	Standard
	Mn	55	16731.9	0.7	**1.4532**	0.022	1.5	ug/L	1599	Standard
	Co	59	1389.1	2.2	**0.1206**	0.004	3.2	ug/L	404	Standard
	Ni	60	1286.7	0.5	**0.5660**	0.004	0.7	ug/L	288	Standard
	Cu	65	761.4	1.8	**0.3627**	0.007	2.0	ug/L	181	Standard
	Zn	66	11281.2	2.0	**12.8208**	0.340	2.7	ug/L	166	Standard
>	Ge	72	356102.6	0.8				ug/L	360328	Standard
	As	75	35.4	54.6	**0.1169**	0.021	18.4	ug/L	-74	Standard
	Se	82	49.3	14.6	**0.4534**	0.095	20.9	ug/L	15	Standard
	Se-1	77	245.3	7.5	**1.8286**	0.351	19.2	ug/L	139	Standard
>	Ga	71	80.0	27.2				mg/L	63	Standard
	Rb	85	13524.4	1.2				ug/L	32	Standard
	Y	89	314572.7	1.9				ug/L	315671	Standard
>	Rh	103	55.0	32.8				ug/L	37	Standard
	Mo	98	205.8	7.9	**0.0555**	0.005	8.4	ug/L	143	Standard
	Ag	107	189.7	6.5	**0.0165**	0.002	13.9	ug/L	125	Standard
	Cd	111	12722.1	2.0	**11.4075**	0.203	1.8	mg/L	10	Standard
	Cd	114	34551.6	2.5	**11.1453**	0.181	1.6	ug/L	39	Standard
>	In	115	375671.8	0.9				ug/L	367586	Standard
	Sn	118	102.0	9.0	**0.0171**	0.012	69.1	ug/L	107	Standard
	Sb	123	2221.3	13.1	**0.5997**	0.083	13.9	ug/L	225	Standard
	Ba	135	27226.5	2.9	**18.8227**	0.444	2.4	ug/L	39	Standard
	Ce	140	2066.8	1.8				ug/L	12	Standard
>	Tb	159	647579.5	2.0				ug/L	627636	Standard
	Ho	165	65.0	35.3				ug/L	13	Standard
	Tl	203	293.7	3.4	**0.0306**	0.001	4.4	ug/L	76	Standard
	Tl	205	688.3	13.5	**0.0273**	0.004	14.4	ug/L	162	Standard
	Pb	206	1858.4	1.8	**0.2243**	0.008	3.7	ug/L	362	Standard
	Pb	207	1494.4	1.7	**0.2090**	0.004	2.1	ug/L	281	Standard
	Pb	208	2613.4	2.3	**0.2061**	0.009	4.2	ug/L	515	Standard
	U	238	139.7	10.0	**0.0150**	0.001	9.5	ug/L	32	Standard
>	Bi	209	493257.2	1.3				ug/L	501980	Standard

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	Na	23	16.7	62.4	**4.2589**	2.637	61.9	mg/L	3	Standard
	Mg	24	945.0	14.6	**15.9566**	2.361	14.8	mg/L	35	Standard
	K	39	95.0	27.9	**1.0644**	0.341	32.1	mg/L	12	Standard
	Ca	43	35.0	37.8	**11.9336**	12.099	101.4	mg/L	28	Standard
	Fe	54	25.6	9.5	**0.0556**	0.042	75.4	mg/L	38	Standard
	Fe	57	676.7	11.5	**1.4096**	4.735	335.9	mg/L	668	Standard
>	**Sc-1**	45	20322.0	0.9				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	5.3	54.1				ug/L	6	Standard
	Br	81	3450.4	2.3				ug/L	1013	Standard
	P	31	71.7	32.2				ug/L	70	Standard
	S	34	73.3	23.9				ug/L	58	Standard
	Sr	88	320.0	12.4				ug/L	293	Standard
	C	12	36.7	31.5				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	13.3	173.2				mg/L	3	Standard
	Dy	164	87.0	29.3				mg/L	-0	Standard
	Ho-1	165	65.0	35.3				mg/L	13	Standard
	Er	166	63.3	39.7				mg/L	3	Standard
	I	127	15518.0	10.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		101.466	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		98.827	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	102.200	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	98.262	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708128505 WG627191-01
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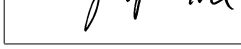

Method 6020 - Summary Report

Sample ID: L1708128506S WG627191-05
Sample Date/Time: Tuesday, August 29, 2017 15:19:10
Number of Replicates: 3
Autosampler Position: 208
Sample Description: 1
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	149542.7	0.7				ug/L	143052	Standard
	Be	9	83042.0	0.9	**48.2635**	0.724	1.5	ug/L	40	Standard
	Al	27	1178070.2	0.8	**8.6367**	0.018	0.2	ug/L	2645	Standard
	Sc	45	20560.6	3.3				ug/L	21013	Standard
	Ti	47	456.7	2.8	**2.2726**	0.038	1.7	ug/L	27	Standard
	V	51	333028.4	1.7	**48.3153**	0.544	1.1	ug/L	1321	Standard
	Cr	52	350949.3	1.7	**52.6207**	0.564	1.1	ug/L	7642	Standard
	Cr	53	46339.1	2.4	**53.8580**	2.045	3.8	ug/L	1230	Standard
	Mn	55	523692.5	0.6	**49.0643**	0.626	1.3	ug/L	1599	Standard
	Co	59	404969.7	0.4	**47.6313**	0.930	2.0	ug/L	404	Standard
	Ni	60	89129.4	0.1	**48.9346**	0.856	1.7	ug/L	288	Standard
	Cu	65	81872.6	0.4	**49.5765**	0.819	1.7	ug/L	181	Standard
	Zn	66	54718.6	0.3	**61.9745**	0.912	1.5	ug/L	166	Standard
>	Ge	72	361879.4	1.7				ug/L	360328	Standard
	As	75	44515.1	0.2	**49.5083**	0.781	1.6	ug/L	-74	Standard
	Se	82	3810.7	3.0	**49.4813**	0.732	1.5	ug/L	15	Standard
	Se-1	77	3008.3	3.3	**52.0584**	2.707	5.2	ug/L	139	Standard
>	Ga	71	83.3	40.0				mg/L	63	Standard
	Rb	85	14960.7	1.4				ug/L	32	Standard
	Y	89	320120.3	4.2				ug/L	315671	Standard
>	Rh	103	73.3	37.6				ug/L	37	Standard
	Mo	98	205.3	6.1	**0.0543**	0.004	7.9	ug/L	143	Standard
	Ag	107	242176.9	1.1	**48.7171**	0.155	0.3	ug/L	125	Standard
	Cd	111	69603.6	1.1	**61.4625**	0.459	0.7	mg/L	10	Standard
	Cd	114	187337.6	1.0	**59.5257**	1.041	1.7	ug/L	39	Standard
>	In	115	381723.8	0.8				ug/L	367586	Standard
	Sn	118	132.0	14.2	**0.0519**	0.023	43.9	ug/L	107	Standard
	Sb	123	181890.1	1.1	**50.2923**	0.838	1.7	ug/L	225	Standard
	Ba	135	101570.4	1.4	**69.1966**	1.351	2.0	ug/L	39	Standard
	Ce	140	2675.2	4.2				ug/L	12	Standard
>	Tb	159	660461.1	1.3				ug/L	627636	Standard
	Ho	165	85.0	20.4				ug/L	13	Standard
	Tl	203	458031.9	1.4	**50.5273**	0.664	1.3	ug/L	76	Standard
	Tl	205	1061998.5	1.5	**48.8501**	0.601	1.2	ug/L	162	Standard
	Pb	206	346483.1	1.8	**49.8581**	0.645	1.3	ug/L	362	Standard
	Pb	207	293092.0	1.4	**49.1048**	0.820	1.7	ug/L	281	Standard
	Pb	208	513240.8	2.1	**48.2359**	2.274	4.7	ug/L	515	Standard
	U	238	470843.3	0.9	**47.7899**	1.691	3.5	ug/L	32	Standard
>	Bi	209	502721.0	2.7				ug/L	501980	Standard

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	Na	23	11.7	65.5	**2.9202**	1.819	62.3	mg/L	3	Standard
	Mg	24	953.4	1.6	**15.9185**	0.338	2.1	mg/L	35	Standard
	K	39	136.7	2.1	**1.5639**	0.073	4.7	mg/L	12	Standard
	Ca	43	41.7	66.1	**17.3563**	24.701	142.3	mg/L	28	Standard
	Fe	54	45.0	6.6	**0.4071**	0.067	16.6	mg/L	38	Standard
	Fe	57	681.7	7.0	**1.2798**	3.610	282.0	mg/L	668	Standard
>	**Sc-1**	45	20560.6	3.3				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	4.7	44.6				ug/L	6	Standard
	Br	81	3487.1	7.2				ug/L	1013	Standard
	P	31	51.7	14.8				ug/L	70	Standard
	S	34	65.0	20.4				ug/L	58	Standard
	Sr	88	368.3	6.4				ug/L	293	Standard
	C	12	40.0	43.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	105.2	16.6				mg/L	-0	Standard
	Ho-1	165	85.0	20.4				mg/L	13	Standard
	Er	166	100.0	40.0				mg/L	3	Standard
	I	127	15578.0	8.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.537	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		100.430	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115		103.846
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209		100.148
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708128507SD WG627191-06
Sample Date/Time: Tuesday, August 29, 2017 15:22:15
Number of Replicates: 3
Autosampler Position: 209
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144127.3	0.9				ug/L	143052	Standard
	Be	9	81057.9	0.6	**48.8790**	0.330	0.7	ug/L	40	Standard
	Al	27	1174393.2	1.0	**8.9338**	0.014	0.2	ug/L	2645	Standard
	Sc	45	20143.4	1.3				ug/L	21013	Standard
	Ti	47	376.0	15.5	**1.9142**	0.328	17.2	ug/L	27	Standard
	V	51	321690.5	0.4	**48.1651**	0.500	1.0	ug/L	1321	Standard
	Cr	52	340537.0	1.1	**52.6939**	0.198	0.4	ug/L	7642	Standard
	Cr	53	45352.8	1.3	**54.4004**	1.094	2.0	ug/L	1230	Standard
	Mn	55	526722.0	0.2	**50.9320**	0.746	1.5	ug/L	1599	Standard
	Co	59	396175.4	0.3	**48.0845**	0.761	1.6	ug/L	404	Standard
	Ni	60	87652.5	0.8	**49.6607**	0.646	1.3	ug/L	288	Standard
	Cu	65	79579.8	0.5	**49.7248**	0.415	0.8	ug/L	181	Standard
	Zn	66	53396.3	0.3	**62.4107**	0.901	1.4	ug/L	166	Standard
>	**Ge**	72	350657.4	1.3				ug/L	360328	Standard
	As	75	43360.7	0.4	**49.7620**	0.444	0.9	ug/L	-74	Standard
	Se	82	3638.2	3.3	**48.7486**	0.994	2.0	ug/L	15	Standard
	Se-1	77	2911.3	1.8	**51.9638**	1.198	2.3	ug/L	139	Standard
>	**Ga**	71	178.3	8.6				mg/L	63	Standard
	Rb	85	15474.6	3.3				ug/L	32	Standard
	Y	89	305322.4	0.9				ug/L	315671	Standard
>	**Rh**	103	83.3	13.9				ug/L	37	Standard
	Mo	98	187.5	7.3	**0.0499**	0.004	7.8	ug/L	143	Standard
	Ag	107	235383.3	0.5	**48.4178**	0.664	1.4	ug/L	125	Standard
	Cd	111	68087.5	1.2	**61.4800**	1.245	2.0	mg/L	10	Standard
	Cd	114	186430.4	0.7	**60.5629**	0.385	0.6	ug/L	39	Standard
>	**In**	115	373345.7	0.9				ug/L	367586	Standard
	Sn	118	173.0	5.0	**0.1071**	0.013	12.2	ug/L	107	Standard
	Sb	123	176720.6	1.9	**49.9527**	0.483	1.0	ug/L	225	Standard
	Ba	135	99819.5	1.7	**69.5213**	0.606	0.9	ug/L	39	Standard
	Ce	140	4450.7	3.2				ug/L	12	Standard
>	**Tb**	159	646085.0	2.6				ug/L	627636	Standard
	Ho	165	105.0	21.8				ug/L	13	Standard
	Tl	203	445272.3	0.7	**50.5904**	0.669	1.3	ug/L	76	Standard
	Tl	205	1044208.5	0.8	**49.4744**	0.993	2.0	ug/L	162	Standard
	Pb	206	338292.0	0.8	**50.1410**	0.807	1.6	ug/L	362	Standard
	Pb	207	286935.0	1.1	**49.5082**	0.392	0.8	ug/L	281	Standard
	Pb	208	514779.7	2.7	**49.8101**	1.871	3.8	ug/L	515	Standard
	U	238	463253.5	0.6	**48.4099**	0.791	1.6	ug/L	32	Standard
>	**Bi**	209	488038.1	1.2				ug/L	501980	Standard

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⌈	**Na**	23	16.7	45.8	**4.3309**	2.042	47.1	mg/L	3	Standard
|	**Mg**	24	933.4	8.8	**15.9144**	1.662	10.4	mg/L	35	Standard
|	**K**	39	120.0	23.2	**1.3851**	0.335	24.2	mg/L	12	Standard
|	**Ca**	43	45.0	29.4	**21.1879**	11.839	55.9	mg/L	28	Standard
|	**Fe**	54	24.0	13.0	**0.0291**	0.058	197.8	mg/L	38	Standard
|	**Fe**	57	728.4	2.4	**5.0952**	1.626	31.9	mg/L	668	Standard
⌊>	**Sc-1**	45	20143.4	1.3				mg/L	21013	Standard
	Cl	35	3.3	69.3				ug/L	2	Standard
	Kr	83	5.0	20.0				ug/L	6	Standard
	Br	81	3753.8	10.8				ug/L	1013	Standard
	P	31	68.3	29.6				ug/L	70	Standard
	S	34	65.0	7.7				ug/L	58	Standard
	Sr	88	370.0	9.5				ug/L	293	Standard
	C	12	16.7	91.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	16.7	69.3				mg/L	3	Standard
	Dy	164	170.9	37.8				mg/L	-0	Standard
	Ho-1	165	105.0	21.8				mg/L	13	Standard
	Er	166	120.0	25.0				mg/L	3	Standard
	I	127	16892.8	7.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		100.752	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		97.316	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	101.567
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	97.223
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708128501
Sample Date/Time: Tuesday, August 29, 2017 15:28:45
Number of Replicates: 3
Autosampler Position: 210
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	143600.7	1.2				ug/L	143052	Standard
	Be	9	161.7	9.4	**0.0790**	0.010	12.0	ug/L	40	Standard
	Al	27	10350357.7	1.2	**79.1854**	1.796	2.3	ug/L	2645	Standard
	Sc	45	20821.0	1.8				ug/L	21013	Standard
	Ti	47	269.3	1.9	**1.3456**	0.047	3.5	ug/L	27	Standard
	V	51	1885.6	12.0	**0.0810**	0.033	40.3	ug/L	1321	Standard
	Cr	52	10510.0	2.8	**0.4726**	0.033	6.9	ug/L	7642	Standard
	Cr	53	2803.6	5.4	**2.0485**	0.221	10.8	ug/L	1230	Standard
	Mn	55	23174985.5	0.8	**2262.3182**	45.763	2.0	ug/L	1599	Standard
	Co	59	88751.9	0.7	**10.8095**	0.226	2.1	ug/L	404	Standard
	Ni	60	3231.0	4.3	**1.6939**	0.054	3.2	ug/L	288	Standard
	Cu	65	3923.2	3.7	**2.3670**	0.115	4.9	ug/L	181	Standard
	Zn	66	5426.0	1.1	**6.2002**	0.166	2.7	ug/L	166	Standard
>	Ge	72	348325.9	1.4				ug/L	360328	Standard
	As	75	1214.2	2.7	**1.4780**	0.054	3.6	ug/L	-74	Standard
	Se	82	124.9	4.4	**1.4918**	0.055	3.7	ug/L	15	Standard
	Se-1	77	306.7	5.1	**3.0868**	0.213	6.9	ug/L	139	Standard
>	Ga	71	470.0	9.1				mg/L	63	Standard
	Rb	85	25463.0	1.7				ug/L	32	Standard
	Y	89	382846.4	3.2				ug/L	315671	Standard
>	Rh	103	178.3	1.6				ug/L	37	Standard
	Mo	98	198.5	21.0	**0.0542**	0.013	24.8	ug/L	143	Standard
	Ag	107	287.3	3.4	**0.0374**	0.002	5.9	ug/L	125	Standard
	Cd	111	271.8	5.9	**0.2385**	0.015	6.2	mg/L	10	Standard
	Cd	114	836.2	12.4	**0.2642**	0.032	12.2	ug/L	39	Standard
>	In	115	369789.3	0.6				ug/L	367586	Standard
	Sn	118	143.0	11.0	**0.0710**	0.019	26.5	ug/L	107	Standard
	Sb	123	878.6	18.9	**0.2260**	0.046	20.3	ug/L	225	Standard
	Ba	135	88727.9	3.2	**62.3891**	1.878	3.0	ug/L	39	Standard
	Ce	140	259245.7	3.3				ug/L	12	Standard
>	Tb	159	648106.8	2.1				ug/L	627636	Standard
	Ho	165	8285.6	5.5				ug/L	13	Standard
	Tl	203	1443.7	0.8	**0.1603**	0.004	2.6	ug/L	76	Standard
	Tl	205	3390.4	3.5	**0.1544**	0.004	2.5	ug/L	162	Standard
	Pb	206	4821.8	2.0	**0.6609**	0.003	0.5	ug/L	362	Standard
	Pb	207	3874.2	1.2	**0.6176**	0.021	3.4	ug/L	281	Standard
	Pb	208	6783.6	3.3	**0.6076**	0.035	5.8	ug/L	515	Standard
	U	238	1419.4	1.3	**0.1477**	0.004	2.4	ug/L	32	Standard
>	Bi	209	492064.5	2.3				ug/L	501980	Standard

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	Na	23	151.7	9.5	**37.9344**	3.603	9.5	mg/L	3	Standard
	Mg	24	1026.7	4.1	**16.9493**	0.443	2.6	mg/L	35	Standard
	K	39	261.7	8.0	**3.0651**	0.278	9.1	mg/L	12	Standard
	Ca	43	58.3	24.7	**31.5826**	12.797	40.5	mg/L	28	Standard
	Fe	54	362.4	0.7	**6.1515**	0.084	1.4	mg/L	38	Standard
	Fe	57	988.4	6.3	**19.6163**	4.566	23.3	mg/L	668	Standard
>	**Sc-1**	45	20821.0	1.8				mg/L	21013	Standard
	Cl	35	6.7	45.8				ug/L	2	Standard
	Kr	83	7.3	15.7				ug/L	6	Standard
	Br	81	17430.0	4.9				ug/L	1013	Standard
	P	31	43.3	35.3				ug/L	70	Standard
	S	34	65.0	20.4				ug/L	58	Standard
	Sr	88	326.7	6.4				ug/L	293	Standard
	C	12	26.7	57.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	20.0	50.0				mg/L	3	Standard
	Dy	164	13816.0	2.0				mg/L	-0	Standard
	Ho-1	165	8285.6	5.5				mg/L	13	Standard
	Er	166	7945.4	1.4				mg/L	3	Standard
	I	127	21642.2	9.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		100.383	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.669	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	100.599
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	98.025
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1708128502
Sample Date/Time: Tuesday, August 29, 2017 15:31:51
Number of Replicates: 3
Autosampler Position: 211
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	141445.6	1.6				ug/L	143052	Standard
	Be	9	618.3	7.3	**0.3615**	0.034	9.4	ug/L	40	Standard
	Al	27	1921345.8	1.6	**14.9098**	0.433	2.9	ug/L	2645	Standard
	Sc	45	20450.5	4.1				ug/L	21013	Standard
	Ti	47	304.7	7.8	**1.5151**	0.130	8.6	ug/L	27	Standard
	V	51	1821.8	11.5	**0.0675**	0.030	44.6	ug/L	1321	Standard
	Cr	52	9194.5	0.5	**0.2433**	0.026	10.8	ug/L	7642	Standard
	Cr	53	3895.5	14.7	**3.3413**	0.767	22.9	ug/L	1230	Standard
	Mn	55	611596.5	1.8	**58.7552**	1.998	3.4	ug/L	1599	Standard
	Co	59	7407.1	1.9	**0.8482**	0.032	3.8	ug/L	404	Standard
	Ni	60	6414.0	0.8	**3.4658**	0.081	2.3	ug/L	288	Standard
	Cu	65	2666.2	3.7	**1.5507**	0.052	3.3	ug/L	181	Standard
	Zn	66	19339.3	1.8	**22.3175**	0.778	3.5	ug/L	166	Standard
>	**Ge**	72	353174.6	1.8				ug/L	360328	Standard
	As	75	89.2	51.4	**0.1788**	0.053	29.8	ug/L	-74	Standard
	Se	82	47.8	10.6	**0.4383**	0.065	14.7	ug/L	15	Standard
	Se-1	77	356.7	13.4	**3.9532**	0.998	25.3	ug/L	139	Standard
>	**Ga**	71	360.0	12.5				mg/L	63	Standard
	Rb	85	14652.1	3.4				ug/L	32	Standard
	Y	89	448934.3	1.1				ug/L	315671	Standard
>	**Rh**	103	40.0	33.1				ug/L	37	Standard
	Mo	98	152.0	10.4	**0.0383**	0.005	14.3	ug/L	143	Standard
	Ag	107	149.7	5.6	**0.0085**	0.002	22.7	ug/L	125	Standard
	Cd	111	221.5	2.9	**0.1905**	0.007	3.8	mg/L	10	Standard
	Cd	114	633.6	8.1	**0.1957**	0.018	9.0	ug/L	39	Standard
>	**In**	115	373770.7	0.8				ug/L	367586	Standard
	Sn	118	113.7	7.2	**0.0324**	0.010	31.0	ug/L	107	Standard
	Sb	123	352.0	9.0	**0.0747**	0.010	12.8	ug/L	225	Standard
	Ba	135	51477.0	2.9	**35.8038**	1.251	3.5	ug/L	39	Standard
	Ce	140	240614.1	1.4				ug/L	12	Standard
>	**Tb**	159	654417.1	1.3				ug/L	627636	Standard
	Ho	165	11716.2	4.5				ug/L	13	Standard
	Tl	203	317.7	1.6	**0.0334**	0.000	0.9	ug/L	76	Standard
	Tl	205	746.7	9.4	**0.0302**	0.004	12.5	ug/L	162	Standard
	Pb	206	2560.9	1.7	**0.3284**	0.008	2.4	ug/L	362	Standard
	Pb	207	2142.5	1.5	**0.3208**	0.006	1.9	ug/L	281	Standard
	Pb	208	3736.2	2.2	**0.3147**	0.012	3.8	ug/L	515	Standard
	U	238	1164.0	1.2	**0.1213**	0.003	2.5	ug/L	32	Standard
>	**Bi**	209	491877.8	1.5				ug/L	501980	Standard

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⌈	**Na**	23	28.3	71.3	**7.3364**	5.355	73.0	mg/L	3	Standard
|	**Mg**	24	1675.1	7.2	**28.5790**	3.204	11.2	mg/L	35	Standard
|	**K**	39	78.3	9.8	**0.8476**	0.070	8.3	mg/L	12	Standard
|	**Ca**	43	30.0	44.1	**7.5535**	12.620	167.1	mg/L	28	Standard
|	**Fe**	54	39.5	44.2	**0.3014**	0.286	94.9	mg/L	38	Standard
|	**Fe**	57	740.0	6.2	**5.2271**	4.422	84.6	mg/L	668	Standard
⌊>	**Sc-1**	45	20450.5	4.1				mg/L	21013	Standard
	Cl	35	1.3	173.2				ug/L	2	Standard
	Kr	83	5.7	20.4				ug/L	6	Standard
	Br	81	3377.0	5.0				ug/L	1013	Standard
	P	31	48.3	21.5				ug/L	70	Standard
	S	34	58.3	32.5				ug/L	58	Standard
	Sr	88	345.0	13.0				ug/L	293	Standard
	C	12	10.0	173.2				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	17521.5	2.6				mg/L	-0	Standard
	Ho-1	165	11716.2	4.5				mg/L	13	Standard
	Er	166	11327.6	2.0				mg/L	3	Standard
	I	127	6021.2	3.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		98.877	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		98.015	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	101.683
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	97.988
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708128502PS WG627431-01
Sample Date/Time: Tuesday, August 29, 2017 15:35:08
Number of Replicates: 3
Autosampler Position: 212
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144759.9	0.7				ug/L	143052	Standard
	Be	9	84790.0	2.8	**50.9129**	1.730	3.4	ug/L	40	Standard
	Al	27	1942241.2	1.3	**14.7235**	0.257	1.7	ug/L	2645	Standard
	Sc	45	21148.1	0.1				ug/L	21013	Standard
	Ti	47	297.3	2.8	**1.4885**	0.027	1.8	ug/L	27	Standard
	V	51	334391.1	0.3	**50.1292**	0.552	1.1	ug/L	1321	Standard
	Cr	52	326342.7	0.3	**50.5067**	0.565	1.1	ug/L	7642	Standard
	Cr	53	45573.4	0.6	**54.7314**	0.790	1.4	ug/L	1230	Standard
	Mn	55	1122712.8	1.2	**108.8508**	2.645	2.4	ug/L	1599	Standard
	Co	59	420046.2	1.3	**51.0416**	1.176	2.3	ug/L	404	Standard
	Ni	60	93769.3	1.2	**53.2002**	1.296	2.4	ug/L	288	Standard
	Cu	65	83542.7	1.2	**52.2693**	1.254	2.4	ug/L	181	Standard
	Zn	66	62643.2	0.6	**73.3353**	1.284	1.8	ug/L	166	Standard
>	**Ge**	72	350278.4	1.2				ug/L	360328	Standard
	As	75	44709.6	0.5	**51.3663**	0.878	1.7	ug/L	-74	Standard
	Se	82	3678.6	1.8	**49.3523**	0.411	0.8	ug/L	15	Standard
	Se-1	77	3063.3	0.6	**54.8816**	0.871	1.6	ug/L	139	Standard
>	**Ga**	71	370.0	15.0				mg/L	63	Standard
	Rb	85	14008.1	2.5				ug/L	32	Standard
	Y	89	432272.1	1.4				ug/L	315671	Standard
>	**Rh**	103	78.3	22.4				ug/L	37	Standard
	Mo	98	161.9	13.9	**0.0417**	0.007	16.6	ug/L	143	Standard
	Ag	107	236645.6	1.3	**48.8209**	0.350	0.7	ug/L	125	Standard
	Cd	111	56398.0	2.3	**51.0678**	0.700	1.4	mg/L	10	Standard
	Cd	114	154062.0	3.5	**50.1892**	1.343	2.7	ug/L	39	Standard
>	**In**	115	372214.9	0.9				ug/L	367586	Standard
	Sn	118	110.3	3.8	**0.0288**	0.006	22.1	ug/L	107	Standard
	Sb	123	179813.4	3.0	**50.9787**	1.103	2.2	ug/L	225	Standard
	Ba	135	125158.2	3.5	**87.4333**	2.349	2.7	ug/L	39	Standard
	Ce	140	238110.6	2.6				ug/L	12	Standard
>	**Tb**	159	655228.9	2.2				ug/L	627636	Standard
	Ho	165	11849.6	1.5				ug/L	13	Standard
	Tl	203	439581.9	1.8	**49.9752**	1.238	2.5	ug/L	76	Standard
	Tl	205	1036848.4	1.0	**49.1560**	1.155	2.3	ug/L	162	Standard
	Pb	206	346526.4	1.8	**51.3992**	1.565	3.0	ug/L	362	Standard
	Pb	207	289251.7	1.6	**49.9491**	1.501	3.0	ug/L	281	Standard
	Pb	208	521533.0	3.3	**50.5001**	2.383	4.7	ug/L	515	Standard
	U	238	485466.1	2.1	**50.7694**	1.753	3.5	ug/L	32	Standard
>	**Bi**	209	487780.0	1.7				ug/L	501980	Standard

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	Na	23	16.7	45.8	**4.1078**	1.879	45.7	mg/L	3	Standard
	Mg	24	1653.4	5.5	**27.1733**	1.524	5.6	mg/L	35	Standard
	K	39	55.0	31.5	**0.5368**	0.208	38.7	mg/L	12	Standard
	Ca	43	35.0	37.8	**10.6380**	11.397	107.1	mg/L	28	Standard
	Fe	54	24.3	7.4	**0.0136**	0.032	234.6	mg/L	38	Standard
	Fe	57	703.3	6.5	**1.3662**	2.728	199.7	mg/L	668	Standard
>	**Sc-1**	45	21148.1	0.1				mg/L	21013	Standard
	Cl	35	6.0	57.7				ug/L	2	Standard
	Kr	83	7.0	51.5				ug/L	6	Standard
	Br	81	3243.7	8.9				ug/L	1013	Standard
	P	31	56.7	22.2				ug/L	70	Standard
	S	34	56.7	43.5				ug/L	58	Standard
	Sr	88	318.3	7.3				ug/L	293	Standard
	C	12	36.7	41.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	20.0	0.0				mg/L	3	Standard
	Dy	164	17586.4	3.3				mg/L	-0	Standard
	Ho-1	165	11849.6	1.5				mg/L	13	Standard
	Er	166	11017.3	6.7				mg/L	3	Standard
	I	127	5762.8	7.5				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		101.194	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		97.211	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	101.259
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	97.171
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1708128502SDL WG627431-02
Sample Date/Time: Tuesday, August 29, 2017 15:38:13
Number of Replicates: 3
Autosampler Position: 213
Sample Description: 5
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	137472.6	1.2				ug/L	143052	Standard
	Be	9	165.0	10.9	**0.0854**	0.011	12.5	ug/L	40	Standard
	Al	27	368167.9	0.9	**2.9242**	0.053	1.8	ug/L	2645	Standard
	Sc	45	19127.1	1.6				ug/L	21013	Standard
	Ti	47	68.0	13.1	**0.2729**	0.049	18.1	ug/L	27	Standard
	V	51	1158.8	12.3	**-0.0171**	0.023	136.6	ug/L	1321	Standard
	Cr	52	6673.1	1.3	**-0.0670**	0.005	7.5	ug/L	7642	Standard
	Cr	53	2255.2	4.2	**1.5553**	0.108	7.0	ug/L	1230	Standard
	Mn	55	115183.5	1.2	**11.8573**	0.251	2.1	ug/L	1599	Standard
	Co	59	1674.4	2.7	**0.1730**	0.007	4.3	ug/L	404	Standard
	Ni	60	1387.1	2.9	**0.6929**	0.018	2.7	ug/L	288	Standard
	Cu	65	621.7	0.1	**0.3116**	0.004	1.2	ug/L	181	Standard
	Zn	66	4404.6	0.5	**5.3435**	0.033	0.6	ug/L	166	Standard
>	**Ge**	72	326340.2	0.9				ug/L	360328	Standard
	As	75	26.5	89.1	**0.1098**	0.029	26.7	ug/L	-74	Standard
	Se	82	24.2	7.5	**0.1502**	0.029	19.1	ug/L	15	Standard
	Se-1	77	189.7	5.9	**1.1176**	0.193	17.3	ug/L	139	Standard
>	**Ga**	71	95.0	27.9				mg/L	63	Standard
	Rb	85	2586.9	1.3				ug/L	32	Standard
	Y	89	309026.5	1.1				ug/L	315671	Standard
>	**Rh**	103	51.7	39.1				ug/L	37	Standard
	Mo	98	39.5	6.8	**0.0023**	0.001	42.8	ug/L	143	Standard
	Ag	107	134.7	7.6	**0.0070**	0.002	31.1	ug/L	125	Standard
	Cd	111	63.3	11.6	**0.0510**	0.007	13.8	mg/L	10	Standard
	Cd	114	158.3	14.7	**0.0442**	0.008	18.3	ug/L	39	Standard
>	**In**	115	354099.1	0.5				ug/L	367586	Standard
	Sn	118	64.3	20.0	**-0.0250**	0.017	68.5	ug/L	107	Standard
	Sb	123	1131.6	9.2	**0.3128**	0.033	10.4	ug/L	225	Standard
	Ba	135	9635.1	1.0	**7.0487**	0.060	0.9	ug/L	39	Standard
	Ce	140	45864.3	1.2				ug/L	12	Standard
>	**Tb**	159	632042.6	1.0				ug/L	627636	Standard
	Ho	165	2270.2	3.0				ug/L	13	Standard
	Tl	203	189.0	6.1	**0.0200**	0.001	7.0	ug/L	76	Standard
	Tl	205	495.0	6.3	**0.0196**	0.002	8.0	ug/L	162	Standard
	Pb	206	747.7	4.4	**0.0671**	0.005	7.4	ug/L	362	Standard
	Pb	207	647.0	3.9	**0.0702**	0.004	6.3	ug/L	281	Standard
	Pb	208	1166.7	2.0	**0.0735**	0.003	3.4	ug/L	515	Standard
	U	238	263.0	12.5	**0.0293**	0.004	12.4	ug/L	32	Standard
>	**Bi**	209	467919.4	0.1				ug/L	501980	Standard

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⌈	**Na**	23	6.7	43.3	**1.8209**	0.790	43.4	mg/L	3	Standard
|	**Mg**	24	343.3	4.7	**5.8516**	0.239	4.1	mg/L	35	Standard
|	**K**	39	28.3	20.4	**0.2532**	0.077	30.6	mg/L	12	Standard
|	**Ca**	43	28.3	27.0	**7.4956**	7.444	99.3	mg/L	28	Standard
|	**Fe**	54	17.6	43.1	**-0.0717**	0.154	215.2	mg/L	38	Standard
|	**Fe**	57	643.3	12.0	**1.8431**	5.052	274.1	mg/L	668	Standard
⌊>	**Sc-1**	45	19127.1	1.6				mg/L	21013	Standard
	Cl	35	4.0	50.0				ug/L	2	Standard
	Kr	83	6.0	57.7				ug/L	6	Standard
	Br	81	1366.7	14.9				ug/L	1013	Standard
	P	31	45.0	11.1				ug/L	70	Standard
	S	34	76.7	16.4				ug/L	58	Standard
	Sr	88	335.0	11.8				ug/L	293	Standard
	C	12	13.3	86.6				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	3540.6	6.5				mg/L	-0	Standard
	Ho-1	165	2270.2	3.0				mg/L	13	Standard
	Er	166	2153.5	5.2				mg/L	3	Standard
	I	127	2680.2	3.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		96.100	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.567	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Sample ID: L1708128502SDL WG627431-02
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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	96.331	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	93.215	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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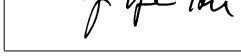

Method 6020 - Summary Report

Sample ID: L1708128502SDL WG627431-02
Sample Date/Time: Tuesday, August 29, 2017 15:41:18
Number of Replicates: 3
Autosampler Position: 214
Sample Description: 25
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	135345.2	1.2				ug/L	143052	Standard
	Be	9	55.0		**0.0164**	0.000	2.7	ug/L	40	Standard
	Al	27	74722.2	1.9	**0.5880**	0.014	2.4	ug/L	2645	Standard
	Sc	45	18387.8	4.6				ug/L	21013	Standard
	Ti	47	33.0	19.9	**0.0715**	0.039	54.0	ug/L	27	Standard
	V	51	1457.2	1.0	**0.0335**	0.003	10.0	ug/L	1321	Standard
	Cr	52	6172.6	2.3	**-0.1415**	0.023	16.4	ug/L	7642	Standard
	Cr	53	1231.7	8.1	**0.2184**	0.129	59.1	ug/L	1230	Standard
	Mn	55	24025.4	2.2	**2.3843**	0.067	2.8	ug/L	1599	Standard
	Co	59	625.0	13.4	**0.0369**	0.011	30.6	ug/L	404	Standard
	Ni	60	468.7	4.7	**0.1351**	0.015	10.9	ug/L	288	Standard
	Cu	65	227.7	14.3	**0.0481**	0.023	47.6	ug/L	181	Standard
	Zn	66	1674.4	4.5	**1.9248**	0.092	4.8	ug/L	166	Standard
>	**Ge**	72	323058.8	0.5				ug/L	360328	Standard
	As	75	-28.1	49.6	**0.0421**	0.017	41.0	ug/L	-74	Standard
	Se	82	13.0	56.0	**-0.0096**	0.106	1106.6	ug/L	15	Standard
	Se-1	77	146.3	5.5	**0.2739**	0.154	56.2	ug/L	139	Standard
>	**Ga**	71	51.7	31.1				mg/L	63	Standard
	Rb	85	546.7	2.8				ug/L	32	Standard
	Y	89	283005.4	0.9				ug/L	315671	Standard
>	**Rh**	103	45.0	58.8				ug/L	37	Standard
	Mo	98	38.2	44.9	**0.0019**	0.006	301.9	ug/L	143	Standard
	Ag	107	113.3	17.7	**0.0026**	0.004	159.9	ug/L	125	Standard
	Cd	111	21.6	2.6	**0.0115**	0.000	3.2	mg/L	10	Standard
	Cd	114	40.1	19.6	**0.0039**	0.003	72.5	ug/L	39	Standard
>	**In**	115	349986.3	1.2				ug/L	367586	Standard
	Sn	118	57.7	16.1	**-0.0330**	0.012	35.4	ug/L	107	Standard
	Sb	123	297.7	13.2	**0.0650**	0.011	16.8	ug/L	225	Standard
	Ba	135	1943.5	3.3	**1.4145**	0.034	2.4	ug/L	39	Standard
	Ce	140	8814.2	5.1				ug/L	12	Standard
>	**Tb**	159	619933.2	1.4				ug/L	627636	Standard
	Ho	165	415.0	6.4				ug/L	13	Standard
	Tl	203	123.0	30.6	**0.0123**	0.005	37.1	ug/L	76	Standard
	Tl	205	283.3	40.3	**0.0092**	0.006	61.9	ug/L	162	Standard
	Pb	206	416.3	4.4	**0.0163**	0.003	18.7	ug/L	362	Standard
	Pb	207	343.3	4.4	**0.0160**	0.003	16.2	ug/L	281	Standard
	Pb	208	646.7	10.6	**0.0215**	0.007	33.7	ug/L	515	Standard
	U	238	84.0	44.3	**0.0098**	0.004	42.1	ug/L	32	Standard
>	**Bi**	209	464372.5	0.5				ug/L	501980	Standard

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⌈	**Na**	23	5.0	100.0	**1.4248**	1.459	102.4	mg/L	3	Standard
|	**Mg**	24	95.0	13.9	**1.3331**	0.300	22.5	mg/L	35	Standard
|	**K**	39	10.0	50.0	**0.0155**	0.071	457.6	mg/L	12	Standard
|	**Ca**	43	33.3	17.3	**13.3926**	4.098	30.6	mg/L	28	Standard
|	**Fe**	54	39.1	34.1	**0.3804**	0.272	71.6	mg/L	38	Standard
|	**Fe**	57	658.3	7.1	**4.5993**	1.390	30.2	mg/L	668	Standard
⌊>	**Sc-1**	45	18387.8	4.6				mg/L	21013	Standard
	Cl	35	2.0	0.0				ug/L	2	Standard
	Kr	83	5.0	20.0				ug/L	6	Standard
	Br	81	920.0	1.1				ug/L	1013	Standard
	P	31	60.0	28.9				ug/L	70	Standard
	S	34	48.3	6.0				ug/L	58	Standard
	Sr	88	380.0	5.3				ug/L	293	Standard
	C	12	10.0	100.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	673.7	12.9				mg/L	-0	Standard
	Ho-1	165	415.0	6.4				mg/L	13	Standard
	Er	166	410.0	18.4				mg/L	3	Standard
	I	127	2063.5	7.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		94.612	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		89.657	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115		95.212
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209		92.508
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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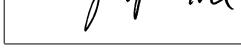

Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 15:44:25
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	142688.8	1.1				ug/L	143052	Standard
	Be	9	82112.0	2.3	**50.0242**	1.637	3.3	ug/L	40	Standard
	Al	27	6502939.9	1.7	**50.0643**	1.431	2.9	ug/L	2645	Standard
	Sc	45	20340.3	2.9				ug/L	21013	Standard
	Ti	47	18558.0	0.8	**100.7660**	1.573	1.6	ug/L	27	Standard
	V	51	330387.3	0.1	**49.6843**	0.406	0.8	ug/L	1321	Standard
	Cr	52	321614.5	0.2	**49.9201**	0.555	1.1	ug/L	7642	Standard
	Cr	53	42357.5	0.9	**50.9332**	0.623	1.2	ug/L	1230	Standard
	Mn	55	518795.4	1.1	**50.3764**	0.752	1.5	ug/L	1599	Standard
	Co	59	410087.4	0.7	**49.9825**	0.171	0.3	ug/L	404	Standard
	Ni	60	88566.1	0.4	**50.3944**	0.531	1.1	ug/L	288	Standard
	Cu	65	80538.2	0.5	**50.5414**	0.582	1.2	ug/L	181	Standard
	Zn	66	41992.1	1.1	**49.2486**	0.979	2.0	ug/L	166	Standard
>	Ge	72	349158.1	0.9				ug/L	360328	Standard
	As	75	42778.0	1.0	**49.3064**	0.890	1.8	ug/L	-74	Standard
	Se	82	3698.6	0.8	**49.7841**	0.213	0.4	ug/L	15	Standard
	Se-1	77	2770.3	2.4	**49.5427**	1.670	3.4	ug/L	139	Standard
>	Ga	71	61.7	9.4				mg/L	63	Standard
	Rb	85	648.3	10.4				ug/L	32	Standard
	Y	89	312768.8	1.1				ug/L	315671	Standard
>	Rh	103	55.0	41.7				ug/L	37	Standard
	Mo	98	304716.8	1.0	**99.5190**	1.139	1.1	ug/L	143	Standard
	Ag	107	246396.1	1.1	**50.6325**	0.360	0.7	ug/L	125	Standard
	Cd	111	55898.3	0.8	**50.4194**	0.248	0.5	mg/L	10	Standard
	Cd	114	155709.5	1.6	**50.5322**	0.637	1.3	ug/L	39	Standard
>	In	115	373688.5	0.4				ug/L	367586	Standard
	Sn	118	40298.2	2.8	**50.3973**	1.218	2.4	ug/L	107	Standard
	Sb	123	181118.1	2.4	**51.1492**	1.034	2.0	ug/L	225	Standard
	Ba	135	71980.7	2.7	**50.0769**	1.131	2.3	ug/L	39	Standard
	Ce	140	73.3	71.6				ug/L	12	Standard
>	Tb	159	640757.1	2.6				ug/L	627636	Standard
	Ho	165	11.7	49.5				ug/L	13	Standard
	Tl	203	445815.8	1.3	**49.7120**	1.819	3.7	ug/L	76	Standard
	Tl	205	1033670.6	0.6	**48.0580**	1.455	3.0	ug/L	162	Standard
	Pb	206	337787.2	0.4	**49.1244**	1.162	2.4	ug/L	362	Standard
	Pb	207	298740.2	1.0	**50.5871**	1.559	3.1	ug/L	281	Standard
	Pb	208	510887.0	3.3	**48.5227**	2.792	5.8	ug/L	515	Standard
	U	238	477697.2	1.4	**48.9915**	1.829	3.7	ug/L	32	Standard
>	Bi	209	497522.1	2.5				ug/L	501980	Standard

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	Na	23	18.3	41.7	**4.6937**	1.967	41.9	mg/L	3	Standard
	Mg	24	338.3	10.1	**5.3868**	0.577	10.7	mg/L	35	Standard
	K	39	330.0	12.4	**3.9854**	0.433	10.9	mg/L	12	Standard
	Ca	43	16.7	96.4	**-4.8592**	13.779	283.6	mg/L	28	Standard
	Fe	54	314.6	11.8	**5.4224**	0.726	13.4	mg/L	38	Standard
	Fe	57	750.0	5.7	**6.0653**	3.828	63.1	mg/L	668	Standard
>	**Sc-1**	45	20340.3	2.9				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	4.7	44.6				ug/L	6	Standard
	Br	81	1213.4	2.9				ug/L	1013	Standard
	P	31	68.3	29.6				ug/L	70	Standard
	S	34	85.0	5.9				ug/L	58	Standard
	Sr	88	336.7	10.1				ug/L	293	Standard
	C	12	6.7	173.2				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0	100.0				mg/L	3	Standard
	Dy	164	-0.5	100.0				mg/L	-0	Standard
	Ho-1	165	11.7	49.5				mg/L	13	Standard
	Er	166	10.0	100.0				mg/L	3	Standard
	I	127	2225.2	4.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	100.048		
	Al	27	100.129		
	Sc	45			
	Ti	47	100.766		
	V	51	99.369		
	Cr	52	99.840		
	Cr	53			
	Mn	55	100.753		
	Co	59	99.965		
	Ni	60	100.789		
	Cu	65	101.083		
	Zn	66	98.497		
>	Ge	72		96.900	
	As	75	98.613		
	Se	82	99.568		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	99.519		
|	Ag	107	101.265		
|	Cd	111	100.839		
|	Cd	114			
| >	In	115		101.660	
|	Sn	118	100.795		
|	Sb	123	102.298		
⌊	Ba	135	100.154		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	99.424		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	97.045		
|	U	238	97.983		
⌊>	Bi	209		99.112	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 6
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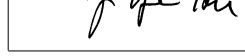

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 15:47:30
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	146264.4	1.8				ug/L	143052	Standard
	Be	9	36.7	34.3	**0.0029**	0.008	259.3	ug/L	40	Standard
	Al	27	2668.6	8.0	**0.0014**	0.001	87.8	ug/L	2645	Standard
	Sc	45	20792.6	1.1				ug/L	21013	Standard
	Ti	47	22.3	31.8	**-0.0008**	0.040	4771.1	ug/L	27	Standard
	V	51	1386.5	1.7	**0.0046**	0.004	95.0	ug/L	1321	Standard
	Cr	52	7270.4	0.6	**-0.0483**	0.014	28.3	ug/L	7642	Standard
	Cr	53	1075.0	5.4	**-0.1000**	0.084	83.7	ug/L	1230	Standard
	Mn	55	1709.1	7.0	**0.0216**	0.009	42.5	ug/L	1599	Standard
	Co	59	394.3	7.7	**0.0025**	0.003	130.1	ug/L	404	Standard
	Ni	60	264.7	4.0	**-0.0032**	0.008	254.9	ug/L	288	Standard
	Cu	65	203.3	12.2	**0.0208**	0.014	68.6	ug/L	181	Standard
	Zn	66	185.0	4.1	**0.0114**	0.011	93.2	ug/L	166	Standard
>	**Ge**	72	349843.0	1.5				ug/L	360328	Standard
	As	75	-60.5	41.5	**0.0073**	0.030	409.8	ug/L	-74	Standard
	Se	82	15.1	10.4	**0.0042**	0.018	442.7	ug/L	15	Standard
	Se-1	77	140.7	5.8	**-0.0591**	0.187	316.5	ug/L	139	Standard
>	**Ga**	71	43.3	17.6				mg/L	63	Standard
	Rb	85	45.0	33.3				ug/L	32	Standard
	Y	89	319502.8	2.1				ug/L	315671	Standard
>	**Rh**	103	30.0	33.3				ug/L	37	Standard
	Mo	98	334.5	20.5	**0.0975**	0.023	23.2	ug/L	143	Standard
	Ag	107	140.0	13.6	**0.0064**	0.004	61.5	ug/L	125	Standard
	Cd	111	8.0	13.9	**-0.0021**	0.001	46.0	mg/L	10	Standard
	Cd	114	31.6	68.7	**0.0002**	0.007	2973.5	ug/L	39	Standard
>	**In**	115	375273.6	0.6				ug/L	367586	Standard
	Sn	118	126.7	4.6	**0.0481**	0.008	17.1	ug/L	107	Standard
	Sb	123	604.1	10.8	**0.1453**	0.019	13.2	ug/L	225	Standard
	Ba	135	34.3	11.8	**-0.0061**	0.003	43.4	ug/L	39	Standard
	Ce	140	18.3	87.7				ug/L	12	Standard
>	**Tb**	159	642297.3	1.7				ug/L	627636	Standard
	Ho	165	15.0	88.2				ug/L	13	Standard
	Tl	203	94.7	22.8	**0.0080**	0.002	27.7	ug/L	76	Standard
	Tl	205	155.0	11.6	**0.0023**	0.001	32.4	ug/L	162	Standard
	Pb	206	359.3	8.0	**0.0034**	0.003	98.6	ug/L	362	Standard
	Pb	207	316.3	5.1	**0.0069**	0.002	30.0	ug/L	281	Standard
	Pb	208	572.3	3.4	**0.0097**	0.001	13.9	ug/L	515	Standard
	U	238	77.7	31.8	**0.0085**	0.002	28.0	ug/L	32	Standard
>	**Bi**	209	500356.4	1.5				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	36.7	34.3	**0.1249**	0.221	177.4	mg/L	35	Standard
|	**K**	39	20.0	43.3	**0.1220**	0.109	88.9	mg/L	12	Standard
|	**Ca**	43	38.3	39.8	**14.1818**	13.799	97.3	mg/L	28	Standard
|	**Fe**	54	36.1	34.9	**0.2360**	0.236	99.9	mg/L	38	Standard
|	**Fe**	57	656.7	5.8	**-0.7606**	2.765	363.5	mg/L	668	Standard
⌊>	**Sc-1**	45	20792.6	1.1				mg/L	21013	Standard
	Cl	35	3.3	34.6				ug/L	2	Standard
	Kr	83	5.0	52.9				ug/L	6	Standard
	Br	81	1060.0	7.7				ug/L	1013	Standard
	P	31	46.7	6.2				ug/L	70	Standard
	S	34	65.0	27.7				ug/L	58	Standard
	Sr	88	296.7	22.3				ug/L	293	Standard
	C	12	16.7	34.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	12.5	93.4				mg/L	-0	Standard
	Ho-1	165	15.0	88.2				mg/L	13	Standard
	Er	166	16.7	91.7				mg/L	3	Standard
	I	127	10111.7	3.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		97.090	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Sample ID: QC Std 7
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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	102.091	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	99.677	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708128503
Sample Date/Time: Tuesday, August 29, 2017 15:50:37
Number of Replicates: 3
Autosampler Position: 215
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	142532.3	0.9				ug/L	143052	Standard
	Be	9	43.3	24.0	**0.0076**	0.007	86.8	ug/L	40	Standard
	Al	27	1403540.0	0.7	**10.8011**	0.132	1.2	ug/L	2645	Standard
	Sc	45	20564.0	2.8				ug/L	21013	Standard
	Ti	47	354.7	39.2	**1.8005**	0.757	42.1	ug/L	27	Standard
	V	51	2282.1	17.4	**0.1385**	0.056	40.1	ug/L	1321	Standard
	Cr	52	27297.6	0.6	**3.1218**	0.047	1.5	ug/L	7642	Standard
	Cr	53	4377.3	2.5	**3.9653**	0.161	4.1	ug/L	1230	Standard
	Mn	55	8815.2	3.5	**0.7108**	0.021	3.0	ug/L	1599	Standard
	Co	59	610.0	1.6	**0.0286**	0.000	1.7	ug/L	404	Standard
	Ni	60	1117.7	1.2	**0.4816**	0.009	1.8	ug/L	288	Standard
	Cu	65	490.7	3.7	**0.2008**	0.015	7.6	ug/L	181	Standard
	Zn	66	9163.8	0.7	**10.5481**	0.205	1.9	ug/L	166	Standard
>	**Ge**	72	350409.1	1.3				ug/L	360328	Standard
	As	75	128.5	22.9	**0.2244**	0.034	14.9	ug/L	-74	Standard
	Se	82	31.0	16.4	**0.2177**	0.073	33.7	ug/L	15	Standard
	Se-1	77	199.0	9.1	**1.0344**	0.388	37.5	ug/L	139	Standard
>	**Ga**	71	113.3	26.6				mg/L	63	Standard
	Rb	85	11272.5	1.5				ug/L	32	Standard
	Y	89	310989.5	1.3				ug/L	315671	Standard
>	**Rh**	103	43.3	6.7				ug/L	37	Standard
	Mo	98	142.3	10.8	**0.0351**	0.004	12.8	ug/L	143	Standard
	Ag	107	203.7	10.8	**0.0196**	0.004	22.5	ug/L	125	Standard
	Cd	111	18912.7	1.7	**17.0452**	0.158	0.9	mg/L	10	Standard
	Cd	114	51347.0	3.2	**16.6483**	0.386	2.3	ug/L	39	Standard
>	**In**	115	373846.6	1.1				ug/L	367586	Standard
	Sn	118	119.7	19.8	**0.0399**	0.030	74.5	ug/L	107	Standard
	Sb	123	307.0	14.6	**0.0619**	0.012	19.0	ug/L	225	Standard
	Ba	135	22337.5	2.0	**15.5135**	0.204	1.3	ug/L	39	Standard
	Ce	140	4063.9	0.8				ug/L	12	Standard
>	**Tb**	159	645510.7	1.5				ug/L	627636	Standard
	Ho	165	83.3	3.5				ug/L	13	Standard
	Tl	203	232.0	11.2	**0.0237**	0.002	10.3	ug/L	76	Standard
	Tl	205	541.7	13.8	**0.0205**	0.003	15.1	ug/L	162	Standard
	Pb	206	708.7	6.2	**0.0557**	0.005	9.9	ug/L	362	Standard
	Pb	207	550.7	3.2	**0.0480**	0.001	2.9	ug/L	281	Standard
	Pb	208	1025.0	5.0	**0.0541**	0.005	9.4	ug/L	515	Standard
	U	238	217.3	9.6	**0.0231**	0.002	7.9	ug/L	32	Standard
>	**Bi**	209	492133.4	1.8				ug/L	501980	Standard

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	Na	23	10.0	50.0	**2.5376**	1.287	50.7	mg/L	3	Standard
	Mg	24	418.3	15.9	**6.7134**	1.256	18.7	mg/L	35	Standard
	K	39	80.0	27.2	**0.8614**	0.256	29.7	mg/L	12	Standard
	Ca	43	40.0	12.5	**16.0189**	5.244	32.7	mg/L	28	Standard
	Fe	54	40.7	14.6	**0.3296**	0.128	38.7	mg/L	38	Standard
	Fe	57	685.0	12.9	**1.4442**	5.579	386.3	mg/L	668	Standard
>	**Sc-1**	45	20564.0	2.8				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	5.3	65.8				ug/L	6	Standard
	Br	81	3687.1	9.1				ug/L	1013	Standard
	P	31	58.3	13.1				ug/L	70	Standard
	S	34	65.0	27.7				ug/L	58	Standard
	Sr	88	346.7	8.5				ug/L	293	Standard
	C	12	46.7	24.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0	100.0				mg/L	3	Standard
	Dy	164	207.9	33.3				mg/L	-0	Standard
	Ho-1	165	83.3	3.5				mg/L	13	Standard
	Er	166	113.3	18.4				mg/L	3	Standard
	I	127	14255.1	7.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		99.637	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		97.247	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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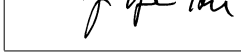

⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	101.703	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	98.039	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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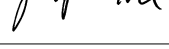

Method 6020 - Summary Report

Sample ID: L1708128504
Sample Date/Time: Tuesday, August 29, 2017 15:53:43
Number of Replicates: 3
Autosampler Position: 216
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	146022.2	2.4				ug/L	143052	Standard
	Be	9	36.7	7.9	**0.0030**	0.002	73.7	ug/L	40	Standard
	Al	27	2945711.6	1.6	**22.1526**	0.579	2.6	ug/L	2645	Standard
	Sc	45	20407.1	2.0				ug/L	21013	Standard
	Ti	47	204.0	15.8	**0.9825**	0.187	19.0	ug/L	27	Standard
	V	51	258.5	155.0	**-0.1660**	0.060	36.0	ug/L	1321	Standard
	Cr	52	88853.8	0.7	**12.8550**	0.311	2.4	ug/L	7642	Standard
	Cr	53	13415.9	1.0	**15.0800**	0.444	2.9	ug/L	1230	Standard
	Mn	55	12819.1	1.7	**1.0980**	0.031	2.8	ug/L	1599	Standard
	Co	59	768.4	2.5	**0.0477**	0.001	2.9	ug/L	404	Standard
	Ni	60	710.4	3.8	**0.2496**	0.021	8.3	ug/L	288	Standard
	Cu	65	396.7	6.7	**0.1417**	0.020	14.4	ug/L	181	Standard
	Zn	66	2477.5	1.0	**2.6975**	0.054	2.0	ug/L	166	Standard
>	**Ge**	72	350886.4	1.8				ug/L	360328	Standard
	As	75	639.4	2.3	**0.8093**	0.016	2.0	ug/L	-74	Standard
	Se	82	76.4	4.3	**0.8271**	0.027	3.2	ug/L	15	Standard
	Se-1	77	272.3	7.8	**2.4071**	0.472	19.6	ug/L	139	Standard
>	**Ga**	71	76.7	19.9				mg/L	63	Standard
	Rb	85	18586.4	1.1				ug/L	32	Standard
	Y	89	314679.5	1.2				ug/L	315671	Standard
>	**Rh**	103	73.3	15.7				ug/L	37	Standard
	Mo	98	116.2	6.8	**0.0267**	0.003	9.5	ug/L	143	Standard
	Ag	107	116.0	13.5	**0.0016**	0.003	199.0	ug/L	125	Standard
	Cd	111	21.9	24.2	**0.0105**	0.005	45.6	mg/L	10	Standard
	Cd	114	67.0	25.8	**0.0118**	0.006	47.9	ug/L	39	Standard
>	**In**	115	373139.3	0.2				ug/L	367586	Standard
	Sn	118	111.7	0.5	**0.0301**	0.001	3.2	ug/L	107	Standard
	Sb	123	231.2	27.5	**0.0407**	0.018	44.3	ug/L	225	Standard
	Ba	135	62504.0	2.1	**43.5462**	0.859	2.0	ug/L	39	Standard
	Ce	140	3820.5	10.8				ug/L	12	Standard
>	**Tb**	159	643693.7	1.9				ug/L	627636	Standard
	Ho	165	106.7	15.1				ug/L	13	Standard
	Tl	203	170.0	3.6	**0.0169**	0.000	2.3	ug/L	76	Standard
	Tl	205	386.7	15.8	**0.0135**	0.003	23.4	ug/L	162	Standard
	Pb	206	940.0	4.6	**0.0911**	0.004	4.2	ug/L	362	Standard
	Pb	207	777.4	2.4	**0.0881**	0.002	2.4	ug/L	281	Standard
	Pb	208	1440.0	3.1	**0.0954**	0.007	7.7	ug/L	515	Standard
	U	238	116.7	1.8	**0.0128**	0.000	0.6	ug/L	32	Standard
>	**Bi**	209	487236.0	2.2				ug/L	501980	Standard

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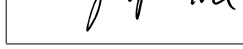

⌈	**Na**	23	18.3	103.3	**4.7348**	4.959	104.7	mg/L	3	Standard
|	**Mg**	24	686.7	4.1	**11.4080**	0.368	3.2	mg/L	35	Standard
|	**K**	39	88.3	11.8	**0.9735**	0.108	11.1	mg/L	12	Standard
|	**Ca**	43	31.7	18.2	**8.8226**	5.595	63.4	mg/L	28	Standard
|	**Fe**	54	27.0	28.5	**0.0798**	0.147	184.5	mg/L	38	Standard
|	**Fe**	57	696.7	10.8	**2.5323**	5.089	200.9	mg/L	668	Standard
⌊>	**Sc-1**	45	20407.1	2.0				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	6.7	17.3				ug/L	6	Standard
	Br	81	9072.7	13.1				ug/L	1013	Standard
	P	31	53.3	19.5				ug/L	70	Standard
	S	34	63.3	12.1				ug/L	58	Standard
	Sr	88	368.3	13.4				ug/L	293	Standard
	C	12	23.3	65.5				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	172.7	32.7				mg/L	-0	Standard
	Ho-1	165	106.7	15.1				mg/L	13	Standard
	Er	166	153.3	13.6				mg/L	3	Standard
	I	127	11729.6	6.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.076	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		97.380	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115	101.511	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209	97.063	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130501
Sample Date/Time: Tuesday, August 29, 2017 15:56:48
Number of Replicates: 3
Autosampler Position: 217
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	147267.4	1.7				ug/L	143052	Standard
	Be	9	91.7	22.0	**0.0353**	0.012	35.0	ug/L	40	Standard
	Al	27	3450945.6	3.4	**25.7231**	0.528	2.1	ug/L	2645	Standard
	Sc	45	19556.0	3.1				ug/L	21013	Standard
	Ti	47	1836.4	4.1	**10.1318**	0.414	4.1	ug/L	27	Standard
	V	51	24289.6	2.5	**3.5630**	0.095	2.7	ug/L	1321	Standard
	Cr	52	19264.2	0.8	**1.9435**	0.021	1.1	ug/L	7642	Standard
	Cr	53	3935.5	7.3	**3.5700**	0.359	10.1	ug/L	1230	Standard
	Mn	55	299581.8	2.0	**29.8212**	0.588	2.0	ug/L	1599	Standard
	Co	59	5272.3	1.3	**0.6151**	0.009	1.5	ug/L	404	Standard
	Ni	60	4795.8	1.5	**2.6575**	0.039	1.5	ug/L	288	Standard
	Cu	65	11141.8	0.9	**7.0902**	0.059	0.8	ug/L	181	Standard
	Zn	66	70840.9	1.1	**85.4847**	0.840	1.0	ug/L	166	Standard
>	**Ge**	72	339905.4	0.1				ug/L	360328	Standard
	As	75	2709.4	0.6	**3.2797**	0.018	0.6	ug/L	-74	Standard
	Se	82	85.2	15.8	**0.9823**	0.186	18.9	ug/L	15	Standard
	Se-1	77	287.7	3.4	**2.8643**	0.185	6.4	ug/L	139	Standard
>	**Ga**	71	1153.4	2.4				mg/L	63	Standard
	Rb	85	16645.8	0.3				ug/L	32	Standard
	Y	89	308982.0	0.1				ug/L	315671	Standard
>	**Rh**	103	96.7	36.7				ug/L	37	Standard
	Mo	98	27690.4	1.5	**9.1735**	0.147	1.6	ug/L	143	Standard
	Ag	107	171.3	6.6	**0.0135**	0.002	15.7	ug/L	125	Standard
	Cd	111	511.0	9.4	**0.4586**	0.040	8.8	mg/L	10	Standard
	Cd	114	1697.8	6.4	**0.5495**	0.031	5.7	ug/L	39	Standard
>	**In**	115	367993.4	1.1				ug/L	367586	Standard
	Sn	118	2198.5	3.0	**2.6890**	0.113	4.2	ug/L	107	Standard
	Sb	123	2468.1	2.0	**0.6834**	0.007	1.0	ug/L	225	Standard
	Ba	135	39548.9	3.8	**27.9233**	0.779	2.8	ug/L	39	Standard
	Ce	140	24222.7	6.1				ug/L	12	Standard
>	**Tb**	159	641899.6	2.3				ug/L	627636	Standard
	Ho	165	505.0	8.8				ug/L	13	Standard
	Tl	203	228.3	4.4	**0.0247**	0.001	4.0	ug/L	76	Standard
	Tl	205	546.7	11.6	**0.0222**	0.003	14.3	ug/L	162	Standard
	Pb	206	36546.4	3.0	**5.6268**	0.105	1.9	ug/L	362	Standard
	Pb	207	28591.6	2.2	**5.1230**	0.063	1.2	ug/L	281	Standard
	Pb	208	53552.0	4.2	**5.3827**	0.164	3.0	ug/L	515	Standard
	U	238	3393.0	2.5	**0.3717**	0.006	1.5	ug/L	32	Standard
>	**Bi**	209	466145.6	1.2				ug/L	501980	Standard

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	Na	23	45.0	29.4	**11.9783**	3.483	29.1	mg/L	3	Standard
	Mg	24	3673.8	2.1	**66.0237**	1.896	2.9	mg/L	35	Standard
	K	39	118.3	14.8	**1.4105**	0.210	14.9	mg/L	12	Standard
	Ca	43	45.0	29.4	**22.4075**	12.131	54.1	mg/L	28	Standard
	Fe	54	72.4	22.6	**0.9801**	0.331	33.8	mg/L	38	Standard
	Fe	57	733.4	11.7	**6.9206**	6.750	97.5	mg/L	668	Standard
>	**Sc-1**	45	19556.0	3.1				mg/L	21013	Standard
	Cl	35	2.0	0.0				ug/L	2	Standard
	Kr	83	3.7	56.8				ug/L	6	Standard
	Br	81	3293.7	4.7				ug/L	1013	Standard
	P	31	61.7	24.8				ug/L	70	Standard
	S	34	65.0	23.1				ug/L	58	Standard
	Sr	88	315.0	14.3				ug/L	293	Standard
	C	12	40.0	43.3				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	126.7	12.1				mg/L	3	Standard
	Dy	164	744.3	7.5				mg/L	-0	Standard
	Ho-1	165	505.0	8.8				mg/L	13	Standard
	Er	166	466.7	4.5				mg/L	3	Standard
	I	127	13768.0	9.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		102.947	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.332	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	100.111
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	92.861
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130501
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Method 6020 - Summary Report

Sample ID: L1708130502
Sample Date/Time: Tuesday, August 29, 2017 15:59:53
Number of Replicates: 3
Autosampler Position: 218
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144834.0	1.0				ug/L	143052	Standard
	Be	9	48.3	31.6	**0.0101**	0.009	90.2	ug/L	40	Standard
	Al	27	1982768.2	3.6	**15.0213**	0.463	3.1	ug/L	2645	Standard
	Sc	45	19644.4	2.3				ug/L	21013	Standard
	Ti	47	276.0	8.4	**1.4195**	0.124	8.7	ug/L	27	Standard
	V	51	32255.1	1.4	**4.8018**	0.050	1.0	ug/L	1321	Standard
	Cr	52	10141.1	1.0	**0.4551**	0.015	3.2	ug/L	7642	Standard
	Cr	53	3522.1	5.8	**3.0490**	0.276	9.0	ug/L	1230	Standard
	Mn	55	82801.6	0.7	**8.1436**	0.047	0.6	ug/L	1599	Standard
	Co	59	1534.1	3.6	**0.1468**	0.007	4.8	ug/L	404	Standard
	Ni	60	1724.4	1.2	**0.8576**	0.010	1.1	ug/L	288	Standard
	Cu	65	948.0	1.4	**0.5061**	0.010	2.1	ug/L	181	Standard
	Zn	66	21774.6	1.2	**26.1514**	0.321	1.2	ug/L	166	Standard
>	**Ge**	72	339671.9	0.4				ug/L	360328	Standard
	As	75	1243.7	5.5	**1.5481**	0.082	5.3	ug/L	-74	Standard
	Se	82	96.1	2.8	**1.1349**	0.042	3.7	ug/L	15	Standard
	Se-1	77	305.0	8.2	**3.2047**	0.496	15.5	ug/L	139	Standard
>	**Ga**	71	803.4	8.5				mg/L	63	Standard
	Rb	85	9049.4	2.7				ug/L	32	Standard
	Y	89	298184.0	0.6				ug/L	315671	Standard
>	**Rh**	103	78.3	35.2				ug/L	37	Standard
	Mo	98	26760.3	1.9	**8.9374**	0.102	1.1	ug/L	143	Standard
	Ag	107	134.3	21.0	**0.0060**	0.006	101.2	ug/L	125	Standard
	Cd	111	11.6	148.0	**0.0015**	0.016	1093.8	mg/L	10	Standard
	Cd	114	164.5	40.2	**0.0448**	0.022	49.8	ug/L	39	Standard
>	**In**	115	364981.6	0.9				ug/L	367586	Standard
	Sn	118	700.3	4.8	**0.7886**	0.037	4.7	ug/L	107	Standard
	Sb	123	3978.6	4.1	**1.1262**	0.044	3.9	ug/L	225	Standard
	Ba	135	27149.3	1.6	**19.3218**	0.320	1.7	ug/L	39	Standard
	Ce	140	400.0	4.5				ug/L	12	Standard
>	**Tb**	159	640685.9	1.6				ug/L	627636	Standard
	Ho	165	50.0	10.0				ug/L	13	Standard
	Tl	203	150.7	30.2	**0.0154**	0.005	34.1	ug/L	76	Standard
	Tl	205	401.7	32.1	**0.0149**	0.006	41.4	ug/L	162	Standard
	Pb	206	1329.7	3.9	**0.1574**	0.007	4.2	ug/L	362	Standard
	Pb	207	1058.4	2.1	**0.1445**	0.002	1.7	ug/L	281	Standard
	Pb	208	1916.7	3.3	**0.1494**	0.008	5.2	ug/L	515	Standard
	U	238	3194.7	1.3	**0.3491**	0.004	1.1	ug/L	32	Standard
>	**Bi**	209	467432.4	0.8				ug/L	501980	Standard

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⌈	**Na**	23	33.3	8.7	**8.8456**	0.838	9.5	mg/L	3	Standard
|	**Mg**	24	4237.3	7.3	**75.8502**	5.329	7.0	mg/L	35	Standard
|	**K**	39	128.3	18.4	**1.5301**	0.271	17.7	mg/L	12	Standard
|	**Ca**	43	28.3	10.2	**6.7315**	2.139	31.8	mg/L	28	Standard
|	**Fe**	54	27.7	45.8	**0.1079**	0.233	216.0	mg/L	38	Standard
|	**Fe**	57	770.0	1.7	**8.9870**	0.960	10.7	mg/L	668	Standard
⌊>	**Sc-1**	45	19644.4	2.3				mg/L	21013	Standard
	Cl	35	3.3	91.7				ug/L	2	Standard
	Kr	83	3.7	41.7				ug/L	6	Standard
	Br	81	3863.8	5.4				ug/L	1013	Standard
	P	31	65.0	15.4				ug/L	70	Standard
	S	34	51.7	22.3				ug/L	58	Standard
	Sr	88	361.7	13.4				ug/L	293	Standard
	C	12	36.7	31.5				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	23.3	89.2				mg/L	3	Standard
	Dy	164	45.5	43.3				mg/L	-0	Standard
	Ho-1	165	50.0	10.0				mg/L	13	Standard
	Er	166	23.3	99.0				mg/L	3	Standard
	I	127	16942.9	9.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		101.246	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.267	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115		99.292
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209		93.118
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130502
Report Date/Time: Tuesday, August 29, 2017 16:02:04

Approved: August 30, 2017

Method 6020 - Summary Report

Sample ID: L1708130503
Sample Date/Time: Tuesday, August 29, 2017 16:02:59
Number of Replicates: 3
Autosampler Position: 219
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	160300.2	0.7				ug/L	143052	Standard
	Be	9	35.0	14.3	**0.0001**	0.003	3050.7	ug/L	40	Standard
	Al	27	7474453.9	3.7	**51.2041**	1.545	3.0	ug/L	2645	Standard
	Sc	45	20068.3	2.5				ug/L	21013	Standard
	Ti	47	6987.6	1.7	**40.9844**	1.226	3.0	ug/L	27	Standard
	V	51	30947.2	1.2	**4.8524**	0.124	2.6	ug/L	1321	Standard
	Cr	52	25447.4	2.5	**3.1753**	0.152	4.8	ug/L	7642	Standard
	Cr	53	9848.2	2.3	**11.7429**	0.160	1.4	ug/L	1230	Standard
	Mn	55	40436.6	1.9	**4.1170**	0.140	3.4	ug/L	1599	Standard
	Co	59	1545.1	4.8	**0.1585**	0.012	7.3	ug/L	404	Standard
	Ni	60	2716.2	1.8	**1.5231**	0.011	0.7	ug/L	288	Standard
	Cu	65	2247.5	5.0	**1.4233**	0.097	6.8	ug/L	181	Standard
	Zn	66	36107.6	1.4	**45.8089**	1.279	2.8	ug/L	166	Standard
>	**Ge**	72	322720.5	1.4				ug/L	360328	Standard
	As	75	264.7	53.4	**0.4077**	0.179	44.0	ug/L	-74	Standard
	Se	82	70.4	10.6	**0.8312**	0.123	14.7	ug/L	15	Standard
	Se-1	77	726.4	7.0	**12.1206**	1.192	9.8	ug/L	139	Standard
>	**Ga**	71	158.3	7.9				mg/L	63	Standard
	Rb	85	166142.7	1.1				ug/L	32	Standard
	Y	89	289756.7	1.9				ug/L	315671	Standard
>	**Rh**	103	233.3	8.7				ug/L	37	Standard
	Mo	98	2478.2	1.1	**0.8309**	0.017	2.1	ug/L	143	Standard
	Ag	107	138.0	19.9	**0.0073**	0.006	87.2	ug/L	125	Standard
	Cd	111	25.2	15.1	**0.0143**	0.003	22.5	mg/L	10	Standard
	Cd	114	741.3	12.0	**0.2405**	0.032	13.1	ug/L	39	Standard
>	**In**	115	359215.8	1.9				ug/L	367586	Standard
	Sn	118	6723.2	4.8	**8.6533**	0.270	3.1	ug/L	107	Standard
	Sb	123	275.4	15.2	**0.0561**	0.011	19.2	ug/L	225	Standard
	Ba	135	36566.4	3.1	**26.4479**	0.305	1.2	ug/L	39	Standard
	Ce	140	16317.1	5.6				ug/L	12	Standard
>	**Tb**	159	631558.4	1.9				ug/L	627636	Standard
	Ho	165	731.7	8.5				ug/L	13	Standard
	Tl	203	84.7	9.8	**0.0084**	0.001	14.0	ug/L	76	Standard
	Tl	205	165.0	13.9	**0.0039**	0.001	30.9	ug/L	162	Standard
	Pb	206	2189.5	1.7	**0.3157**	0.009	3.0	ug/L	362	Standard
	Pb	207	1759.1	0.4	**0.2943**	0.003	0.9	ug/L	281	Standard
	Pb	208	3202.1	1.9	**0.3034**	0.010	3.3	ug/L	515	Standard
	U	238	619.7	3.6	**0.0732**	0.003	4.3	ug/L	32	Standard
>	**Bi**	209	435242.4	1.1				ug/L	501980	Standard

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	Na	23	76.7	37.1	**19.9954**	7.648	38.2	mg/L	3	Standard
	Mg	24	22641.9	0.9	**399.0905**	13.757	3.4	mg/L	35	Standard
	K	39	398.3	4.8	**4.9150**	0.362	7.4	mg/L	12	Standard
	Ca	43	48.3	23.9	**24.2500**	9.706	40.0	mg/L	28	Standard
	Fe	54	35.7	32.2	**0.2520**	0.218	86.3	mg/L	38	Standard
	Fe	57	951.7	6.6	**19.5837**	5.070	25.9	mg/L	668	Standard
>	**Sc-1**	45	20068.3	2.5				mg/L	21013	Standard
	Cl	35	4.7	107.9				ug/L	2	Standard
	Kr	83	4.7	44.6				ug/L	6	Standard
	Br	81	6688.1	3.5				ug/L	1013	Standard
	P	31	60.0	8.3				ug/L	70	Standard
	S	34	56.7	22.2				ug/L	58	Standard
	Sr	88	380.0	13.2				ug/L	293	Standard
	C	12	86.7	17.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	46.7	24.7				mg/L	3	Standard
	Dy	164	754.4	8.9				mg/L	-0	Standard
	Ho-1	165	731.7	8.5				mg/L	13	Standard
	Er	166	673.3	9.9				mg/L	3	Standard
	I	127	73022.5	12.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		112.057	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		89.563	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		97.723
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		86.705
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130503
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Method 6020 - Summary Report

Sample ID: L1708130504
Sample Date/Time: Tuesday, August 29, 2017 16:06:05
Number of Replicates: 3
Autosampler Position: 220
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	168331.6	0.6				ug/L	143052	Standard
	Be	9	76.7	30.1	**0.0208**	0.012	58.4	ug/L	40	Standard
	Al	27	8251939.9	0.8	**53.8421**	0.448	0.8	ug/L	2645	Standard
	Sc	45	20133.4	1.9				ug/L	21013	Standard
	Ti	47	2690.9	0.7	**15.6007**	0.271	1.7	ug/L	27	Standard
	V	51	19556.3	0.9	**2.9694**	0.020	0.7	ug/L	1321	Standard
	Cr	52	22664.6	1.2	**2.6700**	0.033	1.2	ug/L	7642	Standard
	Cr	53	9486.3	2.2	**11.1769**	0.315	2.8	ug/L	1230	Standard
	Mn	55	38335.1	1.4	**3.8675**	0.002	0.0	ug/L	1599	Standard
	Co	59	1357.7	0.4	**0.1325**	0.003	2.4	ug/L	404	Standard
	Ni	60	1704.4	2.2	**0.8915**	0.019	2.1	ug/L	288	Standard
	Cu	65	2031.8	6.1	**1.2674**	0.103	8.1	ug/L	181	Standard
	Zn	66	17577.2	1.5	**22.0449**	0.615	2.8	ug/L	166	Standard
>	**Ge**	72	324874.1	1.4				ug/L	360328	Standard
	As	75	170.9	77.8	**0.2873**	0.164	56.9	ug/L	-74	Standard
	Se	82	84.9	1.6	**1.0340**	0.034	3.2	ug/L	15	Standard
	Se-1	77	760.0	2.3	**12.6962**	0.325	2.6	ug/L	139	Standard
>	**Ga**	71	71.7	4.0				mg/L	63	Standard
	Rb	85	181119.5	0.8				ug/L	32	Standard
	Y	89	296550.1	2.5				ug/L	315671	Standard
>	**Rh**	103	335.0	33.7				ug/L	37	Standard
	Mo	98	2092.4	1.4	**0.6738**	0.009	1.3	ug/L	143	Standard
	Ag	107	127.7	3.5	**0.0041**	0.001	25.4	ug/L	125	Standard
	Cd	111	11.9	22.0	**0.0015**	0.002	164.0	mg/L	10	Standard
	Cd	114	675.7	14.9	**0.2101**	0.034	16.4	ug/L	39	Standard
>	**In**	115	372742.9	0.8				ug/L	367586	Standard
	Sn	118	6870.6	2.4	**8.5241**	0.231	2.7	ug/L	107	Standard
	Sb	123	300.0	4.5	**0.0602**	0.003	5.7	ug/L	225	Standard
	Ba	135	38679.0	2.6	**26.9659**	0.700	2.6	ug/L	39	Standard
	Ce	140	7932.1	3.8				ug/L	12	Standard
>	**Tb**	159	647384.9	1.5				ug/L	627636	Standard
	Ho	165	458.3	4.4				ug/L	13	Standard
	Tl	203	78.0	14.8	**0.0073**	0.001	16.2	ug/L	76	Standard
	Tl	205	193.3	13.0	**0.0052**	0.001	20.9	ug/L	162	Standard
	Pb	206	403.3	8.3	**0.0173**	0.007	40.6	ug/L	362	Standard
	Pb	207	354.3	3.3	**0.0210**	0.004	18.5	ug/L	281	Standard
	Pb	208	655.3	1.4	**0.0254**	0.003	10.6	ug/L	515	Standard
	U	238	369.7	2.2	**0.0431**	0.002	4.6	ug/L	32	Standard
>	**Bi**	209	444100.8	2.6				ug/L	501980	Standard

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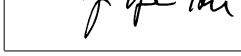
⌈	**Na**	23	75.0	17.6	**19.4296**	3.610	18.6	mg/L	3	Standard
|	**Mg**	24	24119.2	0.7	**423.6754**	10.996	2.6	mg/L	35	Standard
|	**K**	39	360.0	6.4	**4.4150**	0.377	8.5	mg/L	12	Standard
|	**Ca**	43	38.3	61.6	**15.1771**	21.234	139.9	mg/L	28	Standard
|	**Fe**	54	36.8	59.5	**0.2651**	0.400	150.7	mg/L	38	Standard
|	**Fe**	57	1066.7	5.2	**26.6987**	4.877	18.3	mg/L	668	Standard
⌊>	**Sc-1**	45	20133.4	1.9				mg/L	21013	Standard
	Cl	35	6.0	33.3				ug/L	2	Standard
	Kr	83	6.7	31.2				ug/L	6	Standard
	Br	81	7455.2	1.8				ug/L	1013	Standard
	P	31	76.7	16.4				ug/L	70	Standard
	S	34	60.0	36.3				ug/L	58	Standard
	Sr	88	393.3	7.4				ug/L	293	Standard
	C	12	163.3	49.1				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	40.0	66.1				mg/L	3	Standard
	Dy	164	479.1	12.6				mg/L	-0	Standard
	Ho-1	165	458.3	4.4				mg/L	13	Standard
	Er	166	576.7	12.3				mg/L	3	Standard
	I	127	103851.0	11.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		117.671	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.161	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Approved: August 30, 2017



⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	101.403
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	88.470
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130504
Report Date/Time: Tuesday, August 29, 2017 16:08:15

Approved: August 30, 2017

Method 6020 - Summary Report

Sample ID: L1708130505
Sample Date/Time: Tuesday, August 29, 2017 16:09:10
Number of Replicates: 3
Autosampler Position: 221
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	164247.2	1.2				ug/L	143052	Standard
	Be	9	66.7	15.6	**0.0164**	0.005	32.0	ug/L	40	Standard
	Al	27	7597837.3	3.0	**50.8062**	1.448	2.8	ug/L	2645	Standard
	Sc	45	19801.3	1.5				ug/L	21013	Standard
	Ti	47	7794.3	0.9	**45.5211**	1.200	2.6	ug/L	27	Standard
	V	51	34275.2	1.0	**5.3714**	0.175	3.3	ug/L	1321	Standard
	Cr	52	27383.1	0.7	**3.4873**	0.138	4.0	ug/L	7642	Standard
	Cr	53	9187.8	0.4	**10.8077**	0.306	2.8	ug/L	1230	Standard
	Mn	55	33738.5	0.4	**3.3949**	0.094	2.8	ug/L	1599	Standard
	Co	59	1617.8	2.4	**0.1671**	0.008	5.0	ug/L	404	Standard
	Ni	60	2049.5	0.8	**1.1060**	0.027	2.5	ug/L	288	Standard
	Cu	65	2933.6	2.6	**1.8812**	0.094	5.0	ug/L	181	Standard
	Zn	66	7265.1	2.1	**9.0131**	0.412	4.6	ug/L	166	Standard
>	Ge	72	324238.2	2.4				ug/L	360328	Standard
	As	75	251.5	2.0	**0.3889**	0.013	3.4	ug/L	-74	Standard
	Se	82	81.0	17.5	**0.9816**	0.231	23.5	ug/L	15	Standard
	Se-1	77	784.0	6.9	**13.2338**	1.419	10.7	ug/L	139	Standard
>	Ga	71	181.7	16.8				mg/L	63	Standard
	Rb	85	176763.5	0.3				ug/L	32	Standard
	Y	89	292619.5	2.2				ug/L	315671	Standard
>	Rh	103	430.0	22.5				ug/L	37	Standard
	Mo	98	2627.9	1.5	**0.8414**	0.015	1.7	ug/L	143	Standard
	Ag	107	138.3	8.3	**0.0060**	0.002	37.8	ug/L	125	Standard
	Cd	111	23.0	29.0	**0.0113**	0.006	53.0	mg/L	10	Standard
	Cd	114	779.7	17.2	**0.2414**	0.042	17.6	ug/L	39	Standard
>	In	115	376166.0	0.3				ug/L	367586	Standard
	Sn	118	7468.8	2.4	**9.1897**	0.208	2.3	ug/L	107	Standard
	Sb	123	237.7	9.9	**0.0420**	0.007	15.5	ug/L	225	Standard
	Ba	135	32819.2	1.3	**22.6667**	0.229	1.0	ug/L	39	Standard
	Ce	140	18451.3	7.5				ug/L	12	Standard
>	Tb	159	651860.6	1.4				ug/L	627636	Standard
	Ho	165	711.7	2.7				ug/L	13	Standard
	Tl	203	76.0	9.2	**0.0071**	0.001	8.8	ug/L	76	Standard
	Tl	205	181.7	22.4	**0.0046**	0.002	44.9	ug/L	162	Standard
	Pb	206	1928.5	3.1	**0.2666**	0.010	3.8	ug/L	362	Standard
	Pb	207	1612.4	1.6	**0.2605**	0.005	1.9	ug/L	281	Standard
	Pb	208	2963.8	2.3	**0.2720**	0.015	5.7	ug/L	515	Standard
	U	238	619.3	5.9	**0.0720**	0.006	7.9	ug/L	32	Standard
>	Bi	209	443062.6	2.8				ug/L	501980	Standard

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	Na	23	66.7	4.3	**17.5440**	1.010	5.8	mg/L	3	Standard
	Mg	24	22705.3	1.1	**405.3943**	1.824	0.4	mg/L	35	Standard
	K	39	386.7	2.0	**4.8274**	0.030	0.6	mg/L	12	Standard
	Ca	43	58.3	17.8	**34.2665**	10.306	30.1	mg/L	28	Standard
	Fe	54	41.9	23.4	**0.3762**	0.174	46.4	mg/L	38	Standard
	Fe	57	975.0	5.8	**21.8220**	2.836	13.0	mg/L	668	Standard
>	**Sc-1**	45	19801.3	1.5				mg/L	21013	Standard
	Cl	35	8.7	35.3				ug/L	2	Standard
	Kr	83	7.7	27.2				ug/L	6	Standard
	Br	81	7181.7	5.6				ug/L	1013	Standard
	P	31	75.0	30.6				ug/L	70	Standard
	S	34	63.3	18.2				ug/L	58	Standard
	Sr	88	348.3	5.8				ug/L	293	Standard
	C	12	83.3	30.2				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	66.7	17.3				mg/L	3	Standard
	Dy	164	875.9	5.1				mg/L	-0	Standard
	Ho-1	165	711.7	2.7				mg/L	13	Standard
	Er	166	713.4	8.6				mg/L	3	Standard
	I	127	81753.4	10.9				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		114.816	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		89.984	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	102.334
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	88.263
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130505
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Approved: August 30, 2017

Method 6020 - Summary Report

Sample ID: L1708130506
Sample Date/Time: Tuesday, August 29, 2017 16:12:15
Number of Replicates: 3
Autosampler Position: 222
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	166652.0	2.8				ug/L	143052	Standard
	Be	9	45.0	50.9	**0.0048**	0.013	265.3	ug/L	40	Standard
	Al	27	7483201.6	3.6	**49.3743**	3.144	6.4	ug/L	2645	Standard
	Sc	45	19435.8	6.3				ug/L	21013	Standard
	Ti	47	3521.1	1.5	**20.8540**	0.946	4.5	ug/L	27	Standard
	V	51	21537.3	2.9	**3.3584**	0.143	4.3	ug/L	1321	Standard
	Cr	52	21811.7	0.4	**2.5970**	0.140	5.4	ug/L	7642	Standard
	Cr	53	8490.7	2.4	**10.0784**	0.651	6.5	ug/L	1230	Standard
	Mn	55	33493.0	0.7	**3.4295**	0.142	4.2	ug/L	1599	Standard
	Co	59	1379.7	4.2	**0.1390**	0.012	8.9	ug/L	404	Standard
	Ni	60	1638.1	1.8	**0.8705**	0.044	5.1	ug/L	288	Standard
	Cu	65	2007.5	6.7	**1.2783**	0.136	10.7	ug/L	181	Standard
	Zn	66	2257.8	5.9	**2.7105**	0.264	9.7	ug/L	166	Standard
>	**Ge**	72	318908.4	3.4				ug/L	360328	Standard
	As	75	169.9	16.2	**0.2919**	0.041	14.1	ug/L	-74	Standard
	Se	82	79.6	23.8	**0.9828**	0.309	31.4	ug/L	15	Standard
	Se-1	77	768.0	2.8	**13.1534**	0.361	2.7	ug/L	139	Standard
>	**Ga**	71	85.0	21.2				mg/L	63	Standard
	Rb	85	165303.5	0.5				ug/L	32	Standard
	Y	89	285390.7	4.1				ug/L	315671	Standard
>	**Rh**	103	540.0	18.4				ug/L	37	Standard
	Mo	98	1339.1	4.8	**0.4279**	0.026	6.1	ug/L	143	Standard
	Ag	107	122.7	5.0	**0.0030**	0.001	31.6	ug/L	125	Standard
	Cd	111	13.3	24.6	**0.0027**	0.003	104.0	mg/L	10	Standard
	Cd	114	677.2	12.0	**0.2108**	0.028	13.5	ug/L	39	Standard
>	**In**	115	372327.8	1.2				ug/L	367586	Standard
	Sn	118	6627.8	2.2	**8.2300**	0.282	3.4	ug/L	107	Standard
	Sb	123	193.5	5.2	**0.0302**	0.003	11.5	ug/L	225	Standard
	Ba	135	35430.1	2.6	**24.7324**	0.919	3.7	ug/L	39	Standard
	Ce	140	8859.3	4.9				ug/L	12	Standard
>	**Tb**	159	645829.4	1.0				ug/L	627636	Standard
	Ho	165	426.7	5.3				ug/L	13	Standard
	Tl	203	81.0	14.2	**0.0079**	0.002	21.7	ug/L	76	Standard
	Tl	205	170.0	16.4	**0.0042**	0.002	38.0	ug/L	162	Standard
	Pb	206	398.3	6.7	**0.0178**	0.004	22.5	ug/L	362	Standard
	Pb	207	318.7	8.6	**0.0155**	0.004	26.1	ug/L	281	Standard
	Pb	208	606.3	1.6	**0.0217**	0.001	3.3	ug/L	515	Standard
	U	238	377.7	6.6	**0.0450**	0.003	5.7	ug/L	32	Standard
>	**Bi**	209	434130.1	2.3				ug/L	501980	Standard

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⌈	**Na**	23	63.3	19.9	**16.8737**	2.349	13.9	mg/L	3	Standard
|	**Mg**	24	21857.4	1.4	**398.6944**	27.371	6.9	mg/L	35	Standard
|	**K**	39	328.3	15.4	**4.1723**	0.730	17.5	mg/L	12	Standard
|	**Ca**	43	55.0	32.8	**31.4973**	14.103	44.8	mg/L	28	Standard
|	**Fe**	54	43.9	41.3	**0.4443**	0.377	84.9	mg/L	38	Standard
|	**Fe**	57	1016.7	2.3	**25.9740**	4.997	19.2	mg/L	668	Standard
⌊>	**Sc-1**	45	19435.8	6.3				mg/L	21013	Standard
	Cl	35	4.0	50.0				ug/L	2	Standard
	Kr	83	4.3	26.6				ug/L	6	Standard
	Br	81	7175.0	7.6				ug/L	1013	Standard
	P	31	61.7	20.4				ug/L	70	Standard
	S	34	58.3	27.6				ug/L	58	Standard
	Sr	88	341.7	6.8				ug/L	293	Standard
	C	12	100.0	17.3				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	50.0	72.1				mg/L	3	Standard
	Dy	164	494.8	29.2				mg/L	-0	Standard
	Ho-1	165	426.7	5.3				mg/L	13	Standard
	Er	166	596.7	3.5				mg/L	3	Standard
	I	127	79861.0	8.9				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		116.497	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		88.505	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	101.290	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	86.484	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130506
Report Date/Time: Tuesday, August 29, 2017 16:14:26
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Approved: August 30, 2017

Method 6020 - Summary Report

Sample ID: L1708130510
Sample Date/Time: Tuesday, August 29, 2017 16:15:20
Number of Replicates: 3
Autosampler Position: 223
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	154522.6	2.4				ug/L	143052	Standard
	Be	9	43.3	40.5	**0.0054**	0.009	174.3	ug/L	40	Standard
	Al	27	9015704.3	1.8	**64.1266**	2.634	4.1	ug/L	2645	Standard
	Sc	45	19642.7	2.0				ug/L	21013	Standard
	Ti	47	1907.1	1.6	**10.6570**	0.136	1.3	ug/L	27	Standard
	V	51	9045.8	0.5	**1.2160**	0.017	1.4	ug/L	1321	Standard
	Cr	52	13846.7	0.4	**1.0869**	0.041	3.8	ug/L	7642	Standard
	Cr	53	8462.4	6.9	**9.4583**	0.909	9.6	ug/L	1230	Standard
	Mn	55	244517.9	0.3	**24.6160**	0.406	1.6	ug/L	1599	Standard
	Co	59	1192.0	3.6	**0.1056**	0.004	3.9	ug/L	404	Standard
	Ni	60	3530.7	1.6	**1.9413**	0.039	2.0	ug/L	288	Standard
	Cu	65	1297.4	2.2	**0.7416**	0.021	2.8	ug/L	181	Standard
	Zn	66	2855.9	0.9	**3.2916**	0.089	2.7	ug/L	166	Standard
>	**Ge**	72	335813.3	1.6				ug/L	360328	Standard
	As	75	925.0	3.6	**1.1843**	0.056	4.8	ug/L	-74	Standard
	Se	82	94.6	6.7	**1.1288**	0.079	7.0	ug/L	15	Standard
	Se-1	77	820.4	1.0	**13.3814**	0.419	3.1	ug/L	139	Standard
>	**Ga**	71	141.7	8.2				mg/L	63	Standard
	Rb	85	26870.5	0.4				ug/L	32	Standard
	Y	89	296979.9	3.7				ug/L	315671	Standard
>	**Rh**	103	468.3	10.5				ug/L	37	Standard
	Mo	98	1082.5	4.6	**0.3306**	0.018	5.5	ug/L	143	Standard
	Ag	107	122.0	10.7	**0.0020**	0.002	116.5	ug/L	125	Standard
	Cd	111	11.2	37.5	**0.0005**	0.004	734.8	mg/L	10	Standard
	Cd	114	54.6	1.1	**0.0072**	0.000	2.7	ug/L	39	Standard
>	**In**	115	386486.3	1.2				ug/L	367586	Standard
	Sn	118	201.0	10.8	**0.1337**	0.028	21.1	ug/L	107	Standard
	Sb	123	161.7	9.6	**0.0194**	0.004	22.6	ug/L	225	Standard
	Ba	135	33087.4	2.2	**22.2464**	0.703	3.2	ug/L	39	Standard
	Ce	140	5444.3	3.4				ug/L	12	Standard
>	**Tb**	159	668179.1	1.5				ug/L	627636	Standard
	Ho	165	300.0	14.5				ug/L	13	Standard
	Tl	203	93.3	32.3	**0.0088**	0.003	37.2	ug/L	76	Standard
	Tl	205	175.0	27.6	**0.0039**	0.002	57.5	ug/L	162	Standard
	Pb	206	946.7	5.6	**0.1016**	0.008	7.5	ug/L	362	Standard
	Pb	207	750.4	1.2	**0.0923**	0.004	4.5	ug/L	281	Standard
	Pb	208	1429.4	2.3	**0.1037**	0.006	5.9	ug/L	515	Standard
	U	238	2244.8	2.5	**0.2515**	0.006	2.5	ug/L	32	Standard
>	**Bi**	209	456401.1	2.9				ug/L	501980	Standard

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⌈	**Na**	23	113.3	9.2	**30.0550**	2.864	9.5	mg/L	3	Standard
|	**Mg**	24	10713.8	3.1	**192.5472**	3.398	1.8	mg/L	35	Standard
|	**K**	39	291.7	14.0	**3.6414**	0.522	14.3	mg/L	12	Standard
|	**Ca**	43	63.3	25.4	**39.4695**	15.930	40.4	mg/L	28	Standard
|	**Fe**	54	60.7	33.2	**0.7464**	0.394	52.8	mg/L	38	Standard
|	**Fe**	57	953.4	3.3	**20.9296**	0.911	4.4	mg/L	668	Standard
⌊>	**Sc-1**	45	19642.7	2.0				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	4.7	12.4				ug/L	6	Standard
	Br	81	16038.5	7.2				ug/L	1013	Standard
	P	31	68.3	4.2				ug/L	70	Standard
	S	34	56.7	33.4				ug/L	58	Standard
	Sr	88	330.0	5.2				ug/L	293	Standard
	C	12	60.0	76.4				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	340.3	3.7				mg/L	-0	Standard
	Ho-1	165	300.0	14.5				mg/L	13	Standard
	Er	166	203.3	31.6				mg/L	3	Standard
	I	127	66710.7	9.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		108.018	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		93.196	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	105.142
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	90.920
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130702
Sample Date/Time: Tuesday, August 29, 2017 16:18:26
Number of Replicates: 3
Autosampler Position: 224
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	158919.2	1.4				ug/L	143052	Standard
	Be	9	76.7	77.8	**0.0232**	0.033	142.8	ug/L	40	Standard
	Al	27	524768.9	2.7	**3.6107**	0.147	4.1	ug/L	2645	Standard
	Sc	45	19868.0	0.7				ug/L	21013	Standard
	Ti	47	314.0	26.3	**1.5761**	0.452	28.7	ug/L	27	Standard
	V	51	2604.4	7.9	**0.1869**	0.033	17.4	ug/L	1321	Standard
	Cr	52	9303.5	2.9	**0.2690**	0.024	8.8	ug/L	7642	Standard
	Cr	53	1736.8	1.0	**0.7088**	0.014	2.0	ug/L	1230	Standard
	Mn	55	54149.0	4.2	**5.1026**	0.273	5.4	ug/L	1599	Standard
	Co	59	1047.4	23.5	**0.0817**	0.031	37.7	ug/L	404	Standard
	Ni	60	859.4	3.6	**0.3340**	0.023	6.9	ug/L	288	Standard
	Cu	65	655.7	10.6	**0.3031**	0.038	12.5	ug/L	181	Standard
	Zn	66	2142.2	1.5	**2.3032**	0.015	0.7	ug/L	166	Standard
>	**Ge**	72	351001.9	1.3				ug/L	360328	Standard
	As	75	48.6	131.6	**0.1321**	0.072	54.7	ug/L	-74	Standard
	Se	82	31.2	29.1	**0.2191**	0.117	53.5	ug/L	15	Standard
	Se-1	77	175.3	5.1	**0.5826**	0.208	35.6	ug/L	139	Standard
>	**Ga**	71	130.0	11.5				mg/L	63	Standard
	Rb	85	3980.5	5.0				ug/L	32	Standard
	Y	89	311282.4	3.4				ug/L	315671	Standard
>	**Rh**	103	168.3	13.4				ug/L	37	Standard
	Mo	98	151.4	86.2	**0.0343**	0.039	114.4	ug/L	143	Standard
	Ag	107	171.7	67.8	**0.0103**	0.022	213.1	ug/L	125	Standard
	Cd	111	30.8	97.9	**0.0164**	0.025	153.1	mg/L	10	Standard
	Cd	114	79.4	121.7	**0.0138**	0.029	209.7	ug/L	39	Standard
>	**In**	115	404414.8	0.3				ug/L	367586	Standard
	Sn	118	148.0	4.1	**0.0613**	0.007	10.8	ug/L	107	Standard
	Sb	123	143.7	63.2	**0.0127**	0.024	185.6	ug/L	225	Standard
	Ba	135	6157.9	7.2	**3.9308**	0.273	6.9	ug/L	39	Standard
	Ce	140	7568.6	3.8				ug/L	12	Standard
>	**Tb**	159	675902.9	1.0				ug/L	627636	Standard
	Ho	165	108.3	5.3				ug/L	13	Standard
	Tl	203	203.3	113.4	**0.0194**	0.025	128.4	ug/L	76	Standard
	Tl	205	520.0	102.8	**0.0184**	0.024	131.2	ug/L	162	Standard
	Pb	206	1288.4	16.8	**0.1317**	0.032	24.0	ug/L	362	Standard
	Pb	207	1040.4	16.7	**0.1233**	0.030	24.7	ug/L	281	Standard
	Pb	208	1892.0	18.5	**0.1285**	0.034	26.4	ug/L	515	Standard
	U	238	210.7	101.2	**0.0215**	0.021	98.9	ug/L	32	Standard
>	**Bi**	209	517970.6	2.2				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4402**	0.754	171.2	mg/L	3	Standard
	Mg	24	115.0	35.6	**1.5445**	0.717	46.4	mg/L	35	Standard
	K	39	28.3	56.7	**0.2380**	0.203	85.4	mg/L	12	Standard
	Ca	43	23.3	32.7	**1.8439**	6.882	373.2	mg/L	28	Standard
	Fe	54	21.3	34.8	**-0.0143**	0.144	1010.1	mg/L	38	Standard
	Fe	57	661.7	11.3	**1.4477**	5.125	354.0	mg/L	668	Standard
>	**Sc-1**	45	19868.0	0.7				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	4.3	35.3				ug/L	6	Standard
	Br	81	2056.8	16.1				ug/L	1013	Standard
	P	31	56.7	31.0				ug/L	70	Standard
	S	34	50.0	17.3				ug/L	58	Standard
	Sr	88	338.3	21.8				ug/L	293	Standard
	C	12	53.3	21.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	191.2	23.2				mg/L	-0	Standard
	Ho-1	165	108.3	5.3				mg/L	13	Standard
	Er	166	113.3	53.9				mg/L	3	Standard
	I	127	17745.4	2.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		111.092	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		97.412	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		110.019
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		103.186
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 16:21:34
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	150416.4	1.6				ug/L	143052	Standard
	Be	9	85758.7	1.2	**49.5587**	0.992	2.0	ug/L	40	Standard
	Al	27	6653387.5	1.2	**48.5903**	1.100	2.3	ug/L	2645	Standard
	Sc	45	19215.5	2.9				ug/L	21013	Standard
	Ti	47	18210.9	0.6	**101.0095**	1.521	1.5	ug/L	27	Standard
	V	51	328676.7	1.0	**50.4973**	0.982	1.9	ug/L	1321	Standard
	Cr	52	317713.3	0.7	**50.3942**	1.268	2.5	ug/L	7642	Standard
	Cr	53	41216.0	2.1	**50.6165**	1.055	2.1	ug/L	1230	Standard
	Mn	55	503111.0	0.4	**49.9060**	0.863	1.7	ug/L	1599	Standard
	Co	59	401471.6	0.8	**49.9982**	1.410	2.8	ug/L	404	Standard
	Ni	60	85441.6	0.5	**49.6690**	1.253	2.5	ug/L	288	Standard
	Cu	65	78554.8	0.9	**50.3596**	0.934	1.9	ug/L	181	Standard
	Zn	66	41433.2	0.5	**49.6401**	0.829	1.7	ug/L	166	Standard
>	Ge	72	341843.3	2.1				ug/L	360328	Standard
	As	75	41704.3	2.0	**49.0954**	0.569	1.2	ug/L	-74	Standard
	Se	82	3504.2	3.1	**48.1649**	0.828	1.7	ug/L	15	Standard
	Se-1	77	2724.6	2.1	**49.7737**	0.598	1.2	ug/L	139	Standard
>	Ga	71	51.7	55.9				mg/L	63	Standard
	Rb	85	646.7	7.0				ug/L	32	Standard
	Y	89	305347.2	2.3				ug/L	315671	Standard
>	Rh	103	158.3	10.2				ug/L	37	Standard
	Mo	98	298563.3	0.8	**90.8003**	1.792	2.0	ug/L	143	Standard
	Ag	107	243077.7	0.6	**46.5109**	0.575	1.2	ug/L	125	Standard
	Cd	111	56882.8	1.4	**47.7720**	0.488	1.0	mg/L	10	Standard
	Cd	114	164257.9	2.1	**49.6304**	0.520	1.0	ug/L	39	Standard
>	In	115	401351.9	1.2				ug/L	367586	Standard
	Sn	118	43070.8	2.9	**50.1481**	0.848	1.7	ug/L	107	Standard
	Sb	123	194816.4	2.2	**51.2251**	0.573	1.1	ug/L	225	Standard
	Ba	135	78784.8	3.0	**51.0290**	0.940	1.8	ug/L	39	Standard
	Ce	140	93.3	37.6				ug/L	12	Standard
>	Tb	159	671661.3	2.0				ug/L	627636	Standard
	Ho	165	8.3	34.6				ug/L	13	Standard
	Tl	203	450959.3	0.3	**50.1675**	1.264	2.5	ug/L	76	Standard
	Tl	205	1041273.9	0.5	**48.3056**	1.414	2.9	ug/L	162	Standard
	Pb	206	342120.8	0.2	**49.6491**	1.272	2.6	ug/L	362	Standard
	Pb	207	300938.0	0.8	**50.8492**	1.548	3.0	ug/L	281	Standard
	Pb	208	526939.3	2.8	**49.9359**	2.628	5.3	ug/L	515	Standard
	U	238	491619.7	1.6	**50.3120**	1.991	4.0	ug/L	32	Standard
>	Bi	209	498610.2	2.6				ug/L	501980	Standard

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	Na	23	23.3	53.9	**6.2668**	3.241	51.7	mg/L	3	Standard
	Mg	24	351.7	15.3	**5.9993**	1.164	19.4	mg/L	35	Standard
	K	39	400.0	7.0	**5.1608**	0.456	8.8	mg/L	12	Standard
	Ca	43	28.3	88.8	**6.9017**	22.980	333.0	mg/L	28	Standard
	Fe	54	254.3	16.7	**4.5896**	0.960	20.9	mg/L	38	Standard
	Fe	57	828.4	5.1	**14.0150**	3.160	22.5	mg/L	668	Standard
>	**Sc-1**	45	19215.5	2.9				mg/L	21013	Standard
	Cl	35	4.7	49.5				ug/L	2	Standard
	Kr	83	7.0	37.8				ug/L	6	Standard
	Br	81	1260.1	1.4				ug/L	1013	Standard
	P	31	70.0	12.4				ug/L	70	Standard
	S	34	65.0	15.4				ug/L	58	Standard
	Sr	88	368.3	10.0				ug/L	293	Standard
	C	12	13.3	114.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0	100.0				mg/L	3	Standard
	Dy	164	13.0	43.3				mg/L	-0	Standard
	Ho-1	165	8.3	34.6				mg/L	13	Standard
	Er	166	6.7	86.6				mg/L	3	Standard
	I	127	3480.4	9.0				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	99.117		
	Al	27	97.181		
	Sc	45			
	Ti	47	101.010		
	V	51	100.995		
	Cr	52	100.788		
	Cr	53			
	Mn	55	99.812		
	Co	59	99.996		
	Ni	60	99.338		
	Cu	65	100.719		
	Zn	66	99.280		
>	Ge	72		94.870	
	As	75	98.191		
	Se	82	96.330		
	Se-1	77			
>	Ga	71			

Sample ID: QC Std 6
Report Date/Time: Tuesday, August 29, 2017 16:23:45

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	90.800		
|	Ag	107	93.022		
|	Cd	111	95.544		
|	Cd	114			
| >	In	115		109.186	
|	Sn	118	100.296		
|	Sb	123	102.450		
⌊	Ba	135	102.058		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	100.335		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	99.872		
|	U	238	100.624		
⌊>	Bi	209		99.329	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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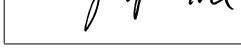

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 16:24:39
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	151761.3	1.0				ug/L	143052	Standard
	Be	9	38.3	71.8	**0.0031**	0.016	509.6	ug/L	40	Standard
	Al	27	2485.2	5.1	**-0.0006**	0.001	120.6	ug/L	2645	Standard
	Sc	45	19694.5	2.0				ug/L	21013	Standard
	Ti	47	29.0	15.8	**0.0400**	0.025	61.4	ug/L	27	Standard
	V	51	1191.1	9.6	**-0.0189**	0.019	100.6	ug/L	1321	Standard
	Cr	52	6971.3	1.9	**-0.0597**	0.014	24.2	ug/L	7642	Standard
	Cr	53	1053.4	3.3	**-0.0848**	0.040	47.0	ug/L	1230	Standard
	Mn	55	1578.4	4.3	**0.0140**	0.006	42.5	ug/L	1599	Standard
	Co	59	372.0	4.2	**0.0012**	0.002	122.3	ug/L	404	Standard
	Ni	60	254.7	6.5	**-0.0042**	0.008	193.9	ug/L	288	Standard
	Cu	65	292.0	4.2	**0.0825**	0.006	7.2	ug/L	181	Standard
	Zn	66	220.0	5.2	**0.0610**	0.017	27.4	ug/L	166	Standard
>	**Ge**	72	338747.5	1.0				ug/L	360328	Standard
	As	75	-57.7	24.6	**0.0088**	0.016	184.0	ug/L	-74	Standard
	Se	82	17.1	24.5	**0.0384**	0.061	157.8	ug/L	15	Standard
	Se-1	77	142.3	12.0	**0.0602**	0.350	580.5	ug/L	139	Standard
>	**Ga**	71	31.7	48.2				mg/L	63	Standard
	Rb	85	55.0	39.6				ug/L	32	Standard
	Y	89	305664.6	1.6				ug/L	315671	Standard
>	**Rh**	103	96.7	10.8				ug/L	37	Standard
	Mo	98	326.4	19.6	**0.0890**	0.019	21.8	ug/L	143	Standard
	Ag	107	140.3	6.2	**0.0049**	0.002	34.8	ug/L	125	Standard
	Cd	111	9.0	13.5	**-0.0017**	0.001	63.3	mg/L	10	Standard
	Cd	114	23.1	51.3	**-0.0029**	0.004	121.0	ug/L	39	Standard
>	**In**	115	397138.7	0.7				ug/L	367586	Standard
	Sn	118	133.7	17.8	**0.0476**	0.028	58.1	ug/L	107	Standard
	Sb	123	304.3	10.2	**0.0561**	0.008	14.1	ug/L	225	Standard
	Ba	135	30.0	0.0	**-0.0103**	0.000	1.4	ug/L	39	Standard
	Ce	140	35.0	51.5				ug/L	12	Standard
>	**Tb**	159	665467.7	1.1				ug/L	627636	Standard
	Ho	165	25.0	0.0				ug/L	13	Standard
	Tl	203	78.0	18.6	**0.0061**	0.001	24.0	ug/L	76	Standard
	Tl	205	165.0	16.9	**0.0026**	0.001	43.2	ug/L	162	Standard
	Pb	206	365.7	8.9	**0.0037**	0.004	96.4	ug/L	362	Standard
	Pb	207	288.3	13.6	**0.0016**	0.005	335.4	ug/L	281	Standard
	Pb	208	545.3	1.9	**0.0066**	0.000	5.1	ug/L	515	Standard
	U	238	54.0	14.7	**0.0060**	0.001	12.4	ug/L	32	Standard
>	**Bi**	209	505916.3	2.1				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4468**	0.765	171.3	mg/L	3	Standard
	Mg	24	43.3	24.0	**0.2761**	0.173	62.7	mg/L	35	Standard
	K	39	16.7	75.5	**0.0932**	0.166	178.2	mg/L	12	Standard
	Ca	43	28.3	20.4	**6.7588**	5.823	86.2	mg/L	28	Standard
	Fe	54	29.4	59.3	**0.1436**	0.334	232.8	mg/L	38	Standard
	Fe	57	711.7	5.1	**5.0938**	3.166	62.2	mg/L	668	Standard
>	**Sc-1**	45	19694.5	2.0				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	4.3	35.3				ug/L	6	Standard
	Br	81	1093.4	3.7				ug/L	1013	Standard
	P	31	55.0	41.7				ug/L	70	Standard
	S	34	68.3	18.4				ug/L	58	Standard
	Sr	88	328.3	13.7				ug/L	293	Standard
	C	12	16.7	91.7				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	16.0	35.2				mg/L	-0	Standard
	Ho-1	165	25.0	0.0				mg/L	13	Standard
	Er	166	13.3	43.3				mg/L	3	Standard
	I	127	10755.5	3.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.011	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	108.040	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	100.784	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130707 WG627191-02
Sample Date/Time: Tuesday, August 29, 2017 16:27:46
Number of Replicates: 3
Autosampler Position: 225
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	153522.2	0.7				ug/L	143052	Standard
	Be	9	48.3	52.1	**0.0084**	0.014	167.1	ug/L	40	Standard
	Al	27	493164.3	3.2	**3.5112**	0.130	3.7	ug/L	2645	Standard
	Sc	45	19499.2	1.6				ug/L	21013	Standard
	Ti	47	371.0	67.0	**1.9324**	1.397	72.3	ug/L	27	Standard
	V	51	2484.0	2.7	**0.1764**	0.012	6.7	ug/L	1321	Standard
	Cr	52	8454.4	1.6	**0.1624**	0.037	22.6	ug/L	7642	Standard
	Cr	53	1328.4	7.2	**0.2391**	0.099	41.5	ug/L	1230	Standard
	Mn	55	85033.3	0.9	**8.2616**	0.177	2.1	ug/L	1599	Standard
	Co	59	1136.0	2.4	**0.0952**	0.005	5.0	ug/L	404	Standard
	Ni	60	718.4	4.3	**0.2623**	0.022	8.6	ug/L	288	Standard
	Cu	65	501.3	4.5	**0.2132**	0.011	5.3	ug/L	181	Standard
	Zn	66	2117.1	3.4	**2.3245**	0.083	3.6	ug/L	166	Standard
>	Ge	72	343989.4	1.2				ug/L	360328	Standard
	As	75	-3.8	207.6	**0.0727**	0.009	12.6	ug/L	-74	Standard
	Se	82	19.5	14.4	**0.0669**	0.035	52.3	ug/L	15	Standard
	Se-1	77	143.3	3.5	**0.0349**	0.066	188.2	ug/L	139	Standard
>	Ga	71	126.7	12.7				mg/L	63	Standard
	Rb	85	3527.1	5.1				ug/L	32	Standard
	Y	89	309754.9	1.8				ug/L	315671	Standard
>	Rh	103	65.0	20.4				ug/L	37	Standard
	Mo	98	134.0	13.8	**0.0301**	0.006	18.7	ug/L	143	Standard
	Ag	107	130.7	1.6	**0.0031**	0.000	14.8	ug/L	125	Standard
	Cd	111	8.2	42.7	**-0.0023**	0.003	128.4	mg/L	10	Standard
	Cd	114	30.0	34.7	**-0.0008**	0.003	408.8	ug/L	39	Standard
>	In	115	395243.5	0.3				ug/L	367586	Standard
	Sn	118	123.3	5.4	**0.0361**	0.008	22.5	ug/L	107	Standard
	Sb	123	136.9	19.1	**0.0118**	0.007	58.4	ug/L	225	Standard
	Ba	135	5555.0	2.8	**3.6264**	0.100	2.8	ug/L	39	Standard
	Ce	140	6072.9	3.1				ug/L	12	Standard
>	Tb	159	661957.9	1.4				ug/L	627636	Standard
	Ho	165	88.3	18.2				ug/L	13	Standard
	Tl	203	45.0	8.0	**0.0024**	0.000	18.2	ug/L	76	Standard
	Tl	205	95.0	45.9	**-0.0006**	0.002	343.8	ug/L	162	Standard
	Pb	206	984.7	4.7	**0.0907**	0.005	5.1	ug/L	362	Standard
	Pb	207	826.0	3.5	**0.0898**	0.006	7.1	ug/L	281	Standard
	Pb	208	1437.0	5.0	**0.0884**	0.008	9.2	ug/L	515	Standard
	U	238	65.7	3.8	**0.0071**	0.000	2.5	ug/L	32	Standard
>	Bi	209	511702.6	1.4				ug/L	501980	Standard

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	Na	23	8.3	124.9	**2.2420**	2.785	124.2	mg/L	3	Standard
	Mg	24	115.0	15.7	**1.5842**	0.298	18.8	mg/L	35	Standard
	K	39	48.3	6.0	**0.5064**	0.047	9.3	mg/L	12	Standard
	Ca	43	23.3	32.7	**2.2433**	7.027	313.2	mg/L	28	Standard
	Fe	54	34.2	27.6	**0.2437**	0.191	78.4	mg/L	38	Standard
	Fe	57	718.4	7.4	**5.9717**	3.733	62.5	mg/L	668	Standard
>	**Sc-1**	45	19499.2	1.6				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	5.0	40.0				ug/L	6	Standard
	Br	81	1730.1	13.3				ug/L	1013	Standard
	P	31	55.0	45.5				ug/L	70	Standard
	S	34	68.3	44.7				ug/L	58	Standard
	Sr	88	346.7	6.0				ug/L	293	Standard
	C	12	26.7	57.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	123.5	27.1				mg/L	-0	Standard
	Ho-1	165	88.3	18.2				mg/L	13	Standard
	Er	166	66.7	85.3				mg/L	3	Standard
	I	127	13299.2	9.5				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		107.319	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.466	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
> Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
> In	115	107.524
Sn	118	
Sb	123	
Ba	135	
Ce	140	
> Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
> Bi	209	101.937
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
> Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130708S WG627191-07
Sample Date/Time: Tuesday, August 29, 2017 16:30:52
Number of Replicates: 3
Autosampler Position: 226
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	148679.3	0.6				ug/L	143052	Standard
	Be	9	84939.2	2.6	**49.6486**	1.166	2.3	ug/L	40	Standard
	Al	27	484314.6	2.3	**3.5601**	0.061	1.7	ug/L	2645	Standard
	Sc	45	19906.4	1.0				ug/L	21013	Standard
	Ti	47	209.0	16.9	**1.0238**	0.180	17.5	ug/L	27	Standard
	V	51	323796.1	1.2	**49.1910**	1.112	2.3	ug/L	1321	Standard
	Cr	52	313878.4	1.1	**49.2004**	1.016	2.1	ug/L	7642	Standard
	Cr	53	40681.2	2.0	**49.3806**	1.571	3.2	ug/L	1230	Standard
	Mn	55	581078.5	1.2	**57.0227**	1.355	2.4	ug/L	1599	Standard
	Co	59	395600.4	0.7	**48.7113**	0.910	1.9	ug/L	404	Standard
	Ni	60	86196.8	0.6	**49.5447**	0.844	1.7	ug/L	288	Standard
	Cu	65	79769.4	0.0	**50.5683**	0.602	1.2	ug/L	181	Standard
	Zn	66	45015.1	0.7	**53.3480**	0.981	1.8	ug/L	166	Standard
>	Ge	72	345653.0	1.2				ug/L	360328	Standard
	As	75	42006.3	0.3	**48.9093**	0.724	1.5	ug/L	-74	Standard
	Se	82	3505.1	2.1	**47.6456**	0.431	0.9	ug/L	15	Standard
	Se-1	77	2740.6	1.0	**49.5063**	1.080	2.2	ug/L	139	Standard
>	Ga	71	126.7	33.6				mg/L	63	Standard
	Rb	85	3333.7	1.1				ug/L	32	Standard
	Y	89	309012.7	0.5				ug/L	315671	Standard
>	Rh	103	96.7	54.3				ug/L	37	Standard
	Mo	98	117.9	2.5	**0.0251**	0.000	2.0	ug/L	143	Standard
	Ag	107	240627.7	0.2	**46.7572**	0.516	1.1	ug/L	125	Standard
	Cd	111	56267.2	1.2	**47.9890**	0.402	0.8	mg/L	10	Standard
	Cd	114	154783.6	2.3	**47.4920**	0.508	1.1	ug/L	39	Standard
>	In	115	395216.3	1.3				ug/L	367586	Standard
	Sn	118	124.7	5.8	**0.0378**	0.011	27.9	ug/L	107	Standard
	Sb	123	180915.8	3.2	**48.3025**	0.940	1.9	ug/L	225	Standard
	Ba	135	81920.9	2.3	**53.8891**	0.541	1.0	ug/L	39	Standard
	Ce	140	6006.2	5.3				ug/L	12	Standard
>	Tb	159	657161.3	1.6				ug/L	627636	Standard
	Ho	165	103.3	24.8				ug/L	13	Standard
	Tl	203	458065.1	0.2	**49.7571**	0.965	1.9	ug/L	76	Standard
	Tl	205	1080081.0	1.6	**48.9294**	1.592	3.3	ug/L	162	Standard
	Pb	206	348654.3	0.6	**49.4024**	0.858	1.7	ug/L	362	Standard
	Pb	207	295299.3	0.5	**48.7167**	1.097	2.3	ug/L	281	Standard
	Pb	208	521477.7	2.4	**48.2429**	1.995	4.1	ug/L	515	Standard
	U	238	474534.9	1.5	**47.4155**	1.534	3.2	ug/L	32	Standard
>	Bi	209	510539.3	1.8				ug/L	501980	Standard

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	Na	23	6.7	43.3	**1.7453**	0.740	42.4	mg/L	3	Standard
	Mg	24	83.3	22.7	**0.9791**	0.324	33.1	mg/L	35	Standard
	K	39	25.0	34.6	**0.1954**	0.108	55.1	mg/L	12	Standard
	Ca	43	23.3	53.9	**1.9079**	11.733	614.9	mg/L	28	Standard
	Fe	54	31.2	23.7	**0.1716**	0.146	84.8	mg/L	38	Standard
	Fe	57	651.7	17.2	**0.6649**	6.854	1030.8	mg/L	668	Standard
>	**Sc-1**	45	19906.4	1.0				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	6.7	90.4				ug/L	6	Standard
	Br	81	1443.4	10.3				ug/L	1013	Standard
	P	31	65.0	33.5				ug/L	70	Standard
	S	34	68.3	4.2				ug/L	58	Standard
	Sr	88	301.7	12.4				ug/L	293	Standard
	C	12	20.0	50.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0	100.0				mg/L	3	Standard
	Dy	164	150.6	24.5				mg/L	-0	Standard
	Ho-1	165	103.3	24.8				mg/L	13	Standard
	Er	166	56.7	44.4				mg/L	3	Standard
	I	127	12652.0	8.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		103.934	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.927	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	107.517
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	101.705
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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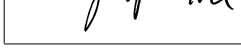

Method 6020 - Summary Report

Sample ID: L1708130709SD WG627191-08
Sample Date/Time: Tuesday, August 29, 2017 16:33:58
Number of Replicates: 3
Autosampler Position: 227
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	151470.2	1.9				ug/L	143052	Standard
	Be	9	82545.9	0.6	**47.3743**	1.073	2.3	ug/L	40	Standard
	Al	27	491636.6	1.4	**3.5486**	0.096	2.7	ug/L	2645	Standard
	Sc	45	19349.0	3.4				ug/L	21013	Standard
	Ti	47	237.7	10.0	**1.1813**	0.143	12.1	ug/L	27	Standard
	V	51	324177.0	0.7	**49.1621**	1.046	2.1	ug/L	1321	Standard
	Cr	52	314348.1	0.1	**49.1872**	0.907	1.8	ug/L	7642	Standard
	Cr	53	40204.9	0.8	**48.6952**	1.138	2.3	ug/L	1230	Standard
	Mn	55	578572.9	0.9	**56.6684**	0.636	1.1	ug/L	1599	Standard
	Co	59	397553.1	0.4	**48.8667**	0.978	2.0	ug/L	404	Standard
	Ni	60	87016.8	0.1	**49.9311**	0.974	2.0	ug/L	288	Standard
	Cu	65	79845.2	1.0	**50.5248**	0.589	1.2	ug/L	181	Standard
	Zn	66	42305.3	1.8	**50.0261**	0.384	0.8	ug/L	166	Standard
>	**Ge**	72	346288.4	1.9				ug/L	360328	Standard
	As	75	42029.4	0.6	**48.8486**	0.651	1.3	ug/L	-74	Standard
	Se	82	3499.9	0.9	**47.4967**	0.596	1.3	ug/L	15	Standard
	Se-1	77	2702.6	0.8	**48.6886**	0.805	1.7	ug/L	139	Standard
>	**Ga**	71	110.0	56.8				mg/L	63	Standard
	Rb	85	3505.4	4.0				ug/L	32	Standard
	Y	89	309925.8	2.7				ug/L	315671	Standard
>	**Rh**	103	85.0	11.8				ug/L	37	Standard
	Mo	98	104.8	5.2	**0.0210**	0.002	9.4	ug/L	143	Standard
	Ag	107	240984.3	0.5	**46.7191**	0.297	0.6	ug/L	125	Standard
	Cd	111	55920.2	1.1	**47.5873**	0.648	1.4	mg/L	10	Standard
	Cd	114	155447.0	1.7	**47.5917**	0.422	0.9	ug/L	39	Standard
>	**In**	115	396105.3	1.1				ug/L	367586	Standard
	Sn	118	117.7	2.1	**0.0291**	0.002	6.7	ug/L	107	Standard
	Sb	123	182540.8	1.8	**48.6325**	0.354	0.7	ug/L	225	Standard
	Ba	135	81833.4	1.3	**53.7146**	0.092	0.2	ug/L	39	Standard
	Ce	140	6294.6	1.4				ug/L	12	Standard
>	**Tb**	159	657646.8	1.7				ug/L	627636	Standard
	Ho	165	111.7	17.0				ug/L	13	Standard
	Tl	203	463739.2	0.5	**50.2198**	0.270	0.5	ug/L	76	Standard
	Tl	205	1082434.6	0.8	**48.8814**	0.719	1.5	ug/L	162	Standard
	Pb	206	351735.3	0.8	**49.6898**	0.526	1.1	ug/L	362	Standard
	Pb	207	297299.1	1.4	**48.8950**	0.644	1.3	ug/L	281	Standard
	Pb	208	519966.0	3.2	**47.9504**	1.840	3.8	ug/L	515	Standard
	U	238	469738.5	2.3	**46.7906**	1.341	2.9	ug/L	32	Standard
>	**Bi**	209	511992.7	0.7				ug/L	501980	Standard

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	Na	23	5.0	0.0	**1.3515**	0.047	3.5	mg/L	3	Standard
	Mg	24	93.3	15.5	**1.2043**	0.232	19.3	mg/L	35	Standard
	K	39	30.0	33.3	**0.2736**	0.145	52.9	mg/L	12	Standard
	Ca	43	41.7	36.7	**20.0301**	15.564	77.7	mg/L	28	Standard
	Fe	54	40.7	38.3	**0.3732**	0.292	78.3	mg/L	38	Standard
	Fe	57	646.7	1.2	**1.6217**	1.989	122.7	mg/L	668	Standard
>	**Sc-1**	45	19349.0	3.4				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	5.7	36.7				ug/L	6	Standard
	Br	81	1470.1	5.3				ug/L	1013	Standard
	P	31	63.3	44.9				ug/L	70	Standard
	S	34	65.0	7.7				ug/L	58	Standard
	Sr	88	356.7	7.2				ug/L	293	Standard
	C	12	33.3	96.4				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	111.4	34.4				mg/L	-0	Standard
	Ho-1	165	111.7	17.0				mg/L	13	Standard
	Er	166	110.0	15.7				mg/L	3	Standard
	I	127	13514.4	8.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		105.885	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.104	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	107.759	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	101.995	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130714
Sample Date/Time: Tuesday, August 29, 2017 16:37:03
Number of Replicates: 3
Autosampler Position: 228
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	149985.4	1.0				ug/L	143052	Standard
	Be	9	75.0	11.5	**0.0246**	0.005	22.1	ug/L	40	Standard
	Al	27	580800.9	1.6	**4.2364**	0.093	2.2	ug/L	2645	Standard
	Sc	45	19547.6	4.4				ug/L	21013	Standard
	Ti	47	292.3	26.0	**1.4894**	0.418	28.1	ug/L	27	Standard
	V	51	2742.8	1.9	**0.2158**	0.012	5.4	ug/L	1321	Standard
	Cr	52	8622.8	0.7	**0.1883**	0.012	6.5	ug/L	7642	Standard
	Cr	53	1221.7	0.6	**0.1049**	0.005	4.3	ug/L	1230	Standard
	Mn	55	79512.8	0.7	**7.7087**	0.023	0.3	ug/L	1599	Standard
	Co	59	979.4	6.0	**0.0757**	0.008	10.9	ug/L	404	Standard
	Ni	60	747.7	2.2	**0.2788**	0.009	3.1	ug/L	288	Standard
	Cu	65	558.7	2.4	**0.2496**	0.008	3.1	ug/L	181	Standard
	Zn	66	1332.4	1.1	**1.3854**	0.032	2.3	ug/L	166	Standard
>	**Ge**	72	344246.3	0.9				ug/L	360328	Standard
	As	75	63.4	25.6	**0.1512**	0.020	12.9	ug/L	-74	Standard
	Se	82	25.7	12.0	**0.1525**	0.045	29.6	ug/L	15	Standard
	Se-1	77	142.7	4.2	**0.0201**	0.092	456.8	ug/L	139	Standard
>	**Ga**	71	101.7	10.2				mg/L	63	Standard
	Rb	85	3548.7	0.3				ug/L	32	Standard
	Y	89	313438.2	2.3				ug/L	315671	Standard
>	**Rh**	103	65.0	20.4				ug/L	37	Standard
	Mo	98	99.9	10.5	**0.0199**	0.003	15.5	ug/L	143	Standard
	Ag	107	147.3	3.7	**0.0067**	0.001	17.7	ug/L	125	Standard
	Cd	111	15.9	22.7	**0.0044**	0.003	72.4	mg/L	10	Standard
	Cd	114	50.5	40.1	**0.0057**	0.006	109.8	ug/L	39	Standard
>	**In**	115	390361.3	0.6				ug/L	367586	Standard
	Sn	118	106.0	2.5	**0.0171**	0.003	19.9	ug/L	107	Standard
	Sb	123	2244.5	12.0	**0.5826**	0.076	13.0	ug/L	225	Standard
	Ba	135	6622.8	2.8	**4.3833**	0.097	2.2	ug/L	39	Standard
	Ce	140	7081.7	3.7				ug/L	12	Standard
>	**Tb**	159	649346.9	1.8				ug/L	627636	Standard
	Ho	165	143.3	60.1				ug/L	13	Standard
	Tl	203	176.3	14.5	**0.0169**	0.003	17.3	ug/L	76	Standard
	Tl	205	386.7	16.9	**0.0128**	0.003	24.2	ug/L	162	Standard
	Pb	206	954.4	5.0	**0.0880**	0.007	8.2	ug/L	362	Standard
	Pb	207	808.4	4.1	**0.0883**	0.006	6.3	ug/L	281	Standard
	Pb	208	1391.0	1.1	**0.0855**	0.002	1.8	ug/L	515	Standard
	U	238	151.0	23.6	**0.0158**	0.004	22.8	ug/L	32	Standard
>	**Bi**	209	506095.1	0.6				ug/L	501980	Standard

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	Na	23	5.0	0.0	**1.3385**	0.059	4.4	mg/L	3	Standard
	Mg	24	118.3	6.5	**1.6460**	0.197	12.0	mg/L	35	Standard
	K	39	45.0	29.4	**0.4667**	0.199	42.7	mg/L	12	Standard
	Ca	43	30.0	28.9	**8.2797**	6.875	83.0	mg/L	28	Standard
	Fe	54	45.8	22.5	**0.4703**	0.234	49.7	mg/L	38	Standard
	Fe	57	695.0	5.0	**4.4318**	4.202	94.8	mg/L	668	Standard
>	**Sc-1**	45	19547.6	4.4				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	6.0	44.1				ug/L	6	Standard
	Br	81	1573.4	6.4				ug/L	1013	Standard
	P	31	60.0	30.0				ug/L	70	Standard
	S	34	58.3	32.5				ug/L	58	Standard
	Sr	88	375.0	8.3				ug/L	293	Standard
	C	12	10.0	173.2				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	149.5	17.1				mg/L	-0	Standard
	Ho-1	165	143.3	60.1				mg/L	13	Standard
	Er	166	80.0	45.1				mg/L	3	Standard
	I	127	20695.9	9.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.847	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.537	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		106.196
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		100.820
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130717
Sample Date/Time: Tuesday, August 29, 2017 16:40:09
Number of Replicates: 3
Autosampler Position: 229
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	149626.9	1.4				ug/L	143052	Standard
	Be	9	56.7	43.5	**0.0141**	0.014	102.6	ug/L	40	Standard
	Al	27	606517.1	1.1	**4.4359**	0.105	2.4	ug/L	2645	Standard
	Sc	45	19682.8	1.1				ug/L	21013	Standard
	Ti	47	272.0	18.1	**1.3726**	0.283	20.6	ug/L	27	Standard
	V	51	2655.8	7.9	**0.2010**	0.036	18.0	ug/L	1321	Standard
	Cr	52	8579.4	0.8	**0.1758**	0.008	4.5	ug/L	7642	Standard
	Cr	53	1256.7	4.4	**0.1430**	0.084	59.1	ug/L	1230	Standard
	Mn	55	85767.7	0.9	**8.2925**	0.064	0.8	ug/L	1599	Standard
	Co	59	984.0	3.2	**0.0758**	0.005	6.8	ug/L	404	Standard
	Ni	60	754.4	2.4	**0.2809**	0.012	4.3	ug/L	288	Standard
	Cu	65	530.3	6.8	**0.2300**	0.019	8.2	ug/L	181	Standard
	Zn	66	1762.8	1.6	**1.8911**	0.051	2.7	ug/L	166	Standard
>	**Ge**	72	345642.4	1.2				ug/L	360328	Standard
	As	75	16.2	78.1	**0.0958**	0.015	15.3	ug/L	-74	Standard
	Se	82	18.1	15.2	**0.0475**	0.035	73.2	ug/L	15	Standard
	Se-1	77	131.0	11.6	**-0.2133**	0.280	131.2	ug/L	139	Standard
>	**Ga**	71	126.7	28.6				mg/L	63	Standard
	Rb	85	3772.1	2.8				ug/L	32	Standard
	Y	89	307317.4	1.4				ug/L	315671	Standard
>	**Rh**	103	75.0	24.0				ug/L	37	Standard
	Mo	98	94.2	21.8	**0.0180**	0.006	33.0	ug/L	143	Standard
	Ag	107	117.7	4.8	**0.0009**	0.001	171.2	ug/L	125	Standard
	Cd	111	11.6	13.3	**0.0007**	0.001	217.8	mg/L	10	Standard
	Cd	114	27.3	66.0	**-0.0015**	0.006	390.3	ug/L	39	Standard
>	**In**	115	391180.3	2.0				ug/L	367586	Standard
	Sn	118	99.7	2.9	**0.0093**	0.005	55.1	ug/L	107	Standard
	Sb	123	612.0	14.0	**0.1402**	0.020	14.0	ug/L	225	Standard
	Ba	135	7030.6	2.3	**4.6458**	0.061	1.3	ug/L	39	Standard
	Ce	140	7178.4	2.8				ug/L	12	Standard
>	**Tb**	159	648863.0	2.1				ug/L	627636	Standard
	Ho	165	218.3	84.0				ug/L	13	Standard
	Tl	203	48.0	21.8	**0.0029**	0.001	42.9	ug/L	76	Standard
	Tl	205	136.7	9.2	**0.0014**	0.001	49.2	ug/L	162	Standard
	Pb	206	970.4	5.5	**0.0911**	0.005	5.9	ug/L	362	Standard
	Pb	207	757.7	6.0	**0.0807**	0.006	7.5	ug/L	281	Standard
	Pb	208	1423.0	4.8	**0.0896**	0.009	10.1	ug/L	515	Standard
	U	238	75.3	11.4	**0.0082**	0.001	9.1	ug/L	32	Standard
>	**Bi**	209	502638.3	2.3				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4454**	0.763	171.3	mg/L	3	Standard
	Mg	24	91.7	22.7	**1.1468**	0.370	32.2	mg/L	35	Standard
	K	39	33.3	8.7	**0.3069**	0.038	12.3	mg/L	12	Standard
	Ca	43	31.7	32.9	**9.8480**	9.800	99.5	mg/L	28	Standard
	Fe	54	51.0	25.2	**0.5570**	0.240	43.0	mg/L	38	Standard
	Fe	57	678.3	10.3	**2.9266**	4.759	162.6	mg/L	668	Standard
>	**Sc-1**	45	19682.8	1.1				mg/L	21013	Standard
	Cl	35	1.3	173.2				ug/L	2	Standard
	Kr	83	5.7	27.0				ug/L	6	Standard
	Br	81	1660.1	13.6				ug/L	1013	Standard
	P	31	80.0	28.6				ug/L	70	Standard
	S	34	63.3	40.5				ug/L	58	Standard
	Sr	88	316.7	7.9				ug/L	293	Standard
	C	12	16.7	34.6				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	202.5	29.6				mg/L	-0	Standard
	Ho-1	165	218.3	84.0				mg/L	13	Standard
	Er	166	86.7	35.3				mg/L	3	Standard
	I	127	21425.2	8.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.596	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.924	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
> Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
> In	115	106.419
Sn	118	
Sb	123	
Ba	135	
Ce	140	
> Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
> Bi	209	100.131
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
> Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130720
Sample Date/Time: Tuesday, August 29, 2017 16:43:14
Number of Replicates: 3
Autosampler Position: 230
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	149871.0	1.5				ug/L	143052	Standard
	Be	9	36.7	77.5	**0.0022**	0.016	728.1	ug/L	40	Standard
	Al	27	5899.5	5.8	**0.0247**	0.003	12.0	ug/L	2645	Standard
	Sc	45	20080.0	5.3				ug/L	21013	Standard
	Ti	47	44.0	24.1	**0.1193**	0.054	45.4	ug/L	27	Standard
	V	51	1480.7	8.5	**0.0220**	0.013	58.8	ug/L	1321	Standard
	Cr	52	7949.4	2.1	**0.0786**	0.009	11.9	ug/L	7642	Standard
	Cr	53	1106.7	9.6	**-0.0423**	0.097	228.6	ug/L	1230	Standard
	Mn	55	1885.5	2.3	**0.0417**	0.001	2.9	ug/L	1599	Standard
	Co	59	352.0	7.2	**-0.0020**	0.004	215.5	ug/L	404	Standard
	Ni	60	380.3	4.7	**0.0661**	0.013	20.3	ug/L	288	Standard
	Cu	65	824.4	0.7	**0.4189**	0.018	4.2	ug/L	181	Standard
	Zn	66	1462.4	2.9	**1.5404**	0.092	5.9	ug/L	166	Standard
>	Ge	72	344584.2	2.7				ug/L	360328	Standard
	As	75	-19.6	281.5	**0.0552**	0.064	115.4	ug/L	-74	Standard
	Se	82	16.0	27.2	**0.0199**	0.062	310.1	ug/L	15	Standard
	Se-1	77	132.3	8.5	**-0.1810**	0.175	96.6	ug/L	139	Standard
>	Ga	71	45.0	33.3				mg/L	63	Standard
	Rb	85	83.3	22.7				ug/L	32	Standard
	Y	89	303923.3	1.4				ug/L	315671	Standard
>	Rh	103	58.3	34.6				ug/L	37	Standard
	Mo	98	34.2	42.1	**-0.0005**	0.005	952.4	ug/L	143	Standard
	Ag	107	117.3	13.7	**0.0011**	0.003	283.8	ug/L	125	Standard
	Cd	111	9.3	43.4	**-0.0012**	0.004	305.5	mg/L	10	Standard
	Cd	114	20.5	11.7	**-0.0035**	0.001	22.2	ug/L	39	Standard
>	In	115	386161.9	0.9				ug/L	367586	Standard
	Sn	118	105.0	17.3	**0.0174**	0.023	130.5	ug/L	107	Standard
	Sb	123	300.4	13.2	**0.0575**	0.012	20.2	ug/L	225	Standard
	Ba	135	392.7	0.8	**0.2347**	0.004	1.7	ug/L	39	Standard
	Ce	140	53.3	35.5				ug/L	12	Standard
>	Tb	159	651001.7	2.0				ug/L	627636	Standard
	Ho	165	6.7	43.3				ug/L	13	Standard
	Tl	203	27.0	16.1	**0.0005**	0.000	79.1	ug/L	76	Standard
	Tl	205	55.0	32.8	**-0.0023**	0.001	37.3	ug/L	162	Standard
	Pb	206	506.7	4.9	**0.0245**	0.005	20.3	ug/L	362	Standard
	Pb	207	398.3	3.2	**0.0205**	0.002	7.9	ug/L	281	Standard
	Pb	208	703.3	6.5	**0.0218**	0.005	24.7	ug/L	515	Standard
	U	238	13.3	45.2	**0.0020**	0.001	31.8	ug/L	32	Standard
>	Bi	209	502669.8	2.0				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	95.0	15.8	**1.1842**	0.335	28.2	mg/L	35	Standard
|	**K**	39	13.3	78.1	**0.0477**	0.138	289.7	mg/L	12	Standard
|	**Ca**	43	33.3	22.9	**10.7616**	7.155	66.5	mg/L	28	Standard
|	**Fe**	54	22.4	35.8	**0.0001**	0.151118	123.7	mg/L	38	Standard
|	**Fe**	57	721.7	4.6	**4.8778**	3.025	62.0	mg/L	668	Standard
⌊>	**Sc-1**	45	20080.0	5.3				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	5.7	36.7				ug/L	6	Standard
	Br	81	1030.0	5.1				ug/L	1013	Standard
	P	31	70.0	49.5				ug/L	70	Standard
	S	34	46.7	16.4				ug/L	58	Standard
	Sr	88	316.7	2.4				ug/L	293	Standard
	C	12	16.7	34.6				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	5.5	94.5				mg/L	-0	Standard
	Ho-1	165	6.7	43.3				mg/L	13	Standard
	Er	166	23.3	65.5				mg/L	3	Standard
	I	127	3423.7	7.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		104.767	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		95.631	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	105.054	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	100.137	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130723
Sample Date/Time: Tuesday, August 29, 2017 16:46:19
Number of Replicates: 3
Autosampler Position: 231
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	148352.9	1.7				ug/L	143052	Standard
	Be	9	26.7	21.7	**-0.0032**	0.004	112.4	ug/L	40	Standard
	Al	27	7073.3	1.3	**0.0338**	0.000	1.0	ug/L	2645	Standard
	Sc	45	19676.1	2.1				ug/L	21013	Standard
	Ti	47	37.7	7.7	**0.0870**	0.018	20.9	ug/L	27	Standard
	V	51	1573.7	3.4	**0.0386**	0.010	24.9	ug/L	1321	Standard
	Cr	52	7938.4	2.4	**0.0879**	0.015	17.2	ug/L	7642	Standard
	Cr	53	1136.7	6.2	**0.0091**	0.074	820.5	ug/L	1230	Standard
	Mn	55	3217.0	2.3	**0.1759**	0.010	5.7	ug/L	1599	Standard
	Co	59	377.7	0.3	**0.0016**	0.001	46.7	ug/L	404	Standard
	Ni	60	460.7	7.5	**0.1146**	0.017	14.9	ug/L	288	Standard
	Cu	65	816.7	2.4	**0.4183**	0.010	2.5	ug/L	181	Standard
	Zn	66	3136.0	3.1	**3.5689**	0.106	3.0	ug/L	166	Standard
>	**Ge**	72	341558.5	1.4				ug/L	360328	Standard
	As	75	-83.8	12.7	**-0.0215**	0.013	60.2	ug/L	-74	Standard
	Se	82	9.4	77.5	**-0.0690**	0.102	147.9	ug/L	15	Standard
	Se-1	77	135.0	3.4	**-0.1048**	0.115	109.7	ug/L	139	Standard
>	**Ga**	71	23.3	12.4				mg/L	63	Standard
	Rb	85	90.0	24.2				ug/L	32	Standard
	Y	89	309125.2	3.1				ug/L	315671	Standard
>	**Rh**	103	58.3	26.2				ug/L	37	Standard
	Mo	98	40.6	18.0	**0.0014**	0.002	155.7	ug/L	143	Standard
	Ag	107	123.7	14.2	**0.0022**	0.004	163.5	ug/L	125	Standard
	Cd	111	10.6	14.3	**-0.0001**	0.001	1389.2	mg/L	10	Standard
	Cd	114	37.3	41.2	**0.0017**	0.005	289.3	ug/L	39	Standard
>	**In**	115	388455.6	0.9				ug/L	367586	Standard
	Sn	118	162.3	9.8	**0.0857**	0.019	22.7	ug/L	107	Standard
	Sb	123	219.2	21.1	**0.0348**	0.012	34.7	ug/L	225	Standard
	Ba	135	393.0	1.6	**0.2333**	0.007	2.8	ug/L	39	Standard
	Ce	140	53.3	14.3				ug/L	12	Standard
>	**Tb**	159	649929.1	1.6				ug/L	627636	Standard
	Ho	165	16.7	17.3				ug/L	13	Standard
	Tl	203	20.0	17.3	**-0.0002**	0.000	185.2	ug/L	76	Standard
	Tl	205	53.3	19.5	**-0.0024**	0.000	20.2	ug/L	162	Standard
	Pb	206	553.3	2.9	**0.0315**	0.003	9.6	ug/L	362	Standard
	Pb	207	444.0	8.1	**0.0285**	0.007	23.2	ug/L	281	Standard
	Pb	208	780.0	3.6	**0.0293**	0.003	11.3	ug/L	515	Standard
	U	238	7.7	7.5	**0.0014**	0.000	4.8	ug/L	32	Standard
>	**Bi**	209	500393.2	1.0				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4566**	0.782	171.3	mg/L	3	Standard
	Mg	24	73.3	45.4	**0.8236**	0.611	74.1	mg/L	35	Standard
	K	39	11.7	24.7	**0.0277**	0.036	130.5	mg/L	12	Standard
	Ca	43	30.0	16.7	**8.2595**	4.504	54.5	mg/L	28	Standard
	Fe	54	27.5	68.5	**0.1070**	0.357	334.1	mg/L	38	Standard
	Fe	57	686.7	1.8	**3.4788**	1.029	29.6	mg/L	668	Standard
>	**Sc-1**	45	19676.1	2.1				mg/L	21013	Standard
	Cl	35	0.7	173.2				ug/L	2	Standard
	Kr	83	4.3	74.2				ug/L	6	Standard
	Br	81	1093.4	8.0				ug/L	1013	Standard
	P	31	53.3	42.3				ug/L	70	Standard
	S	34	53.3	28.6				ug/L	58	Standard
	Sr	88	291.7	27.8				ug/L	293	Standard
	C	12	16.7	34.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	15.9	37.3				mg/L	-0	Standard
	Ho-1	165	16.7	17.3				mg/L	13	Standard
	Er	166	16.7	34.6				mg/L	3	Standard
	I	127	3027.0	4.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		103.705	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.791	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	105.678
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	99.684
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130723
Sample Date/Time: Tuesday, August 29, 2017 16:49:25
Number of Replicates: 3
Autosampler Position: 232
Sample Description: 50
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	137087.5	2.0				ug/L	143052	Standard
	Be	9	31.7	45.6	**0.0011**	0.009	801.8	ug/L	40	Standard
	Al	27	2453.5	6.0	**0.0011**	0.001	93.1	ug/L	2645	Standard
	Sc	45	17253.2	2.7				ug/L	21013	Standard
	Ti	47	27.0	22.5	**0.0441**	0.039	88.1	ug/L	27	Standard
	V	51	1321.4	2.7	**0.0217**	0.007	32.1	ug/L	1321	Standard
	Cr	52	5499.3	1.9	**-0.2114**	0.028	13.4	ug/L	7642	Standard
	Cr	53	715.0	9.2	**-0.4261**	0.081	19.1	ug/L	1230	Standard
	Mn	55	1196.7	4.7	**-0.0123**	0.008	61.1	ug/L	1599	Standard
	Co	59	343.7	2.7	**0.0020**	0.001	52.8	ug/L	404	Standard
	Ni	60	263.0	2.5	**0.0160**	0.003	17.4	ug/L	288	Standard
	Cu	65	176.7	14.3	**0.0191**	0.018	94.9	ug/L	181	Standard
	Zn	66	2290.8	1.1	**2.8504**	0.065	2.3	ug/L	166	Standard
>	Ge	72	308206.4	1.0				ug/L	360328	Standard
	As	75	-86.7	29.1	**-0.0359**	0.033	91.9	ug/L	-74	Standard
	Se	82	11.7	37.8	**-0.0203**	0.067	327.7	ug/L	15	Standard
	Se-1	77	128.0	7.2	**0.0277**	0.221	796.4	ug/L	139	Standard
>	Ga	71	43.3	40.5				mg/L	63	Standard
	Rb	85	46.7	27.0				ug/L	32	Standard
	Y	89	263327.1	1.1				ug/L	315671	Standard
>	Rh	103	45.0	0.0				ug/L	37	Standard
	Mo	98	54.0	4.3	**0.0071**	0.001	13.2	ug/L	143	Standard
	Ag	107	117.0	14.0	**0.0028**	0.003	115.9	ug/L	125	Standard
	Cd	111	9.6	12.0	**-0.0002**	0.001	450.0	mg/L	10	Standard
	Cd	114	18.6	97.3	**-0.0037**	0.006	161.4	ug/L	39	Standard
>	In	115	358036.4	1.0				ug/L	367586	Standard
	Sn	118	53.7	10.3	**-0.0398**	0.008	19.2	ug/L	107	Standard
	Sb	123	76.3	24.5	**-0.0022**	0.006	248.2	ug/L	225	Standard
	Ba	135	35.7	16.9	**-0.0040**	0.004	110.3	ug/L	39	Standard
	Ce	140	18.3	41.7				ug/L	12	Standard
>	Tb	159	622896.6	0.8				ug/L	627636	Standard
	Ho	165	13.3	57.3				ug/L	13	Standard
	Tl	203	18.0	19.2	**-0.0003**	0.000	136.5	ug/L	76	Standard
	Tl	205	58.3	26.2	**-0.0020**	0.001	36.4	ug/L	162	Standard
	Pb	206	342.7	2.9	**0.0048**	0.002	35.2	ug/L	362	Standard
	Pb	207	286.3	7.7	**0.0056**	0.003	60.9	ug/L	281	Standard
	Pb	208	526.0	3.7	**0.0091**	0.001	15.7	ug/L	515	Standard
	U	238	3.0	33.3	**0.0009**	0.000	12.3	ug/L	32	Standard
>	Bi	209	464729.7	1.4				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	33.3	17.3	**0.1846**	0.132	71.5	mg/L	35	Standard
	K	39	15.0	66.7	**0.0960**	0.141	147.0	mg/L	12	Standard
	Ca	43	21.7	13.3	**3.3913**	3.334	98.3	mg/L	28	Standard
	Fe	54	34.4	42.6	**0.3334**	0.330	98.9	mg/L	38	Standard
	Fe	57	670.0	4.2	**8.4992**	0.800	9.4	mg/L	668	Standard
>	**Sc-1**	45	17253.2	2.7				mg/L	21013	Standard
	Cl	35	0.7	173.2				ug/L	2	Standard
	Kr	83	5.3	21.7				ug/L	6	Standard
	Br	81	916.7	10.6				ug/L	1013	Standard
	P	31	48.3	26.0				ug/L	70	Standard
	S	34	58.3	27.6				ug/L	58	Standard
	Sr	88	330.0	10.6				ug/L	293	Standard
	C	12	23.3	49.5				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	6.0	93.6				mg/L	-0	Standard
	Ho-1	165	13.3	57.3				mg/L	13	Standard
	Er	166	13.3	43.3				mg/L	3	Standard
	I	127	2171.8	5.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		95.830	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		85.535	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	97.402
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.579
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 4
Sample Date/Time: Tuesday, August 29, 2017 16:52:31
Number of Replicates: 3
Autosampler Position: 203
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	131105.1	3.1				ug/L	143052	Standard
	Be	9	23.3	12.4	**-0.0034**	0.001	42.8	ug/L	40	Standard
	Al	27	5896191.7	1.4	**49.4112**	0.875	1.8	ug/L	2645	Standard
	Sc	45	17291.5	4.1				ug/L	21013	Standard
	Ti	47	17339.9	1.4	**109.0554**	0.287	0.3	ug/L	27	Standard
	V	51	-897.8	30.4	**-0.3609**	0.046	12.6	ug/L	1321	Standard
	Cr	52	5881.5	2.2	**-0.1186**	0.039	32.9	ug/L	7642	Standard
	Cr	53	7378.5	7.3	**9.1465**	0.935	10.2	ug/L	1230	Standard
	Mn	55	1738.8	23.9	**0.0522**	0.050	96.0	ug/L	1599	Standard
	Co	59	473.0	3.0	**0.0213**	0.003	13.8	ug/L	404	Standard
	Ni	60	604.0	0.4	**0.2453**	0.004	1.8	ug/L	288	Standard
	Cu	65	387.0	1.6	**0.1752**	0.004	2.3	ug/L	181	Standard
	Zn	66	977.7	3.1	**1.1273**	0.026	2.3	ug/L	166	Standard
>	**Ge**	72	301447.3	1.5				ug/L	360328	Standard
	As	75	-129.3	59.9	**-0.0948**	0.101	106.8	ug/L	-74	Standard
	Se	82	14.4	21.1	**0.0259**	0.051	197.4	ug/L	15	Standard
	Se-1	77	607.7	5.7	**10.5659**	0.745	7.1	ug/L	139	Standard
>	**Ga**	71	106.7	42.5				mg/L	63	Standard
	Rb	85	580.0	6.7				ug/L	32	Standard
	Y	89	264244.8	1.8				ug/L	315671	Standard
>	**Rh**	103	71.7	38.4				ug/L	37	Standard
	Mo	98	255047.3	1.5	**88.6893**	3.162	3.6	ug/L	143	Standard
	Ag	107	140.3	4.7	**0.0085**	0.002	24.2	ug/L	125	Standard
	Cd	111	-63.7	8.2	**-0.0705**	0.004	6.3	mg/L	10	Standard
	Cd	114	419.9	7.7	**0.1352**	0.013	9.6	ug/L	39	Standard
>	**In**	115	351132.0	2.1				ug/L	367586	Standard
	Sn	118	66.3	4.4	**-0.0215**	0.005	22.0	ug/L	107	Standard
	Sb	123	79.7	9.1	**-0.0008**	0.002	213.4	ug/L	225	Standard
	Ba	135	59.3	3.5	**0.0141**	0.002	15.4	ug/L	39	Standard
	Ce	140	65.0	7.7				ug/L	12	Standard
>	**Tb**	159	621910.3	2.1				ug/L	627636	Standard
	Ho	165	8.3	34.6				ug/L	13	Standard
	Tl	203	72.0	6.1	**0.0065**	0.001	9.5	ug/L	76	Standard
	Tl	205	140.0	18.9	**0.0023**	0.001	59.2	ug/L	162	Standard
	Pb	206	440.3	3.0	**0.0224**	0.001	6.6	ug/L	362	Standard
	Pb	207	363.0	1.0	**0.0218**	0.001	6.7	ug/L	281	Standard
	Pb	208	665.0	5.6	**0.0256**	0.003	13.3	ug/L	515	Standard
	U	238	3.7	41.7	**0.0010**	0.000	17.0	ug/L	32	Standard
>	**Bi**	209	449289.3	1.1				ug/L	501980	Standard

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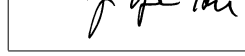

	Na	23	33.3	60.6	**9.9262**	5.821	58.6	mg/L	3	Standard
	Mg	24	678.3	15.1	**13.3515**	1.662	12.4	mg/L	35	Standard
	K	39	345.0	12.6	**4.9313**	0.537	10.9	mg/L	12	Standard
	Ca	43	60.0	44.1	**44.1077**	28.531	64.7	mg/L	28	Standard
	Fe	54	680.9	6.9	**14.4334**	0.496	3.4	mg/L	38	Standard
	Fe	57	928.4	5.6	**27.6448**	5.267	19.1	mg/L	668	Standard
>	**Sc-1**	45	17291.5	4.1				mg/L	21013	Standard
	Cl	35	4.0	50.0				ug/L	2	Standard
	Kr	83	4.3	70.5				ug/L	6	Standard
	Br	81	853.4	23.3				ug/L	1013	Standard
	P	31	43.3	43.7				ug/L	70	Standard
	S	34	50.0	45.8				ug/L	58	Standard
	Sr	88	393.3	11.5				ug/L	293	Standard
	C	12	56.7	50.9				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	13.2	116.4				mg/L	-0	Standard
	Ho-1	165	8.3	34.6				mg/L	13	Standard
	Er	166	3.3	173.2				mg/L	3	Standard
	I	127	17818.8	2.9				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27	0.988		
	Sc	45			
	Ti	47	109.055		
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		83.659	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	88.689		
|	Ag	107			
|	Cd	111			
|	Cd	114			
| >	In	115			95.524
|	Sn	118			
|	Sb	123			
⌊	Ba	135			
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203			
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208			
|	U	238			
⌊>	Bi	209			89.503
⌈	Na	23	79.409		
|	Mg	24	267.030		
|	K	39	98.626		
|	Ca	43	294.051		
|	Fe	54	115.467		
|	Fe	57	221.158		
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 4	Al	27	
QC Std 4	Na	23	
QC Std 4	Mg	24	

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QC Std 4	Ca	43
QC Std 4	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 5
Sample Date/Time: Tuesday, August 29, 2017 16:55:37
Number of Replicates: 3
Autosampler Position: 204
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	139543.1	1.7				ug/L	143052	Standard
	Be	9	163085.0	2.6	**101.5804**	0.996	1.0	ug/L	40	Standard
	Al	27	6194228.8	2.3	**48.7484**	0.410	0.8	ug/L	2645	Standard
	Sc	45	18506.3	1.0				ug/L	21013	Standard
	Ti	47	18199.3	0.9	**106.0794**	0.548	0.5	ug/L	27	Standard
	V	51	610066.3	1.3	**98.6823**	0.943	1.0	ug/L	1321	Standard
	Cr	52	584843.0	1.4	**98.5876**	0.968	1.0	ug/L	7642	Standard
	Cr	53	79526.5	1.2	**104.1004**	0.755	0.7	ug/L	1230	Standard
	Mn	55	939199.0	1.1	**98.0338**	0.972	1.0	ug/L	1599	Standard
	Co	59	750113.6	1.8	**98.1911**	1.735	1.8	ug/L	404	Standard
	Ni	60	161361.8	1.1	**98.7099**	1.285	1.3	ug/L	288	Standard
	Cu	65	149448.5	1.1	**100.7806**	0.971	1.0	ug/L	181	Standard
	Zn	66	84802.7	1.2	**106.9983**	1.202	1.1	ug/L	166	Standard
>	Ge	72	325245.9	0.7				ug/L	360328	Standard
	As	75	82843.1	1.3	**102.4109**	1.024	1.0	ug/L	-74	Standard
	Se	82	7089.8	0.8	**102.6570**	0.495	0.5	ug/L	15	Standard
	Se-1	77	5698.7	2.1	**112.6528**	1.679	1.5	ug/L	139	Standard
>	Ga	71	131.7	9.6				mg/L	63	Standard
	Rb	85	591.7	5.8				ug/L	32	Standard
	Y	89	286767.0	1.3				ug/L	315671	Standard
>	Rh	103	91.7	11.4				ug/L	37	Standard
	Mo	98	278230.0	1.0	**90.9293**	1.120	1.2	ug/L	143	Standard
	Ag	107	255880.6	0.6	**52.6193**	0.400	0.8	ug/L	125	Standard
	Cd	111	108993.1	1.9	**98.3756**	0.582	0.6	mg/L	10	Standard
	Cd	114	304213.0	2.0	**98.7959**	0.966	1.0	ug/L	39	Standard
>	In	115	373458.1	1.4				ug/L	367586	Standard
	Sn	118	118.0	25.6	**0.0377**	0.036	96.2	ug/L	107	Standard
	Sb	123	362218.9	2.8	**102.3745**	1.507	1.5	ug/L	225	Standard
	Ba	135	147376.9	2.5	**102.6210**	1.315	1.3	ug/L	39	Standard
	Ce	140	75.0	13.3				ug/L	12	Standard
>	Tb	159	649715.0	2.1				ug/L	627636	Standard
	Ho	165	8.3	34.6				ug/L	13	Standard
	Tl	203	859516.4	0.9	**99.2719**	2.292	2.3	ug/L	76	Standard
	Tl	205	1980629.2	0.4	**95.3883**	1.899	2.0	ug/L	162	Standard
	Pb	206	667204.1	0.5	**100.5682**	1.900	1.9	ug/L	362	Standard
	Pb	207	559755.0	0.5	**98.2202**	1.444	1.5	ug/L	281	Standard
	Pb	208	997013.4	2.0	**98.1036**	3.485	3.6	ug/L	515	Standard
	U	238	933586.7	1.0	**99.1718**	2.568	2.6	ug/L	32	Standard
>	Bi	209	480177.1	1.6				ug/L	501980	Standard

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	Na	23	58.3	19.8	**16.3958**	3.102	18.9	mg/L	3	Standard
	Mg	24	646.7	2.2	**11.8693**	0.336	2.8	mg/L	35	Standard
	K	39	373.3	15.7	**4.9969**	0.857	17.1	mg/L	12	Standard
	Ca	43	43.3	24.0	**23.1289**	9.982	43.2	mg/L	28	Standard
	Fe	54	635.6	5.3	**12.5476**	0.782	6.2	mg/L	38	Standard
	Fe	57	833.4	2.3	**16.4531**	1.354	8.2	mg/L	668	Standard
>	**Sc-1**	45	18506.3	1.0				mg/L	21013	Standard
	Cl	35	0.7	173.2				ug/L	2	Standard
	Kr	83	7.3	34.3				ug/L	6	Standard
	Br	81	996.7	4.2				ug/L	1013	Standard
	P	31	48.3	11.9				ug/L	70	Standard
	S	34	63.3	25.4				ug/L	58	Standard
	Sr	88	350.0	1.4				ug/L	293	Standard
	C	12	43.3	26.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	16.7	69.3				mg/L	3	Standard
	Dy	164	2.9	217.0				mg/L	-0	Standard
	Ho-1	165	8.3	34.6				mg/L	13	Standard
	Er	166	10.0	100.0				mg/L	3	Standard
	I	127	19245.6	3.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.580		
	Al	27	0.975		
	Sc	45			
	Ti	47	106.079		
	V	51	98.682		
	Cr	52	98.588		
	Cr	53			
	Mn	55	98.034		
	Co	59	98.191		
	Ni	60	98.710		
	Cu	65	100.781		
	Zn	66	106.998		
>	Ge	72		90.264	
	As	75	102.411		
	Se	82	102.657		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	90.929		
Ag	107	52.619		
Cd	111	98.376		
Cd	114			
In	115		101.598	
Sn	118			
Sb	123	102.374		
Ba	135	102.621		
Ce	140			
Tb	159			
Ho	165			
Tl	203	99.272		
Tl	205			
Pb	206			
Pb	207			
Pb	208	98.104		
U	238	99.172		
Bi	209		95.657	
Na	23	131.167		
Mg	24	237.386		
K	39	99.937		
Ca	43	154.193		
Fe	54	100.381		
Fe	57	131.625		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Ag	107	
QC Std 5	Na	23	

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QC Std 5	Mg	24
QC Std 5	Ca	43
QC Std 5	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 16:58:44
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144621.9	0.3				ug/L	143052	Standard
	Be	9	83833.0	1.9	**50.3769**	0.809	1.6	ug/L	40	Standard
	Al	27	6598548.6	2.1	**50.1091**	0.950	1.9	ug/L	2645	Standard
	Sc	45	19420.8	4.3				ug/L	21013	Standard
	Ti	47	18008.0	1.8	**98.5525**	2.315	2.3	ug/L	27	Standard
	V	51	324351.8	0.8	**49.1629**	0.801	1.6	ug/L	1321	Standard
	Cr	52	314251.0	2.1	**49.1414**	0.902	1.8	ug/L	7642	Standard
	Cr	53	40948.6	3.8	**49.5832**	1.535	3.1	ug/L	1230	Standard
	Mn	55	506389.5	1.4	**49.5556**	0.507	1.0	ug/L	1599	Standard
	Co	59	405390.3	0.9	**49.8060**	0.911	1.8	ug/L	404	Standard
	Ni	60	85979.3	1.6	**49.3106**	1.201	2.4	ug/L	288	Standard
	Cu	65	79623.4	1.1	**50.3612**	0.626	1.2	ug/L	181	Standard
	Zn	66	41934.3	0.8	**49.5711**	0.856	1.7	ug/L	166	Standard
>	**Ge**	72	346435.1	1.6				ug/L	360328	Standard
	As	75	41746.0	0.9	**48.4992**	0.841	1.7	ug/L	-74	Standard
	Se	82	3568.8	1.0	**48.4127**	0.462	1.0	ug/L	15	Standard
	Se-1	77	2779.9	3.1	**50.1213**	0.972	1.9	ug/L	139	Standard
>	**Ga**	71	43.3	29.0				mg/L	63	Standard
	Rb	85	686.7	7.2				ug/L	32	Standard
	Y	89	303716.7	2.5				ug/L	315671	Standard
>	**Rh**	103	70.0	18.9				ug/L	37	Standard
	Mo	98	298972.7	0.9	**93.0615**	1.763	1.9	ug/L	143	Standard
	Ag	107	241952.9	0.6	**47.3825**	0.200	0.4	ug/L	125	Standard
	Cd	111	56572.6	0.9	**48.6287**	0.047	0.1	mg/L	10	Standard
	Cd	114	160922.8	0.9	**49.7745**	0.799	1.6	ug/L	39	Standard
>	**In**	115	392124.9	1.0				ug/L	367586	Standard
	Sn	118	41593.7	2.5	**49.5760**	1.303	2.6	ug/L	107	Standard
	Sb	123	193630.5	1.6	**52.1145**	0.565	1.1	ug/L	225	Standard
	Ba	135	78705.0	2.9	**52.1788**	1.016	1.9	ug/L	39	Standard
	Ce	140	140.0	40.6				ug/L	12	Standard
>	**Tb**	159	652927.9	1.2				ug/L	627636	Standard
	Ho	165	21.7	93.3				ug/L	13	Standard
	Tl	203	451932.3	1.3	**49.9557**	0.247	0.5	ug/L	76	Standard
	Tl	205	1040125.5	1.0	**47.9454**	0.626	1.3	ug/L	162	Standard
	Pb	206	343510.2	0.8	**49.5355**	0.452	0.9	ug/L	362	Standard
	Pb	207	304599.1	0.8	**51.1391**	0.424	0.8	ug/L	281	Standard
	Pb	208	512978.6	3.4	**48.3038**	2.407	5.0	ug/L	515	Standard
	U	238	484050.9	2.0	**49.2267**	1.728	3.5	ug/L	32	Standard
>	**Bi**	209	501605.2	1.6				ug/L	501980	Standard

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⌈	**Na**	23	13.3	78.1	**3.6438**	2.980	81.8	mg/L	3	Standard
|	**Mg**	24	390.0	15.8	**6.6225**	1.235	18.6	mg/L	35	Standard
|	**K**	39	341.7	17.1	**4.3344**	0.720	16.6	mg/L	12	Standard
|	**Ca**	43	30.0	44.1	**8.3859**	11.823	141.0	mg/L	28	Standard
|	**Fe**	54	274.1	13.9	**4.9350**	0.963	19.5	mg/L	38	Standard
|	**Fe**	57	806.7	20.3	**12.3278**	13.185	107.0	mg/L	668	Standard
⌊>	**Sc-1**	45	19420.8	4.3				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	5.3	21.7				ug/L	6	Standard
	Br	81	1013.4	5.8				ug/L	1013	Standard
	P	31	53.3	5.4				ug/L	70	Standard
	S	34	73.3	39.4				ug/L	58	Standard
	Sr	88	328.3	7.2				ug/L	293	Standard
	C	12	10.0	100.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	5.7	108.5				mg/L	-0	Standard
	Ho-1	165	21.7	93.3				mg/L	13	Standard
	Er	166	20.0	50.0				mg/L	3	Standard
	I	127	2436.9	2.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9	100.754		
⌊	Al	27	100.218		
⌈	Sc	45			
|	Ti	47	98.552		
|	V	51	98.326		
|	Cr	52	98.283		
|	Cr	53			
|	Mn	55	99.111		
|	Co	59	99.612		
|	Ni	60	98.621		
|	Cu	65	100.722		
|	Zn	66	99.142		
|>	Ge	72		96.144	
|	As	75	96.998		
|	Se	82	96.825		
⌊	Se-1	77			
⌈>	Ga	71			

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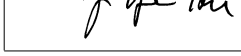

⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	93.062		
|	Ag	107	94.765		
|	Cd	111	97.257		
|	Cd	114			
| >	In	115		106.676	
|	Sn	118	99.152		
|	Sb	123	104.229		
⌊	Ba	135	104.358		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	99.911		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	96.608		
|	U	238	98.453		
⌊>	Bi	209		99.925	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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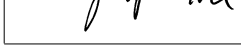

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 17:01:50
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	147410.3	0.9				ug/L	143052	Standard
	Be	9	51.7	24.4	**0.0116**	0.007	62.4	ug/L	40	Standard
	Al	27	2740.2	7.2	**0.0018**	0.002	82.9	ug/L	2645	Standard
	Sc	45	19302.3	3.7				ug/L	21013	Standard
	Ti	47	24.7	22.3	**0.0155**	0.033	213.7	ug/L	27	Standard
	V	51	1160.7	6.4	**-0.0244**	0.015	60.2	ug/L	1321	Standard
	Cr	52	6471.7	1.1	**-0.1467**	0.019	12.6	ug/L	7642	Standard
	Cr	53	1048.4	6.0	**-0.0977**	0.080	82.0	ug/L	1230	Standard
	Mn	55	1494.1	4.4	**0.0048**	0.003	71.5	ug/L	1599	Standard
	Co	59	397.0	9.3	**0.0042**	0.006	131.4	ug/L	404	Standard
	Ni	60	256.0	5.4	**-0.0042**	0.005	117.0	ug/L	288	Standard
	Cu	65	239.0	3.3	**0.0474**	0.002	3.5	ug/L	181	Standard
	Zn	66	198.0	3.3	**0.0332**	0.013	38.7	ug/L	166	Standard
>	**Ge**	72	340468.7	2.2				ug/L	360328	Standard
	As	75	-61.4	64.7	**0.0052**	0.045	861.6	ug/L	-74	Standard
	Se	82	13.2	31.3	**-0.0160**	0.059	372.2	ug/L	15	Standard
	Se-1	77	137.0	3.2	**-0.0591**	0.027	44.9	ug/L	139	Standard
>	**Ga**	71	31.7	50.8				mg/L	63	Standard
	Rb	85	46.7	6.2				ug/L	32	Standard
	Y	89	306352.1	3.6				ug/L	315671	Standard
>	**Rh**	103	45.0	22.2				ug/L	37	Standard
	Mo	98	475.1	11.8	**0.1376**	0.017	12.6	ug/L	143	Standard
	Ag	107	160.0	7.6	**0.0093**	0.002	24.4	ug/L	125	Standard
	Cd	111	15.9	37.9	**0.0044**	0.005	116.2	mg/L	10	Standard
	Cd	114	38.7	19.5	**0.0020**	0.002	111.8	ug/L	39	Standard
>	**In**	115	389468.4	0.7				ug/L	367586	Standard
	Sn	118	112.0	6.4	**0.0247**	0.009	36.6	ug/L	107	Standard
	Sb	123	996.2	8.6	**0.2452**	0.022	8.8	ug/L	225	Standard
	Ba	135	35.3	18.8	**-0.0063**	0.004	68.1	ug/L	39	Standard
	Ce	140	18.3	15.7				ug/L	12	Standard
>	**Tb**	159	648934.1	1.5				ug/L	627636	Standard
	Ho	165	18.3	31.5				ug/L	13	Standard
	Tl	203	122.3	23.6	**0.0109**	0.003	28.7	ug/L	76	Standard
	Tl	205	273.3	25.6	**0.0075**	0.003	41.1	ug/L	162	Standard
	Pb	206	398.0	8.1	**0.0079**	0.005	57.1	ug/L	362	Standard
	Pb	207	335.0	5.9	**0.0090**	0.002	24.3	ug/L	281	Standard
	Pb	208	596.7	2.2	**0.0109**	0.002	19.7	ug/L	515	Standard
	U	238	70.7	27.5	**0.0077**	0.002	26.6	ug/L	32	Standard
>	**Bi**	209	510225.3	1.9				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4709**	0.807	171.4	mg/L	3	Standard
	Mg	24	61.7	16.9	**0.6277**	0.170	27.1	mg/L	35	Standard
	K	39	10.0	86.6	**0.0064**	0.107	1664.3	mg/L	12	Standard
	Ca	43	25.0	34.6	**4.1143**	8.293	201.6	mg/L	28	Standard
	Fe	54	37.3	15.9	**0.3072**	0.091	29.5	mg/L	38	Standard
	Fe	57	711.7	1.5	**6.0547**	2.420	40.0	mg/L	668	Standard
>	**Sc-1**	45	19302.3	3.7				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	6.7	8.7				ug/L	6	Standard
	Br	81	1043.4	3.4				ug/L	1013	Standard
	P	31	48.3	21.5				ug/L	70	Standard
	S	34	58.3	19.8				ug/L	58	Standard
	Sr	88	335.0	2.6				ug/L	293	Standard
	C	12	33.3	34.6				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	6.0	107.3				mg/L	-0	Standard
	Ho-1	165	18.3	31.5				mg/L	13	Standard
	Er	166	13.3	114.6				mg/L	3	Standard
	I	127	9302.9	7.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.488	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	105.953	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	101.643	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Sb	123	

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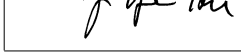

Method 6020 - Summary Report

Sample ID: QC Std 8
Sample Date/Time: Tuesday, August 29, 2017 17:04:57
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	150152.0	0.2				ug/L	143052	Standard
	Be	9	383.3	13.1	**0.2031**	0.029	14.3	ug/L	40	Standard
	Al	27	2370.2	5.0	**-0.0012**	0.001	65.9	ug/L	2645	Standard
	Sc	45	19656.1	1.5				ug/L	21013	Standard
	Ti	47	26.3	27.5	**0.0222**	0.038	171.7	ug/L	27	Standard
	V	51	3648.1	0.5	**0.3535**	0.011	3.2	ug/L	1321	Standard
	Cr	52	13141.7	0.6	**0.9135**	0.023	2.6	ug/L	7642	Standard
	Cr	53	1883.5	6.4	**0.9295**	0.116	12.5	ug/L	1230	Standard
	Mn	55	7598.6	1.3	**0.6049**	0.012	2.0	ug/L	1599	Standard
	Co	59	3381.0	0.3	**0.3722**	0.008	2.0	ug/L	404	Standard
	Ni	60	2891.6	2.2	**1.5173**	0.047	3.1	ug/L	288	Standard
	Cu	65	1454.1	3.0	**0.8190**	0.012	1.5	ug/L	181	Standard
	Zn	66	5149.5	3.7	**5.9331**	0.162	2.7	ug/L	166	Standard
>	**Ge**	72	344830.9	1.7				ug/L	360328	Standard
	As	75	258.4	14.2	**0.3784**	0.045	11.8	ug/L	-74	Standard
	Se	82	44.1	16.6	**0.4037**	0.103	25.5	ug/L	15	Standard
	Se-1	77	140.3	5.7	**-0.0263**	0.199	755.3	ug/L	139	Standard
>	**Ga**	71	30.0	60.1				mg/L	63	Standard
	Rb	85	40.0	76.0				ug/L	32	Standard
	Y	89	314379.1	2.3				ug/L	315671	Standard
>	**Rh**	103	48.3	36.3				ug/L	37	Standard
	Mo	98	226.2	14.6	**0.0587**	0.011	18.1	ug/L	143	Standard
	Ag	107	1944.1	5.1	**0.3561**	0.016	4.5	ug/L	125	Standard
	Cd	111	276.8	3.6	**0.2271**	0.008	3.5	mg/L	10	Standard
	Cd	114	685.0	4.7	**0.2006**	0.011	5.4	ug/L	39	Standard
>	**In**	115	394621.1	0.9				ug/L	367586	Standard
	Sn	118	125.3	9.0	**0.0387**	0.013	33.9	ug/L	107	Standard
	Sb	123	1905.3	4.0	**0.4852**	0.023	4.8	ug/L	225	Standard
	Ba	135	1129.4	2.8	**0.7147**	0.024	3.4	ug/L	39	Standard
	Ce	140	33.3	75.5				ug/L	12	Standard
>	**Tb**	159	649839.0	1.0				ug/L	627636	Standard
	Ho	165	1.7	173.2				ug/L	13	Standard
	Tl	203	773.0	8.3	**0.0816**	0.007	9.1	ug/L	76	Standard
	Tl	205	1750.1	4.8	**0.0744**	0.003	4.0	ug/L	162	Standard
	Pb	206	1786.4	1.9	**0.2050**	0.002	1.2	ug/L	362	Standard
	Pb	207	1456.7	4.0	**0.1945**	0.012	6.0	ug/L	281	Standard
	Pb	208	2496.1	2.5	**0.1870**	0.010	5.4	ug/L	515	Standard
	U	238	3664.8	1.8	**0.3672**	0.014	3.8	ug/L	32	Standard
>	**Bi**	209	510048.6	2.0				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	41.7	13.9	**0.2491**	0.101	40.6	mg/L	35	Standard
	K	39	18.3	41.7	**0.1131**	0.096	84.4	mg/L	12	Standard
	Ca	43	18.3	68.6	**-2.5628**	11.708	456.8	mg/L	28	Standard
	Fe	54	40.7	19.6	**0.3632**	0.164	45.1	mg/L	38	Standard
	Fe	57	631.7	5.4	**-0.0519**	2.599	5009.2	mg/L	668	Standard
>	**Sc-1**	45	19656.1	1.5				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	6.0	16.7				ug/L	6	Standard
	Br	81	1056.7	13.4				ug/L	1013	Standard
	P	31	50.0	30.0				ug/L	70	Standard
	S	34	75.0	29.1				ug/L	58	Standard
	Sr	88	333.3	9.2				ug/L	293	Standard
	C	12	20.0	100.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	9.4	109.4				mg/L	-0	Standard
	Ho-1	165	1.7	173.2				mg/L	13	Standard
	Er	166	13.3	43.3				mg/L	3	Standard
	I	127	2073.5	8.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.531		
	Al	27			
	Sc	45			
	Ti	47			
	V	51	88.382		
	Cr	52	114.184		
	Cr	53			
	Mn	55	120.981		
	Co	59	93.046		
	Ni	60	94.832		
	Cu	65	102.372		
	Zn	66	94.929		
>	Ge	72		95.699	
	As	75	94.601		
	Se	82	100.917		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98			
|	Ag	107	89.035		
|	Cd	111	94.643		
|	Cd	114			
| >	In	115		107.355	
|	Sn	118			
|	Sb	123	121.290		
⌊	Ba	135	95.295		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	102.052		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	93.511		
|	U	238	91.793		
⌊>	Bi	209		101.607	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 8
Report Date/Time: Tuesday, August 29, 2017 17:07:08

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Method 6020 - Summary Report

Sample ID: PBW 23 WG627377-02
Sample Date/Time: Tuesday, August 29, 2017 17:08:04
Number of Replicates: 3
Autosampler Position: 233
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	146732.2	1.8				ug/L	143052	Standard
	Be	9	23.3	44.6	**-0.0051**	0.006	114.9	ug/L	40	Standard
	Al	27	3463.7	2.2	**0.0073**	0.001	9.4	ug/L	2645	Standard
	Sc	45	19958.1	2.0				ug/L	21013	Standard
	Ti	47	30.7	18.0	**0.0490**	0.032	64.3	ug/L	27	Standard
	V	51	1188.3	10.8	**-0.0201**	0.017	83.0	ug/L	1321	Standard
	Cr	52	7010.6	2.2	**-0.0564**	0.023	41.4	ug/L	7642	Standard
	Cr	53	1140.0	5.1	**0.0225**	0.096	426.1	ug/L	1230	Standard
	Mn	55	1613.8	3.7	**0.0171**	0.006	37.0	ug/L	1599	Standard
	Co	59	366.0	4.5	**0.0004**	0.002	642.6	ug/L	404	Standard
	Ni	60	286.0	3.3	**0.0138**	0.005	36.7	ug/L	288	Standard
	Cu	65	174.7	4.3	**0.0062**	0.007	105.6	ug/L	181	Standard
	Zn	66	1078.0	2.4	**1.0986**	0.016	1.4	ug/L	166	Standard
>	Ge	72	339712.8	1.7				ug/L	360328	Standard
	As	75	-51.7	19.0	**0.0158**	0.012	77.1	ug/L	-74	Standard
	Se	82	15.0	15.7	**0.0092**	0.035	381.1	ug/L	15	Standard
	Se-1	77	140.0	8.7	**0.0062**	0.246	3944.1	ug/L	139	Standard
>	Ga	71	55.0	32.8				mg/L	63	Standard
	Rb	85	65.0	35.3				ug/L	32	Standard
	Y	89	306016.6	1.6				ug/L	315671	Standard
>	Rh	103	58.3	30.1				ug/L	37	Standard
	Mo	98	109.8	7.9	**0.0232**	0.003	11.5	ug/L	143	Standard
	Ag	107	121.0	14.3	**0.0017**	0.003	200.4	ug/L	125	Standard
	Cd	111	8.2	25.4	**-0.0022**	0.002	83.6	mg/L	10	Standard
	Cd	114	18.1	30.8	**-0.0043**	0.002	39.9	ug/L	39	Standard
>	In	115	387868.7	0.3				ug/L	367586	Standard
	Sn	118	133.7	5.7	**0.0513**	0.009	17.0	ug/L	107	Standard
	Sb	123	267.1	16.4	**0.0480**	0.012	25.2	ug/L	225	Standard
	Ba	135	161.7	2.5	**0.0785**	0.003	3.7	ug/L	39	Standard
	Ce	140	51.7	40.3				ug/L	12	Standard
>	Tb	159	647987.7	1.3				ug/L	627636	Standard
	Ho	165	6.7	43.3				ug/L	13	Standard
	Tl	203	42.3	11.7	**0.0022**	0.001	26.6	ug/L	76	Standard
	Tl	205	85.0	32.8	**-0.0010**	0.001	114.6	ug/L	162	Standard
	Pb	206	370.0	4.2	**0.0042**	0.002	49.3	ug/L	362	Standard
	Pb	207	299.0	7.8	**0.0033**	0.003	87.1	ug/L	281	Standard
	Pb	208	536.7	3.1	**0.0056**	0.002	40.5	ug/L	515	Standard
	U	238	10.7	14.3	**0.0017**	0.000	8.2	ug/L	32	Standard
>	Bi	209	507802.9	2.1				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	40.0	12.5	**0.2081**	0.085	40.7	mg/L	35	Standard
|	**K**	39	15.0	66.7	**0.0698**	0.131	187.3	mg/L	12	Standard
|	**Ca**	43	35.0	24.7	**12.4605**	8.014	64.3	mg/L	28	Standard
|	**Fe**	54	39.2	22.6	**0.3219**	0.167	51.9	mg/L	38	Standard
|	**Fe**	57	696.7	4.6	**3.5189**	2.932	83.3	mg/L	668	Standard
⌊>	**Sc-1**	45	19958.1	2.0				mg/L	21013	Standard
	Cl	35	2.7	43.3				ug/L	2	Standard
	Kr	83	5.3	28.6				ug/L	6	Standard
	Br	81	1156.7	3.0				ug/L	1013	Standard
	P	31	58.3	17.8				ug/L	70	Standard
	S	34	46.7	48.3				ug/L	58	Standard
	Sr	88	360.0	16.0				ug/L	293	Standard
	C	12	10.0					mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	15.2	35.5				mg/L	-0	Standard
	Ho-1	165	6.7	43.3				mg/L	13	Standard
	Er	166	30.0	57.7				mg/L	3	Standard
	I	127	2390.2	4.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.572	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.279	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	105.518
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	101.160
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: LCSW 23 WG627377-03
Sample Date/Time: Tuesday, August 29, 2017 17:11:09
Number of Replicates: 3
Autosampler Position: 234
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	147015.0	1.9				ug/L	143052	Standard
	Be	9	86082.2	1.8	**50.9013**	1.389	2.7	ug/L	40	Standard
	Al	27	4489.0	5.0	**0.0149**	0.001	8.7	ug/L	2645	Standard
	Sc	45	19440.8	3.6				ug/L	21013	Standard
	Ti	47	40.3	11.7	**0.0992**	0.029	29.1	ug/L	27	Standard
	V	51	334994.3	1.2	**50.8748**	1.320	2.6	ug/L	1321	Standard
	Cr	52	324117.0	1.2	**50.8207**	1.332	2.6	ug/L	7642	Standard
	Cr	53	42295.6	0.6	**51.3628**	0.859	1.7	ug/L	1230	Standard
	Mn	55	520827.2	1.2	**51.0680**	1.237	2.4	ug/L	1599	Standard
	Co	59	413681.9	0.7	**50.9140**	1.067	2.1	ug/L	404	Standard
	Ni	60	89874.8	1.1	**51.6398**	1.144	2.2	ug/L	288	Standard
	Cu	65	82434.3	1.0	**52.2381**	1.186	2.3	ug/L	181	Standard
	Zn	66	43988.4	1.5	**52.1001**	1.286	2.5	ug/L	166	Standard
>	**Ge**	72	345844.1	1.4				ug/L	360328	Standard
	As	75	42417.8	0.8	**49.3642**	1.044	2.1	ug/L	-74	Standard
	Se	82	3731.5	0.7	**50.7217**	1.061	2.1	ug/L	15	Standard
	Se-1	77	2833.3	2.5	**51.2532**	2.068	4.0	ug/L	139	Standard
>	**Ga**	71	40.0					mg/L	63	Standard
	Rb	85	60.0	22.0				ug/L	32	Standard
	Y	89	312954.9	2.0				ug/L	315671	Standard
>	**Rh**	103	53.3	30.1				ug/L	37	Standard
	Mo	98	112.6	21.2	**0.0239**	0.007	31.3	ug/L	143	Standard
	Ag	107	248372.2	0.4	**48.9349**	0.225	0.5	ug/L	125	Standard
	Cd	111	58170.7	1.0	**50.3070**	0.536	1.1	mg/L	10	Standard
	Cd	114	157865.1	2.5	**49.1219**	1.260	2.6	ug/L	39	Standard
>	**In**	115	389753.9	0.1				ug/L	367586	Standard
	Sn	118	127.3	12.2	**0.0430**	0.019	43.8	ug/L	107	Standard
	Sb	123	187120.7	2.5	**50.6698**	1.341	2.6	ug/L	225	Standard
	Ba	135	78575.0	2.6	**52.4171**	1.409	2.7	ug/L	39	Standard
	Ce	140	111.7	24.7				ug/L	12	Standard
>	**Tb**	159	650858.4	1.8				ug/L	627636	Standard
	Ho	165	26.7	10.8				ug/L	13	Standard
	Tl	203	481335.8	0.5	**52.4656**	0.853	1.6	ug/L	76	Standard
	Tl	205	1125400.7	0.3	**51.1500**	0.710	1.4	ug/L	162	Standard
	Pb	206	363253.4	1.4	**51.6558**	1.260	2.4	ug/L	362	Standard
	Pb	207	306930.3	0.4	**50.8113**	0.878	1.7	ug/L	281	Standard
	Pb	208	536679.4	2.8	**49.8201**	2.046	4.1	ug/L	515	Standard
	U	238	490506.5	1.4	**49.1779**	1.325	2.7	ug/L	32	Standard
>	**Bi**	209	508739.3	1.4				ug/L	501980	Standard

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	Na	23	3.3	86.6	**0.8883**	0.766	86.2	mg/L	3	Standard
	Mg	24	48.3	15.8	**0.3789**	0.137	36.2	mg/L	35	Standard
	K	39	8.3	34.6	**-0.0129**	0.041	316.9	mg/L	12	Standard
	Ca	43	36.7	61.5	**14.8796**	21.608	145.2	mg/L	28	Standard
	Fe	54	26.5	42.7	**0.0997**	0.233	234.0	mg/L	38	Standard
	Fe	57	686.7	4.4	**4.0409**	2.362	58.4	mg/L	668	Standard
>	**Sc-1**	45	19440.8	3.6				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	3.7	15.7				ug/L	6	Standard
	Br	81	1056.7	20.9				ug/L	1013	Standard
	P	31	61.7	49.5				ug/L	70	Standard
	S	34	55.0	15.7				ug/L	58	Standard
	Sr	88	361.7	10.6				ug/L	293	Standard
	C	12	23.3	24.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	15.5	136.6				mg/L	-0	Standard
	Ho-1	165	26.7	10.8				mg/L	13	Standard
	Er	166	23.3	65.5				mg/L	3	Standard
	I	127	2515.2	5.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		102.770	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.980	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		106.031
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		101.347
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708135405 WG627377-01
Sample Date/Time: Tuesday, August 29, 2017 17:14:15
Number of Replicates: 3
Autosampler Position: 235
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	146043.9	1.6				ug/L	143052	Standard
	Be	9	45.0	29.4	**0.0078**	0.007	95.5	ug/L	40	Standard
	Al	27	11467.7	2.4	**0.0677**	0.001	1.1	ug/L	2645	Standard
	Sc	45	19771.2	3.1				ug/L	21013	Standard
	Ti	47	34.7	14.2	**0.0685**	0.027	39.6	ug/L	27	Standard
	V	51	1289.6	7.2	**-0.0069**	0.016	233.8	ug/L	1321	Standard
	Cr	52	7319.4	0.7	**-0.0228**	0.012	52.7	ug/L	7642	Standard
	Cr	53	1070.0	3.6	**-0.0863**	0.057	66.3	ug/L	1230	Standard
	Mn	55	6942.9	1.6	**0.5409**	0.022	4.1	ug/L	1599	Standard
	Co	59	375.0	6.7	**0.0008**	0.002	302.7	ug/L	404	Standard
	Ni	60	328.7	2.8	**0.0360**	0.003	8.7	ug/L	288	Standard
	Cu	65	256.7	4.4	**0.0568**	0.004	7.6	ug/L	181	Standard
	Zn	66	1196.4	3.3	**1.2222**	0.070	5.7	ug/L	166	Standard
>	Ge	72	344585.4	1.7				ug/L	360328	Standard
	As	75	-50.0	125.5	**0.0186**	0.074	396.2	ug/L	-74	Standard
	Se	82	14.1	18.2	**-0.0068**	0.036	526.5	ug/L	15	Standard
	Se-1	77	133.7	2.4	**-0.1529**	0.102	66.5	ug/L	139	Standard
>	Ga	71	56.7	58.8				mg/L	63	Standard
	Rb	85	68.3	16.9				ug/L	32	Standard
	Y	89	311391.7	2.3				ug/L	315671	Standard
>	Rh	103	41.7	50.0				ug/L	37	Standard
	Mo	98	87.2	9.3	**0.0161**	0.003	15.7	ug/L	143	Standard
	Ag	107	128.0	18.4	**0.0031**	0.005	150.3	ug/L	125	Standard
	Cd	111	9.6	48.2	**-0.0010**	0.004	397.5	mg/L	10	Standard
	Cd	114	34.3	21.7	**0.0008**	0.002	314.5	ug/L	39	Standard
>	In	115	387617.7	0.7				ug/L	367586	Standard
	Sn	118	149.7	14.3	**0.0709**	0.027	37.6	ug/L	107	Standard
	Sb	123	2078.8	14.6	**0.5412**	0.079	14.5	ug/L	225	Standard
	Ba	135	127.3	19.9	**0.0556**	0.018	31.5	ug/L	39	Standard
	Ce	140	66.7	31.2				ug/L	12	Standard
>	Tb	159	645806.8	1.0				ug/L	627636	Standard
	Ho	165	11.7	65.5				ug/L	13	Standard
	Tl	203	148.7	24.7	**0.0139**	0.004	28.4	ug/L	76	Standard
	Tl	205	386.7	10.0	**0.0129**	0.002	13.3	ug/L	162	Standard
	Pb	206	426.3	10.4	**0.0128**	0.006	50.2	ug/L	362	Standard
	Pb	207	359.7	3.0	**0.0139**	0.002	14.4	ug/L	281	Standard
	Pb	208	651.0	0.7	**0.0168**	0.001	3.2	ug/L	515	Standard
	U	238	71.3	11.4	**0.0078**	0.001	10.4	ug/L	32	Standard
>	Bi	209	503223.6	0.4				ug/L	501980	Standard

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⌈	**Na**	23	3.3	173.2	**0.8761**	1.509	172.2	mg/L	3	Standard
|	**Mg**	24	61.7	9.4	**0.6017**	0.073	12.1	mg/L	35	Standard
|	**K**	39	8.3	91.7	**-0.0137**	0.101	737.1	mg/L	12	Standard
|	**Ca**	43	25.0	52.9	**3.3160**	11.501	346.8	mg/L	28	Standard
|	**Fe**	54	30.8	33.4	**0.1707**	0.204	119.6	mg/L	38	Standard
|	**Fe**	57	671.7	9.2	**2.3813**	5.278	221.7	mg/L	668	Standard
⌊>	**Sc-1**	45	19771.2	3.1				mg/L	21013	Standard
	Cl	35	1.3	173.2				ug/L	2	Standard
	Kr	83	6.3	9.1				ug/L	6	Standard
	Br	81	943.4	6.9				ug/L	1013	Standard
	P	31	63.3	37.3				ug/L	70	Standard
	S	34	61.7	12.4				ug/L	58	Standard
	Sr	88	366.7	6.1				ug/L	293	Standard
	C	12	6.7	86.6				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	15.9	32.3				mg/L	-0	Standard
	Ho-1	165	11.7	65.5				mg/L	13	Standard
	Er	166	16.7	124.9				mg/L	3	Standard
	I	127	2320.2	4.0				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.091	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		95.631	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	105.450
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	100.248
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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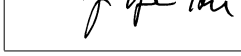

Method 6020 - Summary Report

Sample ID: L1708135405S WG627377-04
Sample Date/Time: Tuesday, August 29, 2017 17:17:21
Number of Replicates: 3
Autosampler Position: 236
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	145318.6	1.0				ug/L	143052	Standard
	Be	9	82658.2	0.8	**49.4375**	0.655	1.3	ug/L	40	Standard
	Al	27	10878.9	3.1	**0.0637**	0.003	5.2	ug/L	2645	Standard
	Sc	45	19419.1	0.6				ug/L	21013	Standard
	Ti	47	35.3	22.9	**0.0745**	0.046	61.5	ug/L	27	Standard
	V	51	329713.7	1.7	**50.7974**	1.218	2.4	ug/L	1321	Standard
	Cr	52	321411.7	0.5	**51.1320**	0.795	1.6	ug/L	7642	Standard
	Cr	53	40738.0	1.2	**50.1614**	1.159	2.3	ug/L	1230	Standard
	Mn	55	509540.0	1.2	**50.6870**	1.202	2.4	ug/L	1599	Standard
	Co	59	406450.0	1.2	**50.7543**	1.310	2.6	ug/L	404	Standard
	Ni	60	87798.4	1.6	**51.1826**	1.451	2.8	ug/L	288	Standard
	Cu	65	81055.6	1.0	**52.1127**	1.231	2.4	ug/L	181	Standard
	Zn	66	42683.7	1.4	**51.2902**	1.381	2.7	ug/L	166	Standard
>	Ge	72	340880.1	1.4				ug/L	360328	Standard
	As	75	40739.0	1.7	**48.1005**	1.101	2.3	ug/L	-74	Standard
	Se	82	3676.1	1.0	**50.6975**	1.197	2.4	ug/L	15	Standard
	Se-1	77	2697.9	1.5	**49.4187**	1.518	3.1	ug/L	139	Standard
>	Ga	71	50.0	36.1				mg/L	63	Standard
	Rb	85	71.7	31.5				ug/L	32	Standard
	Y	89	313415.0	4.0				ug/L	315671	Standard
>	Rh	103	55.0	24.1				ug/L	37	Standard
	Mo	98	86.5	0.6	**0.0160**	0.000	1.0	ug/L	143	Standard
	Ag	107	246494.6	0.6	**48.9741**	0.580	1.2	ug/L	125	Standard
	Cd	111	56751.7	1.5	**49.4928**	0.872	1.8	mg/L	10	Standard
	Cd	114	156339.6	2.3	**49.0576**	1.285	2.6	ug/L	39	Standard
>	In	115	386514.2	0.5				ug/L	367586	Standard
	Sn	118	179.0	36.3	**0.1068**	0.078	73.3	ug/L	107	Standard
	Sb	123	183182.7	2.4	**50.0202**	1.322	2.6	ug/L	225	Standard
	Ba	135	76767.4	3.1	**51.6411**	1.664	3.2	ug/L	39	Standard
	Ce	140	60.0	44.1				ug/L	12	Standard
>	Tb	159	650531.8	2.0				ug/L	627636	Standard
	Ho	165	20.0	75.0				ug/L	13	Standard
	Tl	203	471001.8	1.9	**51.3656**	1.306	2.5	ug/L	76	Standard
	Tl	205	1107680.7	2.8	**50.3723**	1.673	3.3	ug/L	162	Standard
	Pb	206	357093.1	3.2	**50.8087**	2.072	4.1	ug/L	362	Standard
	Pb	207	302300.5	1.7	**50.0720**	1.347	2.7	ug/L	281	Standard
	Pb	208	526992.2	3.0	**48.9430**	1.999	4.1	ug/L	515	Standard
	U	238	481102.3	1.8	**48.2592**	1.400	2.9	ug/L	32	Standard
>	Bi	209	508472.5	1.1				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	43.3	46.6	**0.2874**	0.363	126.2	mg/L	35	Standard
|	**K**	39	28.3	40.8	**0.2480**	0.152	61.5	mg/L	12	Standard
|	**Ca**	43	35.0	24.7	**13.3031**	8.001	60.1	mg/L	28	Standard
|	**Fe**	54	21.5	33.4	**-0.0019**	0.142	7626.5	mg/L	38	Standard
|	**Fe**	57	665.0	7.3	**2.6325**	3.191	121.2	mg/L	668	Standard
⌊>	**Sc-1**	45	19419.1	0.6				mg/L	21013	Standard
	Cl	35	3.3	34.6				ug/L	2	Standard
	Kr	83	4.7	53.9				ug/L	6	Standard
	Br	81	1076.7	7.9				ug/L	1013	Standard
	P	31	46.7	16.4				ug/L	70	Standard
	S	34	61.7	75.3				ug/L	58	Standard
	Sr	88	323.3	13.9				ug/L	293	Standard
	C	12	20.0	50.0				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	8.6	133.6				mg/L	-0	Standard
	Ho-1	165	20.0	75.0				mg/L	13	Standard
	Er	166	30.0	100.0				mg/L	3	Standard
	I	127	2096.8	8.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		101.584	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.603	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		105.149
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		101.293
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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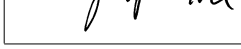

Method 6020 - Summary Report

Sample ID: L1708135405SD WG627377-05
Sample Date/Time: Tuesday, August 29, 2017 17:20:26
Number of Replicates: 3
Autosampler Position: 237
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	146126.4	1.6				ug/L	143052	Standard
	Be	9	83328.6	2.0	**49.5728**	1.529	3.1	ug/L	40	Standard
	Al	27	13247.5	10.0	**0.0810**	0.010	12.7	ug/L	2645	Standard
	Sc	45	19796.3	1.1				ug/L	21013	Standard
	Ti	47	30.3	24.7	**0.0462**	0.043	92.4	ug/L	27	Standard
	V	51	325746.4	0.8	**50.0235**	0.790	1.6	ug/L	1321	Standard
	Cr	52	316684.2	1.0	**50.2012**	0.977	1.9	ug/L	7642	Standard
	Cr	53	40385.4	2.4	**49.5534**	1.535	3.1	ug/L	1230	Standard
	Mn	55	507232.8	0.5	**50.2939**	0.711	1.4	ug/L	1599	Standard
	Co	59	402758.5	1.0	**50.1297**	0.878	1.8	ug/L	404	Standard
	Ni	60	87827.8	1.0	**51.0336**	0.960	1.9	ug/L	288	Standard
	Cu	65	79838.1	1.2	**51.1640**	1.079	2.1	ug/L	181	Standard
	Zn	66	41811.3	1.3	**50.0753**	1.080	2.2	ug/L	166	Standard
>	**Ge**	72	341941.0	0.9				ug/L	360328	Standard
	As	75	40984.9	1.5	**48.2402**	1.158	2.4	ug/L	-74	Standard
	Se	82	3577.9	0.8	**49.1778**	0.734	1.5	ug/L	15	Standard
	Se-1	77	2747.6	3.5	**50.1941**	1.518	3.0	ug/L	139	Standard
>	**Ga**	71	26.7	39.0				mg/L	63	Standard
	Rb	85	75.0	23.1				ug/L	32	Standard
	Y	89	308968.3	2.7				ug/L	315671	Standard
>	**Rh**	103	65.0	15.4				ug/L	37	Standard
	Mo	98	101.9	31.8	**0.0207**	0.010	48.0	ug/L	143	Standard
	Ag	107	242632.0	0.1	**47.9841**	0.394	0.8	ug/L	125	Standard
	Cd	111	56122.7	1.7	**48.7145**	0.507	1.0	mg/L	10	Standard
	Cd	114	153180.6	2.2	**47.8374**	0.652	1.4	ug/L	39	Standard
>	**In**	115	388305.3	0.9				ug/L	367586	Standard
	Sn	118	129.7	8.0	**0.0463**	0.012	26.7	ug/L	107	Standard
	Sb	123	183906.2	2.3	**49.9804**	0.759	1.5	ug/L	225	Standard
	Ba	135	75738.2	1.5	**50.7094**	0.361	0.7	ug/L	39	Standard
	Ce	140	91.7	54.6				ug/L	12	Standard
>	**Tb**	159	647875.8	1.7				ug/L	627636	Standard
	Ho	165	26.7	10.8				ug/L	13	Standard
	Tl	203	469002.8	0.8	**51.2265**	1.022	2.0	ug/L	76	Standard
	Tl	205	1084972.9	2.7	**49.4108**	1.437	2.9	ug/L	162	Standard
	Pb	206	354684.0	0.9	**50.5389**	1.141	2.3	ug/L	362	Standard
	Pb	207	298036.2	0.9	**49.4403**	1.124	2.3	ug/L	281	Standard
	Pb	208	520056.5	2.8	**48.3770**	2.088	4.3	ug/L	515	Standard
	U	238	475789.7	1.8	**47.8029**	1.562	3.3	ug/L	32	Standard
>	**Bi**	209	507716.0	1.5				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	43.3	24.0	**0.2753**	0.196	71.1	mg/L	35	Standard
	K	39	18.3	41.7	**0.1125**	0.098	87.1	mg/L	12	Standard
	Ca	43	28.3	73.5	**6.4274**	19.020	295.9	mg/L	28	Standard
	Fe	54	38.3	21.8	**0.3085**	0.154	49.8	mg/L	38	Standard
	Fe	57	690.0	10.5	**3.3863**	4.268	126.0	mg/L	668	Standard
>	**Sc-1**	45	19796.3	1.1				mg/L	21013	Standard
	Cl	35	0.7	173.2				ug/L	2	Standard
	Kr	83	6.0	16.7				ug/L	6	Standard
	Br	81	980.0	9.2				ug/L	1013	Standard
	P	31	41.7	25.0				ug/L	70	Standard
	S	34	78.3	38.5				ug/L	58	Standard
	Sr	88	336.7	3.1				ug/L	293	Standard
	C	12	16.7	69.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	15.9	95.7				mg/L	-0	Standard
	Ho-1	165	26.7	10.8				mg/L	13	Standard
	Er	166	16.7	69.3				mg/L	3	Standard
	I	127	2013.5	5.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		102.149	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.897	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		105.637
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		101.143
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708135401
Sample Date/Time: Tuesday, August 29, 2017 17:23:32
Number of Replicates: 3
Autosampler Position: 238
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144494.3	2.1				ug/L	143052	Standard
	Be	9	113.3	26.6	**0.0494**	0.019	37.7	ug/L	40	Standard
	Al	27	5935130.0	2.4	**45.1347**	1.868	4.1	ug/L	2645	Standard
	Sc	45	19537.6	2.6				ug/L	21013	Standard
	Ti	47	117.7	2.7	**0.5282**	0.016	3.1	ug/L	27	Standard
	V	51	1039.4	17.2	**-0.0449**	0.026	57.1	ug/L	1321	Standard
	Cr	52	23133.3	1.0	**2.5388**	0.080	3.1	ug/L	7642	Standard
	Cr	53	6493.1	7.7	**6.7416**	0.708	10.5	ug/L	1230	Standard
	Mn	55	697803.3	1.3	**68.9836**	1.678	2.4	ug/L	1599	Standard
	Co	59	22490.7	1.8	**2.7458**	0.075	2.7	ug/L	404	Standard
	Ni	60	4668.7	1.7	**2.5568**	0.078	3.1	ug/L	288	Standard
	Cu	65	1823.8	3.1	**1.0602**	0.048	4.6	ug/L	181	Standard
	Zn	66	7534.5	1.8	**8.8194**	0.186	2.1	ug/L	166	Standard
>	**Ge**	72	343264.2	1.2				ug/L	360328	Standard
	As	75	302.0	17.2	**0.4309**	0.064	14.8	ug/L	-74	Standard
	Se	82	93.3	12.6	**1.0844**	0.173	15.9	ug/L	15	Standard
	Se-1	77	390.3	2.0	**4.7789**	0.084	1.8	ug/L	139	Standard
>	**Ga**	71	140.0	3.6				mg/L	63	Standard
	Rb	85	13202.4	2.1				ug/L	32	Standard
	Y	89	342124.7	0.9				ug/L	315671	Standard
>	**Rh**	103	105.0	16.5				ug/L	37	Standard
	Mo	98	74.8	19.0	**0.0125**	0.004	35.7	ug/L	143	Standard
	Ag	107	142.0	10.4	**0.0062**	0.003	50.1	ug/L	125	Standard
	Cd	111	611.3	2.8	**0.5275**	0.013	2.5	mg/L	10	Standard
	Cd	114	1855.1	5.3	**0.5762**	0.030	5.2	ug/L	39	Standard
>	**In**	115	383899.7	0.5				ug/L	367586	Standard
	Sn	118	123.0	4.2	**0.0400**	0.006	15.7	ug/L	107	Standard
	Sb	123	2361.4	9.3	**0.6249**	0.063	10.1	ug/L	225	Standard
	Ba	135	37046.6	2.4	**25.0732**	0.516	2.1	ug/L	39	Standard
	Ce	140	168989.6	3.4				ug/L	12	Standard
>	**Tb**	159	648010.2	1.3				ug/L	627636	Standard
	Ho	165	3062.0	2.8				ug/L	13	Standard
	Tl	203	716.4	6.5	**0.0783**	0.004	4.7	ug/L	76	Standard
	Tl	205	1621.8	4.4	**0.0713**	0.003	3.9	ug/L	162	Standard
	Pb	206	714.4	4.4	**0.0565**	0.003	4.9	ug/L	362	Standard
	Pb	207	604.7	7.6	**0.0574**	0.010	17.3	ug/L	281	Standard
	Pb	208	1056.7	2.6	**0.0572**	0.003	5.0	ug/L	515	Standard
	U	238	622.7	3.7	**0.0652**	0.004	5.7	ug/L	32	Standard
>	**Bi**	209	491941.9	2.1				ug/L	501980	Standard

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⌈	**Na**	23	65.0	20.4	**17.3941**	3.928	22.6	mg/L	3	Standard
|	**Mg**	24	1006.7	2.1	**17.7451**	0.580	3.3	mg/L	35	Standard
|	**K**	39	136.7	24.4	**1.6534**	0.445	26.9	mg/L	12	Standard
|	**Ca**	43	38.3	32.8	**16.4023**	12.277	74.8	mg/L	28	Standard
|	**Fe**	54	89.3	11.4	**1.3066**	0.218	16.7	mg/L	38	Standard
|	**Fe**	57	750.0	2.9	**7.9820**	2.585	32.4	mg/L	668	Standard
⌊>	**Sc-1**	45	19537.6	2.6				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	8.3	34.6				ug/L	6	Standard
	Br	81	15578.0	3.8				ug/L	1013	Standard
	P	31	61.7	40.0				ug/L	70	Standard
	S	34	56.7	22.2				ug/L	58	Standard
	Sr	88	318.3	5.9				ug/L	293	Standard
	C	12	30.0	88.2				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0	100.0				mg/L	3	Standard
	Dy	164	4725.0	7.1				mg/L	-0	Standard
	Ho-1	165	3062.0	2.8				mg/L	13	Standard
	Er	166	2903.6	6.1				mg/L	3	Standard
	I	127	15257.7	9.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		101.008	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		95.264	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	104.438	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	98.000	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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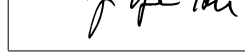

Method 6020 - Summary Report

Sample ID: L1708135402
Sample Date/Time: Tuesday, August 29, 2017 17:26:37
Number of Replicates: 3
Autosampler Position: 239
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	145789.8	0.9				ug/L	143052	Standard
	Be	9	468.3	11.7	**0.2605**	0.034	13.2	ug/L	40	Standard
	Al	27	1494506.1	2.2	**11.2463**	0.346	3.1	ug/L	2645	Standard
	Sc	45	19849.7	1.2				ug/L	21013	Standard
	Ti	47	153.3	10.9	**0.7294**	0.104	14.3	ug/L	27	Standard
	V	51	257.0	143.1	**-0.1651**	0.056	34.1	ug/L	1321	Standard
	Cr	52	8111.8	4.8	**0.1138**	0.045	39.1	ug/L	7642	Standard
	Cr	53	5115.9	6.1	**5.0321**	0.481	9.6	ug/L	1230	Standard
	Mn	55	1835676.6	0.5	**182.3385**	3.569	2.0	ug/L	1599	Standard
	Co	59	19039.0	0.4	**2.3254**	0.026	1.1	ug/L	404	Standard
	Ni	60	3273.0	0.6	**1.7529**	0.032	1.8	ug/L	288	Standard
	Cu	65	3285.7	1.8	**2.0026**	0.056	2.8	ug/L	181	Standard
	Zn	66	6361.0	0.7	**7.4408**	0.145	1.9	ug/L	166	Standard
>	**Ge**	72	342077.0	1.4				ug/L	360328	Standard
	As	75	110.0	12.3	**0.2063**	0.016	8.0	ug/L	-74	Standard
	Se	82	41.6	9.9	**0.3734**	0.053	14.3	ug/L	15	Standard
	Se-1	77	405.3	5.6	**5.0984**	0.527	10.3	ug/L	139	Standard
>	**Ga**	71	223.3	8.5				mg/L	63	Standard
	Rb	85	11227.5	1.2				ug/L	32	Standard
	Y	89	338508.3	3.9				ug/L	315671	Standard
>	**Rh**	103	55.0	24.1				ug/L	37	Standard
	Mo	98	89.2	12.7	**0.0171**	0.004	21.0	ug/L	143	Standard
	Ag	107	161.0	8.1	**0.0100**	0.003	26.5	ug/L	125	Standard
	Cd	111	138.2	1.5	**0.1123**	0.002	1.5	mg/L	10	Standard
	Cd	114	389.6	13.9	**0.1133**	0.017	15.2	ug/L	39	Standard
>	**In**	115	383387.0	0.1				ug/L	367586	Standard
	Sn	118	139.3	6.8	**0.0602**	0.011	18.9	ug/L	107	Standard
	Sb	123	715.3	11.2	**0.1722**	0.022	12.7	ug/L	225	Standard
	Ba	135	29452.6	2.2	**19.9548**	0.410	2.1	ug/L	39	Standard
	Ce	140	258622.2	1.6				ug/L	12	Standard
>	**Tb**	159	647424.6	1.4				ug/L	627636	Standard
	Ho	165	4077.2	5.2				ug/L	13	Standard
	Tl	203	452.3	4.7	**0.0486**	0.002	3.5	ug/L	76	Standard
	Tl	205	1050.0	6.1	**0.0445**	0.002	4.8	ug/L	162	Standard
	Pb	206	1063.4	6.9	**0.1079**	0.007	6.6	ug/L	362	Standard
	Pb	207	815.0	0.9	**0.0934**	0.004	4.3	ug/L	281	Standard
	Pb	208	1453.4	1.8	**0.0954**	0.007	7.2	ug/L	515	Standard
	U	238	1904.5	1.1	**0.1982**	0.009	4.4	ug/L	32	Standard
>	**Bi**	209	491847.7	3.5				ug/L	501980	Standard

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	Na	23	11.7	89.2	**3.0542**	2.708	88.7	mg/L	3	Standard
	Mg	24	1160.0	1.1	**20.1863**	0.237	1.2	mg/L	35	Standard
	K	39	80.0	16.5	**0.8982**	0.160	17.8	mg/L	12	Standard
	Ca	43	45.0	50.9	**21.8773**	21.412	97.9	mg/L	28	Standard
	Fe	54	55.7	29.0	**0.6409**	0.317	49.4	mg/L	38	Standard
	Fe	57	693.3	3.3	**3.5217**	1.913	54.3	mg/L	668	Standard
>	**Sc-1**	45	19849.7	1.2				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	5.7	66.8				ug/L	6	Standard
	Br	81	3323.7	7.8				ug/L	1013	Standard
	P	31	48.3	11.9				ug/L	70	Standard
	S	34	46.7	32.7				ug/L	58	Standard
	Sr	88	336.7	9.5				ug/L	293	Standard
	C	12	30.0	33.3				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	43.3	35.3				mg/L	3	Standard
	Dy	164	6185.5	9.1				mg/L	-0	Standard
	Ho-1	165	4077.2	5.2				mg/L	13	Standard
	Er	166	4297.3	8.5				mg/L	3	Standard
	I	127	10648.8	9.8				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		101.914	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.935	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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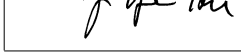

Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	104.299	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	97.982	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1708135402PS WG627433-01
Sample Date/Time: Tuesday, August 29, 2017 17:29:43
Number of Replicates: 3
Autosampler Position: 240
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	147188.2	0.8				ug/L	143052	Standard
	Be	9	85651.4	1.0	**50.5768**	0.719	1.4	ug/L	40	Standard
	Al	27	1491302.2	1.8	**11.1135**	0.190	1.7	ug/L	2645	Standard
	Sc	45	19936.4	2.1				ug/L	21013	Standard
	Ti	47	178.0	24.8	**0.8622**	0.249	28.9	ug/L	27	Standard
	V	51	325710.2	0.7	**49.8083**	0.858	1.7	ug/L	1321	Standard
	Cr	52	315094.8	0.6	**49.7276**	0.788	1.6	ug/L	7642	Standard
	Cr	53	45294.3	2.0	**55.5128**	1.667	3.0	ug/L	1230	Standard
	Mn	55	2403736.8	0.3	**237.8750**	3.103	1.3	ug/L	1599	Standard
	Co	59	424035.3	1.3	**52.5595**	1.074	2.0	ug/L	404	Standard
	Ni	60	89641.4	0.9	**51.8692**	0.742	1.4	ug/L	288	Standard
	Cu	65	84092.1	1.8	**53.6680**	1.269	2.4	ug/L	181	Standard
	Zn	66	48900.5	1.2	**58.3492**	0.819	1.4	ug/L	166	Standard
>	**Ge**	72	343384.5	1.0				ug/L	360328	Standard
	As	75	43933.6	1.3	**51.4882**	1.131	2.2	ug/L	-74	Standard
	Se	82	3699.8	0.1	**50.6448**	0.515	1.0	ug/L	15	Standard
	Se-1	77	3009.3	1.0	**55.0032**	1.164	2.1	ug/L	139	Standard
>	**Ga**	71	275.0	12.7				mg/L	63	Standard
	Rb	85	11759.6	1.5				ug/L	32	Standard
	Y	89	338246.7	2.2				ug/L	315671	Standard
>	**Rh**	103	86.7	3.3				ug/L	37	Standard
	Mo	98	112.4	14.8	**0.0244**	0.005	20.9	ug/L	143	Standard
	Ag	107	227857.4	1.1	**45.6536**	0.370	0.8	ug/L	125	Standard
	Cd	111	57093.9	1.7	**50.2144**	0.807	1.6	mg/L	10	Standard
	Cd	114	158100.6	2.1	**50.0288**	0.858	1.7	ug/L	39	Standard
>	**In**	115	383241.9	0.5				ug/L	367586	Standard
	Sn	118	132.3	9.1	**0.0516**	0.014	27.1	ug/L	107	Standard
	Sb	123	187380.8	2.9	**51.5991**	1.354	2.6	ug/L	225	Standard
	Ba	135	107762.0	2.5	**73.1174**	1.665	2.3	ug/L	39	Standard
	Ce	140	258333.2	2.9				ug/L	12	Standard
>	**Tb**	159	649502.7	1.5				ug/L	627636	Standard
	Ho	165	4190.6	5.5				ug/L	13	Standard
	Tl	203	452677.0	0.8	**50.5101**	0.539	1.1	ug/L	76	Standard
	Tl	205	1059330.6	1.7	**49.2855**	0.650	1.3	ug/L	162	Standard
	Pb	206	353620.4	0.5	**51.4727**	0.194	0.4	ug/L	362	Standard
	Pb	207	295791.8	0.8	**50.1254**	0.512	1.0	ug/L	281	Standard
	Pb	208	520436.8	3.2	**49.4528**	1.937	3.9	ug/L	515	Standard
	U	238	495673.8	1.7	**50.8713**	1.181	2.3	ug/L	32	Standard
>	**Bi**	209	496918.1	0.8				ug/L	501980	Standard

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	Na	23	20.0	25.0	**5.2434**	1.380	26.3	mg/L	3	Standard
	Mg	24	1136.7	0.5	**19.6861**	0.393	2.0	mg/L	35	Standard
	K	39	68.3	16.9	**0.7486**	0.163	21.7	mg/L	12	Standard
	Ca	43	53.3	23.6	**29.2159**	11.410	39.1	mg/L	28	Standard
	Fe	54	71.3	21.3	**0.9259**	0.261	28.2	mg/L	38	Standard
	Fe	57	650.0	6.1	**0.5592**	3.078	550.3	mg/L	668	Standard
>	**Sc-1**	45	19936.4	2.1				mg/L	21013	Standard
	Cl	35	3.3	69.3				ug/L	2	Standard
	Kr	83	4.3	35.3				ug/L	6	Standard
	Br	81	3103.7	3.4				ug/L	1013	Standard
	P	31	55.0	27.3				ug/L	70	Standard
	S	34	68.3	33.0				ug/L	58	Standard
	Sr	88	356.7	5.3				ug/L	293	Standard
	C	12	20.0	86.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	46.7	12.4				mg/L	3	Standard
	Dy	164	6273.2	4.7				mg/L	-0	Standard
	Ho-1	165	4190.6	5.5				mg/L	13	Standard
	Er	166	4067.2	4.6				mg/L	3	Standard
	I	127	10443.6	9.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		102.891	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.298	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	104.259	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	98.992	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1708135402SDL WG627433-02
Sample Date/Time: Tuesday, August 29, 2017 17:32:48
Number of Replicates: 3
Autosampler Position: 241
Sample Description: 5
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	139038.5	1.6				ug/L	143052	Standard
	Be	9	141.7	12.4	**0.0697**	0.011	15.8	ug/L	40	Standard
	Al	27	284560.8	1.0	**2.2302**	0.016	0.7	ug/L	2645	Standard
	Sc	45	17765.4	1.8				ug/L	21013	Standard
	Ti	47	65.3	54.1	**0.2665**	0.211	79.0	ug/L	27	Standard
	V	51	1007.9	7.4	**-0.0378**	0.012	31.9	ug/L	1321	Standard
	Cr	52	5807.4	0.9	**-0.1913**	0.006	3.2	ug/L	7642	Standard
	Cr	53	1896.8	6.0	**1.1397**	0.148	13.0	ug/L	1230	Standard
	Mn	55	338581.6	0.2	**35.9491**	0.203	0.6	ug/L	1599	Standard
	Co	59	3844.2	1.0	**0.4679**	0.006	1.4	ug/L	404	Standard
	Ni	60	775.4	6.5	**0.3305**	0.033	9.9	ug/L	288	Standard
	Cu	65	772.0	1.8	**0.4247**	0.009	2.2	ug/L	181	Standard
	Zn	66	1659.4	2.4	**1.9330**	0.046	2.4	ug/L	166	Standard
>	**Ge**	72	318939.2	0.3				ug/L	360328	Standard
	As	75	-14.8	175.4	**0.0585**	0.033	55.7	ug/L	-74	Standard
	Se	82	18.7	4.1	**0.0776**	0.011	14.4	ug/L	15	Standard
	Se-1	77	186.0	2.8	**1.1315**	0.095	8.4	ug/L	139	Standard
>	**Ga**	71	71.7	39.7				mg/L	63	Standard
	Rb	85	2205.2	6.5				ug/L	32	Standard
	Y	89	281582.7	1.3				ug/L	315671	Standard
>	**Rh**	103	51.7	36.6				ug/L	37	Standard
	Mo	98	28.7	32.4	**-0.0017**	0.003	173.4	ug/L	143	Standard
	Ag	107	144.3	6.9	**0.0081**	0.002	28.4	ug/L	125	Standard
	Cd	111	39.3	20.7	**0.0270**	0.008	28.3	mg/L	10	Standard
	Cd	114	109.5	22.6	**0.0265**	0.009	32.5	ug/L	39	Standard
>	**In**	115	365051.2	1.0				ug/L	367586	Standard
	Sn	118	79.3	6.5	**-0.0083**	0.006	68.6	ug/L	107	Standard
	Sb	123	1046.8	4.9	**0.2780**	0.014	5.0	ug/L	225	Standard
	Ba	135	5568.7	0.7	**3.9389**	0.060	1.5	ug/L	39	Standard
	Ce	140	48219.9	0.3				ug/L	12	Standard
>	**Tb**	159	627840.5	1.3				ug/L	627636	Standard
	Ho	165	773.4	3.6				ug/L	13	Standard
	Tl	203	198.7	5.5	**0.0208**	0.001	6.9	ug/L	76	Standard
	Tl	205	491.7	5.8	**0.0191**	0.001	6.5	ug/L	162	Standard
	Pb	206	471.3	7.3	**0.0233**	0.005	20.6	ug/L	362	Standard
	Pb	207	401.3	8.6	**0.0249**	0.006	23.5	ug/L	281	Standard
	Pb	208	701.7	7.6	**0.0255**	0.006	22.2	ug/L	515	Standard
	U	238	410.0	3.8	**0.0447**	0.002	4.4	ug/L	32	Standard
>	**Bi**	209	474502.0	0.6				ug/L	501980	Standard

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⌈	**Na**	23	3.3	173.2	**0.9942**	1.713	172.3	mg/L	3	Standard
|	**Mg**	24	270.0	23.1	**4.8912**	1.322	27.0	mg/L	35	Standard
|	**K**	39	28.3	10.2	**0.2817**	0.039	13.9	mg/L	12	Standard
|	**Ca**	43	31.7	18.2	**13.0425**	6.442	49.4	mg/L	28	Standard
|	**Fe**	54	27.3	39.0	**0.1573**	0.214	136.2	mg/L	38	Standard
|	**Fe**	57	688.3	8.5	**8.4207**	4.534	53.8	mg/L	668	Standard
⌊>	**Sc-1**	45	17765.4	1.8				mg/L	21013	Standard
	Cl	35	1.3	173.2				ug/L	2	Standard
	Kr	83	4.7	32.7				ug/L	6	Standard
	Br	81	1350.1	6.6				ug/L	1013	Standard
	P	31	46.7	32.7				ug/L	70	Standard
	S	34	66.7	18.9				ug/L	58	Standard
	Sr	88	330.0	6.6				ug/L	293	Standard
	C	12	23.3	24.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	1222.5	10.7				mg/L	-0	Standard
	Ho-1	165	773.4	3.6				mg/L	13	Standard
	Er	166	783.4	23.0				mg/L	3	Standard
	I	127	3658.8	4.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		97.194	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		88.513	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	99.310
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	94.526
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708135402SDL WG627433-02
Sample Date/Time: Tuesday, August 29, 2017 17:35:54
Number of Replicates: 3
Autosampler Position: 242
Sample Description: 25
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	134681.0	0.6				ug/L	143052	Standard
	Be	9	50.0	43.6	**0.0133**	0.014	104.0	ug/L	40	Standard
	Al	27	56893.3	1.5	**0.4455**	0.004	1.0	ug/L	2645	Standard
	Sc	45	17336.6	2.8				ug/L	21013	Standard
	Ti	47	32.3	9.4	**0.0739**	0.018	24.2	ug/L	27	Standard
	V	51	1314.5	5.2	**0.0174**	0.012	70.3	ug/L	1321	Standard
	Cr	52	5607.4	1.5	**-0.2060**	0.013	6.4	ug/L	7642	Standard
	Cr	53	1013.4	10.6	**-0.0269**	0.154	574.6	ug/L	1230	Standard
	Mn	55	67185.6	0.4	**7.1654**	0.026	0.4	ug/L	1599	Standard
	Co	59	1005.7	2.4	**0.0915**	0.003	3.3	ug/L	404	Standard
	Ni	60	317.0	8.9	**0.0481**	0.017	36.2	ug/L	288	Standard
	Cu	65	256.7	2.9	**0.0736**	0.006	7.6	ug/L	181	Standard
	Zn	66	789.0	1.6	**0.8320**	0.013	1.6	ug/L	166	Standard
>	**Ge**	72	312494.0	0.4				ug/L	360328	Standard
	As	75	-38.3	148.4	**0.0280**	0.073	260.9	ug/L	-74	Standard
	Se	82	22.1	21.5	**0.1348**	0.074	54.5	ug/L	15	Standard
	Se-1	77	135.3	11.1	**0.1428**	0.308	215.8	ug/L	139	Standard
>	**Ga**	71	63.3	22.8				mg/L	63	Standard
	Rb	85	463.3	5.4				ug/L	32	Standard
	Y	89	272456.3	1.0				ug/L	315671	Standard
>	**Rh**	103	56.7	18.4				ug/L	37	Standard
	Mo	98	21.4	40.1	**-0.0041**	0.003	68.5	ug/L	143	Standard
	Ag	107	119.7	2.9	**0.0033**	0.001	27.3	ug/L	125	Standard
	Cd	111	9.6	21.6	**-0.0003**	0.002	686.6	mg/L	10	Standard
	Cd	114	25.0	22.5	**-0.0016**	0.002	119.8	ug/L	39	Standard
>	**In**	115	360363.2	1.1				ug/L	367586	Standard
	Sn	118	62.7	10.4	**-0.0286**	0.008	27.9	ug/L	107	Standard
	Sb	123	279.2	7.4	**0.0570**	0.005	9.0	ug/L	225	Standard
	Ba	135	1153.0	2.5	**0.8025**	0.020	2.4	ug/L	39	Standard
	Ce	140	9614.7	0.9				ug/L	12	Standard
>	**Tb**	159	623421.4	1.1				ug/L	627636	Standard
	Ho	165	175.0	29.8				ug/L	13	Standard
	Tl	203	95.7	7.8	**0.0088**	0.001	10.5	ug/L	76	Standard
	Tl	205	161.7	3.6	**0.0030**	0.000	8.6	ug/L	162	Standard
	Pb	206	354.0	6.6	**0.0056**	0.003	60.9	ug/L	362	Standard
	Pb	207	290.7	6.5	**0.0055**	0.004	64.3	ug/L	281	Standard
	Pb	208	525.7	6.2	**0.0082**	0.003	41.2	ug/L	515	Standard
	U	238	79.0	14.1	**0.0091**	0.001	13.2	ug/L	32	Standard
>	**Bi**	209	473024.8	0.5				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4899**	0.840	171.4	mg/L	3	Standard
	Mg	24	91.7	30.0	**1.3724**	0.578	42.1	mg/L	35	Standard
	K	39	18.3	15.7	**0.1465**	0.049	33.4	mg/L	12	Standard
	Ca	43	46.7	16.4	**29.6065**	8.545	28.9	mg/L	28	Standard
	Fe	54	25.9	40.5	**0.1429**	0.227	159.2	mg/L	38	Standard
	Fe	57	611.7	2.1	**3.9852**	1.623	40.7	mg/L	668	Standard
>	**Sc-1**	45	17336.6	2.8				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	5.0	20.0				ug/L	6	Standard
	Br	81	930.0	13.0				ug/L	1013	Standard
	P	31	51.7	11.2				ug/L	70	Standard
	S	34	48.3	15.8				ug/L	58	Standard
	Sr	88	351.7	18.6				ug/L	293	Standard
	C	12	6.7	86.6				mg/L	20	Standard
	N	14	6.7	86.6				mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	274.2	8.0				mg/L	-0	Standard
	Ho-1	165	175.0	29.8				mg/L	13	Standard
	Er	166	190.0	13.9				mg/L	3	Standard
	I	127	2380.2	2.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		94.148	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		86.725	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115		98.035
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209		94.232
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 17:39:01
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144583.3	1.3				ug/L	143052	Standard
	Be	9	81946.1	2.0	**49.2654**	1.319	2.7	ug/L	40	Standard
	Al	27	6527967.1	2.0	**49.5998**	1.533	3.1	ug/L	2645	Standard
	Sc	45	19455.8	1.4				ug/L	21013	Standard
	Ti	47	18097.8	1.3	**99.3405**	2.753	2.8	ug/L	27	Standard
	V	51	325629.9	1.8	**49.5088**	1.646	3.3	ug/L	1321	Standard
	Cr	52	314598.0	0.8	**49.3513**	1.185	2.4	ug/L	7642	Standard
	Cr	53	40490.7	0.6	**49.1684**	0.760	1.5	ug/L	1230	Standard
	Mn	55	503367.2	0.8	**49.4102**	1.184	2.4	ug/L	1599	Standard
	Co	59	401280.8	0.5	**49.4446**	1.032	2.1	ug/L	404	Standard
	Ni	60	86407.4	0.5	**49.6956**	0.591	1.2	ug/L	288	Standard
	Cu	65	79237.3	0.8	**50.2611**	0.610	1.2	ug/L	181	Standard
	Zn	66	41917.9	0.1	**49.6950**	0.854	1.7	ug/L	166	Standard
>	**Ge**	72	345448.0	1.7				ug/L	360328	Standard
	As	75	41913.9	1.5	**48.8416**	1.507	3.1	ug/L	-74	Standard
	Se	82	3653.0	1.0	**49.7105**	1.241	2.5	ug/L	15	Standard
	Se-1	77	2698.6	3.9	**48.7285**	1.825	3.7	ug/L	139	Standard
>	**Ga**	71	66.7	8.7				mg/L	63	Standard
	Rb	85	651.7	12.5				ug/L	32	Standard
	Y	89	308237.3	1.0				ug/L	315671	Standard
>	**Rh**	103	58.3	44.0				ug/L	37	Standard
	Mo	98	300165.9	1.3	**95.2020**	1.307	1.4	ug/L	143	Standard
	Ag	107	241855.7	0.5	**48.2654**	0.370	0.8	ug/L	125	Standard
	Cd	111	56303.1	1.8	**49.3194**	0.927	1.9	mg/L	10	Standard
	Cd	114	159413.5	0.8	**50.2418**	0.254	0.5	ug/L	39	Standard
>	**In**	115	384795.8	0.3				ug/L	367586	Standard
	Sn	118	41656.9	2.4	**50.5957**	1.138	2.2	ug/L	107	Standard
	Sb	123	187043.3	2.5	**51.2990**	1.185	2.3	ug/L	225	Standard
	Ba	135	76400.8	1.7	**51.6207**	0.751	1.5	ug/L	39	Standard
	Ce	140	83.3	18.3				ug/L	12	Standard
>	**Tb**	159	642519.8	2.2				ug/L	627636	Standard
	Ho	165	11.7	49.5				ug/L	13	Standard
	Tl	203	451638.0	1.5	**49.6837**	0.295	0.6	ug/L	76	Standard
	Tl	205	1055711.4	2.9	**48.4379**	1.757	3.6	ug/L	162	Standard
	Pb	206	345161.6	0.5	**49.5408**	0.935	1.9	ug/L	362	Standard
	Pb	207	303874.0	0.5	**50.7827**	1.243	2.4	ug/L	281	Standard
	Pb	208	506877.7	3.3	**47.5062**	2.510	5.3	ug/L	515	Standard
	U	238	480859.7	1.9	**48.6739**	1.909	3.9	ug/L	32	Standard
>	**Bi**	209	504044.1	2.1				ug/L	501980	Standard

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	Na	23	11.7	24.7	**3.1223**	0.737	23.6	mg/L	3	Standard
	Mg	24	285.0	4.6	**4.6867**	0.304	6.5	mg/L	35	Standard
	K	39	353.3	11.5	**4.4778**	0.478	10.7	mg/L	12	Standard
	Ca	43	23.3	12.4	**2.3510**	2.921	124.2	mg/L	28	Standard
	Fe	54	275.9	15.5	**4.9386**	0.869	17.6	mg/L	38	Standard
	Fe	57	725.0	7.8	**6.4994**	3.618	55.7	mg/L	668	Standard
>	**Sc-1**	45	19455.8	1.4				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	4.3	35.3				ug/L	6	Standard
	Br	81	1033.4	5.8				ug/L	1013	Standard
	P	31	58.3	21.6				ug/L	70	Standard
	S	34	53.3	5.4				ug/L	58	Standard
	Sr	88	313.3	16.4				ug/L	293	Standard
	C	12	10.0					mg/L	20	Standard
	N	14	10.0	173.2				mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	16.0	37.7				mg/L	-0	Standard
	Ho-1	165	11.7	49.5				mg/L	13	Standard
	Er	166	13.3	43.3				mg/L	3	Standard
	I	127	2138.5	2.6				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	98.531		
	Al	27	99.200		
	Sc	45			
	Ti	47	99.340		
	V	51	99.018		
	Cr	52	98.703		
	Cr	53			
	Mn	55	98.820		
	Co	59	98.889		
	Ni	60	99.391		
	Cu	65	100.522		
	Zn	66	99.390		
>	Ge	72		95.870	
	As	75	97.683		
	Se	82	99.421		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	95.202		
|	Ag	107	96.531		
|	Cd	111	98.639		
|	Cd	114			
| >	In	115		104.682	
|	Sn	118	101.191		
|	Sb	123	102.598		
⌊	Ba	135	103.241		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	99.367		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	95.012		
|	U	238	97.348		
⌊>	Bi	209		100.411	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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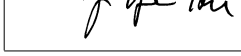

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 17:42:07
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	143721.9	1.7				ug/L	143052	Standard
	Be	9	36.7	20.8	**0.0033**	0.005	147.1	ug/L	40	Standard
	Al	27	2383.5	5.4	**-0.0004**	0.001	179.2	ug/L	2645	Standard
	Sc	45	19404.1	2.7				ug/L	21013	Standard
	Ti	47	27.0	32.3	**0.0285**	0.049	171.3	ug/L	27	Standard
	V	51	1315.1	9.0	**-0.0001**	0.019	18346.5	ug/L	1321	Standard
	Cr	52	6757.5	0.6	**-0.0973**	0.019	19.7	ug/L	7642	Standard
	Cr	53	1026.7	8.3	**-0.1216**	0.112	92.3	ug/L	1230	Standard
	Mn	55	1407.7	3.8	**-0.0035**	0.004	117.0	ug/L	1599	Standard
	Co	59	370.0	6.6	**0.0008**	0.002	251.8	ug/L	404	Standard
	Ni	60	250.3	1.8	**-0.0071**	0.005	67.5	ug/L	288	Standard
	Cu	65	214.0	3.8	**0.0316**	0.004	11.9	ug/L	181	Standard
	Zn	66	166.7	6.9	**-0.0044**	0.010	234.2	ug/L	166	Standard
>	Ge	72	339598.2	2.0				ug/L	360328	Standard
	As	75	-53.5	10.9	**0.0139**	0.006	40.5	ug/L	-74	Standard
	Se	82	13.9	29.1	**-0.0057**	0.060	1035.9	ug/L	15	Standard
	Se-1	77	121.7	3.7	**-0.3492**	0.077	22.0	ug/L	139	Standard
>	Ga	71	30.0	16.7				mg/L	63	Standard
	Rb	85	45.0	11.1				ug/L	32	Standard
	Y	89	303977.7	3.2				ug/L	315671	Standard
>	Rh	103	35.0	28.6				ug/L	37	Standard
	Mo	98	300.8	20.2	**0.0847**	0.019	22.9	ug/L	143	Standard
	Ag	107	134.3	15.1	**0.0047**	0.004	86.6	ug/L	125	Standard
	Cd	111	12.0	58.3	**0.0013**	0.006	471.3	mg/L	10	Standard
	Cd	114	25.2	57.5	**-0.0020**	0.005	233.7	ug/L	39	Standard
>	In	115	382177.0	0.2				ug/L	367586	Standard
	Sn	118	116.0	8.5	**0.0321**	0.012	37.1	ug/L	107	Standard
	Sb	123	645.8	9.5	**0.1537**	0.017	11.3	ug/L	225	Standard
	Ba	135	34.7	4.4	**-0.0063**	0.001	16.8	ug/L	39	Standard
	Ce	140	21.7	58.1				ug/L	12	Standard
>	Tb	159	637177.9	1.1				ug/L	627636	Standard
	Ho	165	16.7	17.3				ug/L	13	Standard
	Tl	203	75.3	21.8	**0.0058**	0.002	29.3	ug/L	76	Standard
	Tl	205	193.3	19.4	**0.0039**	0.002	43.3	ug/L	162	Standard
	Pb	206	372.3	3.2	**0.0047**	0.001	22.3	ug/L	362	Standard
	Pb	207	307.3	12.7	**0.0048**	0.006	124.5	ug/L	281	Standard
	Pb	208	552.7	4.6	**0.0072**	0.002	25.0	ug/L	515	Standard
	U	238	65.0	3.1	**0.0071**	0.000	2.3	ug/L	32	Standard
>	Bi	209	506246.7	1.3				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	41.7	25.0	**0.2623**	0.205	78.0	mg/L	35	Standard
|	**K**	39	10.0		**0.0082**	0.004	42.7	mg/L	12	Standard
|	**Ca**	43	25.0	52.9	**4.1009**	13.010	317.3	mg/L	28	Standard
|	**Fe**	54	26.1	38.7	**0.0898**	0.205	228.3	mg/L	38	Standard
|	**Fe**	57	608.3	7.5	**-1.0370**	3.517	339.1	mg/L	668	Standard
⌊>	**Sc-1**	45	19404.1	2.7				mg/L	21013	Standard
	Cl	35	0.0					ug/L	2	Standard
	Kr	83	3.7	41.7				ug/L	6	Standard
	Br	81	900.0	11.6				ug/L	1013	Standard
	P	31	61.7	4.7				ug/L	70	Standard
	S	34	41.7	42.1				ug/L	58	Standard
	Sr	88	371.7	4.7				ug/L	293	Standard
	C	12	6.7	86.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	18.7	49.6				mg/L	-0	Standard
	Ho-1	165	16.7	17.3				mg/L	13	Standard
	Er	166	26.7	57.3				mg/L	3	Standard
	I	127	8252.2	3.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.247	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	103.969	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	100.850	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708121208
Sample Date/Time: Tuesday, August 29, 2017 17:45:14
Number of Replicates: 3
Autosampler Position: 243
Sample Description: 10
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	128632.1	0.6				ug/L	143052	Standard
	Be	9	91.7	33.3	**0.0432**	0.021	48.9	ug/L	40	Standard
	Al	27	63429.2	0.8	**0.5232**	0.006	1.1	ug/L	2645	Standard
	Sc	45	17438.4	1.3				ug/L	21013	Standard
	Ti	47	5100.5	2.1	**32.3634**	1.038	3.2	ug/L	27	Standard
	V	51	49747.7	1.5	**8.5963**	0.223	2.6	ug/L	1321	Standard
	Cr	52	23795.0	1.2	**3.2292**	0.099	3.1	ug/L	7642	Standard
	Cr	53	3727.1	4.6	**3.9718**	0.300	7.5	ug/L	1230	Standard
	Mn	55	2818.3	3.3	**0.1772**	0.014	7.9	ug/L	1599	Standard
	Co	59	2029.1	1.5	**0.2445**	0.008	3.1	ug/L	404	Standard
	Ni	60	5588.7	1.8	**3.5828**	0.094	2.6	ug/L	288	Standard
	Cu	65	505.0	11.2	**0.2656**	0.046	17.2	ug/L	181	Standard
	Zn	66	1741.4	5.7	**2.1972**	0.163	7.4	ug/L	166	Standard
>	**Ge**	72	298067.2	1.1				ug/L	360328	Standard
	As	75	54982.4	1.9	**74.2050**	2.230	3.0	ug/L	-74	Standard
	Se	82	25.9	29.9	**0.2113**	0.128	60.4	ug/L	15	Standard
	Se-1	77	167.3	11.4	**0.9875**	0.406	41.1	ug/L	139	Standard
>	**Ga**	71	160.0	9.4				mg/L	63	Standard
	Rb	85	210.0	9.5				ug/L	32	Standard
	Y	89	263842.6	1.2				ug/L	315671	Standard
>	**Rh**	103	166.7	50.8				ug/L	37	Standard
	Mo	98	3275.9	2.2	**1.1417**	0.027	2.4	ug/L	143	Standard
	Ag	107	180.0	6.4	**0.0176**	0.002	14.1	ug/L	125	Standard
	Cd	111	8.7	19.6	**-0.0008**	0.002	203.9	mg/L	10	Standard
	Cd	114	34.1	38.8	**0.0019**	0.005	239.8	ug/L	39	Standard
>	**In**	115	346768.9	0.2				ug/L	367586	Standard
	Sn	118	221.3	4.1	**0.1889**	0.013	6.7	ug/L	107	Standard
	Sb	123	3395.2	0.4	**1.0091**	0.005	0.4	ug/L	225	Standard
	Ba	135	7648.3	3.2	**5.7081**	0.194	3.4	ug/L	39	Standard
	Ce	140	3120.3	2.5				ug/L	12	Standard
>	**Tb**	159	610625.1	0.6				ug/L	627636	Standard
	Ho	165	290.0	22.5				ug/L	13	Standard
	Tl	203	87.0	16.7	**0.0088**	0.002	22.0	ug/L	76	Standard
	Tl	205	195.0	25.6	**0.0056**	0.003	48.9	ug/L	162	Standard
	Pb	206	415.7	3.3	**0.0213**	0.003	12.5	ug/L	362	Standard
	Pb	207	339.0	13.2	**0.0200**	0.009	44.2	ug/L	281	Standard
	Pb	208	611.0	1.3	**0.0227**	0.001	3.2	ug/L	515	Standard
	U	238	14428.2	1.5	**1.7092**	0.032	1.8	ug/L	32	Standard
>	**Bi**	209	430639.2	0.5				ug/L	501980	Standard

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⌈	**Na**	23	3.3	173.2	**0.9858**	1.699	172.3	mg/L	3	Standard
|	**Mg**	24	6646.5	0.7	**134.4161**	0.837	0.6	mg/L	35	Standard
|	**K**	39	21.7	35.3	**0.1916**	0.107	55.6	mg/L	12	Standard
|	**Ca**	43	25.0	40.0	**6.5236**	10.123	155.2	mg/L	28	Standard
|	**Fe**	54	29.1	29.5	**0.2078**	0.182	87.5	mg/L	38	Standard
|	**Fe**	57	723.4	12.0	**11.8657**	5.904	49.8	mg/L	668	Standard
⌊>	**Sc-1**	45	17438.4	1.3				mg/L	21013	Standard
	Cl	35	3.3	69.3				ug/L	2	Standard
	Kr	83	5.0	87.2				ug/L	6	Standard
	Br	81	1886.8	11.4				ug/L	1013	Standard
	P	31	48.3	89.2				ug/L	70	Standard
	S	34	68.3	37.5				ug/L	58	Standard
	Sr	88	375.0	16.7				ug/L	293	Standard
	C	12	20.0	100.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	26.7	21.7				mg/L	3	Standard
	Dy	164	315.1	10.9				mg/L	-0	Standard
	Ho-1	165	290.0	22.5				mg/L	13	Standard
	Er	166	520.0	12.6				mg/L	3	Standard
	I	127	10488.6	2.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		89.920	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		82.721	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	94.337
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	85.788
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708121209
Sample Date/Time: Tuesday, August 29, 2017 17:48:20
Number of Replicates: 3
Autosampler Position: 244
Sample Description: 10
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	133687.2	0.9				ug/L	143052	Standard
	Be	9	70.0	14.3	**0.0267**	0.007	25.1	ug/L	40	Standard
	Al	27	56920.1	1.5	**0.4492**	0.007	1.6	ug/L	2645	Standard
	Sc	45	17159.7	2.7				ug/L	21013	Standard
	Ti	47	4974.8	1.0	**31.4314**	0.360	1.1	ug/L	27	Standard
	V	51	52236.8	0.8	**8.9991**	0.128	1.4	ug/L	1321	Standard
	Cr	52	23673.5	1.7	**3.1889**	0.098	3.1	ug/L	7642	Standard
	Cr	53	3462.1	3.1	**3.5670**	0.181	5.1	ug/L	1230	Standard
	Mn	55	2661.9	2.5	**0.1581**	0.009	5.9	ug/L	1599	Standard
	Co	59	1966.5	1.8	**0.2344**	0.007	2.8	ug/L	404	Standard
	Ni	60	6212.9	0.3	**3.9833**	0.033	0.8	ug/L	288	Standard
	Cu	65	553.3	9.1	**0.2994**	0.039	13.0	ug/L	181	Standard
	Zn	66	2294.8	1.6	**2.9469**	0.040	1.3	ug/L	166	Standard
>	**Ge**	72	299244.6	0.6				ug/L	360328	Standard
	As	75	52970.7	0.4	**71.1986**	0.598	0.8	ug/L	-74	Standard
	Se	82	24.4	22.9	**0.1847**	0.090	48.6	ug/L	15	Standard
	Se-1	77	157.7	10.6	**0.7619**	0.381	50.0	ug/L	139	Standard
>	**Ga**	71	153.3	19.9				mg/L	63	Standard
	Rb	85	241.7	7.3				ug/L	32	Standard
	Y	89	268164.0	0.5				ug/L	315671	Standard
>	**Rh**	103	318.3	23.6				ug/L	37	Standard
	Mo	98	2776.4	1.9	**0.9673**	0.017	1.7	ug/L	143	Standard
	Ag	107	184.3	8.8	**0.0186**	0.003	17.0	ug/L	125	Standard
	Cd	111	11.9	46.7	**0.0023**	0.006	240.1	mg/L	10	Standard
	Cd	114	36.9	56.2	**0.0030**	0.007	246.8	ug/L	39	Standard
>	**In**	115	346271.5	1.1				ug/L	367586	Standard
	Sn	118	240.3	8.5	**0.2149**	0.025	11.6	ug/L	107	Standard
	Sb	123	3690.1	2.1	**1.1006**	0.026	2.3	ug/L	225	Standard
	Ba	135	7591.9	1.6	**5.6736**	0.042	0.7	ug/L	39	Standard
	Ce	140	2613.6	4.8				ug/L	12	Standard
>	**Tb**	159	609717.4	1.4				ug/L	627636	Standard
	Ho	165	255.0	22.6				ug/L	13	Standard
	Tl	203	100.3	11.3	**0.0105**	0.001	13.0	ug/L	76	Standard
	Tl	205	235.0	11.8	**0.0077**	0.001	18.5	ug/L	162	Standard
	Pb	206	365.0	5.7	**0.0128**	0.004	31.1	ug/L	362	Standard
	Pb	207	279.3	9.3	**0.0084**	0.006	66.3	ug/L	281	Standard
	Pb	208	566.7	3.0	**0.0178**	0.002	8.8	ug/L	515	Standard
	U	238	15712.5	0.6	**1.8612**	0.006	0.3	ug/L	32	Standard
>	**Bi**	209	430632.5	0.9				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	6946.6	1.3	**142.8282**	2.097	1.5	mg/L	35	Standard
|	**K**	39	33.3	62.5	**0.3660**	0.302	82.7	mg/L	12	Standard
|	**Ca**	43	33.3	31.2	**15.8437**	10.887	68.7	mg/L	28	Standard
|	**Fe**	54	23.8	21.7	**0.1021**	0.107	105.0	mg/L	38	Standard
|	**Fe**	57	720.0	8.0	**12.4872**	3.378	27.1	mg/L	668	Standard
⌊>	**Sc-1**	45	17159.7	2.7				mg/L	21013	Standard
	Cl	35	1.3	173.2				ug/L	2	Standard
	Kr	83	4.3	35.3				ug/L	6	Standard
	Br	81	1826.8	9.3				ug/L	1013	Standard
	P	31	51.7	11.2				ug/L	70	Standard
	S	34	68.3	23.5				ug/L	58	Standard
	Sr	88	356.7	18.1				ug/L	293	Standard
	C	12	20.0	50.0				mg/L	20	Standard
	N	14	6.7	86.6				mg/L	3	Standard
	Hg	202	36.7	110.2				mg/L	3	Standard
	Dy	164	317.0	28.6				mg/L	-0	Standard
	Ho-1	165	255.0	22.6				mg/L	13	Standard
	Er	166	410.0	8.8				mg/L	3	Standard
	I	127	10121.7	3.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		93.453	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		83.048	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		94.202
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		85.787
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130508
Sample Date/Time: Tuesday, August 29, 2017 17:51:25
Number of Replicates: 3
Autosampler Position: 245
Sample Description: 10
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	134311.1	1.2				ug/L	143052	Standard
	Be	9	43.3	40.5	**0.0093**	0.012	126.3	ug/L	40	Standard
	Al	27	109086.4	1.6	**0.8739**	0.022	2.5	ug/L	2645	Standard
	Sc	45	17376.6	0.2				ug/L	21013	Standard
	Ti	47	8799.6	1.0	**53.2685**	1.005	1.9	ug/L	27	Standard
	V	51	54794.8	0.9	**9.0296**	0.062	0.7	ug/L	1321	Standard
	Cr	52	152628.6	1.1	**25.8765**	0.555	2.1	ug/L	7642	Standard
	Cr	53	20350.3	3.1	**26.6536**	1.100	4.1	ug/L	1230	Standard
	Mn	55	3561.1	3.6	**0.2427**	0.016	6.8	ug/L	1599	Standard
	Co	59	592.3	5.1	**0.0351**	0.005	13.7	ug/L	404	Standard
	Ni	60	1678.4	2.4	**0.9152**	0.030	3.2	ug/L	288	Standard
	Cu	65	440.3	8.6	**0.2023**	0.027	13.2	ug/L	181	Standard
	Zn	66	2427.9	2.1	**2.9854**	0.101	3.4	ug/L	166	Standard
>	**Ge**	72	312852.5	1.1				ug/L	360328	Standard
	As	75	270.1	9.2	**0.4242**	0.036	8.4	ug/L	-74	Standard
	Se	82	25.0	27.8	**0.1784**	0.108	60.7	ug/L	15	Standard
	Se-1	77	194.7	5.3	**1.3898**	0.237	17.1	ug/L	139	Standard
>	**Ga**	71	211.7	22.3				mg/L	63	Standard
	Rb	85	768.4	9.5				ug/L	32	Standard
	Y	89	271737.5	2.2				ug/L	315671	Standard
>	**Rh**	103	173.3	6.0				ug/L	37	Standard
	Mo	98	245.4	3.1	**0.0726**	0.003	4.0	ug/L	143	Standard
	Ag	107	172.7	11.8	**0.0149**	0.004	28.9	ug/L	125	Standard
	Cd	111	23.8	8.4	**0.0131**	0.002	14.4	mg/L	10	Standard
	Cd	114	143.1	20.0	**0.0387**	0.010	24.9	ug/L	39	Standard
>	**In**	115	356801.4	0.4				ug/L	367586	Standard
	Sn	118	1064.0	0.8	**1.2867**	0.006	0.5	ug/L	107	Standard
	Sb	123	149.1	13.9	**0.0194**	0.006	31.5	ug/L	225	Standard
	Ba	135	10694.4	1.2	**7.7676**	0.101	1.3	ug/L	39	Standard
	Ce	140	4584.0	4.7				ug/L	12	Standard
>	**Tb**	159	625824.4	1.3				ug/L	627636	Standard
	Ho	165	191.7	8.0				ug/L	13	Standard
	Tl	203	109.0	10.6	**0.0108**	0.001	13.2	ug/L	76	Standard
	Tl	205	288.3	4.4	**0.0097**	0.001	5.4	ug/L	162	Standard
	Pb	206	1020.4	3.7	**0.1127**	0.005	4.4	ug/L	362	Standard
	Pb	207	821.7	0.9	**0.1049**	0.001	1.0	ug/L	281	Standard
	Pb	208	1471.7	1.2	**0.1075**	0.001	1.1	ug/L	515	Standard
	U	238	1061.4	1.9	**0.1188**	0.002	1.7	ug/L	32	Standard
>	**Bi**	209	457901.4	1.0				ug/L	501980	Standard

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⌈	**Na**	23	1.7	173.2	**0.5052**	0.866	171.5	mg/L	3	Standard
|	**Mg**	24	2501.9	5.4	**50.4637**	2.767	5.5	mg/L	35	Standard
|	**K**	39	25.0	34.6	**0.2424**	0.127	52.3	mg/L	12	Standard
|	**Ca**	43	31.7	36.5	**13.6799**	12.052	88.1	mg/L	28	Standard
|	**Fe**	54	36.3	27.7	**0.3672**	0.217	59.1	mg/L	38	Standard
|	**Fe**	57	706.7	5.9	**10.8649**	3.159	29.1	mg/L	668	Standard
⌊>	**Sc-1**	45	17376.6	0.2				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	4.3	48.0				ug/L	6	Standard
	Br	81	1930.1	5.5				ug/L	1013	Standard
	P	31	63.3	4.6				ug/L	70	Standard
	S	34	51.7	31.1				ug/L	58	Standard
	Sr	88	333.3	11.1				ug/L	293	Standard
	C	12	26.7	94.4				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	13.3	43.3				mg/L	3	Standard
	Dy	164	253.6	32.2				mg/L	-0	Standard
	Ho-1	165	191.7	8.0				mg/L	13	Standard
	Er	166	203.3	22.2				mg/L	3	Standard
	I	127	8022.1	3.0				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		93.890	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		86.824	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		97.066
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		91.219
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130509
Sample Date/Time: Tuesday, August 29, 2017 17:54:31
Number of Replicates: 3
Autosampler Position: 246
Sample Description: 10
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	133515.7	1.1				ug/L	143052	Standard
	Be	9	30.0	28.9	**0.0007**	0.006	853.7	ug/L	40	Standard
	Al	27	114348.2	1.2	**0.9225**	0.019	2.0	ug/L	2645	Standard
	Sc	45	17667.0	1.9				ug/L	21013	Standard
	Ti	47	10279.2	2.6	**61.8832**	1.469	2.4	ug/L	27	Standard
	V	51	58831.5	2.2	**9.6534**	0.206	2.1	ug/L	1321	Standard
	Cr	52	207707.7	2.8	**35.4339**	0.962	2.7	ug/L	7642	Standard
	Cr	53	27291.2	3.7	**36.0078**	1.336	3.7	ug/L	1230	Standard
	Mn	55	3060.0	0.8	**0.1863**	0.002	1.1	ug/L	1599	Standard
	Co	59	644.7	3.8	**0.0417**	0.003	8.0	ug/L	404	Standard
	Ni	60	1903.5	3.5	**1.0516**	0.044	4.1	ug/L	288	Standard
	Cu	65	352.0	2.0	**0.1389**	0.004	3.0	ug/L	181	Standard
	Zn	66	2299.8	2.6	**2.7992**	0.070	2.5	ug/L	166	Standard
>	Ge	72	314632.2	0.3				ug/L	360328	Standard
	As	75	322.5	12.2	**0.4889**	0.051	10.4	ug/L	-74	Standard
	Se	82	25.4	11.0	**0.1805**	0.041	22.6	ug/L	15	Standard
	Se-1	77	188.3	6.5	**1.2336**	0.266	21.6	ug/L	139	Standard
>	Ga	71	228.3	6.3				mg/L	63	Standard
	Rb	85	835.0	8.6				ug/L	32	Standard
	Y	89	276310.8	2.1				ug/L	315671	Standard
>	Rh	103	115.0	34.0				ug/L	37	Standard
	Mo	98	369.0	4.9	**0.1155**	0.008	6.7	ug/L	143	Standard
	Ag	107	168.7	4.8	**0.0142**	0.002	12.5	ug/L	125	Standard
	Cd	111	14.6	24.8	**0.0045**	0.003	70.8	mg/L	10	Standard
	Cd	114	176.9	16.3	**0.0504**	0.010	20.5	ug/L	39	Standard
>	In	115	355367.6	1.5				ug/L	367586	Standard
	Sn	118	1856.8	0.9	**2.3374**	0.022	0.9	ug/L	107	Standard
	Sb	123	120.2	19.7	**0.0109**	0.006	59.3	ug/L	225	Standard
	Ba	135	11042.4	2.0	**8.0543**	0.169	2.1	ug/L	39	Standard
	Ce	140	4792.4	4.2				ug/L	12	Standard
>	Tb	159	625913.0	1.3				ug/L	627636	Standard
	Ho	165	185.0	20.4				ug/L	13	Standard
	Tl	203	97.7	6.8	**0.0094**	0.001	7.6	ug/L	76	Standard
	Tl	205	246.7	16.4	**0.0076**	0.002	28.1	ug/L	162	Standard
	Pb	206	620.0	7.6	**0.0499**	0.006	12.9	ug/L	362	Standard
	Pb	207	517.0	6.8	**0.0493**	0.007	14.2	ug/L	281	Standard
	Pb	208	907.0	6.8	**0.0497**	0.006	13.0	ug/L	515	Standard
	U	238	1189.7	3.5	**0.1337**	0.006	4.3	ug/L	32	Standard
>	Bi	209	455800.1	1.0				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	2560.2	5.9	**50.7680**	2.094	4.1	mg/L	35	Standard
|	**K**	39	43.3	58.1	**0.4984**	0.355	71.2	mg/L	12	Standard
|	**Ca**	43	31.7	65.7	**12.9882**	21.132	162.7	mg/L	28	Standard
|	**Fe**	54	29.5	27.4	**0.2110**	0.171	81.1	mg/L	38	Standard
|	**Fe**	57	691.7	7.9	**8.9675**	4.744	52.9	mg/L	668	Standard
⌊>	**Sc-1**	45	17667.0	1.9				mg/L	21013	Standard
	Cl	35	1.3	86.6				ug/L	2	Standard
	Kr	83	5.7	44.4				ug/L	6	Standard
	Br	81	1873.4	8.1				ug/L	1013	Standard
	P	31	61.7	37.4				ug/L	70	Standard
	S	34	73.3	30.7				ug/L	58	Standard
	Sr	88	343.3	23.4				ug/L	293	Standard
	C	12	23.3	49.5				mg/L	20	Standard
	N	14	10.0	100.0				mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	288.0	24.6				mg/L	-0	Standard
	Ho-1	165	185.0	20.4				mg/L	13	Standard
	Er	166	250.0	8.0				mg/L	3	Standard
	I	127	8714.2	4.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		93.334	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		87.318	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	96.676
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	90.800
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708130509
Report Date/Time: Tuesday, August 29, 2017 17:56:42

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Method 6020 - Summary Report

Sample ID: L1708130511
Sample Date/Time: Tuesday, August 29, 2017 17:57:36
Number of Replicates: 3
Autosampler Position: 247
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	143602.5	2.2				ug/L	143052	Standard
	Be	9	38.3	15.1	**0.0043**	0.004	82.7	ug/L	40	Standard
	Al	27	8074538.7	1.6	**61.7911**	2.251	3.6	ug/L	2645	Standard
	Sc	45	19434.1	0.9				ug/L	21013	Standard
	Ti	47	730.0	1.4	**4.1469**	0.044	1.1	ug/L	27	Standard
	V	51	3892.0	6.2	**0.4280**	0.041	9.6	ug/L	1321	Standard
	Cr	52	11319.2	0.8	**0.7339**	0.016	2.2	ug/L	7642	Standard
	Cr	53	8864.3	3.7	**10.3593**	0.329	3.2	ug/L	1230	Standard
	Mn	55	229118.4	0.7	**23.8626**	0.536	2.2	ug/L	1599	Standard
	Co	59	1042.0	5.0	**0.0913**	0.009	9.3	ug/L	404	Standard
	Ni	60	1642.1	2.6	**0.8545**	0.038	4.5	ug/L	288	Standard
	Cu	65	953.0	10.0	**0.5387**	0.073	13.6	ug/L	181	Standard
	Zn	66	1550.7	5.6	**1.7596**	0.134	7.6	ug/L	166	Standard
>	**Ge**	72	324556.1	1.6				ug/L	360328	Standard
	As	75	592.5	11.0	**0.8114**	0.090	11.1	ug/L	-74	Standard
	Se	82	78.7	6.3	**0.9454**	0.083	8.8	ug/L	15	Standard
	Se-1	77	789.0	2.3	**13.3041**	0.558	4.2	ug/L	139	Standard
>	**Ga**	71	93.3	29.5				mg/L	63	Standard
	Rb	85	25877.1	3.2				ug/L	32	Standard
	Y	89	291489.1	1.2				ug/L	315671	Standard
>	**Rh**	103	350.0	15.5				ug/L	37	Standard
	Mo	98	779.6	2.8	**0.2493**	0.005	2.1	ug/L	143	Standard
	Ag	107	117.3	7.7	**0.0024**	0.002	85.0	ug/L	125	Standard
	Cd	111	9.5	16.1	**-0.0005**	0.001	289.9	mg/L	10	Standard
	Cd	114	38.6	15.3	**0.0028**	0.002	73.7	ug/L	39	Standard
>	**In**	115	365069.9	0.9				ug/L	367586	Standard
	Sn	118	178.0	5.4	**0.1183**	0.011	9.3	ug/L	107	Standard
	Sb	123	324.4	10.9	**0.0690**	0.010	13.8	ug/L	225	Standard
	Ba	135	29859.4	3.0	**21.2451**	0.454	2.1	ug/L	39	Standard
	Ce	140	2398.5	0.4				ug/L	12	Standard
>	**Tb**	159	630317.2	2.5				ug/L	627636	Standard
	Ho	165	131.7	18.7				ug/L	13	Standard
	Tl	203	134.0	22.8	**0.0140**	0.004	26.0	ug/L	76	Standard
	Tl	205	265.0	10.0	**0.0086**	0.001	14.1	ug/L	162	Standard
	Pb	206	430.3	4.2	**0.0202**	0.002	12.2	ug/L	362	Standard
	Pb	207	366.3	5.6	**0.0218**	0.004	18.8	ug/L	281	Standard
	Pb	208	632.0	2.8	**0.0216**	0.001	6.0	ug/L	515	Standard
	U	238	1833.8	1.7	**0.2070**	0.003	1.3	ug/L	32	Standard
>	**Bi**	209	453054.5	1.0				ug/L	501980	Standard

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⌈	**Na**	23	93.3	38.0	**24.9997**	9.422	37.7	mg/L	3	Standard
|	**Mg**	24	9980.0	2.6	**181.2729**	4.690	2.6	mg/L	35	Standard
|	**K**	39	278.3	12.0	**3.5068**	0.414	11.8	mg/L	12	Standard
|	**Ca**	43	65.0	7.7	**41.4780**	5.097	12.3	mg/L	28	Standard
|	**Fe**	54	40.7	20.0	**0.3693**	0.154	41.6	mg/L	38	Standard
|	**Fe**	57	868.4	8.2	**15.9921**	4.408	27.6	mg/L	668	Standard
⌊>	**Sc-1**	45	19434.1	0.9				mg/L	21013	Standard
	Cl	35	3.3	91.7				ug/L	2	Standard
	Kr	83	4.3	104.1				ug/L	6	Standard
	Br	81	14386.9	7.6				ug/L	1013	Standard
	P	31	46.7	27.0				ug/L	70	Standard
	S	34	86.7	26.0				ug/L	58	Standard
	Sr	88	348.3	9.6				ug/L	293	Standard
	C	12	50.0	40.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	185.7	21.6				mg/L	-0	Standard
	Ho-1	165	131.7	18.7				mg/L	13	Standard
	Er	166	160.0	34.8				mg/L	3	Standard
	I	127	54759.5	10.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		100.385	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.072	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		99.316
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		90.254
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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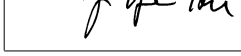

Method 6020 - Summary Report

Sample ID: L1708130512
Sample Date/Time: Tuesday, August 29, 2017 18:00:42
Number of Replicates: 3
Autosampler Position: 248
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	142846.9	0.7				ug/L	143052	Standard
	Be	9	13.3	21.7	**-0.0108**	0.002	16.6	ug/L	40	Standard
	Al	27	4785551.6	0.8	**36.7893**	0.224	0.6	ug/L	2645	Standard
	Sc	45	18793.3	1.9				ug/L	21013	Standard
	Ti	47	173.0	5.7	**0.9014**	0.068	7.6	ug/L	27	Standard
	V	51	-3062.2	23.2	**-0.7074**	0.116	16.4	ug/L	1321	Standard
	Cr	52	10132.7	0.8	**0.5509**	0.009	1.6	ug/L	7642	Standard
	Cr	53	17813.8	3.7	**22.5428**	1.113	4.9	ug/L	1230	Standard
	Mn	55	81666.2	0.6	**8.5099**	0.075	0.9	ug/L	1599	Standard
	Co	59	1232.1	1.2	**0.1180**	0.001	0.5	ug/L	404	Standard
	Ni	60	1208.4	0.6	**0.5965**	0.008	1.3	ug/L	288	Standard
	Cu	65	860.7	4.4	**0.4822**	0.024	4.9	ug/L	181	Standard
	Zn	66	2488.5	2.2	**2.9830**	0.072	2.4	ug/L	166	Standard
>	**Ge**	72	320849.8	1.1				ug/L	360328	Standard
	As	75	310323.4	0.3	**388.6901**	3.277	0.8	ug/L	-74	Standard
	Se	82	121.5	10.3	**1.5860**	0.172	10.9	ug/L	15	Standard
	Se-1	77	1677.8	3.7	**31.7343**	1.650	5.2	ug/L	139	Standard
>	**Ga**	71	65.0	40.0				mg/L	63	Standard
	Rb	85	1071.7	2.7				ug/L	32	Standard
	Y	89	285464.6	1.8				ug/L	315671	Standard
>	**Rh**	103	350.0	8.0				ug/L	37	Standard
	Mo	98	3999.8	0.9	**1.3394**	0.023	1.7	ug/L	143	Standard
	Ag	107	130.3	7.8	**0.0054**	0.002	36.0	ug/L	125	Standard
	Cd	111	7.7	7.9	**-0.0022**	0.001	23.6	mg/L	10	Standard
	Cd	114	42.8	25.1	**0.0044**	0.004	84.8	ug/L	39	Standard
>	**In**	115	361484.0	0.9				ug/L	367586	Standard
	Sn	118	204.7	10.9	**0.1550**	0.027	17.6	ug/L	107	Standard
	Sb	123	382.3	12.0	**0.0868**	0.012	14.4	ug/L	225	Standard
	Ba	135	46611.6	2.1	**33.5127**	0.458	1.4	ug/L	39	Standard
	Ce	140	451.7	4.6				ug/L	12	Standard
>	**Tb**	159	637989.5	2.7				ug/L	627636	Standard
	Ho	165	56.7	10.2				ug/L	13	Standard
	Tl	203	94.7	5.8	**0.0095**	0.001	7.4	ug/L	76	Standard
	Tl	205	181.7	28.2	**0.0047**	0.003	57.9	ug/L	162	Standard
	Pb	206	1027.7	4.7	**0.1210**	0.008	6.6	ug/L	362	Standard
	Pb	207	842.0	3.2	**0.1154**	0.005	4.4	ug/L	281	Standard
	Pb	208	1558.7	4.1	**0.1235**	0.007	5.5	ug/L	515	Standard
	U	238	524.7	3.8	**0.0616**	0.002	3.6	ug/L	32	Standard
>	**Bi**	209	438844.2	0.2				ug/L	501980	Standard

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	Na	23	16.7	17.3	**4.6173**	0.743	16.1	mg/L	3	Standard
	Mg	24	14166.6	2.1	**266.4575**	10.769	4.0	mg/L	35	Standard
	K	39	73.3	45.4	**0.8664**	0.444	51.2	mg/L	12	Standard
	Ca	43	33.3	17.3	**12.7860**	5.372	42.0	mg/L	28	Standard
	Fe	54	32.1	32.8	**0.2244**	0.208	92.8	mg/L	38	Standard
	Fe	57	798.4	5.3	**13.2299**	3.888	29.4	mg/L	668	Standard
>	**Sc-1**	45	18793.3	1.9				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	4.0	50.0				ug/L	6	Standard
	Br	81	27712.0	2.9				ug/L	1013	Standard
	P	31	58.3	24.7				ug/L	70	Standard
	S	34	60.0	16.7				ug/L	58	Standard
	Sr	88	330.0	18.4				ug/L	293	Standard
	C	12	16.7	69.3				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	13.3	43.3				mg/L	3	Standard
	Dy	164	53.2	27.9				mg/L	-0	Standard
	Ho-1	165	56.7	10.2				mg/L	13	Standard
	Er	166	73.3	43.8				mg/L	3	Standard
	I	127	199883.6	9.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		99.856	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		89.044	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

Sample ID: L1708130512
Report Date/Time: Tuesday, August 29, 2017 18:02:53

Approved: August 30, 2017

⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	98.340
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	87.423
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
V 51 Lower	V	51	
As 75 Upper, S, EEE	As	75	

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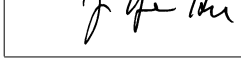

Method 6020 - Summary Report

Sample ID: L1708130513
Sample Date/Time: Tuesday, August 29, 2017 18:03:47
Number of Replicates: 3
Autosampler Position: 249
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	146334.9	0.5				ug/L	143052	Standard
	Be	9	43.3	74.2	**0.0069**	0.019	278.4	ug/L	40	Standard
	Al	27	4877907.6	3.2	**36.6018**	0.997	2.7	ug/L	2645	Standard
	Sc	45	18833.4	2.0				ug/L	21013	Standard
	Ti	47	97.0	5.5	**0.4503**	0.032	7.2	ug/L	27	Standard
	V	51	-3290.6	3.1	**-0.7442**	0.026	3.6	ug/L	1321	Standard
	Cr	52	9639.4	2.7	**0.4619**	0.016	3.5	ug/L	7642	Standard
	Cr	53	17608.6	4.2	**22.2265**	1.380	6.2	ug/L	1230	Standard
	Mn	55	80872.9	0.5	**8.4102**	0.201	2.4	ug/L	1599	Standard
	Co	59	723.4	16.9	**0.0502**	0.015	29.2	ug/L	404	Standard
	Ni	60	962.0	6.0	**0.4420**	0.025	5.7	ug/L	288	Standard
	Cu	65	731.0	4.5	**0.3924**	0.015	3.9	ug/L	181	Standard
	Zn	66	1947.8	1.1	**2.2857**	0.072	3.1	ug/L	166	Standard
>	**Ge**	72	321511.1	1.8				ug/L	360328	Standard
	As	75	297132.3	0.3	**371.4626**	6.528	1.8	ug/L	-74	Standard
	Se	82	97.9	11.0	**1.2378**	0.163	13.1	ug/L	15	Standard
	Se-1	77	1575.1	0.7	**29.5544**	0.490	1.7	ug/L	139	Standard
>	**Ga**	71	91.7	31.5				mg/L	63	Standard
	Rb	85	1010.0	9.9				ug/L	32	Standard
	Y	89	286467.8	0.5				ug/L	315671	Standard
>	**Rh**	103	456.7	24.9				ug/L	37	Standard
	Mo	98	3812.7	2.4	**1.2585**	0.030	2.4	ug/L	143	Standard
	Ag	107	164.0	33.4	**0.0122**	0.012	96.0	ug/L	125	Standard
	Cd	111	18.5	58.2	**0.0077**	0.010	129.1	mg/L	10	Standard
	Cd	114	56.7	42.3	**0.0088**	0.008	91.4	ug/L	39	Standard
>	**In**	115	366474.6	0.5				ug/L	367586	Standard
	Sn	118	186.0	16.0	**0.1277**	0.038	30.1	ug/L	107	Standard
	Sb	123	327.7	12.1	**0.0697**	0.012	16.7	ug/L	225	Standard
	Ba	135	46385.9	1.7	**32.8970**	0.454	1.4	ug/L	39	Standard
	Ce	140	171.7	17.6				ug/L	12	Standard
>	**Tb**	159	648387.8	2.0				ug/L	627636	Standard
	Ho	165	36.7	20.8				ug/L	13	Standard
	Tl	203	148.7	82.9	**0.0163**	0.015	94.3	ug/L	76	Standard
	Tl	205	373.3	87.5	**0.0147**	0.017	115.5	ug/L	162	Standard
	Pb	206	446.3	23.2	**0.0251**	0.016	65.3	ug/L	362	Standard
	Pb	207	389.3	14.7	**0.0286**	0.010	36.2	ug/L	281	Standard
	Pb	208	715.3	18.6	**0.0328**	0.014	41.7	ug/L	515	Standard
	U	238	579.7	22.4	**0.0680**	0.014	21.3	ug/L	32	Standard
>	**Bi**	209	437764.3	0.9				ug/L	501980	Standard

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⌈	**Na**	23	18.3	31.5	**5.0643**	1.540	30.4	mg/L	3	Standard
|	**Mg**	24	13222.4	2.6	**248.1148**	9.798	3.9	mg/L	35	Standard
|	**K**	39	83.3	30.8	**1.0028**	0.362	36.1	mg/L	12	Standard
|	**Ca**	43	26.7	92.5	**6.0988**	23.495	385.2	mg/L	28	Standard
|	**Fe**	54	40.5	29.0	**0.3943**	0.253	64.0	mg/L	38	Standard
|	**Fe**	57	750.0	10.1	**9.8398**	5.903	60.0	mg/L	668	Standard
⌊>	**Sc-1**	45	18833.4	2.0				mg/L	21013	Standard
	Cl	35	5.3	78.1				ug/L	2	Standard
	Kr	83	4.7	24.7				ug/L	6	Standard
	Br	81	21809.0	2.4				ug/L	1013	Standard
	P	31	65.0	20.4				ug/L	70	Standard
	S	34	51.7	14.8				ug/L	58	Standard
	Sr	88	380.0	5.7				ug/L	293	Standard
	C	12	50.0	34.6				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	43.3	16.2				mg/L	-0	Standard
	Ho-1	165	36.7	20.8				mg/L	13	Standard
	Er	166	70.0	37.8				mg/L	3	Standard
	I	127	185108.5	7.9				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.295	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		89.227	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	99.698
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	87.208
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
V 51 Lower	V	51	
As 75 Upper, S, EEE	As	75	

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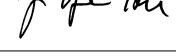

Method 6020 - Summary Report

Sample ID: L1708130514
Sample Date/Time: Tuesday, August 29, 2017 18:06:53
Number of Replicates: 3
Autosampler Position: 250
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	146345.2	1.9				ug/L	143052	Standard
	Be	9	35.0	24.7	**0.0019**	0.005	274.5	ug/L	40	Standard
	Al	27	49017363.6	2.3	**367.9834**	5.291	1.4	ug/L	2645	Standard
	Sc	45	18990.2	1.7				ug/L	21013	Standard
	Ti	47	170.3	7.8	**0.9019**	0.064	7.1	ug/L	27	Standard
	V	51	-2752.4	5.0	**-0.6646**	0.029	4.3	ug/L	1321	Standard
	Cr	52	10222.1	2.5	**0.5965**	0.019	3.1	ug/L	7642	Standard
	Cr	53	18823.4	4.6	**24.3267**	1.039	4.3	ug/L	1230	Standard
	Mn	55	2320717.1	3.0	**249.9654**	3.959	1.6	ug/L	1599	Standard
	Co	59	2198.2	2.1	**0.2513**	0.007	2.6	ug/L	404	Standard
	Ni	60	4874.5	5.5	**2.9243**	0.126	4.3	ug/L	288	Standard
	Cu	65	2370.2	8.9	**1.5419**	0.124	8.0	ug/L	181	Standard
	Zn	66	2660.6	1.4	**3.2620**	0.011	0.3	ug/L	166	Standard
>	**Ge**	72	315423.6	1.5				ug/L	360328	Standard
	As	75	2102.9	1.0	**2.7560**	0.043	1.6	ug/L	-74	Standard
	Se	82	124.9	13.8	**1.6674**	0.242	14.5	ug/L	15	Standard
	Se-1	77	1903.8	5.3	**37.0179**	1.501	4.1	ug/L	139	Standard
>	**Ga**	71	80.0	10.8				mg/L	63	Standard
	Rb	85	4182.2	4.1				ug/L	32	Standard
	Y	89	282755.8	0.9				ug/L	315671	Standard
>	**Rh**	103	671.7	2.6				ug/L	37	Standard
	Mo	98	225.0	6.6	**0.0629**	0.005	7.4	ug/L	143	Standard
	Ag	107	168.0	11.1	**0.0126**	0.004	32.4	ug/L	125	Standard
	Cd	111	17.1	29.3	**0.0063**	0.005	72.4	mg/L	10	Standard
	Cd	114	89.3	46.7	**0.0193**	0.014	70.2	ug/L	39	Standard
>	**In**	115	370143.0	0.6				ug/L	367586	Standard
	Sn	118	273.3	14.1	**0.2357**	0.047	19.8	ug/L	107	Standard
	Sb	123	232.1	12.1	**0.0414**	0.008	18.6	ug/L	225	Standard
	Ba	135	23940.9	1.6	**16.7970**	0.313	1.9	ug/L	39	Standard
	Ce	140	3242.0	5.5				ug/L	12	Standard
>	**Tb**	159	668195.0	1.6				ug/L	627636	Standard
	Ho	165	156.7	12.9				ug/L	13	Standard
	Tl	203	111.7	12.5	**0.0119**	0.002	14.7	ug/L	76	Standard
	Tl	205	198.3	12.4	**0.0058**	0.001	23.2	ug/L	162	Standard
	Pb	206	769.4	1.9	**0.0808**	0.003	3.7	ug/L	362	Standard
	Pb	207	649.3	2.3	**0.0808**	0.004	4.7	ug/L	281	Standard
	Pb	208	1240.4	2.3	**0.0918**	0.004	4.4	ug/L	515	Standard
	U	238	1522.4	3.8	**0.1809**	0.007	4.0	ug/L	32	Standard
>	**Bi**	209	430631.5	0.8				ug/L	501980	Standard

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⌈	**Na**	23	321.7	11.2	**88.1077**	8.590	9.7	mg/L	3	Standard
|	**Mg**	24	12680.3	3.9	**235.8050**	5.926	2.5	mg/L	35	Standard
|	**K**	39	228.3	23.2	**2.9282**	0.717	24.5	mg/L	12	Standard
|	**Ca**	43	148.3	5.1	**123.0207**	9.681	7.9	mg/L	28	Standard
|	**Fe**	54	112.1	6.9	**1.8083**	0.153	8.5	mg/L	38	Standard
|	**Fe**	57	1478.4	7.9	**58.4429**	6.616	11.3	mg/L	668	Standard
⌊>	**Sc-1**	45	18990.2	1.7				mg/L	21013	Standard
	Cl	35	4.7	24.7				ug/L	2	Standard
	Kr	83	6.3	24.1				ug/L	6	Standard
	Br	81	23728.6	6.7				ug/L	1013	Standard
	P	31	45.0	67.6				ug/L	70	Standard
	S	34	66.7	8.7				ug/L	58	Standard
	Sr	88	340.0	16.6				ug/L	293	Standard
	C	12	43.3	35.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	16.7	34.6				mg/L	3	Standard
	Dy	164	119.0	9.2				mg/L	-0	Standard
	Ho-1	165	156.7	12.9				mg/L	13	Standard
	Er	166	230.0	19.9				mg/L	3	Standard
	I	127	506466.6	9.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.302	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		87.538	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Sample ID: L1708130514
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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	100.696	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	85.787	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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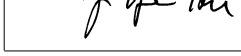

Method 6020 - Summary Report

Sample ID: L1708130515
Sample Date/Time: Tuesday, August 29, 2017 18:09:59
Number of Replicates: 3
Autosampler Position: 251
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	149960.1	0.7				ug/L	143052	Standard
	Be	9	31.7	9.1	**-0.0005**	0.002	345.7	ug/L	40	Standard
	Al	27	47480139.7	1.8	**347.8871**	8.766	2.5	ug/L	2645	Standard
	Sc	45	19484.2	2.4				ug/L	21013	Standard
	Ti	47	177.3	7.0	**0.9157**	0.077	8.4	ug/L	27	Standard
	V	51	-2195.7	17.9	**-0.5611**	0.062	11.1	ug/L	1321	Standard
	Cr	52	10308.5	2.1	**0.5622**	0.028	4.9	ug/L	7642	Standard
	Cr	53	17426.7	1.6	**21.7671**	0.501	2.3	ug/L	1230	Standard
	Mn	55	1831728.3	1.1	**191.8917**	1.815	0.9	ug/L	1599	Standard
	Co	59	1952.5	3.1	**0.2109**	0.008	3.8	ug/L	404	Standard
	Ni	60	4587.7	1.3	**2.6650**	0.035	1.3	ug/L	288	Standard
	Cu	65	1437.1	4.4	**0.8661**	0.040	4.6	ug/L	181	Standard
	Zn	66	2015.1	4.2	**2.3492**	0.121	5.1	ug/L	166	Standard
>	**Ge**	72	324299.6	0.6				ug/L	360328	Standard
	As	75	1115.2	2.1	**1.4588**	0.036	2.5	ug/L	-74	Standard
	Se	82	103.1	23.0	**1.3024**	0.355	27.2	ug/L	15	Standard
	Se-1	77	1766.8	3.1	**33.1676**	1.286	3.9	ug/L	139	Standard
>	**Ga**	71	80.0	16.5				mg/L	63	Standard
	Rb	85	3710.5	3.4				ug/L	32	Standard
	Y	89	285046.9	1.8				ug/L	315671	Standard
>	**Rh**	103	695.0	13.3				ug/L	37	Standard
	Mo	98	250.3	5.2	**0.0710**	0.004	5.5	ug/L	143	Standard
	Ag	107	125.7	3.6	**0.0037**	0.001	21.6	ug/L	125	Standard
	Cd	111	10.4	87.3	**0.0002**	0.008	4845.6	mg/L	10	Standard
	Cd	114	30.7	42.9	**0.0001**	0.004	6785.4	ug/L	39	Standard
>	**In**	115	371282.9	0.5				ug/L	367586	Standard
	Sn	118	159.0	7.1	**0.0906**	0.015	16.7	ug/L	107	Standard
	Sb	123	198.2	14.2	**0.0316**	0.008	25.1	ug/L	225	Standard
	Ba	135	23849.4	1.1	**16.6806**	0.151	0.9	ug/L	39	Standard
	Ce	140	2796.9	1.7				ug/L	12	Standard
>	**Tb**	159	674532.1	1.7				ug/L	627636	Standard
	Ho	165	186.7	14.8				ug/L	13	Standard
	Tl	203	55.0	3.6	**0.0045**	0.000	3.1	ug/L	76	Standard
	Tl	205	135.0	6.4	**0.0022**	0.000	17.6	ug/L	162	Standard
	Pb	206	456.3	6.6	**0.0266**	0.004	13.3	ug/L	362	Standard
	Pb	207	362.7	5.7	**0.0233**	0.004	18.7	ug/L	281	Standard
	Pb	208	738.7	3.8	**0.0352**	0.005	12.8	ug/L	515	Standard
	U	238	1114.7	2.5	**0.1300**	0.001	1.1	ug/L	32	Standard
>	**Bi**	209	439149.0	1.9				ug/L	501980	Standard

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	Na	23	296.7	8.6	**79.2044**	4.959	6.3	mg/L	3	Standard
	Mg	24	11921.4	2.0	**216.2179**	9.278	4.3	mg/L	35	Standard
	K	39	206.7	26.6	**2.5764**	0.762	29.6	mg/L	12	Standard
	Ca	43	121.7	25.1	**93.9870**	25.944	27.6	mg/L	28	Standard
	Fe	54	75.9	13.7	**1.0529**	0.230	21.9	mg/L	38	Standard
	Fe	57	1413.4	1.9	**51.7385**	3.195	6.2	mg/L	668	Standard
>	**Sc-1**	45	19484.2	2.4				mg/L	21013	Standard
	Cl	35	2.0	0.0				ug/L	2	Standard
	Kr	83	8.0	25.0				ug/L	6	Standard
	Br	81	23037.5	5.5				ug/L	1013	Standard
	P	31	78.3	7.4				ug/L	70	Standard
	S	34	48.3	21.5				ug/L	58	Standard
	Sr	88	358.3	24.6				ug/L	293	Standard
	C	12	26.7	43.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	10.0	173.2				mg/L	3	Standard
	Dy	164	119.9	16.9				mg/L	-0	Standard
	Ho-1	165	186.7	14.8				mg/L	13	Standard
	Er	166	210.0	12.6				mg/L	3	Standard
	I	127	511232.3	9.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.829	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		90.001	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	101.006
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	87.483
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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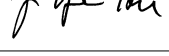

Method 6020 - Summary Report

Sample ID: L1708130516
Sample Date/Time: Tuesday, August 29, 2017 18:13:04
Number of Replicates: 3
Autosampler Position: 252
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	150761.4	1.4				ug/L	143052	Standard
	Be	9	25.0	0.0	**-0.0045**	0.000	4.5	ug/L	40	Standard
	Al	27	51891925.2	2.2	**378.2626**	12.895	3.4	ug/L	2645	Standard
	Sc	45	19647.7	0.1				ug/L	21013	Standard
	Ti	47	199.7	10.1	**1.0566**	0.131	12.4	ug/L	27	Standard
	V	51	-2583.9	12.7	**-0.6279**	0.055	8.7	ug/L	1321	Standard
	Cr	52	10781.8	1.1	**0.6583**	0.034	5.2	ug/L	7642	Standard
	Cr	53	19417.4	2.6	**24.6313**	1.002	4.1	ug/L	1230	Standard
	Mn	55	2403884.0	1.7	**253.9798**	8.124	3.2	ug/L	1599	Standard
	Co	59	2226.2	2.4	**0.2493**	0.010	4.0	ug/L	404	Standard
	Ni	60	5162.2	1.2	**3.0439**	0.063	2.1	ug/L	288	Standard
	Cu	65	1527.7	4.0	**0.9365**	0.057	6.1	ug/L	181	Standard
	Zn	66	2504.2	2.8	**2.9940**	0.048	1.6	ug/L	166	Standard
>	**Ge**	72	321717.5	1.5				ug/L	360328	Standard
	As	75	2083.1	3.4	**2.6792**	0.107	4.0	ug/L	-74	Standard
	Se	82	108.3	5.8	**1.3891**	0.103	7.4	ug/L	15	Standard
	Se-1	77	1976.8	2.8	**37.7609**	1.482	3.9	ug/L	139	Standard
>	**Ga**	71	91.7	38.7				mg/L	63	Standard
	Rb	85	4329.0	3.2				ug/L	32	Standard
	Y	89	283080.1	0.8				ug/L	315671	Standard
>	**Rh**	103	780.0	14.5				ug/L	37	Standard
	Mo	98	223.9	6.4	**0.0620**	0.006	9.1	ug/L	143	Standard
	Ag	107	122.0	3.6	**0.0029**	0.001	39.9	ug/L	125	Standard
	Cd	111	13.8	19.3	**0.0031**	0.002	77.6	mg/L	10	Standard
	Cd	114	45.8	34.7	**0.0049**	0.005	101.3	ug/L	39	Standard
>	**In**	115	372843.6	1.5				ug/L	367586	Standard
	Sn	118	219.3	4.5	**0.1654**	0.010	6.2	ug/L	107	Standard
	Sb	123	213.1	12.0	**0.0356**	0.007	19.3	ug/L	225	Standard
	Ba	135	24879.1	0.5	**17.3320**	0.301	1.7	ug/L	39	Standard
	Ce	140	3523.7	1.3				ug/L	12	Standard
>	**Tb**	159	677687.1	2.2				ug/L	627636	Standard
	Ho	165	173.3	25.2				ug/L	13	Standard
	Tl	203	62.3	19.1	**0.0056**	0.002	28.4	ug/L	76	Standard
	Tl	205	138.3	11.6	**0.0025**	0.001	34.5	ug/L	162	Standard
	Pb	206	811.4	5.1	**0.0879**	0.009	9.7	ug/L	362	Standard
	Pb	207	661.7	4.0	**0.0833**	0.006	7.7	ug/L	281	Standard
	Pb	208	1312.0	4.0	**0.0998**	0.008	8.5	ug/L	515	Standard
	U	238	1588.4	1.4	**0.1888**	0.006	3.3	ug/L	32	Standard
>	**Bi**	209	430529.2	2.0				ug/L	501980	Standard

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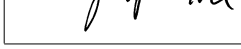

	Na	23	326.7	12.5	**86.5775**	10.859	12.5	mg/L	3	Standard
	Mg	24	13237.4	2.8	**237.9749**	6.416	2.7	mg/L	35	Standard
	K	39	250.0	15.1	**3.1029**	0.486	15.7	mg/L	12	Standard
	Ca	43	126.7	9.1	**98.0386**	10.801	11.0	mg/L	28	Standard
	Fe	54	105.4	32.7	**1.6051**	0.661	41.2	mg/L	38	Standard
	Fe	57	1685.1	9.1	**68.6424**	9.997	14.6	mg/L	668	Standard
>	**Sc-1**	45	19647.7	0.1				mg/L	21013	Standard
	Cl	35	4.7	49.5				ug/L	2	Standard
	Kr	83	5.3	39.0				ug/L	6	Standard
	Br	81	23114.3	4.7				ug/L	1013	Standard
	P	31	71.7	14.5				ug/L	70	Standard
	S	34	63.3	27.7				ug/L	58	Standard
	Sr	88	345.0	12.9				ug/L	293	Standard
	C	12	73.3	47.9				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	202.3	10.5				mg/L	-0	Standard
	Ho-1	165	173.3	25.2				mg/L	13	Standard
	Er	166	230.0	15.1				mg/L	3	Standard
	I	127	534910.4	7.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		105.389	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		89.285	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	101.430
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	85.766
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 18:16:11
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	151515.7	1.9				ug/L	143052	Standard
	Be	9	85946.5	1.8	**49.3081**	1.154	2.3	ug/L	40	Standard
	Al	27	6831151.8	2.1	**49.5329**	1.588	3.2	ug/L	2645	Standard
	Sc	45	20031.6	0.5				ug/L	21013	Standard
	Ti	47	18598.4	0.6	**102.5127**	2.663	2.6	ug/L	27	Standard
	V	51	330179.2	0.6	**50.4018**	0.909	1.8	ug/L	1321	Standard
	Cr	52	321377.0	0.7	**50.6497**	1.014	2.0	ug/L	7642	Standard
	Cr	53	41291.2	2.1	**50.3992**	2.152	4.3	ug/L	1230	Standard
	Mn	55	513262.3	0.7	**50.5895**	1.076	2.1	ug/L	1599	Standard
	Co	59	406025.6	0.9	**50.2402**	1.419	2.8	ug/L	404	Standard
	Ni	60	87307.2	0.8	**50.4307**	1.373	2.7	ug/L	288	Standard
	Cu	65	79574.4	1.2	**50.6963**	1.617	3.2	ug/L	181	Standard
	Zn	66	42130.5	0.2	**50.1550**	0.976	1.9	ug/L	166	Standard
>	**Ge**	72	344056.6	2.1				ug/L	360328	Standard
	As	75	41916.4	0.9	**49.0332**	0.626	1.3	ug/L	-74	Standard
	Se	82	3561.1	1.5	**48.6511**	1.116	2.3	ug/L	15	Standard
	Se-1	77	2731.2	0.5	**49.5731**	0.842	1.7	ug/L	139	Standard
>	**Ga**	71	43.3	17.6				mg/L	63	Standard
	Rb	85	645.0	4.8				ug/L	32	Standard
	Y	89	301655.6	3.4				ug/L	315671	Standard
>	**Rh**	103	181.7	9.7				ug/L	37	Standard
	Mo	98	299359.7	0.4	**91.7644**	0.530	0.6	ug/L	143	Standard
	Ag	107	244302.9	1.0	**47.1195**	0.529	1.1	ug/L	125	Standard
	Cd	111	57625.5	0.8	**48.7852**	0.223	0.5	mg/L	10	Standard
	Cd	114	165831.1	1.6	**50.5119**	0.602	1.2	ug/L	39	Standard
>	**In**	115	398137.7	0.5				ug/L	367586	Standard
	Sn	118	43150.7	2.1	**50.6526**	0.839	1.7	ug/L	107	Standard
	Sb	123	194463.5	2.2	**51.5460**	0.911	1.8	ug/L	225	Standard
	Ba	135	78713.0	2.9	**51.3983**	1.261	2.5	ug/L	39	Standard
	Ce	140	93.3	16.4				ug/L	12	Standard
>	**Tb**	159	687495.9	1.1				ug/L	627636	Standard
	Ho	165	16.7	34.6				ug/L	13	Standard
	Tl	203	451635.5	1.1	**50.4361**	0.381	0.8	ug/L	76	Standard
	Tl	205	1041206.7	1.4	**48.4834**	0.247	0.5	ug/L	162	Standard
	Pb	206	339813.0	0.4	**49.5081**	0.743	1.5	ug/L	362	Standard
	Pb	207	300927.7	0.4	**51.0428**	0.610	1.2	ug/L	281	Standard
	Pb	208	534325.5	2.7	**50.8226**	1.957	3.9	ug/L	515	Standard
	U	238	491195.2	1.3	**50.4589**	1.249	2.5	ug/L	32	Standard
>	**Bi**	209	496493.9	1.2				ug/L	501980	Standard

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	Na	23	15.0	33.3	**3.9069**	1.316	33.7	mg/L	3	Standard
	Mg	24	310.0	7.4	**4.9770**	0.406	8.2	mg/L	35	Standard
	K	39	348.3	17.2	**4.2840**	0.747	17.4	mg/L	12	Standard
	Ca	43	31.7	32.9	**9.3042**	9.553	102.7	mg/L	28	Standard
	Fe	54	283.1	6.1	**4.9143**	0.311	6.3	mg/L	38	Standard
	Fe	57	766.7	3.6	**7.7922**	1.705	21.9	mg/L	668	Standard
>	**Sc-1**	45	20031.6	0.5				mg/L	21013	Standard
	Cl	35	3.3	69.3				ug/L	2	Standard
	Kr	83	6.7	45.8				ug/L	6	Standard
	Br	81	1456.7	14.3				ug/L	1013	Standard
	P	31	63.3	18.2				ug/L	70	Standard
	S	34	63.3	16.4				ug/L	58	Standard
	Sr	88	368.3	10.3				ug/L	293	Standard
	C	12	10.0	100.0				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	8.4	110.5				mg/L	-0	Standard
	Ho-1	165	16.7	34.6				mg/L	13	Standard
	Er	166	33.3	45.8				mg/L	3	Standard
	I	127	16301.5	42.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	98.616		
	Al	27	99.066		
	Sc	45			
	Ti	47	102.513		
	V	51	100.804		
	Cr	52	101.299		
	Cr	53			
	Mn	55	101.179		
	Co	59	100.480		
	Ni	60	100.861		
	Cu	65	101.393		
	Zn	66	100.310		
>	Ge	72		95.484	
	As	75	98.066		
	Se	82	97.302		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	91.764		
|	Ag	107	94.239		
|	Cd	111	97.570		
|	Cd	114			
| >	In	115		108.311	
|	Sn	118	101.305		
|	Sb	123	103.092		
⌊	Ba	135	102.797		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	100.872		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	101.645		
|	U	238	100.918		
⌊>	Bi	209		98.907	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 6
Report Date/Time: Tuesday, August 29, 2017 18:18:22

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Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 18:19:17
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	149682.4	0.4				ug/L	143052	Standard
	Be	9	28.3	66.8	**-0.0024**	0.011	459.7	ug/L	40	Standard
	Al	27	3587.1	3.8	**0.0077**	0.001	11.5	ug/L	2645	Standard
	Sc	45	19594.3	0.8				ug/L	21013	Standard
	Ti	47	26.0	46.2	**0.0207**	0.065	312.3	ug/L	27	Standard
	V	51	1239.2	6.2	**-0.0143**	0.014	97.2	ug/L	1321	Standard
	Cr	52	7239.1	0.8	**-0.0338**	0.024	70.4	ug/L	7642	Standard
	Cr	53	1313.4	6.8	**0.2207**	0.104	47.1	ug/L	1230	Standard
	Mn	55	1676.1	9.8	**0.0211**	0.014	66.1	ug/L	1599	Standard
	Co	59	355.7	4.5	**-0.0015**	0.001	91.9	ug/L	404	Standard
	Ni	60	236.3	1.4	**-0.0171**	0.003	20.2	ug/L	288	Standard
	Cu	65	285.0	2.1	**0.0752**	0.001	1.9	ug/L	181	Standard
	Zn	66	228.7	8.3	**0.0671**	0.022	32.2	ug/L	166	Standard
>	**Ge**	72	344006.9	1.4				ug/L	360328	Standard
	As	75	-56.8	86.7	**0.0104**	0.058	556.3	ug/L	-74	Standard
	Se	82	15.7	46.9	**0.0146**	0.098	673.3	ug/L	15	Standard
	Se-1	77	144.3	5.3	**0.0540**	0.131	242.6	ug/L	139	Standard
>	**Ga**	71	36.7	55.1				mg/L	63	Standard
	Rb	85	41.7	13.9				ug/L	32	Standard
	Y	89	310588.5	2.0				ug/L	315671	Standard
>	**Rh**	103	105.0	26.5				ug/L	37	Standard
	Mo	98	281.5	24.9	**0.0754**	0.020	27.1	ug/L	143	Standard
	Ag	107	142.7	5.4	**0.0055**	0.001	20.8	ug/L	125	Standard
	Cd	111	7.4	43.1	**-0.0030**	0.003	89.4	mg/L	10	Standard
	Cd	114	36.5	13.5	**0.0012**	0.001	113.0	ug/L	39	Standard
>	**In**	115	395194.6	1.2				ug/L	367586	Standard
	Sn	118	128.7	5.5	**0.0424**	0.008	18.0	ug/L	107	Standard
	Sb	123	305.2	10.4	**0.0567**	0.008	13.3	ug/L	225	Standard
	Ba	135	33.7	10.4	**-0.0078**	0.002	26.4	ug/L	39	Standard
	Ce	140	15.0	57.7				ug/L	12	Standard
>	**Tb**	159	676395.4	0.8				ug/L	627636	Standard
	Ho	165	20.0	25.0				ug/L	13	Standard
	Tl	203	114.7	38.9	**0.0100**	0.005	44.9	ug/L	76	Standard
	Tl	205	243.3	28.0	**0.0062**	0.003	47.5	ug/L	162	Standard
	Pb	206	373.0	9.7	**0.0046**	0.004	83.1	ug/L	362	Standard
	Pb	207	316.7	6.0	**0.0062**	0.002	29.5	ug/L	281	Standard
	Pb	208	541.3	3.7	**0.0060**	0.001	13.9	ug/L	515	Standard
	U	238	51.0	13.7	**0.0057**	0.001	12.1	ug/L	32	Standard
>	**Bi**	209	507588.7	2.5				ug/L	501980	Standard

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	Na	23	1.7	173.2	**0.4441**	0.761	171.3	mg/L	3	Standard
	Mg	24	73.3	44.4	**0.8227**	0.587	71.3	mg/L	35	Standard
	K	39	16.7	75.5	**0.0935**	0.164	175.7	mg/L	12	Standard
	Ca	43	43.3	37.1	**20.7266**	14.731	71.1	mg/L	28	Standard
	Fe	54	27.5	28.6	**0.1109**	0.156	140.4	mg/L	38	Standard
	Fe	57	683.3	6.6	**3.4457**	3.109	90.2	mg/L	668	Standard
>	**Sc-1**	45	19594.3	0.8				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	4.0	50.0				ug/L	6	Standard
	Br	81	1153.4	21.7				ug/L	1013	Standard
	P	31	81.7	3.5				ug/L	70	Standard
	S	34	58.3	17.8				ug/L	58	Standard
	Sr	88	363.3	13.8				ug/L	293	Standard
	C	12	16.7	91.7				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	15.4	134.0				mg/L	-0	Standard
	Ho-1	165	20.0	25.0				mg/L	13	Standard
	Er	166	26.7	21.7				mg/L	3	Standard
	I	127	12251.6	4.3				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.470	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	107.511	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	101.117	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130517
Sample Date/Time: Tuesday, August 29, 2017 18:22:24
Number of Replicates: 3
Autosampler Position: 253
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	149386.2	1.0				ug/L	143052	Standard
	Be	9	46.7	16.4	**0.0083**	0.005	56.2	ug/L	40	Standard
	Al	27	52820948.2	2.3	**388.5484**	12.729	3.3	ug/L	2645	Standard
	Sc	45	19779.6	2.5				ug/L	21013	Standard
	Ti	47	185.0	6.4	**0.9574**	0.087	9.1	ug/L	27	Standard
	V	51	-1780.4	31.5	**-0.4939**	0.096	19.4	ug/L	1321	Standard
	Cr	52	11295.5	0.8	**0.7246**	0.035	4.8	ug/L	7642	Standard
	Cr	53	18337.8	4.4	**22.9105**	1.549	6.8	ug/L	1230	Standard
	Mn	55	2153319.3	0.8	**224.8774**	6.409	2.9	ug/L	1599	Standard
	Co	59	2223.8	1.6	**0.2456**	0.010	3.9	ug/L	404	Standard
	Ni	60	5153.9	1.3	**3.0021**	0.070	2.3	ug/L	288	Standard
	Cu	65	1560.7	3.2	**0.9467**	0.050	5.3	ug/L	181	Standard
	Zn	66	3880.5	1.4	**4.6982**	0.165	3.5	ug/L	166	Standard
>	Ge	72	325476.6	2.0				ug/L	360328	Standard
	As	75	1217.9	15.6	**1.5795**	0.226	14.3	ug/L	-74	Standard
	Se	82	107.8	18.6	**1.3606**	0.274	20.1	ug/L	15	Standard
	Se-1	77	1867.4	10.0	**35.1291**	4.479	12.7	ug/L	139	Standard
>	Ga	71	86.7	3.3				mg/L	63	Standard
	Rb	85	4052.2	4.3				ug/L	32	Standard
	Y	89	290706.0	1.4				ug/L	315671	Standard
>	Rh	103	768.4	9.9				ug/L	37	Standard
	Mo	98	846.3	3.6	**0.2686**	0.011	4.2	ug/L	143	Standard
	Ag	107	133.3	10.0	**0.0055**	0.003	47.3	ug/L	125	Standard
	Cd	111	13.1	40.3	**0.0027**	0.005	178.0	mg/L	10	Standard
	Cd	114	20.4	85.0	**-0.0033**	0.006	173.7	ug/L	39	Standard
>	In	115	369117.1	0.6				ug/L	367586	Standard
	Sn	118	172.3	3.8	**0.1087**	0.010	8.8	ug/L	107	Standard
	Sb	123	261.6	7.0	**0.0501**	0.005	10.3	ug/L	225	Standard
	Ba	135	26100.8	1.1	**18.3667**	0.309	1.7	ug/L	39	Standard
	Ce	140	3133.7	8.1				ug/L	12	Standard
>	Tb	159	674257.2	1.7				ug/L	627636	Standard
	Ho	165	181.7	12.4				ug/L	13	Standard
	Tl	203	96.7	16.5	**0.0100**	0.002	19.6	ug/L	76	Standard
	Tl	205	250.0	28.0	**0.0085**	0.004	42.6	ug/L	162	Standard
	Pb	206	584.3	6.2	**0.0498**	0.007	13.4	ug/L	362	Standard
	Pb	207	478.0	4.9	**0.0473**	0.004	7.7	ug/L	281	Standard
	Pb	208	918.7	0.2	**0.0566**	0.001	1.4	ug/L	515	Standard
	U	238	1206.4	2.7	**0.1436**	0.004	2.9	ug/L	32	Standard
>	Bi	209	430171.5	1.0				ug/L	501980	Standard

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⌈	**Na**	23	320.0	11.8	**84.3999**	11.750	13.9	mg/L	3	Standard
|	**Mg**	24	13502.7	2.3	**241.1703**	4.296	1.8	mg/L	35	Standard
|	**K**	39	201.7	16.5	**2.4581**	0.378	15.4	mg/L	12	Standard
|	**Ca**	43	128.3	22.2	**98.5913**	24.303	24.7	mg/L	28	Standard
|	**Fe**	54	95.7	16.4	**1.4089**	0.322	22.9	mg/L	38	Standard
|	**Fe**	57	1486.7	1.9	**55.0687**	0.609	1.1	mg/L	668	Standard
⌊>	**Sc-1**	45	19779.6	2.5				mg/L	21013	Standard
	Cl	35	4.0	86.6				ug/L	2	Standard
	Kr	83	3.3	17.3				ug/L	6	Standard
	Br	81	23007.5	5.0				ug/L	1013	Standard
	P	31	55.0	24.1				ug/L	70	Standard
	S	34	76.7	3.8				ug/L	58	Standard
	Sr	88	330.0	6.6				ug/L	293	Standard
	C	12	110.0	36.4				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	147.6	21.7				mg/L	-0	Standard
	Ho-1	165	181.7	12.4				mg/L	13	Standard
	Er	166	190.0	5.3				mg/L	3	Standard
	I	127	599897.6	11.0				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		104.428	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.328	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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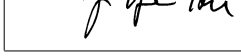

⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	100.417
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	85.695
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
V 51 Lower	V	51	
Mn 55 Upper, S, EEE	Mn	55	

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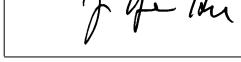

Method 6020 - Summary Report

Sample ID: L1708130519
Sample Date/Time: Tuesday, August 29, 2017 18:25:29
Number of Replicates: 3
Autosampler Position: 254
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	153963.3	0.3				ug/L	143052	Standard
	Be	9	30.0	60.1	**-0.0019**	0.010	530.9	ug/L	40	Standard
	Al	27	22279656.6	1.8	**158.9655**	2.272	1.4	ug/L	2645	Standard
	Sc	45	20495.5	2.2				ug/L	21013	Standard
	Ti	47	172.3	21.8	**0.8256**	0.183	22.2	ug/L	27	Standard
	V	51	613.6	24.5	**-0.1105**	0.022	19.9	ug/L	1321	Standard
	Cr	52	9574.4	2.2	**0.3429**	0.005	1.6	ug/L	7642	Standard
	Cr	53	6916.6	3.1	**7.2541**	0.331	4.6	ug/L	1230	Standard
	Mn	55	2610415.1	0.3	**257.9692**	6.717	2.6	ug/L	1599	Standard
	Co	59	1873.1	0.9	**0.1865**	0.007	4.0	ug/L	404	Standard
	Ni	60	3013.0	3.0	**1.5916**	0.049	3.1	ug/L	288	Standard
	Cu	65	584.7	6.6	**0.2664**	0.021	8.0	ug/L	181	Standard
	Zn	66	1702.8	4.4	**1.8313**	0.136	7.4	ug/L	166	Standard
>	**Ge**	72	343996.4	2.5				ug/L	360328	Standard
	As	75	1457.0	0.7	**1.7796**	0.050	2.8	ug/L	-74	Standard
	Se	82	95.7	8.0	**1.1148**	0.136	12.2	ug/L	15	Standard
	Se-1	77	561.7	5.5	**8.0422**	0.514	6.4	ug/L	139	Standard
>	**Ga**	71	80.0	22.5				mg/L	63	Standard
	Rb	85	2068.5	7.8				ug/L	32	Standard
	Y	89	301780.1	2.3				ug/L	315671	Standard
>	**Rh**	103	235.0	26.1				ug/L	37	Standard
	Mo	98	698.8	3.1	**0.2099**	0.008	3.7	ug/L	143	Standard
	Ag	107	126.3	3.6	**0.0029**	0.001	29.4	ug/L	125	Standard
	Cd	111	11.3	32.1	**0.0006**	0.003	555.4	mg/L	10	Standard
	Cd	114	41.3	43.4	**0.0030**	0.006	188.3	ug/L	39	Standard
>	**In**	115	385650.8	0.4				ug/L	367586	Standard
	Sn	118	139.3	2.9	**0.0592**	0.005	8.2	ug/L	107	Standard
	Sb	123	117.7	5.2	**0.0075**	0.002	20.9	ug/L	225	Standard
	Ba	135	72656.9	2.3	**48.9836**	1.212	2.5	ug/L	39	Standard
	Ce	140	1861.8	5.0				ug/L	12	Standard
>	**Tb**	159	677361.9	0.5				ug/L	627636	Standard
	Ho	165	70.0	43.4				ug/L	13	Standard
	Tl	203	123.3	18.2	**0.0118**	0.002	19.8	ug/L	76	Standard
	Tl	205	265.0	10.5	**0.0079**	0.001	18.0	ug/L	162	Standard
	Pb	206	817.0	5.3	**0.0746**	0.004	5.9	ug/L	362	Standard
	Pb	207	675.0	0.7	**0.0722**	0.003	3.5	ug/L	281	Standard
	Pb	208	1189.0	2.3	**0.0727**	0.004	4.8	ug/L	515	Standard
	U	238	752.7	2.3	**0.0806**	0.003	3.8	ug/L	32	Standard
>	**Bi**	209	479983.0	1.8				ug/L	501980	Standard

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	Na	23	148.3	5.1	**37.6711**	1.135	3.0	mg/L	3	Standard
	Mg	24	2075.1	2.7	**35.3498**	1.274	3.6	mg/L	35	Standard
	K	39	53.3	19.5	**0.5369**	0.127	23.6	mg/L	12	Standard
	Ca	43	85.0	11.8	**56.1840**	9.736	17.3	mg/L	28	Standard
	Fe	54	82.7	33.4	**1.1003**	0.489	44.5	mg/L	38	Standard
	Fe	57	1000.0	12.0	**21.3528**	8.284	38.8	mg/L	668	Standard
>	**Sc-1**	45	20495.5	2.2				mg/L	21013	Standard
	Cl	35	2.7	86.6				ug/L	2	Standard
	Kr	83	7.0	14.3				ug/L	6	Standard
	Br	81	17052.9	6.1				ug/L	1013	Standard
	P	31	76.7	48.9				ug/L	70	Standard
	S	34	66.7	38.5				ug/L	58	Standard
	Sr	88	370.0	12.4				ug/L	293	Standard
	C	12	53.3	65.8				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	107.0	16.3				mg/L	-0	Standard
	Ho-1	165	70.0	43.4				mg/L	13	Standard
	Er	166	63.3	9.1				mg/L	3	Standard
	I	127	157413.7	2.0				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		107.627	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.467	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	104.914
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	95.618
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

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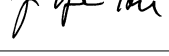

Method 6020 - Summary Report

Sample ID: L1708130520
Sample Date/Time: Tuesday, August 29, 2017 18:28:35
Number of Replicates: 3
Autosampler Position: 255
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	153727.7	1.1				ug/L	143052	Standard
	Be	9	41.7	54.1	**0.0047**	0.013	274.3	ug/L	40	Standard
	Al	27	21350665.2	1.2	**152.6007**	3.478	2.3	ug/L	2645	Standard
	Sc	45	19833.0	1.1				ug/L	21013	Standard
	Ti	47	104.7	4.0	**0.4647**	0.036	7.8	ug/L	27	Standard
	V	51	6675.8	4.0	**0.8346**	0.021	2.5	ug/L	1321	Standard
	Cr	52	9575.7	0.7	**0.3677**	0.033	8.9	ug/L	7642	Standard
	Cr	53	7203.4	6.6	**7.7631**	0.778	10.0	ug/L	1230	Standard
	Mn	55	1719465.1	1.4	**172.5504**	6.049	3.5	ug/L	1599	Standard
	Co	59	1655.4	3.8	**0.1628**	0.012	7.5	ug/L	404	Standard
	Ni	60	3153.7	2.3	**1.7027**	0.084	4.9	ug/L	288	Standard
	Cu	65	554.3	6.3	**0.2524**	0.014	5.4	ug/L	181	Standard
	Zn	66	1582.4	2.3	**1.7156**	0.067	3.9	ug/L	166	Standard
>	**Ge**	72	338706.5	2.5				ug/L	360328	Standard
	As	75	3656.6	3.4	**4.4160**	0.175	4.0	ug/L	-74	Standard
	Se	82	88.5	6.4	**1.0343**	0.094	9.1	ug/L	15	Standard
	Se-1	77	570.7	3.8	**8.3974**	0.693	8.2	ug/L	139	Standard
>	**Ga**	71	85.0	5.9				mg/L	63	Standard
	Rb	85	2248.5	4.6				ug/L	32	Standard
	Y	89	304933.0	3.0				ug/L	315671	Standard
>	**Rh**	103	205.0	9.8				ug/L	37	Standard
	Mo	98	1268.5	3.0	**0.3944**	0.012	3.1	ug/L	143	Standard
	Ag	107	113.3	1.8	**0.0006**	0.000	70.9	ug/L	125	Standard
	Cd	111	17.1	17.1	**0.0058**	0.003	44.6	mg/L	10	Standard
	Cd	114	29.3	24.9	**-0.0007**	0.002	341.7	ug/L	39	Standard
>	**In**	115	381603.0	0.1				ug/L	367586	Standard
	Sn	118	150.3	8.9	**0.0745**	0.016	22.0	ug/L	107	Standard
	Sb	123	791.2	5.5	**0.1942**	0.012	6.2	ug/L	225	Standard
	Ba	135	93159.3	2.7	**63.4780**	1.684	2.7	ug/L	39	Standard
	Ce	140	1270.1	9.5				ug/L	12	Standard
>	**Tb**	159	667958.8	1.1				ug/L	627636	Standard
	Ho	165	66.7	34.6				ug/L	13	Standard
	Tl	203	115.0	15.7	**0.0110**	0.002	18.1	ug/L	76	Standard
	Tl	205	290.0	11.3	**0.0092**	0.002	17.3	ug/L	162	Standard
	Pb	206	561.7	2.1	**0.0370**	0.001	3.3	ug/L	362	Standard
	Pb	207	493.3	2.1	**0.0412**	0.003	6.5	ug/L	281	Standard
	Pb	208	859.7	1.2	**0.0412**	0.002	4.1	ug/L	515	Standard
	U	238	4591.0	1.4	**0.4934**	0.011	2.3	ug/L	32	Standard
>	**Bi**	209	475100.9	0.9				ug/L	501980	Standard

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	Na	23	171.7	14.9	**45.0698**	6.663	14.8	mg/L	3	Standard
	Mg	24	2286.8	2.6	**40.3165**	1.175	2.9	mg/L	35	Standard
	K	39	50.0	30.0	**0.5165**	0.190	36.7	mg/L	12	Standard
	Ca	43	63.3	36.5	**38.6388**	20.932	54.2	mg/L	28	Standard
	Fe	54	49.2	53.8	**0.5131**	0.497	96.9	mg/L	38	Standard
	Fe	57	950.0	7.2	**20.1633**	5.099	25.3	mg/L	668	Standard
>	**Sc-1**	45	19833.0	1.1				mg/L	21013	Standard
	Cl	35	3.3	124.9				ug/L	2	Standard
	Kr	83	6.7	43.3				ug/L	6	Standard
	Br	81	17600.2	4.4				ug/L	1013	Standard
	P	31	65.0	27.7				ug/L	70	Standard
	S	34	56.7	36.7				ug/L	58	Standard
	Sr	88	365.0	11.7				ug/L	293	Standard
	C	12	10.0	100.0				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	42.7	30.5				mg/L	-0	Standard
	Ho-1	165	66.7	34.6				mg/L	13	Standard
	Er	166	83.3	50.0				mg/L	3	Standard
	I	127	129446.2	4.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		107.463	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		93.999	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	103.813
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	94.645
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	
Mn 55 Upper, S, EEE	Mn	55	

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Method 6020 - Summary Report

Sample ID: L1708135403
Sample Date/Time: Tuesday, August 29, 2017 18:31:40
Number of Replicates: 3
Autosampler Position: 256
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	151616.7	2.2				ug/L	143052	Standard
	Be	9	111.7	14.4	**0.0453**	0.011	23.3	ug/L	40	Standard
	Al	27	685350.9	1.4	**4.9502**	0.166	3.4	ug/L	2645	Standard
	Sc	45	20168.4	2.7				ug/L	21013	Standard
	Ti	47	1016.0	9.8	**5.4097**	0.560	10.3	ug/L	27	Standard
	V	51	4905.3	1.8	**0.5374**	0.012	2.2	ug/L	1321	Standard
	Cr	52	18412.5	2.8	**1.7285**	0.040	2.3	ug/L	7642	Standard
	Cr	53	3620.4	2.9	**3.0540**	0.059	1.9	ug/L	1230	Standard
	Mn	55	272245.1	0.4	**26.4080**	0.526	2.0	ug/L	1599	Standard
	Co	59	2285.8	1.6	**0.2338**	0.009	3.7	ug/L	404	Standard
	Ni	60	1415.4	1.4	**0.6551**	0.023	3.5	ug/L	288	Standard
	Cu	65	1409.4	3.1	**0.7810**	0.035	4.5	ug/L	181	Standard
	Zn	66	8461.7	0.9	**9.7746**	0.239	2.4	ug/L	166	Standard
>	**Ge**	72	348670.2	1.6				ug/L	360328	Standard
	As	75	171.8	26.7	**0.2746**	0.049	18.0	ug/L	-74	Standard
	Se	82	23.7	21.6	**0.1212**	0.068	55.8	ug/L	15	Standard
	Se-1	77	193.7	7.3	**0.9469**	0.210	22.2	ug/L	139	Standard
>	**Ga**	71	238.3	10.3				mg/L	63	Standard
	Rb	85	7546.9	2.8				ug/L	32	Standard
	Y	89	310703.6	1.0				ug/L	315671	Standard
>	**Rh**	103	88.3	22.9				ug/L	37	Standard
	Mo	98	236.0	8.7	**0.0619**	0.006	9.7	ug/L	143	Standard
	Ag	107	136.7	8.2	**0.0045**	0.002	51.3	ug/L	125	Standard
	Cd	111	56.4	20.8	**0.0391**	0.010	25.8	mg/L	10	Standard
	Cd	114	153.8	12.6	**0.0375**	0.006	16.5	ug/L	39	Standard
>	**In**	115	393098.5	0.5				ug/L	367586	Standard
	Sn	118	169.7	12.9	**0.0920**	0.025	27.3	ug/L	107	Standard
	Sb	123	215.7	6.8	**0.0332**	0.004	11.1	ug/L	225	Standard
	Ba	135	2249.5	1.3	**1.4589**	0.025	1.7	ug/L	39	Standard
	Ce	140	17078.0	3.8				ug/L	12	Standard
>	**Tb**	159	670532.5	1.8				ug/L	627636	Standard
	Ho	165	451.7	17.4				ug/L	13	Standard
	Tl	203	128.7	6.7	**0.0117**	0.001	5.6	ug/L	76	Standard
	Tl	205	311.7	6.1	**0.0094**	0.001	12.7	ug/L	162	Standard
	Pb	206	3100.7	1.1	**0.3963**	0.015	3.8	ug/L	362	Standard
	Pb	207	2541.9	1.0	**0.3782**	0.014	3.7	ug/L	281	Standard
	Pb	208	4482.9	3.6	**0.3755**	0.024	6.4	ug/L	515	Standard
	U	238	254.0	8.9	**0.0263**	0.003	9.5	ug/L	32	Standard
>	**Bi**	209	504915.2	2.4				ug/L	501980	Standard

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	Na	23	13.3	78.1	**3.4937**	2.816	80.6	mg/L	3	Standard
	Mg	24	341.7	9.7	**5.4921**	0.496	9.0	mg/L	35	Standard
	K	39	43.3	35.3	**0.4211**	0.184	43.7	mg/L	12	Standard
	Ca	43	25.0	52.9	**2.9666**	11.500	387.7	mg/L	28	Standard
	Fe	54	38.9	55.8	**0.3138**	0.418	133.3	mg/L	38	Standard
	Fe	57	671.7	5.8	**1.4873**	3.604	242.3	mg/L	668	Standard
>	**Sc-1**	45	20168.4	2.7				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	7.7	32.8				ug/L	6	Standard
	Br	81	1926.8	7.9				ug/L	1013	Standard
	P	31	58.3	69.8				ug/L	70	Standard
	S	34	71.7	26.4				ug/L	58	Standard
	Sr	88	351.7	13.5				ug/L	293	Standard
	C	12	23.3	107.9				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	619.1	6.3				mg/L	-0	Standard
	Ho-1	165	451.7	17.4				mg/L	13	Standard
	Er	166	436.7	22.5				mg/L	3	Standard
	I	127	12179.9	4.5				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		105.987	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.765	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	106.941
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	100.585
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708135404
Sample Date/Time: Tuesday, August 29, 2017 18:34:46
Number of Replicates: 3
Autosampler Position: 257
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	149170.7	0.8				ug/L	143052	Standard
	Be	9	456.7	8.3	**0.2473**	0.023	9.4	ug/L	40	Standard
	Al	27	1531085.5	1.1	**11.2594**	0.203	1.8	ug/L	2645	Standard
	Sc	45	20011.5	2.2				ug/L	21013	Standard
	Ti	47	169.3	11.2	**0.8270**	0.130	15.8	ug/L	27	Standard
	V	51	157.0	96.7	**-0.1802**	0.023	13.0	ug/L	1321	Standard
	Cr	52	8477.0	2.0	**0.1846**	0.015	8.0	ug/L	7642	Standard
	Cr	53	6256.3	3.8	**6.5345**	0.419	6.4	ug/L	1230	Standard
	Mn	55	1852412.0	0.5	**185.5059**	4.588	2.5	ug/L	1599	Standard
	Co	59	19287.9	2.2	**2.3771**	0.112	4.7	ug/L	404	Standard
	Ni	60	3429.1	0.8	**1.8605**	0.068	3.6	ug/L	288	Standard
	Cu	65	3252.7	1.2	**1.9981**	0.034	1.7	ug/L	181	Standard
	Zn	66	6296.3	0.7	**7.4263**	0.260	3.5	ug/L	166	Standard
>	**Ge**	72	339395.0	2.8				ug/L	360328	Standard
	As	75	158.1	48.7	**0.2653**	0.094	35.3	ug/L	-74	Standard
	Se	82	42.0	2.5	**0.3844**	0.021	5.5	ug/L	15	Standard
	Se-1	77	396.7	1.7	**4.9934**	0.329	6.6	ug/L	139	Standard
>	**Ga**	71	205.0	8.4				mg/L	63	Standard
	Rb	85	11626.1	2.8				ug/L	32	Standard
	Y	89	342183.6	2.1				ug/L	315671	Standard
>	**Rh**	103	75.0	6.7				ug/L	37	Standard
	Mo	98	142.7	39.9	**0.0337**	0.018	53.1	ug/L	143	Standard
	Ag	107	220.7	37.7	**0.0215**	0.016	76.3	ug/L	125	Standard
	Cd	111	162.2	13.7	**0.1320**	0.019	14.4	mg/L	10	Standard
	Cd	114	419.6	9.6	**0.1215**	0.013	10.4	ug/L	39	Standard
>	**In**	115	386989.9	0.4				ug/L	367586	Standard
	Sn	118	139.3	6.3	**0.0586**	0.010	17.2	ug/L	107	Standard
	Sb	123	157.0	46.8	**0.0181**	0.020	110.4	ug/L	225	Standard
	Ba	135	30193.1	2.7	**20.2671**	0.566	2.8	ug/L	39	Standard
	Ce	140	262196.5	2.0				ug/L	12	Standard
>	**Tb**	159	667376.7	1.5				ug/L	627636	Standard
	Ho	165	4250.6	1.5				ug/L	13	Standard
	Tl	203	497.7	22.0	**0.0536**	0.012	23.2	ug/L	76	Standard
	Tl	205	1183.4	28.1	**0.0507**	0.016	31.1	ug/L	162	Standard
	Pb	206	1095.4	7.8	**0.1123**	0.012	10.4	ug/L	362	Standard
	Pb	207	894.0	14.3	**0.1066**	0.022	20.8	ug/L	281	Standard
	Pb	208	1592.4	13.1	**0.1084**	0.021	19.5	ug/L	515	Standard
	U	238	2074.8	5.5	**0.2153**	0.013	6.1	ug/L	32	Standard
>	**Bi**	209	492903.8	1.6				ug/L	501980	Standard

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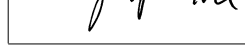

	Na	23	13.3	78.1	**3.5005**	2.757	78.8	mg/L	3	Standard
	Mg	24	1241.7	4.7	**21.4802**	1.410	6.6	mg/L	35	Standard
	K	39	83.3	28.4	**0.9292**	0.274	29.5	mg/L	12	Standard
	Ca	43	41.7	30.2	**18.4526**	11.684	63.3	mg/L	28	Standard
	Fe	54	54.2	8.6	**0.6026**	0.108	17.9	mg/L	38	Standard
	Fe	57	761.7	8.6	**7.5843**	5.020	66.2	mg/L	668	Standard
>	**Sc-1**	45	20011.5	2.2				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	2.7	21.7				ug/L	6	Standard
	Br	81	2950.3	8.3				ug/L	1013	Standard
	P	31	55.0	32.8				ug/L	70	Standard
	S	34	53.3	19.5				ug/L	58	Standard
	Sr	88	318.3	18.9				ug/L	293	Standard
	C	12	16.7	69.3				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	30.0	57.7				mg/L	3	Standard
	Dy	164	6494.4	7.1				mg/L	-0	Standard
	Ho-1	165	4250.6	1.5				mg/L	13	Standard
	Er	166	4324.0	7.1				mg/L	3	Standard
	I	127	12600.3	7.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.277	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.190	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	105.279	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	98.192	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	

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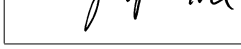

Method 6020 - Summary Report

Sample ID: L1708135406
Sample Date/Time: Tuesday, August 29, 2017 18:37:52
Number of Replicates: 3
Autosampler Position: 258
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	151532.5	1.7				ug/L	143052	Standard
	Be	9	30.0	28.9	**-0.0017**	0.005	294.9	ug/L	40	Standard
	Al	27	13012.3	3.7	**0.0757**	0.002	2.8	ug/L	2645	Standard
	Sc	45	19859.7	0.6				ug/L	21013	Standard
	Ti	47	43.7	15.2	**0.1215**	0.037	30.6	ug/L	27	Standard
	V	51	1629.5	10.1	**0.0488**	0.029	60.0	ug/L	1321	Standard
	Cr	52	8867.6	0.3	**0.2469**	0.026	10.5	ug/L	7642	Standard
	Cr	53	1468.4	3.9	**0.4385**	0.066	15.0	ug/L	1230	Standard
	Mn	55	6896.6	2.0	**0.5457**	0.005	0.8	ug/L	1599	Standard
	Co	59	406.3	0.4	**0.0054**	0.001	16.3	ug/L	404	Standard
	Ni	60	439.3	2.6	**0.1037**	0.004	4.1	ug/L	288	Standard
	Cu	65	2469.2	3.3	**1.4892**	0.058	3.9	ug/L	181	Standard
	Zn	66	2891.6	1.7	**3.2944**	0.112	3.4	ug/L	166	Standard
>	**Ge**	72	339749.2	1.5				ug/L	360328	Standard
	As	75	-56.7	56.8	**0.0097**	0.039	402.2	ug/L	-74	Standard
	Se	82	18.1	6.7	**0.0517**	0.013	25.6	ug/L	15	Standard
	Se-1	77	143.3	2.1	**0.0702**	0.079	113.0	ug/L	139	Standard
>	**Ga**	71	56.7	27.0				mg/L	63	Standard
	Rb	85	120.0	8.3				ug/L	32	Standard
	Y	89	304436.8	1.4				ug/L	315671	Standard
>	**Rh**	103	65.0	33.5				ug/L	37	Standard
	Mo	98	136.5	7.3	**0.0315**	0.003	10.3	ug/L	143	Standard
	Ag	107	107.0	17.5	**-0.0011**	0.004	329.2	ug/L	125	Standard
	Cd	111	15.2	26.6	**0.0039**	0.003	89.2	mg/L	10	Standard
	Cd	114	46.4	32.7	**0.0045**	0.005	107.2	ug/L	39	Standard
>	**In**	115	388930.5	0.6				ug/L	367586	Standard
	Sn	118	135.0	5.3	**0.0525**	0.008	14.9	ug/L	107	Standard
	Sb	123	99.5	7.5	**0.0022**	0.002	83.6	ug/L	225	Standard
	Ba	135	437.3	1.4	**0.2626**	0.004	1.7	ug/L	39	Standard
	Ce	140	251.7	10.0				ug/L	12	Standard
>	**Tb**	159	661155.2	1.2				ug/L	627636	Standard
	Ho	165	18.3	41.7				ug/L	13	Standard
	Tl	203	42.0	27.5	**0.0022**	0.001	52.5	ug/L	76	Standard
	Tl	205	113.3	31.3	**0.0003**	0.002	513.5	ug/L	162	Standard
	Pb	206	534.3	1.6	**0.0283**	0.001	3.4	ug/L	362	Standard
	Pb	207	441.7	2.7	**0.0277**	0.004	13.5	ug/L	281	Standard
	Pb	208	815.3	4.2	**0.0323**	0.005	15.1	ug/L	515	Standard
	U	238	12.0	22.0	**0.0018**	0.000	15.5	ug/L	32	Standard
>	**Bi**	209	503423.4	2.5				ug/L	501980	Standard

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⌈	**Na**	23	1.7	173.2	**0.4449**	0.762	171.3	mg/L	3	Standard
|	**Mg**	24	38.3	19.9	**0.1817**	0.132	72.9	mg/L	35	Standard
|	**K**	39	13.3	57.3	**0.0473**	0.097	204.3	mg/L	12	Standard
|	**Ca**	43	33.3	17.3	**11.0554**	5.174	46.8	mg/L	28	Standard
|	**Fe**	54	24.2	21.2	**0.0393**	0.096	243.8	mg/L	38	Standard
|	**Fe**	57	601.7	12.9	**-2.4418**	4.821	197.4	mg/L	668	Standard
⌊>	**Sc-1**	45	19859.7	0.6				mg/L	21013	Standard
	Cl	35	3.3	69.3				ug/L	2	Standard
	Kr	83	4.3	81.0				ug/L	6	Standard
	Br	81	1130.0	16.4				ug/L	1013	Standard
	P	31	45.0	29.4				ug/L	70	Standard
	S	34	68.3	15.2				ug/L	58	Standard
	Sr	88	346.7	6.0				ug/L	293	Standard
	C	12	0.0					mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	29.7	34.5				mg/L	-0	Standard
	Ho-1	165	18.3	41.7				mg/L	13	Standard
	Er	166	6.7	86.6				mg/L	3	Standard
	I	127	4812.4	3.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		105.928	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.289	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	105.807
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	100.288
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708135406
Sample Date/Time: Tuesday, August 29, 2017 18:40:57
Number of Replicates: 3
Autosampler Position: 259
Sample Description: 50
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	135994.3	0.9				ug/L	143052	Standard
	Be	9	18.3	68.6	-0.0072	0.008	112.6	ug/L	40	Standard
	Al	27	2418.5	2.7	0.0009	0.001	60.1	ug/L	2645	Standard
	Sc	45	17468.4	3.2				ug/L	21013	Standard
	Ti	47	24.7	12.4	0.0296	0.017	58.4	ug/L	27	Standard
	V	51	1426.1	3.9	0.0400	0.010	25.6	ug/L	1321	Standard
	Cr	52	5715.7	3.4	-0.1708	0.038	22.4	ug/L	7642	Standard
	Cr	53	833.4	6.4	-0.2577	0.080	31.1	ug/L	1230	Standard
	Mn	55	1081.0	2.2	-0.0249	0.004	14.8	ug/L	1599	Standard
	Co	59	344.0	4.0	0.0021	0.002	112.0	ug/L	404	Standard
	Ni	60	247.3	5.8	0.0062	0.009	148.8	ug/L	288	Standard
	Cu	65	478.7	6.8	0.2349	0.023	9.9	ug/L	181	Standard
	Zn	66	903.4	5.6	1.0015	0.079	7.9	ug/L	166	Standard
>	Ge	72	307696.5	1.0				ug/L	360328	Standard
	As	75	-16.5	323.9	0.0558	0.069	124.3	ug/L	-74	Standard
	Se	82	18.4	24.4	0.0826	0.071	86.0	ug/L	15	Standard
	Se-1	77	123.7	4.1	-0.0610	0.135	221.4	ug/L	139	Standard
>	Ga	71	43.3	13.3				mg/L	63	Standard
	Rb	85	35.0	65.5				ug/L	32	Standard
	Y	89	266591.9	1.5				ug/L	315671	Standard
>	Rh	103	55.0	24.1				ug/L	37	Standard
	Mo	98	18.1	25.5	-0.0052	0.002	29.3	ug/L	143	Standard
	Ag	107	98.0	16.9	-0.0014	0.003	246.3	ug/L	125	Standard
	Cd	111	10.0	10.0	0.0000	0.001	3116.4	mg/L	10	Standard
	Cd	114	21.7	27.0	-0.0027	0.002	71.6	ug/L	39	Standard
>	In	115	360494.4	0.6				ug/L	367586	Standard
	Sn	118	60.0	14.5	-0.0321	0.012	36.0	ug/L	107	Standard
	Sb	123	30.1	33.0	-0.0160	0.003	17.8	ug/L	225	Standard
	Ba	135	28.0	10.7	-0.0097	0.002	21.1	ug/L	39	Standard
	Ce	140	35.0	37.8				ug/L	12	Standard
>	Tb	159	635038.5	0.6				ug/L	627636	Standard
	Ho	165	8.3	69.3				ug/L	13	Standard
	Tl	203	29.7	28.3	0.0011	0.001	89.5	ug/L	76	Standard
	Tl	205	60.0	8.3	-0.0019	0.000	13.8	ug/L	162	Standard
	Pb	206	407.3	4.2	0.0153	0.003	16.7	ug/L	362	Standard
	Pb	207	352.3	4.4	0.0180	0.003	17.0	ug/L	281	Standard
	Pb	208	662.3	1.6	0.0234	0.001	5.6	ug/L	515	Standard
	U	238	3.7	68.6	0.0010	0.000	27.7	ug/L	32	Standard
>	Bi	209	461967.6	0.4				ug/L	501980	Standard

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⌈	**Na**	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	55.0	9.1	**0.6121**	0.066	10.8	mg/L	35	Standard
|	**K**	39	21.7	74.2	**0.1926**	0.233	120.9	mg/L	12	Standard
|	**Ca**	43	23.3	12.4	**4.8390**	3.175	65.6	mg/L	28	Standard
|	**Fe**	54	17.6	81.6	**-0.0457**	0.296	647.4	mg/L	38	Standard
|	**Fe**	57	718.4	2.9	**11.5004**	2.907	25.3	mg/L	668	Standard
⌊>	**Sc-1**	45	17468.4	3.2				mg/L	21013	Standard
	Cl	35	2.7	86.6				ug/L	2	Standard
	Kr	83	5.3	10.8				ug/L	6	Standard
	Br	81	930.0	8.5				ug/L	1013	Standard
	P	31	46.7	43.3				ug/L	70	Standard
	S	34	61.7	48.9				ug/L	58	Standard
	Sr	88	326.7	11.9				ug/L	293	Standard
	C	12	10.0					mg/L	20	Standard
	N	14	6.7	173.2				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	5.9	94.0				mg/L	-0	Standard
	Ho-1	165	8.3	69.3				mg/L	13	Standard
	Er	166	16.7	69.3				mg/L	3	Standard
	I	127	3222.0	4.1				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		95.066	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		85.393	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
|>	In	115	98.071
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.029
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 4
Sample Date/Time: Tuesday, August 29, 2017 18:44:04
Number of Replicates: 3
Autosampler Position: 203
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	134538.1	1.3				ug/L	143052	Standard
	Be	9	35.0	0.0	**0.0037**	0.000	7.8	ug/L	40	Standard
	Al	27	6020664.6	0.7	**49.1515**	0.379	0.8	ug/L	2645	Standard
	Sc	45	17375.0	2.7				ug/L	21013	Standard
	Ti	47	18055.4	0.7	**110.9612**	1.899	1.7	ug/L	27	Standard
	V	51	-698.8	30.0	**-0.3236**	0.035	10.8	ug/L	1321	Standard
	Cr	52	5828.5	4.1	**-0.1525**	0.068	44.3	ug/L	7642	Standard
	Cr	53	6338.0	10.6	**7.4546**	1.141	15.3	ug/L	1230	Standard
	Mn	55	1606.1	25.0	**0.0333**	0.049	146.5	ug/L	1599	Standard
	Co	59	468.7	1.8	**0.0192**	0.002	8.9	ug/L	404	Standard
	Ni	60	605.3	5.2	**0.2369**	0.017	7.1	ug/L	288	Standard
	Cu	65	407.3	6.5	**0.1829**	0.012	6.8	ug/L	181	Standard
	Zn	66	1002.0	2.1	**1.1296**	0.046	4.1	ug/L	166	Standard
>	**Ge**	72	308575.6	2.3				ug/L	360328	Standard
	As	75	-89.1	66.5	**-0.0379**	0.075	197.0	ug/L	-74	Standard
	Se	82	13.7	35.3	**0.0086**	0.070	819.6	ug/L	15	Standard
	Se-1	77	544.0	3.2	**8.9018**	0.359	4.0	ug/L	139	Standard
>	**Ga**	71	106.7	14.3				mg/L	63	Standard
	Rb	85	531.7	15.0				ug/L	32	Standard
	Y	89	269272.4	2.2				ug/L	315671	Standard
>	**Rh**	103	61.7	49.5				ug/L	37	Standard
	Mo	98	258266.2	0.5	**88.5509**	2.211	2.5	ug/L	143	Standard
	Ag	107	128.0	1.6	**0.0054**	0.000	5.3	ug/L	125	Standard
	Cd	111	-53.9	44.8	**-0.0602**	0.022	37.0	mg/L	10	Standard
	Cd	114	435.1	15.6	**0.1381**	0.021	15.2	ug/L	39	Standard
>	**In**	115	356074.3	2.3				ug/L	367586	Standard
	Sn	118	59.0	9.4	**-0.0325**	0.006	19.1	ug/L	107	Standard
	Sb	123	52.7	12.0	**-0.0092**	0.002	18.3	ug/L	225	Standard
	Ba	135	50.7	11.6	**0.0072**	0.005	68.5	ug/L	39	Standard
	Ce	140	40.0	33.1				ug/L	12	Standard
>	**Tb**	159	645280.8	2.4				ug/L	627636	Standard
	Ho	165	16.7	17.3				ug/L	13	Standard
	Tl	203	54.3	10.8	**0.0041**	0.001	16.8	ug/L	76	Standard
	Tl	205	163.3	12.4	**0.0033**	0.001	30.1	ug/L	162	Standard
	Pb	206	448.0	2.4	**0.0218**	0.002	7.5	ug/L	362	Standard
	Pb	207	353.7	6.6	**0.0183**	0.004	23.4	ug/L	281	Standard
	Pb	208	682.3	1.6	**0.0256**	0.001	5.0	ug/L	515	Standard
	U	238	3.3	34.6	**0.0010**	0.000	13.2	ug/L	32	Standard
>	**Bi**	209	461123.8	0.3				ug/L	501980	Standard

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Na	23	43.3	35.3	**13.0785**	4.963	37.9	mg/L	3	Standard
Mg	24	676.7	7.7	**13.2790**	0.857	6.5	mg/L	35	Standard
K	39	385.0	7.2	**5.4903**	0.262	4.8	mg/L	12	Standard
Ca	43	50.0	17.3	**32.8344**	7.885	24.0	mg/L	28	Standard
Fe	54	602.4	16.2	**12.6985**	2.406	18.9	mg/L	38	Standard
Fe	57	968.4	2.4	**30.2220**	3.519	11.6	mg/L	668	Standard
Sc-1	45	17375.0	2.7				mg/L	21013	Standard
Cl	35	4.0	50.0				ug/L	2	Standard
Kr	83	3.7	41.7				ug/L	6	Standard
Br	81	870.0	4.0				ug/L	1013	Standard
P	31	41.7	27.7				ug/L	70	Standard
S	34	70.0	7.1				ug/L	58	Standard
Sr	88	385.0	2.2				ug/L	293	Standard
C	12	23.3	99.0				mg/L	20	Standard
N	14	3.3	173.2				mg/L	3	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	15.9	91.7				mg/L	-0	Standard
Ho-1	165	16.7	17.3				mg/L	13	Standard
Er	166	16.7	91.7				mg/L	3	Standard
I	127	15933.4	2.3				mg/L	10152	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27	0.983		
Sc	45			
Ti	47	110.961		
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72		85.637	
As	75			
Se	82			
Se-1	77			
Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	88.551		
|	Ag	107			
|	Cd	111			
|	Cd	114			
| >	In	115			96.868
|	Sn	118			
|	Sb	123			
⌊	Ba	135			
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203			
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208			
|	U	238			
⌊>	Bi	209			91.861
⌈	Na	23	104.628		
|	Mg	24	265.580		
|	K	39	109.805		
|	Ca	43	218.896		
|	Fe	54	101.588		
|	Fe	57	241.776		
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 4	Al	27	
QC Std 4	Mg	24	
QC Std 4	Ca	43	

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QC Std 4	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 5
Sample Date/Time: Tuesday, August 29, 2017 18:47:09
Number of Replicates: 3
Autosampler Position: 204
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	139958.5	0.5				ug/L	143052	Standard
	Be	9	163027.6	2.0	**101.2481**	1.569	1.5	ug/L	40	Standard
	Al	27	5999790.2	1.1	**47.0798**	0.336	0.7	ug/L	2645	Standard
	Sc	45	18563.0	1.2				ug/L	21013	Standard
	Ti	47	18076.8	0.7	**104.6826**	0.263	0.3	ug/L	27	Standard
	V	51	604012.4	1.9	**97.0689**	1.714	1.8	ug/L	1321	Standard
	Cr	52	583307.2	1.3	**97.6855**	1.349	1.4	ug/L	7642	Standard
	Cr	53	79772.8	1.9	**103.7456**	2.012	1.9	ug/L	1230	Standard
	Mn	55	953320.0	0.7	**98.8652**	0.516	0.5	ug/L	1599	Standard
	Co	59	752886.7	0.9	**97.9151**	0.559	0.6	ug/L	404	Standard
	Ni	60	162001.5	1.1	**98.4576**	0.951	1.0	ug/L	288	Standard
	Cu	65	150683.3	0.8	**100.9575**	0.900	0.9	ug/L	181	Standard
	Zn	66	85621.9	0.7	**107.3354**	0.976	0.9	ug/L	166	Standard
>	Ge	72	327367.3	0.8				ug/L	360328	Standard
	As	75	83131.0	1.5	**102.1030**	1.405	1.4	ug/L	-74	Standard
	Se	82	7026.5	0.6	**101.0798**	0.507	0.5	ug/L	15	Standard
	Se-1	77	5740.4	1.8	**112.7590**	2.549	2.3	ug/L	139	Standard
>	Ga	71	145.0	9.1				mg/L	63	Standard
	Rb	85	585.0	12.1				ug/L	32	Standard
	Y	89	290894.3	0.8				ug/L	315671	Standard
>	Rh	103	111.7	21.2				ug/L	37	Standard
	Mo	98	274769.7	0.4	**90.3433**	1.240	1.4	ug/L	143	Standard
	Ag	107	255271.1	3.5	**52.7955**	1.011	1.9	ug/L	125	Standard
	Cd	111	109452.9	1.8	**99.3893**	1.006	1.0	mg/L	10	Standard
	Cd	114	303737.0	2.0	**99.2336**	0.512	0.5	ug/L	39	Standard
>	In	115	371233.8	1.7				ug/L	367586	Standard
	Sn	118	112.3	4.1	**0.0318**	0.008	25.6	ug/L	107	Standard
	Sb	123	360312.7	1.9	**102.4643**	1.558	1.5	ug/L	225	Standard
	Ba	135	145039.0	1.7	**101.6119**	1.068	1.1	ug/L	39	Standard
	Ce	140	75.0	24.0				ug/L	12	Standard
>	Tb	159	658385.3	2.4				ug/L	627636	Standard
	Ho	165	15.0	57.7				ug/L	13	Standard
	Tl	203	849081.7	0.7	**98.7383**	1.316	1.3	ug/L	76	Standard
	Tl	205	1986144.0	0.6	**96.3108**	1.134	1.2	ug/L	162	Standard
	Pb	206	657897.6	0.3	**99.8455**	0.687	0.7	ug/L	362	Standard
	Pb	207	552684.9	0.7	**97.6520**	1.247	1.3	ug/L	281	Standard
	Pb	208	986929.7	2.1	**97.7655**	2.509	2.6	ug/L	515	Standard
	U	238	920958.2	1.2	**98.4966**	1.673	1.7	ug/L	32	Standard
>	Bi	209	476821.1	0.6				ug/L	501980	Standard

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	Na	23	38.3	45.8	**10.7496**	4.870	45.3	mg/L	3	Standard
	Mg	24	638.3	4.5	**11.6701**	0.479	4.1	mg/L	35	Standard
	K	39	350.0	5.2	**4.6577**	0.254	5.5	mg/L	12	Standard
	Ca	43	43.3	13.3	**23.0248**	5.564	24.2	mg/L	28	Standard
	Fe	54	654.8	3.4	**12.8979**	0.571	4.4	mg/L	38	Standard
	Fe	57	913.4	3.2	**21.7873**	1.395	6.4	mg/L	668	Standard
>	**Sc-1**	45	18563.0	1.2				mg/L	21013	Standard
	Cl	35	4.7	65.5				ug/L	2	Standard
	Kr	83	5.3	28.6				ug/L	6	Standard
	Br	81	983.4	9.4				ug/L	1013	Standard
	P	31	71.7	22.4				ug/L	70	Standard
	S	34	63.3	40.5				ug/L	58	Standard
	Sr	88	371.7	18.7				ug/L	293	Standard
	C	12	33.3	45.8				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	9.7	103.5				mg/L	-0	Standard
	Ho-1	165	15.0	57.7				mg/L	13	Standard
	Er	166	6.7	173.2				mg/L	3	Standard
	I	127	15831.6	3.2				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.248		
	Al	27	0.942		
	Sc	45			
	Ti	47	104.683		
	V	51	97.069		
	Cr	52	97.685		
	Cr	53			
	Mn	55	98.865		
	Co	59	97.915		
	Ni	60	98.458		
	Cu	65	100.957		
	Zn	66	107.335		
>	Ge	72		90.852	
	As	75	102.103		
	Se	82	101.080		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
> Rh	103			
Mo	98	90.343		
Ag	107	52.795		
Cd	111	99.389		
Cd	114			
> In	115		100.992	
Sn	118			
Sb	123	102.464		
Ba	135	101.612		
Ce	140			
> Tb	159			
Ho	165			
Tl	203	98.738		
Tl	205			
Pb	206			
Pb	207			
Pb	208	97.766		
U	238	98.497		
> Bi	209		94.988	
Na	23	85.997		
Mg	24	233.402		
K	39	93.153		
Ca	43	153.499		
Fe	54	103.183		
Fe	57	174.298		
> Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Ag	107	
QC Std 5	Na	23	

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QC Std 5	Mg	24
QC Std 5	Ca	43
QC Std 5	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Tuesday, August 29, 2017 18:50:16
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144118.9	1.3				ug/L	143052	Standard
	Be	9	83067.1	1.1	**50.1010**	1.090	2.2	ug/L	40	Standard
	Al	27	6531914.7	1.9	**49.7906**	1.547	3.1	ug/L	2645	Standard
	Sc	45	19629.4	1.6				ug/L	21013	Standard
	Ti	47	18312.7	0.9	**101.7477**	2.453	2.4	ug/L	27	Standard
	V	51	323033.4	1.2	**49.7114**	1.342	2.7	ug/L	1321	Standard
	Cr	52	314887.5	1.4	**50.0186**	1.501	3.0	ug/L	7642	Standard
	Cr	53	39822.3	2.5	**48.9520**	1.913	3.9	ug/L	1230	Standard
	Mn	55	508638.2	0.7	**50.5362**	0.879	1.7	ug/L	1599	Standard
	Co	59	399990.6	1.0	**49.8896**	1.235	2.5	ug/L	404	Standard
	Ni	60	85876.4	1.3	**50.0027**	1.412	2.8	ug/L	288	Standard
	Cu	65	78402.3	0.7	**50.3426**	0.933	1.9	ug/L	181	Standard
	Zn	66	41773.5	1.1	**50.1351**	1.329	2.7	ug/L	166	Standard
>	**Ge**	72	341274.9	1.5				ug/L	360328	Standard
	As	75	41679.5	0.6	**49.1549**	0.993	2.0	ug/L	-74	Standard
	Se	82	3588.5	1.6	**49.4172**	0.416	0.8	ug/L	15	Standard
	Se-1	77	2715.6	5.2	**49.7121**	3.304	6.6	ug/L	139	Standard
>	**Ga**	71	48.3	33.3				mg/L	63	Standard
	Rb	85	640.0	4.8				ug/L	32	Standard
	Y	89	304102.9	2.7				ug/L	315671	Standard
>	**Rh**	103	86.7	8.8				ug/L	37	Standard
	Mo	98	298119.6	2.0	**93.3094**	2.806	3.0	ug/L	143	Standard
	Ag	107	242366.5	0.8	**47.7252**	0.706	1.5	ug/L	125	Standard
	Cd	111	56985.0	0.3	**49.2536**	0.517	1.0	mg/L	10	Standard
	Cd	114	159932.1	1.9	**49.7365**	1.054	2.1	ug/L	39	Standard
>	**In**	115	389999.2	1.1				ug/L	367586	Standard
	Sn	118	42360.8	2.5	**50.7653**	1.165	2.3	ug/L	107	Standard
	Sb	123	193780.4	1.5	**52.4424**	0.819	1.6	ug/L	225	Standard
	Ba	135	76655.8	2.2	**51.1037**	1.054	2.1	ug/L	39	Standard
	Ce	140	106.7	11.8				ug/L	12	Standard
>	**Tb**	159	658230.4	1.9				ug/L	627636	Standard
	Ho	165	5.0	0.0				ug/L	13	Standard
	Tl	203	451591.4	0.3	**50.1640**	0.909	1.8	ug/L	76	Standard
	Tl	205	1046596.6	0.8	**48.4753**	0.703	1.5	ug/L	162	Standard
	Pb	206	342711.6	0.3	**49.6620**	0.948	1.9	ug/L	362	Standard
	Pb	207	300933.8	0.5	**50.7667**	0.642	1.3	ug/L	281	Standard
	Pb	208	511780.0	2.9	**48.4184**	2.157	4.5	ug/L	515	Standard
	U	238	482426.4	1.6	**49.2941**	1.534	3.1	ug/L	32	Standard
>	**Bi**	209	499222.4	1.6				ug/L	501980	Standard

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	Na	23	8.3	34.6	**2.2209**	0.784	35.3	mg/L	3	Standard
	Mg	24	341.7	22.7	**5.6753**	1.497	26.4	mg/L	35	Standard
	K	39	383.3	13.7	**4.8279**	0.667	13.8	mg/L	12	Standard
	Ca	43	35.0	24.7	**13.0668**	8.639	66.1	mg/L	28	Standard
	Fe	54	303.2	30.2	**5.4149**	1.773	32.7	mg/L	38	Standard
	Fe	57	695.0	7.6	**4.0906**	2.752	67.3	mg/L	668	Standard
>	**Sc-1**	45	19629.4	1.6				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	6.3	50.8				ug/L	6	Standard
	Br	81	956.7	7.8				ug/L	1013	Standard
	P	31	60.0	22.0				ug/L	70	Standard
	S	34	51.7	14.8				ug/L	58	Standard
	Sr	88	333.3	6.2				ug/L	293	Standard
	C	12	10.0	173.2				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	8.6	108.5				mg/L	-0	Standard
	Ho-1	165	5.0	0.0				mg/L	13	Standard
	Er	166	30.0	57.7				mg/L	3	Standard
	I	127	2458.5	4.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	100.202		
	Al	27	99.581		
	Sc	45			
	Ti	47	101.748		
	V	51	99.423		
	Cr	52	100.037		
	Cr	53			
	Mn	55	101.072		
	Co	59	99.779		
	Ni	60	100.005		
	Cu	65	100.685		
	Zn	66	100.270		
>	Ge	72		94.712	
	As	75	98.310		
	Se	82	98.834		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	93.309		
|	Ag	107	95.450		
|	Cd	111	98.507		
|	Cd	114			
| >	In	115		106.097	
|	Sn	118	101.531		
|	Sb	123	104.885		
⌊	Ba	135	102.207		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	100.328		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	96.837		
|	U	238	98.588		
⌊>	Bi	209		99.451	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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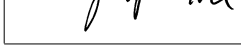

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Tuesday, August 29, 2017 18:53:22
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144817.1	0.7				ug/L	143052	Standard
	Be	9	55.0	15.7	**0.0141**	0.005	37.8	ug/L	40	Standard
	Al	27	7360.4	52.4	**0.0371**	0.029	78.0	ug/L	2645	Standard
	Sc	45	19173.8	1.0				ug/L	21013	Standard
	Ti	47	26.3	12.2	**0.0246**	0.017	71.0	ug/L	27	Standard
	V	51	1253.7	9.5	**-0.0100**	0.018	177.5	ug/L	1321	Standard
	Cr	52	6844.9	1.5	**-0.0846**	0.014	16.8	ug/L	7642	Standard
	Cr	53	1100.0	3.6	**-0.0304**	0.051	169.0	ug/L	1230	Standard
	Mn	55	1877.1	17.3	**0.0433**	0.032	73.7	ug/L	1599	Standard
	Co	59	429.0	5.5	**0.0082**	0.003	34.2	ug/L	404	Standard
	Ni	60	242.0	5.0	**-0.0122**	0.007	58.4	ug/L	288	Standard
	Cu	65	230.3	9.5	**0.0420**	0.014	33.1	ug/L	181	Standard
	Zn	66	198.3	11.9	**0.0337**	0.028	84.3	ug/L	166	Standard
>	**Ge**	72	340003.9	0.3				ug/L	360328	Standard
	As	75	-43.7	66.5	**0.0255**	0.034	134.0	ug/L	-74	Standard
	Se	82	18.2	9.3	**0.0525**	0.024	45.0	ug/L	15	Standard
	Se-1	77	123.0	8.8	**-0.3258**	0.216	66.2	ug/L	139	Standard
>	**Ga**	71	30.0	0.0				mg/L	63	Standard
	Rb	85	30.0	16.7				ug/L	32	Standard
	Y	89	304571.1	1.4				ug/L	315671	Standard
>	**Rh**	103	56.7	31.0				ug/L	37	Standard
	Mo	98	496.1	7.9	**0.1457**	0.014	9.3	ug/L	143	Standard
	Ag	107	175.0	13.1	**0.0126**	0.004	34.8	ug/L	125	Standard
	Cd	111	26.5	42.9	**0.0138**	0.010	71.4	mg/L	10	Standard
	Cd	114	48.5	56.7	**0.0052**	0.009	164.1	ug/L	39	Standard
>	**In**	115	385833.8	0.7				ug/L	367586	Standard
	Sn	118	117.7	8.7	**0.0328**	0.012	38.0	ug/L	107	Standard
	Sb	123	1015.4	4.7	**0.2531**	0.011	4.4	ug/L	225	Standard
	Ba	135	50.7	64.3	**0.0042**	0.022	522.6	ug/L	39	Standard
	Ce	140	31.7	48.2				ug/L	12	Standard
>	**Tb**	159	652026.7	2.2				ug/L	627636	Standard
	Ho	165	5.0	0.0				ug/L	13	Standard
	Tl	203	195.7	16.1	**0.0190**	0.004	19.2	ug/L	76	Standard
	Tl	205	478.3	9.9	**0.0170**	0.002	14.1	ug/L	162	Standard
	Pb	206	440.3	7.0	**0.0145**	0.005	34.9	ug/L	362	Standard
	Pb	207	377.7	12.6	**0.0166**	0.009	51.4	ug/L	281	Standard
	Pb	208	648.0	7.6	**0.0162**	0.005	31.6	ug/L	515	Standard
	U	238	141.0	42.7	**0.0149**	0.006	41.7	ug/L	32	Standard
>	**Bi**	209	506003.5	1.1				ug/L	501980	Standard

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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	58.3	19.8	**0.5747**	0.205	35.6	mg/L	35	Standard
	K	39	20.0	25.0	**0.1422**	0.068	47.8	mg/L	12	Standard
	Ca	43	30.0	66.7	**8.9374**	18.798	210.3	mg/L	28	Standard
	Fe	54	37.4	28.6	**0.3170**	0.211	66.7	mg/L	38	Standard
	Fe	57	653.3	5.6	**2.4009**	2.048	85.3	mg/L	668	Standard
>	**Sc-1**	45	19173.8	1.0				mg/L	21013	Standard
	Cl	35	2.7	114.6				ug/L	2	Standard
	Kr	83	5.7	50.9				ug/L	6	Standard
	Br	81	1066.7	5.2				ug/L	1013	Standard
	P	31	51.7	24.4				ug/L	70	Standard
	S	34	71.7	20.1				ug/L	58	Standard
	Sr	88	345.0	15.3				ug/L	293	Standard
	C	12	30.0	57.7				mg/L	20	Standard
	N	14	3.3	173.2				mg/L	3	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	26.5	57.4				mg/L	-0	Standard
	Ho-1	165	5.0	0.0				mg/L	13	Standard
	Er	166	3.3	173.2				mg/L	3	Standard
	I	127	7546.9	2.4				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.359	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	104.964	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	100.802	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Sb	123	

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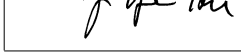

Method 6020 - Summary Report

Sample ID: QC Std 8
Sample Date/Time: Tuesday, August 29, 2017 18:56:29
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	147427.1	0.7				ug/L	143052	Standard
	Be	9	383.3	12.1	**0.2072**	0.028	13.6	ug/L	40	Standard
	Al	27	2706.9	8.1	**0.0016**	0.002	99.1	ug/L	2645	Standard
	Sc	45	19821.3	0.7				ug/L	21013	Standard
	Ti	47	25.3	22.4	**0.0166**	0.033	195.9	ug/L	27	Standard
	V	51	3619.9	5.0	**0.3468**	0.035	10.2	ug/L	1321	Standard
	Cr	52	12834.1	1.4	**0.8541**	0.035	4.1	ug/L	7642	Standard
	Cr	53	1721.8	4.7	**0.7190**	0.130	18.0	ug/L	1230	Standard
	Mn	55	7294.4	1.6	**0.5715**	0.016	2.8	ug/L	1599	Standard
	Co	59	3419.7	0.9	**0.3749**	0.003	0.9	ug/L	404	Standard
	Ni	60	2864.3	3.1	**1.4937**	0.064	4.3	ug/L	288	Standard
	Cu	65	1422.1	0.9	**0.7946**	0.020	2.6	ug/L	181	Standard
	Zn	66	5153.5	1.7	**5.9095**	0.049	0.8	ug/L	166	Standard
>	**Ge**	72	346476.9	1.4				ug/L	360328	Standard
	As	75	264.7	23.9	**0.3843**	0.075	19.6	ug/L	-74	Standard
	Se	82	43.2	14.7	**0.3889**	0.093	23.9	ug/L	15	Standard
	Se-1	77	141.7	4.7	**-0.0166**	0.096	578.2	ug/L	139	Standard
>	**Ga**	71	40.0	25.0				mg/L	63	Standard
	Rb	85	51.7	73.3				ug/L	32	Standard
	Y	89	312203.8	2.8				ug/L	315671	Standard
>	**Rh**	103	80.0	0.0				ug/L	37	Standard
	Mo	98	196.5	7.7	**0.0503**	0.004	8.8	ug/L	143	Standard
	Ag	107	1853.1	2.1	**0.3434**	0.007	1.9	ug/L	125	Standard
	Cd	111	251.8	5.0	**0.2088**	0.012	5.6	mg/L	10	Standard
	Cd	114	705.3	16.9	**0.2099**	0.038	18.1	ug/L	39	Standard
>	**In**	115	389310.9	0.9				ug/L	367586	Standard
	Sn	118	112.3	13.3	**0.0250**	0.017	67.5	ug/L	107	Standard
	Sb	123	1858.1	5.4	**0.4791**	0.023	4.7	ug/L	225	Standard
	Ba	135	1099.0	2.0	**0.7045**	0.015	2.1	ug/L	39	Standard
	Ce	140	20.0	0.0				ug/L	12	Standard
>	**Tb**	159	653533.4	1.3				ug/L	627636	Standard
	Ho	165	10.0	86.6				ug/L	13	Standard
	Tl	203	770.0	6.9	**0.0813**	0.007	8.8	ug/L	76	Standard
	Tl	205	1723.4	8.3	**0.0732**	0.007	9.7	ug/L	162	Standard
	Pb	206	1736.8	2.3	**0.1979**	0.011	5.5	ug/L	362	Standard
	Pb	207	1431.1	1.9	**0.1900**	0.008	4.2	ug/L	281	Standard
	Pb	208	2547.8	4.7	**0.1917**	0.016	8.4	ug/L	515	Standard
	U	238	3678.1	2.3	**0.3682**	0.016	4.4	ug/L	32	Standard
>	**Bi**	209	510522.7	2.2				ug/L	501980	Standard

Sample ID: QC Std 8
Report Date/Time: Tuesday, August 29, 2017 18:58:40
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	Na	23	0.0		**0.0050**	0.000	0.0	mg/L	3	Standard
	Mg	24	60.0	30.0	**0.5719**	0.329	57.6	mg/L	35	Standard
	K	39	20.0	25.0	**0.1334**	0.065	48.4	mg/L	12	Standard
	Ca	43	23.3	32.7	**1.9166**	6.965	363.4	mg/L	28	Standard
	Fe	54	32.6	46.8	**0.2009**	0.294	146.3	mg/L	38	Standard
	Fe	57	710.0	5.8	**4.6596**	2.851	61.2	mg/L	668	Standard
>	**Sc-1**	45	19821.3	0.7				mg/L	21013	Standard
	Cl	35	2.0	100.0				ug/L	2	Standard
	Kr	83	6.0	16.7				ug/L	6	Standard
	Br	81	1010.0	9.9				ug/L	1013	Standard
	P	31	60.0	28.9				ug/L	70	Standard
	S	34	51.7	29.6				ug/L	58	Standard
	Sr	88	335.0	9.3				ug/L	293	Standard
	C	12	16.7	91.7				mg/L	20	Standard
	N	14	0.0					mg/L	3	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	6.3	93.2				mg/L	-0	Standard
	Ho-1	165	10.0	86.6				mg/L	13	Standard
	Er	166	6.7	86.6				mg/L	3	Standard
	I	127	2361.9	3.7				mg/L	10152	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	103.618		
	Al	27			
	Sc	45			
	Ti	47			
	V	51	86.699		
	Cr	52	106.761		
	Cr	53			
	Mn	55	114.301		
	Co	59	93.724		
	Ni	60	93.359		
	Cu	65	99.328		
	Zn	66	94.551		
>	Ge	72		96.156	
	As	75	96.063		
	Se	82	97.235		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98			
|	Ag	107	85.856		
|	Cd	111	86.991		
|	Cd	114			
| >	In	115		105.910	
|	Sn	118			
|	Sb	123	119.770		
⌊	Ba	135	93.935		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	101.598		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	95.845		
|	U	238	92.055		
⌊>	Bi	209		101.702	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 8
Report Date/Time: Tuesday, August 29, 2017 18:58:40
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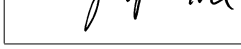

MassCal File Name

Mass Calibration File Name Default.tun
MassCal File Path C:\NexION Data\MassCal\Default.tun
Peak Search Window: 1.00

Sample Information

Sample Date/Time: Wednesday, August 30, 2017 09:54:41

Mass Calibration and Resolution

Analyte	E Mass	Meas Mass	Mass C DAC Val	Res DAC Value	Meas Peak W	Custom Res
Li	7.016	7.025	1310	2026	0.703	
Mg	23.985	24.025	4505	2020	0.716	
Co	58.933	58.925	11690	2022	0.696	
In	114.904	114.925	22863	2027	0.713	
U	238.050	238.025	47451	2044	0.698	

Relative Std. Dev.

Mass	Meas. Intens. RSD
5.525	31.111
5.575	8.500
5.625	6.868
5.675	2.626
5.725	1.529
5.775	2.192
5.825	0.987
5.875	0.933
5.925	1.797
5.975	1.112
6.025	1.079
6.075	1.271
6.125	2.109
6.175	1.301
6.225	1.786
6.275	2.487
6.325	4.212
6.375	11.660
6.425	96.538
6.475	69.722
6.525	26.716
6.575	11.782
6.625	4.756
6.675	2.282
6.725	2.299
6.775	1.857
6.825	1.020

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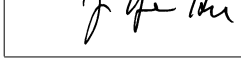

6.875	1.095
6.925	1.244
6.975	1.864
7.025	0.929
7.075	1.657
7.125	1.966
7.175	1.126
7.225	1.259
7.275	1.153
7.325	1.828
7.375	2.155
7.425	4.411
7.475	32.394
7.525	47.628
7.575	86.504
7.625	25.573
7.675	89.721
7.725	31.044
7.775	22.822
7.825	63.949
7.875	59.266
7.925	46.481
7.975	45.079
8.025	76.697
8.075	79.756
8.125	43.853
8.175	47.128
8.225	34.312
8.275	46.481
8.325	50.461
8.375	42.127
8.425	46.771
8.475	26.146
22.525	149.071
22.575	47.507
22.625	69.869
22.675	34.967
22.725	31.882
22.775	51.366
22.825	36.544
22.875	58.270
22.925	34.297
22.975	25.650
23.025	35.239
23.075	47.574
23.125	27.702
23.175	36.288

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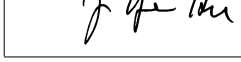

23.225	25.086
23.275	44.122
23.325	14.044
23.375	42.390
23.425	38.310
23.475	27.350
23.525	8.552
23.575	4.643
23.625	2.486
23.675	1.423
23.725	0.925
23.775	1.827
23.825	1.282
23.875	1.200
23.925	1.069
23.975	0.755
24.025	0.975
24.075	0.298
24.125	1.057
24.175	1.063
24.225	0.685
24.275	0.490
24.325	2.696
24.375	34.922
24.425	64.885
24.475	15.135
24.525	9.512
24.575	2.387
24.625	1.734
24.675	1.570
24.725	1.121
24.775	1.571
24.825	1.459
24.875	1.622
24.925	1.154
24.975	1.926
25.025	2.441
25.075	2.310
25.125	1.421
25.175	1.304
25.225	1.430
25.275	10.137
25.325	24.549
25.375	61.406
25.425	40.074
25.475	24.845
57.525	18.632

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57.575	3.974
57.625	3.441
57.675	1.739
57.725	1.861
57.775	0.416
57.825	2.039
57.875	1.678
57.925	3.355
57.975	4.357
58.025	1.408
58.075	2.519
58.125	1.621
58.175	2.527
58.225	4.247
58.275	21.855
58.325	38.846
58.375	52.300
58.425	11.216
58.475	11.034
58.525	5.854
58.575	3.883
58.625	1.954
58.675	2.987
58.725	2.249
58.775	0.636
58.825	1.356
58.875	1.836
58.925	2.809
58.975	1.463
59.025	2.761
59.075	2.088
59.125	2.280
59.175	2.079
59.225	5.281
59.275	15.352
59.325	26.082
59.375	57.601
59.425	59.658
59.475	33.564
59.525	12.550
59.575	5.097
59.625	8.398
59.675	8.213
59.725	2.075
59.775	3.695
59.825	4.392
59.875	3.727

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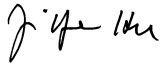

59.925	3.382
59.975	2.357
60.025	2.351
60.075	6.703
60.125	3.784
60.175	4.989
60.225	7.997
60.275	20.039
60.325	81.240
60.375	58.685
60.425	88.388
60.475	31.599
113.525	12.708
113.575	2.940
113.625	4.939
113.675	3.970
113.725	3.327
113.775	4.799
113.825	3.455
113.875	4.329
113.925	3.801
113.975	3.276
114.025	2.693
114.075	3.348
114.125	3.962
114.175	4.537
114.225	7.064
114.275	10.644
114.325	26.343
114.375	42.950
114.425	24.051
114.475	2.863
114.525	2.563
114.575	2.860
114.625	0.928
114.675	1.931
114.725	1.152
114.775	0.794
114.825	1.259
114.875	0.616
114.925	2.075
114.975	2.049
115.025	2.023
115.075	2.474
115.125	1.545
115.175	3.562
115.225	1.151

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115.275	4.735
115.325	19.715
115.375	34.401
115.425	41.163
115.475	26.336
115.525	10.002
115.575	11.885
115.625	9.256
115.675	10.022
115.725	4.376
115.775	5.685
115.825	4.525
115.875	8.385
115.925	5.089
115.975	7.436
116.025	8.776
116.075	2.202
116.125	8.319
116.175	5.015
116.225	10.561
116.275	16.810
116.325	31.882
116.375	57.601
116.425	15.972
116.475	37.417
236.525	
236.575	23.967
236.625	25.377
236.675	40.710
236.725	28.630
236.775	11.877
236.825	42.749
236.875	38.736
236.925	17.008
236.975	16.937
237.025	24.134
237.075	34.405
237.125	26.022
237.175	29.166
237.225	43.971
237.275	35.619
237.325	17.669
237.375	30.951
237.425	33.171
237.475	13.925
237.525	20.497
237.575	12.870

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237.625	3.337
237.675	3.599
237.725	3.104
237.775	3.164
237.825	1.286
237.875	2.642
237.925	2.065
237.975	1.060
238.025	1.165
238.075	1.605
238.125	1.065
238.175	0.801
238.225	2.624
238.275	3.363
238.325	0.400
238.375	4.630
238.425	4.032
238.475	4.958
238.525	12.644
238.575	36.736
238.625	31.181
238.675	17.801
238.725	21.126
238.775	44.392
238.825	32.589
238.875	26.515
238.925	28.743
238.975	26.770
239.025	16.805
239.075	19.543
239.125	34.244
239.175	15.935
239.225	23.951
239.275	24.836
239.325	13.176
239.375	14.572
239.425	34.499
239.475	35.843

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SmartTune Wizard - Summary

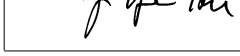
Optimization Summary

SmartTune file: C:\NexIONData\Wizard\SmartTune\SmartTune Fullmicrobac.swz

Start Time: 8/30/2017 10:01:19 AM
End Time: 8/30/2017 10:03:43 AM

Daily Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9.0122): 4231.86
Obtained Intensity (Mg 23.985): 217352.31
Obtained Intensity (In 114.904): 76438.48
Obtained Intensity (U 238.05): 61201.22
Obtained Intensity (Bkgd 220): 0.67
Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=1213.65 / 67875.45)
Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.006 (=408.34 / 67875.45)

Approved: August 31, 2017



SmartTune Wizard - Details

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Optimization Details

SmartTune file: C:\NexIONData\Wizard\SmartTune\SmartTune Fullmicrobac.swz

Optimization Status

Start Time: 8/30/2017 10:01:19 AM

Daily Performance Check
        Optimization Settings:
                Method: C:\NexIONData\Method\ESI Daily Performance.mth.
                Intensity Criterion: Be 9.0122 > 2000
                Intensity Criterion: Mg 23.985 > 15000
                Intensity Criterion: In 114.904 > 40000
                Intensity Criterion: U 238.05 > 30000
                Intensity Criterion: Bkgd 220 <= 5
                Formula Criterion: CeO 155.9 / Ce 139.905 <= 0.025
                Formula Criterion: Ce++ 69.9527 / Ce 139.905 <= 0.03

        Optimization Results:
        Initial Try
                Obtained Intensity (Be 9.0122): 4231.86
                Obtained Intensity (Mg 23.985): 217352.31
                Obtained Intensity (In 114.904): 76438.48
                Obtained Intensity (U 238.05): 61201.22
                Obtained Intensity (Bkgd 220): 0.67
                Obtained Formula (CeO 155.9 / Ce 139.905): 0.018 (=1213.65 / 67875.45)
                Obtained Formula (Ce++ 69.9527 / Ce 139.905): 0.006 (=408.34 / 67875.45)
[Passed]  Optimum value(s): N/A

End Time: 8/30/2017 10:03:43 AM
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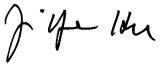
Approved: August 31, 2017



Method 6020 - Summary Report

Sample ID: Blank
Sample Date/Time: Wednesday, August 30, 2017 12:13:48
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	121874.9	1.4				ug/L		Standard
	Be	9	15.0	33.3				ug/L		Standard
	Al	27	1998.5	4.8				ug/L		Standard
	Sc	45	29921.2	2.2				ug/L		Standard
	Ti	47	31.3	24.8				ug/L		Standard
	V	51	1518.8	9.2				ug/L		Standard
	Cr	52	5569.0	0.5				ug/L		Standard
	Cr	53	2626.9	1.6				ug/L		Standard
	Mn	55	1472.7	2.1				ug/L		Standard
	Co	59	348.3	6.7				ug/L		Standard
	Ni	60	316.0	2.1				ug/L		Standard
	Cu	65	135.3	4.2				ug/L		Standard
	Zn	66	124.3	18.1				ug/L		Standard
>	Ge	72	273376.7	1.8				ug/L		Standard
	As	75	-71.9	14.6				ug/L		Standard
	Se	82	12.0	49.9				ug/L		Standard
	Se-1	77	219.0	2.8				ug/L		Standard
>	Ga	71	30.0	28.9				mg/L		Standard
	Rb	85	53.3	21.7				ug/L		Standard
	Y	89	238689.1	1.7				ug/L		Standard
>	Rh	103	30.0	60.1				ug/L		Standard
	Mo	98	117.0	39.5				ug/L		Standard
	Ag	107	96.0	12.8				ug/L		Standard
	Cd	111	5.9	44.8				mg/L		Standard
	Cd	114	15.5	18.7				ug/L		Standard
>	In	115	307321.9	0.7				ug/L		Standard
	Sn	118	44.3	14.7				ug/L		Standard
	Sb	123	227.3	31.1				ug/L		Standard
	Ba	135	24.3	22.6				ug/L		Standard
	Ce	140	21.7	53.3				ug/L		Standard
>	Tb	159	561250.0	1.9				ug/L		Standard
	Ho	165	8.3	91.7				ug/L		Standard
	Tl	203	95.3	11.9				ug/L		Standard
	Tl	205	230.0	15.2				ug/L		Standard
	Pb	206	317.7	4.3				ug/L		Standard
	Pb	207	264.3	2.2				ug/L		Standard
	Pb	208	506.3	4.7				ug/L		Standard
	U	238	4.3	58.1				ug/L		Standard
>	Bi	209	410221.1	0.2				ug/L		Standard

Sample ID: Blank
Report Date/Time: Wednesday, August 30, 2017 12:15:59
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Na	23	1.7	173.2	mg/L	Standard
Mg	24	30.0	50.0	mg/L	Standard
K	39	16.7	34.6	mg/L	Standard
Ca	43	31.7	36.5	mg/L	Standard
Fe	54	46.1	15.7	mg/L	Standard
Fe	57	691.7	6.1	mg/L	Standard
Sc-1	45	29921.2	2.2	mg/L	Standard
Cl	35	2.7	86.6	ug/L	Standard
Kr	83	7.7	32.8	ug/L	Standard
Br	81	766.7	6.6	ug/L	Standard
P	31	45.0	48.4	ug/L	Standard
S	34	10.0	50.0	ug/L	Standard
Sr	88	381.7	4.2	ug/L	Standard
C	12	16.7	91.7	mg/L	Standard
N	14	0.0		mg/L	Standard
Hg	202	0.0		mg/L	Standard
Dy	164	-1.0	50.0	mg/L	Standard
Ho-1	165	8.3	91.7	mg/L	Standard
Er	166	20.0	50.0	mg/L	Standard
I	127	2230.2	9.2	mg/L	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: Blank
Report Date/Time: Wednesday, August 30, 2017 12:15:59
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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 1
Sample Date/Time: Wednesday, August 30, 2017 12:16:55
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	119966.4	0.7				ug/L	121875	Standard
	Be	9	25.0	34.6				ug/L	15	Standard
	Al	27	2070.1	12.0				ug/L	1998	Standard
	Sc	45	29503.7	1.9				ug/L	29921	Standard
	Ti	47	26.0	13.3				ug/L	31	Standard
	V	51	1369.6	11.2				ug/L	1519	Standard
	Cr	52	5536.0	2.0				ug/L	5569	Standard
	Cr	53	2271.8	3.6				ug/L	2627	Standard
	Mn	55	1436.1	10.8				ug/L	1473	Standard
	Co	59	347.7	0.7				ug/L	348	Standard
	Ni	60	334.0	2.4				ug/L	316	Standard
	Cu	65	110.3	0.5				ug/L	135	Standard
	Zn	66	117.3	16.7				ug/L	124	Standard
>	Ge	72	268981.1	1.0				ug/L	273377	Standard
	As	75	-83.9	78.9				ug/L	-72	Standard
	Se	82	14.6	38.5				ug/L	12	Standard
	Se-1	77	200.0	11.0				ug/L	219	Standard
>	Ga	71	33.3	75.5				mg/L	30	Standard
	Rb	85	43.3	37.1				ug/L	53	Standard
	Y	89	237617.1	0.7				ug/L	238689	Standard
>	Rh	103	41.7	36.7				ug/L	30	Standard
	Mo	98	45.9	23.0				ug/L	117	Standard
	Ag	107	102.7	22.6				ug/L	96	Standard
	Cd	111	9.0	40.2				mg/L	6	Standard
	Cd	114	18.8	46.4				ug/L	15	Standard
>	In	115	305379.9	1.5				ug/L	307322	Standard
	Sn	118	45.7	10.8				ug/L	44	Standard
	Sb	123	104.7	23.2				ug/L	227	Standard
	Ba	135	23.3	10.8				ug/L	24	Standard
	Ce	140	30.0	33.3				ug/L	22	Standard
>	Tb	159	559568.2	2.1				ug/L	561250	Standard
	Ho	165	16.7	45.8				ug/L	8	Standard
	Tl	203	89.7	19.4				ug/L	95	Standard
	Tl	205	230.0	7.8				ug/L	230	Standard
	Pb	206	369.7	16.3				ug/L	318	Standard
	Pb	207	312.7	17.6				ug/L	264	Standard
	Pb	208	543.0	17.1				ug/L	506	Standard
	U	238	5.3	47.2				ug/L	4	Standard
>	Bi	209	407377.1	0.8				ug/L	410221	Standard

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Na	23	3.3	86.6	mg/L	2	Standard
Mg	24	38.3	27.2	mg/L	30	Standard
K	39	16.7	17.3	mg/L	17	Standard
Ca	43	31.7	24.1	mg/L	32	Standard
Fe	54	22.4	55.3	mg/L	46	Standard
Fe	57	686.7	5.1	mg/L	692	Standard
Sc-1	45	29503.7	1.9	mg/L	29921	Standard
Cl	35	1.3	86.6	ug/L	3	Standard
Kr	83	7.3	64.4	ug/L	8	Standard
Br	81	876.7	10.0	ug/L	767	Standard
P	31	38.3	32.8	ug/L	45	Standard
S	34	21.7	48.0	ug/L	10	Standard
Sr	88	350.0	17.1	ug/L	382	Standard
C	12	23.3	65.5	mg/L	17	Standard
N	14	0.0		mg/L	0	Standard
Hg	202	3.3	173.2	mg/L	0	Standard
Dy	164	6.0	86.6	mg/L	-1	Standard
Ho-1	165	16.7	45.8	mg/L	8	Standard
Er	166	13.3	86.6	mg/L	20	Standard
I	127	2166.8	7.4	mg/L	2230	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Blank
Sample Date/Time: Wednesday, August 30, 2017 12:21:06
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	163328.0	3.7				ug/L		Standard
	Be	9	30.0	28.9				ug/L		Standard
	Al	27	4730.7	7.1				ug/L		Standard
	Sc	45	42604.9	5.7				ug/L		Standard
	Ti	47	49.7	9.1				ug/L		Standard
	V	51	1927.0	6.7				ug/L		Standard
	Cr	52	17386.3	1.1				ug/L		Standard
	Cr	53	5134.2	5.5				ug/L		Standard
	Mn	55	5509.0	12.9				ug/L		Standard
	Co	59	784.4	13.5				ug/L		Standard
	Ni	60	479.0	9.1				ug/L		Standard
	Cu	65	472.3	6.5				ug/L		Standard
	Zn	66	658.3	6.8				ug/L		Standard
>	Ge	72	384190.0	3.0				ug/L		Standard
	As	75	-134.2	21.6				ug/L		Standard
	Se	82	15.7	9.4				ug/L		Standard
	Se-1	77	261.3	12.6				ug/L		Standard
>	Ga	71	53.3	32.9				mg/L		Standard
	Rb	85	76.7	32.2				ug/L		Standard
	Y	89	357388.3	3.9				ug/L		Standard
>	Rh	103	41.7	38.6				ug/L		Standard
	Mo	98	717.4	9.4				ug/L		Standard
	Ag	107	112.3	2.9				ug/L		Standard
	Cd	111	10.6	79.3				mg/L		Standard
	Cd	114	42.9	27.6				ug/L		Standard
>	In	115	395964.0	0.9				ug/L		Standard
	Sn	118	451.0	35.8				ug/L		Standard
	Sb	123	1014.8	9.7				ug/L		Standard
	Ba	135	51.0	15.3				ug/L		Standard
	Ce	140	93.3	3.1				ug/L		Standard
>	Tb	159	614150.4	4.7				ug/L		Standard
	Ho	165	8.3	34.6				ug/L		Standard
	Tl	203	211.0	12.7				ug/L		Standard
	Tl	205	415.0	15.4				ug/L		Standard
	Pb	206	476.7	9.8				ug/L		Standard
	Pb	207	388.0	10.1				ug/L		Standard
	Pb	208	613.0	5.2				ug/L		Standard
	U	238	32.3	15.9				ug/L		Standard
>	Bi	209	530894.3	2.3				ug/L		Standard

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Na	23	0.0		mg/L	Standard
Mg	24	43.3	24.0	mg/L	Standard
K	39	11.7	65.5	mg/L	Standard
Ca	43	35.0	49.5	mg/L	Standard
Fe	54	45.6	56.9	mg/L	Standard
Fe	57	660.0	8.6	mg/L	Standard
Sc-1	45	42604.9	5.7	mg/L	Standard
Cl	35	2.0	0.0	ug/L	Standard
Kr	83	4.3	35.3	ug/L	Standard
Br	81	1380.1	12.1	ug/L	Standard
P	31	70.0	25.8	ug/L	Standard
S	34	25.0	34.6	ug/L	Standard
Sr	88	280.0	12.9	ug/L	Standard
C	12	0.0		mg/L	Standard
N	14	0.0		mg/L	Standard
Hg	202	93.3	69.7	mg/L	Standard
Dy	164	6.2	186.6	mg/L	Standard
Ho-1	165	8.3	34.6	mg/L	Standard
Er	166	10.0		mg/L	Standard
I	127	2810.3	3.6	mg/L	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Blank
Sample Date/Time: Wednesday, August 30, 2017 12:26:54
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	129165.1	2.4				ug/L		Standard
	Be	9	21.7	53.3				ug/L		Standard
	Al	27	2003.5	7.5				ug/L		Standard
	Sc	45	32341.1	1.3				ug/L		Standard
	Ti	47	30.7	18.0				ug/L		Standard
	V	51	1620.5	4.3				ug/L		Standard
	Cr	52	7502.9	1.8				ug/L		Standard
	Cr	53	2321.8	2.6				ug/L		Standard
	Mn	55	1683.4	3.8				ug/L		Standard
	Co	59	432.3	1.4				ug/L		Standard
	Ni	60	369.3	5.6				ug/L		Standard
	Cu	65	159.7	7.1				ug/L		Standard
	Zn	66	192.0	8.7				ug/L		Standard
>	Ge	72	294345.0	1.6				ug/L		Standard
	As	75	-17.6	293.1				ug/L		Standard
	Se	82	20.0	25.5				ug/L		Standard
	Se-1	77	182.7	3.6				ug/L		Standard
>	Ga	71	26.7	54.1				mg/L		Standard
	Rb	85	46.7	44.6				ug/L		Standard
	Y	89	260351.4	1.3				ug/L		Standard
>	Rh	103	65.0	26.6				ug/L		Standard
	Mo	98	44.6	25.5				ug/L		Standard
	Ag	107	110.7	7.3				ug/L		Standard
	Cd	111	6.3	55.8				mg/L		Standard
	Cd	114	12.9	39.1				ug/L		Standard
>	In	115	325147.4	0.7				ug/L		Standard
	Sn	118	80.0	6.6				ug/L		Standard
	Sb	123	123.3	19.1				ug/L		Standard
	Ba	135	24.3	17.1				ug/L		Standard
	Ce	140	6.7	43.3				ug/L		Standard
>	Tb	159	582612.6	2.4				ug/L		Standard
	Ho	165	16.7	105.4				ug/L		Standard
	Tl	203	99.7	10.5				ug/L		Standard
	Tl	205	260.0	1.9				ug/L		Standard
	Pb	206	291.7	6.0				ug/L		Standard
	Pb	207	245.7	6.6				ug/L		Standard
	Pb	208	472.3	3.1				ug/L		Standard
	U	238	5.0	52.9				ug/L		Standard
>	Bi	209	433909.0	1.8				ug/L		Standard

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	Na	23	3.3	86.6	mg/L	Standard
	Mg	24	31.7	36.5	mg/L	Standard
	K	39	18.3	15.7	mg/L	Standard
	Ca	43	46.7	32.7	mg/L	Standard
	Fe	54	24.2	39.3	mg/L	Standard
	Fe	57	688.3	18.9	mg/L	Standard
>	**Sc-1**	45	32341.1	1.3	mg/L	Standard
	Cl	35	2.7	114.6	ug/L	Standard
	Kr	83	3.7	31.5	ug/L	Standard
	Br	81	993.4	12.2	ug/L	Standard
	P	31	53.3	37.9	ug/L	Standard
	S	34	25.0	0.0	ug/L	Standard
	Sr	88	340.0	20.6	ug/L	Standard
	C	12	3.3	173.2	mg/L	Standard
	N	14	0.0		mg/L	Standard
	Hg	202	3.3	173.2	mg/L	Standard
	Dy	164	5.4	227.5	mg/L	Standard
	Ho-1	165	16.7	105.4	mg/L	Standard
	Er	166	26.7	78.1	mg/L	Standard
	I	127	10150.1	5.4	mg/L	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: Standard 1
Sample Date/Time: Wednesday, August 30, 2017 12:30:00
Number of Replicates: 3
Autosampler Position: 1
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	130410.5	0.6				ug/L	129165	Standard
	Be	9	28.3	53.9				ug/L	22	Standard
	Al	27	2071.8	4.6				ug/L	2003	Standard
	Sc	45	32120.7	1.1				ug/L	32341	Standard
	Ti	47	29.7	5.1				ug/L	31	Standard
	V	51	1629.6	3.3				ug/L	1621	Standard
	Cr	52	7507.2	2.2				ug/L	7503	Standard
	Cr	53	2108.5	2.0				ug/L	2322	Standard
	Mn	55	1595.8	2.4				ug/L	1683	Standard
	Co	59	442.0	2.4				ug/L	432	Standard
	Ni	60	373.7	2.7				ug/L	369	Standard
	Cu	65	165.7	11.8				ug/L	160	Standard
	Zn	66	183.3	5.5				ug/L	192	Standard
>	Ge	72	295353.5	2.2				ug/L	294345	Standard
	As	75	-69.6	47.6				ug/L	-18	Standard
	Se	82	9.3	61.8				ug/L	20	Standard
	Se-1	77	185.0	3.5				ug/L	183	Standard
>	Ga	71	21.7	58.1				mg/L	27	Standard
	Rb	85	28.3	36.7				ug/L	47	Standard
	Y	89	260324.1	1.1				ug/L	260351	Standard
>	Rh	103	63.3	16.4				ug/L	65	Standard
	Mo	98	23.3	31.1				ug/L	45	Standard
	Ag	107	98.7	6.5				ug/L	111	Standard
	Cd	111	8.3	36.7				mg/L	6	Standard
	Cd	114	21.0	51.8				ug/L	13	Standard
>	In	115	328680.3	0.6				ug/L	325147	Standard
	Sn	118	87.7	20.4				ug/L	80	Standard
	Sb	123	76.9	11.7				ug/L	123	Standard
	Ba	135	24.7	39.0				ug/L	24	Standard
	Ce	140	25.0	105.8				ug/L	7	Standard
>	Tb	159	584336.0	2.1				ug/L	582613	Standard
	Ho	165	11.7	49.5				ug/L	17	Standard
	Tl	203	86.0	10.7				ug/L	100	Standard
	Tl	205	196.7	19.1				ug/L	260	Standard
	Pb	206	316.0	9.9				ug/L	292	Standard
	Pb	207	264.7	6.5				ug/L	246	Standard
	Pb	208	500.7	5.2				ug/L	472	Standard
	U	238	6.0	66.7				ug/L	5	Standard
>	Bi	209	431575.1	1.8				ug/L	433909	Standard

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⌈	**Na**	23	0.0		mg/L	3	Standard
|	**Mg**	24	55.0	24.1	mg/L	32	Standard
|	**K**	39	23.3	12.4	mg/L	18	Standard
|	**Ca**	43	41.7	25.0	mg/L	47	Standard
|	**Fe**	54	25.7	59.7	mg/L	24	Standard
|	**Fe**	57	706.7	11.5	mg/L	688	Standard
⌊>	**Sc-1**	45	32120.7	1.1	mg/L	32341	Standard
	Cl	35	2.7	43.3	ug/L	3	Standard
	Kr	83	2.7	21.7	ug/L	4	Standard
	Br	81	860.0	12.9	ug/L	993	Standard
	P	31	55.0	9.1	ug/L	53	Standard
	S	34	20.0	25.0	ug/L	25	Standard
	Sr	88	340.0	20.8	ug/L	340	Standard
	C	12	10.0	100.0	mg/L	3	Standard
	N	14	0.0		mg/L	0	Standard
	Hg	202	3.3	173.2	mg/L	3	Standard
	Dy	164	12.7	46.9	mg/L	5	Standard
	Ho-1	165	11.7	49.5	mg/L	17	Standard
	Er	166	13.3	114.6	mg/L	27	Standard
	I	127	10165.1	3.9	mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72			
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: Standard 1
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Method 6020 - Summary Report

Sample ID: Standard 2
Sample Date/Time: Wednesday, August 30, 2017 12:33:06
Number of Replicates: 3
Autosampler Position: 2
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	130982.1	1.5				ug/L	129165	Standard
	Be	9	81.7	27.6				ug/L	22	Standard
	Al	27	10517.0	1.9				ug/L	2003	Standard
	Sc	45	32072.3	3.3				ug/L	32341	Standard
	Ti	47	53.7	17.3				ug/L	31	Standard
	V	51	1847.5	6.5				ug/L	1621	Standard
	Cr	52	7920.7	1.5				ug/L	7503	Standard
	Cr	53	2051.8	8.2				ug/L	2322	Standard
	Mn	55	2160.2	3.6				ug/L	1683	Standard
	Co	59	770.4	7.4				ug/L	432	Standard
	Ni	60	438.3	6.8				ug/L	369	Standard
	Cu	65	238.3	5.1				ug/L	160	Standard
	Zn	66	281.0	3.8				ug/L	192	Standard
>	**Ge**	72	293977.7	1.0				ug/L	294345	Standard
	As	75	-28.7	46.7				ug/L	-18	Standard
	Se	82	16.9	19.1				ug/L	20	Standard
	Se-1	77	174.3	9.7				ug/L	183	Standard
>	**Ga**	71	43.3	43.7				mg/L	27	Standard
	Rb	85	51.7	14.8				ug/L	47	Standard
	Y	89	262193.0	1.9				ug/L	260351	Standard
>	**Rh**	103	36.7	34.3				ug/L	65	Standard
	Mo	98	292.2	9.8				ug/L	45	Standard
	Ag	107	310.0	4.4				ug/L	111	Standard
	Cd	111	58.0	8.8				mg/L	6	Standard
	Cd	114	208.5	6.0				ug/L	13	Standard
>	**In**	115	328456.1	0.7				ug/L	325147	Standard
	Sn	118	117.7	4.7				ug/L	80	Standard
	Sb	123	217.0	7.2				ug/L	123	Standard
	Ba	135	91.7	18.3				ug/L	24	Standard
	Ce	140	11.7	24.7				ug/L	7	Standard
>	**Tb**	159	589747.8	2.0				ug/L	582613	Standard
	Ho	165	15.0	88.2				ug/L	17	Standard
	Tl	203	494.3	3.2				ug/L	100	Standard
	Tl	205	1060.0	8.2				ug/L	260	Standard
	Pb	206	628.3	6.0				ug/L	292	Standard
	Pb	207	519.7	4.3				ug/L	246	Standard
	Pb	208	963.3	3.8				ug/L	472	Standard
	U	238	435.7	3.1				ug/L	5	Standard
>	**Bi**	209	430745.6	2.2				ug/L	433909	Standard

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Na	23	1.7	173.2	mg/L	3	Standard
Mg	24	58.3	26.2	mg/L	32	Standard
K	39	20.0	25.0	mg/L	18	Standard
Ca	43	43.3	13.3	mg/L	47	Standard
Fe	54	29.5	30.9	mg/L	24	Standard
Fe	57	725.0	3.4	mg/L	688	Standard
Sc-1	45	32072.3	3.3	mg/L	32341	Standard
Cl	35	0.7	173.2	ug/L	3	Standard
Kr	83	5.7	36.7	ug/L	4	Standard
Br	81	906.7	4.6	ug/L	993	Standard
P	31	55.0	18.2	ug/L	53	Standard
S	34	18.3	56.8	ug/L	25	Standard
Sr	88	316.7	10.2	ug/L	340	Standard
C	12	6.7	86.6	mg/L	3	Standard
N	14	3.3	173.2	mg/L	0	Standard
Hg	202	0.0		mg/L	3	Standard
Dy	164	15.5	75.3	mg/L	5	Standard
Ho-1	165	15.0	88.2	mg/L	17	Standard
Er	166	23.3	65.5	mg/L	27	Standard
I	127	9731.5	1.7	mg/L	10150	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6			
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72			
As	75			
Se	82			
Se-1	77			
Ga	71			

Sample ID: Standard 2
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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: Standard 2
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Method 6020 - Summary Report

Sample ID: Standard 3
Sample Date/Time: Wednesday, August 30, 2017 12:36:11
Number of Replicates: 3
Autosampler Position: 3
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	129112.8	0.7				ug/L	129165	Standard
	Be	9	68497.8	1.0	**50.0000**	0.251	0.5	ug/L	22	Standard
	Al	27	5639035.1	0.7	**50.0000**	0.605	1.2	ug/L	2003	Standard
	Sc	45	32220.9	1.6				ug/L	32341	Standard
	Ti	47	24862.1	1.3	**100.0000**	0.802	0.8	ug/L	31	Standard
	V	51	320659.4	0.8	**50.0000**	1.073	2.1	ug/L	1621	Standard
	Cr	52	298496.0	0.2	**50.0000**	0.827	1.7	ug/L	7503	Standard
	Cr	53	38186.4	2.2	**50.0000**	1.587	3.2	ug/L	2322	Standard
	Mn	55	452796.3	0.4	**50.0000**	1.049	2.1	ug/L	1683	Standard
	Co	59	353149.2	0.4	**50.0000**	0.876	1.8	ug/L	432	Standard
	Ni	60	75807.8	0.5	**50.0000**	1.091	2.2	ug/L	369	Standard
	Cu	65	68091.7	1.2	**50.0000**	1.503	3.0	ug/L	160	Standard
	Zn	66	35760.8	0.5	**50.0000**	0.762	1.5	ug/L	192	Standard
>	Ge	72	293197.2	1.8				ug/L	294345	Standard
	As	75	36848.1	0.6	**50.0000**	0.755	1.5	ug/L	-18	Standard
	Se	82	3006.4	2.0	**50.0000**	1.798	3.6	ug/L	20	Standard
	Se-1	77	2420.5	1.3	**50.0000**	1.143	2.3	ug/L	183	Standard
>	Ga	71	38.3	39.8				mg/L	27	Standard
	Rb	85	533.3	1.4				ug/L	47	Standard
	Y	89	257294.8	1.4				ug/L	260351	Standard
>	Rh	103	61.7	28.5				ug/L	65	Standard
	Mo	98	257938.1	0.4	**100.0000**	0.448	0.4	ug/L	45	Standard
	Ag	107	209127.4	0.9	**50.0000**	0.505	1.0	ug/L	111	Standard
	Cd	111	48608.4	0.9	**50.0000**	0.433	0.9	mg/L	6	Standard
	Cd	114	137428.2	1.5	**50.0000**	0.704	1.4	ug/L	13	Standard
>	In	115	327575.7	0.1				ug/L	325147	Standard
	Sn	118	35071.6	2.0	**50.0000**	0.960	1.9	ug/L	80	Standard
	Sb	123	162869.9	2.3	**50.0000**	1.096	2.2	ug/L	123	Standard
	Ba	135	63186.5	2.8	**50.0000**	1.348	2.7	ug/L	24	Standard
	Ce	140	75.0	46.7				ug/L	7	Standard
>	Tb	159	592895.2	1.8				ug/L	582613	Standard
	Ho	165	13.3	21.7				ug/L	17	Standard
	Tl	203	384348.2	0.5	**50.0000**	1.286	2.6	ug/L	100	Standard
	Tl	205	894981.8	1.9	**50.0000**	2.019	4.0	ug/L	260	Standard
	Pb	206	290695.8	1.3	**50.0000**	1.699	3.4	ug/L	292	Standard
	Pb	207	255145.8	0.9	**50.0000**	1.200	2.4	ug/L	246	Standard
	Pb	208	472152.0	3.2	**50.0000**	2.646	5.3	ug/L	472	Standard
	U	238	422904.7	1.8	**50.0000**	1.978	4.0	ug/L	5	Standard
>	Bi	209	425050.4	2.2				ug/L	433909	Standard

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	Na	23	11.7	49.5	**5.0000**	2.917	58.3	mg/L	3	Standard
	Mg	24	321.7	5.5	**5.0000**	0.430	8.6	mg/L	32	Standard
	K	39	680.0	18.0	**5.0000**	0.908	18.2	mg/L	18	Standard
	Ca	43	50.0	30.0	**5.0000**	11.298	226.0	mg/L	47	Standard
	Fe	54	279.0	3.8	**5.0000**	0.273	5.5	mg/L	24	Standard
	Fe	57	705.0	9.9	**5.0000**	17.096	341.9	mg/L	688	Standard
>	**Sc-1**	45	32220.9	1.6				mg/L	32341	Standard
	Cl	35	0.0					ug/L	3	Standard
	Kr	83	6.3	24.1				ug/L	4	Standard
	Br	81	820.0	20.4				ug/L	993	Standard
	P	31	48.3	15.8				ug/L	53	Standard
	S	34	11.7	24.7				ug/L	25	Standard
	Sr	88	391.7	7.8				ug/L	340	Standard
	C	12	23.3	49.5				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	16.3	72.3				mg/L	5	Standard
	Ho-1	165	13.3	21.7				mg/L	17	Standard
	Er	166	6.7	86.6				mg/L	27	Standard
	I	127	2543.5	3.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72			
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: Standard 3
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Method 6020 - Summary Report

Sample ID: Standard 4
Sample Date/Time: Wednesday, August 30, 2017 12:39:17
Number of Replicates: 3
Autosampler Position: 4
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	128104.3	1.0				ug/L	129165	Standard
	Be	9	135288.1	1.5	**99.7778**	2.455	2.5	ug/L	22	Standard
	Al	27	11368720.8	1.1	**100.8121**	0.990	1.0	ug/L	2003	Standard
	Sc	45	31539.5	2.1				ug/L	32341	Standard
	Ti	47	49552.9	1.2	**199.6150**	2.950	1.5	ug/L	31	Standard
	V	51	634091.4	0.1	**99.5010**	2.206	2.2	ug/L	1621	Standard
	Cr	52	580037.5	0.2	**99.1402**	1.985	2.0	ug/L	7503	Standard
	Cr	53	73792.6	2.1	**99.5414**	1.816	1.8	ug/L	2322	Standard
	Mn	55	901056.6	0.8	**99.7865**	1.519	1.5	ug/L	1683	Standard
	Co	59	698254.2	1.9	**99.3956**	0.963	1.0	ug/L	432	Standard
	Ni	60	148766.5	0.9	**99.1131**	1.674	1.7	ug/L	369	Standard
	Cu	65	133331.4	0.4	**98.9439**	1.753	1.8	ug/L	160	Standard
	Zn	66	72450.1	0.8	**100.7660**	1.552	1.5	ug/L	192	Standard
>	Ge	72	293513.8	2.1				ug/L	294345	Standard
	As	75	74823.8	0.8	**100.6670**	2.392	2.4	ug/L	-18	Standard
	Se	82	6144.2	0.8	**101.1426**	2.776	2.7	ug/L	20	Standard
	Se-1	77	4708.4	2.2	**100.3946**	4.449	4.4	ug/L	183	Standard
>	Ga	71	131.7	12.2				mg/L	27	Standard
	Rb	85	476.7	3.7				ug/L	47	Standard
	Y	89	256186.3	1.5				ug/L	260351	Standard
>	Rh	103	70.0	32.7				ug/L	65	Standard
	Mo	98	515477.5	1.2	**198.7731**	2.684	1.4	ug/L	45	Standard
	Ag	107	409279.2	0.4	**98.3485**	0.392	0.4	ug/L	111	Standard
	Cd	111	96394.5	0.7	**99.0038**	1.356	1.4	mg/L	6	Standard
	Cd	114	274426.3	2.3	**99.3599**	2.717	2.7	ug/L	13	Standard
>	In	115	331398.9	0.8				ug/L	325147	Standard
	Sn	118	71075.7	1.7	**100.1456**	2.396	2.4	ug/L	80	Standard
	Sb	123	316755.5	2.6	**98.0386**	3.158	3.2	ug/L	123	Standard
	Ba	135	126179.4	2.3	**99.3609**	2.843	2.9	ug/L	24	Standard
	Ce	140	458.3	20.4				ug/L	7	Standard
>	Tb	159	594478.6	0.9				ug/L	582613	Standard
	Ho	165	11.7	89.2				ug/L	17	Standard
	Tl	203	757698.4	0.2	**99.5993**	1.772	1.8	ug/L	100	Standard
	Tl	205	1760560.5	1.8	**99.4678**	0.320	0.3	ug/L	260	Standard
	Pb	206	589384.2	0.6	**101.0145**	1.199	1.2	ug/L	292	Standard
	Pb	207	492310.2	1.0	**98.5508**	2.505	2.5	ug/L	246	Standard
	Pb	208	930795.8	3.0	**99.6129**	4.502	4.5	ug/L	472	Standard
	U	238	847536.9	1.2	**100.4102**	2.771	2.8	ug/L	5	Standard
>	Bi	209	422322.5	1.6				ug/L	433909	Standard

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⌈	**Na**	23	35.0	14.3	**12.5706**	1.638	13.0	mg/L	3	Standard
|	**Mg**	24	520.0	7.6	**9.4586**	0.784	8.3	mg/L	32	Standard
|	**K**	39	1291.7	5.9	**9.9182**	0.379	3.8	mg/L	18	Standard
|	**Ca**	43	48.3	15.8	**6.2990**	8.314	132.0	mg/L	47	Standard
|	**Fe**	54	508.7	14.0	**9.9049**	1.363	13.8	mg/L	24	Standard
|	**Fe**	57	843.4	4.2	**30.4935**	12.183	40.0	mg/L	688	Standard
⌊>	**Sc-1**	45	31539.5	2.1				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	5.7	40.8				ug/L	4	Standard
	Br	81	956.7	2.6				ug/L	993	Standard
	P	31	60.0	25.0				ug/L	53	Standard
	S	34	10.0					ug/L	25	Standard
	Sr	88	365.0	11.7				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	15.9	181.1				mg/L	5	Standard
	Ho-1	165	11.7	89.2				mg/L	17	Standard
	Er	166	16.7	34.6				mg/L	27	Standard
	I	127	29562.2	4.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72			
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85
⌈	Y	89
⌊>	Rh	103
⌈	Mo	98
|	Ag	107
|	Cd	111
|	Cd	114
| >	In	115
|	Sn	118
|	Sb	123
⌊	Ba	135
⌈	Ce	140
⌊>	Tb	159
⌈	Ho	165
|	Tl	203
|	Tl	205
|	Pb	206
|	Pb	207
|	Pb	208
|	U	238
⌊>	Bi	209
⌈	Na	23
|	Mg	24
|	K	39
|	Ca	43
|	Fe	54
|	Fe	57
⌊>	Sc-1	45
	Cl	35
	Kr	83
	Br	81
	P	31
	S	34
	Sr	88
	C	12
	N	14
	Hg	202
	Dy	164
	Ho-1	165
	Er	166
	I	127

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Corr. Coef.	Na	23	Correlation coefficient < 0.998
Corr. Coef.	Ca	43	Correlation coefficient < 0.998
Corr. Coef.	Fe	57	Correlation coefficient < 0.998

Sample ID: Standard 4
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Method 6020 - Summary Report

Sample ID: QC Std 1
Sample Date/Time: Wednesday, August 30, 2017 12:42:24
Number of Replicates: 3
Autosampler Position: 201
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	128566.6	1.4				ug/L	129165	Standard
	Be	9	68931.5	1.2	**50.6550**	1.294	2.6	ug/L	22	Standard
	Al	27	5695121.3	1.3	**50.3093**	1.291	2.6	ug/L	2003	Standard
	Sc	45	32177.5	1.3				ug/L	32341	Standard
	Ti	47	24646.7	2.0	**99.1355**	2.520	2.5	ug/L	31	Standard
	V	51	318686.6	0.3	**49.8336**	0.600	1.2	ug/L	1621	Standard
	Cr	52	293880.4	0.1	**49.5254**	0.623	1.3	ug/L	7503	Standard
	Cr	53	37599.9	1.0	**49.3089**	1.099	2.2	ug/L	2322	Standard
	Mn	55	451582.2	0.4	**49.8649**	0.454	0.9	ug/L	1683	Standard
	Co	59	350053.3	0.5	**49.7593**	0.810	1.6	ug/L	432	Standard
	Ni	60	74746.6	0.2	**49.6279**	0.568	1.1	ug/L	369	Standard
	Cu	65	67519.1	0.5	**49.9911**	0.675	1.4	ug/L	160	Standard
	Zn	66	35828.3	0.6	**49.6095**	0.713	1.4	ug/L	192	Standard
>	**Ge**	72	293770.5	1.1				ug/L	294345	Standard
	As	75	36403.2	0.4	**48.9665**	0.390	0.8	ug/L	-18	Standard
	Se	82	3015.6	0.8	**49.4635**	0.158	0.3	ug/L	20	Standard
	Se-1	77	2423.2	1.3	**49.7557**	1.285	2.6	ug/L	183	Standard
>	**Ga**	71	50.0	36.1				mg/L	27	Standard
	Rb	85	560.0	1.5				ug/L	47	Standard
	Y	89	255865.8	1.0				ug/L	260351	Standard
>	**Rh**	103	51.7	11.2				ug/L	65	Standard
	Mo	98	257234.8	1.5	**99.4158**	1.931	1.9	ug/L	45	Standard
	Ag	107	209443.7	0.7	**50.4324**	0.500	1.0	ug/L	111	Standard
	Cd	111	49067.9	1.9	**50.5067**	1.135	2.2	mg/L	6	Standard
	Cd	114	137487.7	1.5	**49.8755**	0.671	1.3	ug/L	13	Standard
>	**In**	115	330637.4	0.5				ug/L	325147	Standard
	Sn	118	35864.4	2.1	**50.5847**	0.998	2.0	ug/L	80	Standard
	Sb	123	166361.2	1.3	**51.5929**	0.662	1.3	ug/L	123	Standard
	Ba	135	63924.9	1.1	**50.4378**	0.600	1.2	ug/L	24	Standard
	Ce	140	100.0	55.7				ug/L	7	Standard
>	**Tb**	159	588270.1	1.9				ug/L	582613	Standard
	Ho	165	16.7	17.3				ug/L	17	Standard
	Tl	203	384861.9	1.4	**49.9960**	1.572	3.1	ug/L	100	Standard
	Tl	205	899291.8	1.7	**50.2087**	0.528	1.1	ug/L	260	Standard
	Pb	206	292521.9	0.7	**49.5266**	1.329	2.7	ug/L	292	Standard
	Pb	207	256217.5	0.2	**50.6598**	1.087	2.1	ug/L	246	Standard
	Pb	208	468379.8	2.7	**49.5073**	2.044	4.1	ug/L	472	Standard
	U	238	423594.7	1.0	**49.5927**	1.266	2.6	ug/L	5	Standard
>	**Bi**	209	427363.7	1.9				ug/L	433909	Standard

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	Na	23	18.3	68.6	**6.2030**	4.733	76.3	mg/L	3	Standard
	Mg	24	268.3	9.2	**4.2090**	0.531	12.6	mg/L	32	Standard
	K	39	740.0	7.7	**5.5108**	0.486	8.8	mg/L	18	Standard
	Ca	43	53.3	30.1	**10.6689**	17.406	163.1	mg/L	47	Standard
	Fe	54	247.9	19.1	**4.4289**	0.998	22.5	mg/L	24	Standard
	Fe	57	830.0	8.9	**23.5431**	19.463	82.7	mg/L	688	Standard
>	**Sc-1**	45	32177.5	1.3				mg/L	32341	Standard
	Cl	35	2.7	43.3				ug/L	3	Standard
	Kr	83	3.0	57.7				ug/L	4	Standard
	Br	81	940.0	7.7				ug/L	993	Standard
	P	31	80.0	21.7				ug/L	53	Standard
	S	34	10.0	86.6				ug/L	25	Standard
	Sr	88	331.7	10.0				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	15.7	34.1				mg/L	5	Standard
	Ho-1	165	16.7	17.3				mg/L	17	Standard
	Er	166	20.0	50.0				mg/L	27	Standard
	I	127	2516.9	7.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.310		
	Al	27	100.619		
	Sc	45			
	Ti	47	99.135		
	V	51	99.667		
	Cr	52	99.051		
	Cr	53			
	Mn	55	99.730		
	Co	59	99.519		
	Ni	60	99.256		
	Cu	65	99.982		
	Zn	66	99.219		
>	Ge	72		99.805	
	As	75	97.933		
	Se	82	98.927		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	99.416		
Ag	107	100.865		
Cd	111	101.013		
Cd	114			
In	115		101.688	
Sn	118	101.169		
Sb	123	103.186		
Ba	135	100.876		
Ce	140			
Tb	159			
Ho	165			
Tl	203	99.992		
Tl	205			
Pb	206	99.053		
Pb	207	101.320		
Pb	208	99.015		
U	238	99.185		
Bi	209		98.492	
Na	23	124.060		
Mg	24	84.181		
K	39	110.215		
Ca	43	213.378		
Fe	54	88.578		
Fe	57	470.863		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 1	Na	23	
QC Std 1	Mg	24	
QC Std 1	K	39	

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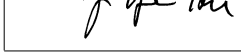

QC Std 1	Ca	43
QC Std 1	Fe	54
QC Std 1	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 2
Sample Date/Time: Wednesday, August 30, 2017 12:45:31
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	130123.4	2.9				ug/L	129165	Standard
	Be	9	106.7	77.1	**0.0689**	0.060	86.7	ug/L	22	Standard
	Al	27	16579.6	109.1	**0.1036**	0.158	152.3	ug/L	2003	Standard
	Sc	45	31512.8	3.4				ug/L	32341	Standard
	Ti	47	46.7	38.6	**0.0733**	0.073	100.1	ug/L	31	Standard
	V	51	1664.2	7.1	**0.0230**	0.019	83.7	ug/L	1621	Standard
	Cr	52	7061.0	3.2	**-0.0906**	0.042	46.8	ug/L	7503	Standard
	Cr	53	1705.1	3.3	**-0.4134**	0.082	19.8	ug/L	2322	Standard
	Mn	55	3919.7	74.5	**0.2483**	0.327	131.7	ug/L	1683	Standard
	Co	59	663.3	40.9	**0.0354**	0.039	110.5	ug/L	432	Standard
	Ni	60	427.3	20.4	**0.0446**	0.059	133.3	ug/L	369	Standard
	Cu	65	281.3	21.1	**0.0833**	0.045	54.0	ug/L	160	Standard
	Zn	66	186.3	8.7	**-0.0802**	0.023	29.2	ug/L	192	Standard
>	**Ge**	72	292093.3	0.3				ug/L	294345	Standard
	As	75	-4.5	209.7	**0.0824**	0.013	15.3	ug/L	-18	Standard
	Se	82	15.9	31.3	**0.0365**	0.083	228.5	ug/L	20	Standard
	Se-1	77	167.3	8.9	**-0.0790**	0.332	420.4	ug/L	183	Standard
>	**Ga**	71	35.0	49.5				mg/L	27	Standard
	Rb	85	50.0	43.6				ug/L	47	Standard
	Y	89	260183.9	2.1				ug/L	260351	Standard
>	**Rh**	103	33.3	22.9				ug/L	65	Standard
	Mo	98	495.6	25.9	**0.1777**	0.049	27.3	ug/L	45	Standard
	Ag	107	273.3	65.6	**0.0405**	0.043	105.6	ug/L	111	Standard
	Cd	111	40.5	107.6	**0.0314**	0.045	141.8	mg/L	6	Standard
	Cd	114	103.0	90.6	**0.0111**	0.034	302.4	ug/L	13	Standard
>	**In**	115	330582.3	0.5				ug/L	325147	Standard
	Sn	118	135.3	13.9	**0.0738**	0.026	34.8	ug/L	80	Standard
	Sb	123	983.5	8.0	**0.2874**	0.023	8.0	ug/L	123	Standard
	Ba	135	95.7	72.7	**0.0525**	0.054	103.6	ug/L	24	Standard
	Ce	140	63.3	105.1				ug/L	7	Standard
>	**Tb**	159	578549.4	0.9				ug/L	582613	Standard
	Ho	165	13.3	57.3				ug/L	17	Standard
	Tl	203	376.0	72.9	**0.0350**	0.036	102.1	ug/L	100	Standard
	Tl	205	936.7	76.4	**0.0435**	0.040	92.3	ug/L	260	Standard
	Pb	206	856.7	64.7	**0.0891**	0.094	105.8	ug/L	292	Standard
	Pb	207	704.4	61.9	**0.0869**	0.087	99.7	ug/L	246	Standard
	Pb	208	1334.4	61.3	**0.0895**	0.087	97.0	ug/L	472	Standard
	U	238	348.3	88.2	**0.0401**	0.036	90.0	ug/L	5	Standard
>	**Bi**	209	429190.9	1.6				ug/L	433909	Standard

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	Na	23	3.3	173.2	**0.6035**	2.099	347.9	mg/L	3	Standard
	Mg	24	50.0	20.0	**-0.1447**	0.218	150.5	mg/L	32	Standard
	K	39	18.3	78.7	**-0.0031**	0.117	3809.0	mg/L	18	Standard
	Ca	43	43.3	29.0	**0.6589**	12.323	1870.3	mg/L	47	Standard
	Fe	54	44.1	30.1	**0.3135**	0.276	88.0	mg/L	24	Standard
	Fe	57	700.0	11.9	**-2.6920**	22.321	829.2	mg/L	688	Standard
>	**Sc-1**	45	31512.8	3.4				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	4.3	58.1				ug/L	4	Standard
	Br	81	890.0	9.6				ug/L	993	Standard
	P	31	61.7	32.8				ug/L	53	Standard
	S	34	20.0	90.1				ug/L	25	Standard
	Sr	88	380.0	17.4				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	12.5	48.4				mg/L	5	Standard
	Ho-1	165	13.3	57.3				mg/L	17	Standard
	Er	166	16.7	69.3				mg/L	27	Standard
	I	127	9699.8	1.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		99.235	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	101.672	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	98.913	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 2	Sb	123	
QC Std 2	Na	23	
QC Std 2	Mg	24	

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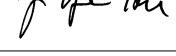

QC Std 2	Ca	43
QC Std 2	Fe	54
QC Std 2	Fe	57

Sample ID: QC Std 2
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Method 6020 - Summary Report

Sample ID: QC Std 3
Sample Date/Time: Wednesday, August 30, 2017 12:48:38
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	133752.8	0.6				ug/L	129165	Standard
	Be	9	281.7	8.4	**0.1901**	0.015	8.2	ug/L	22	Standard
	Al	27	1921.8	5.9	**-0.0249**	0.001	3.5	ug/L	2003	Standard
	Sc	45	33019.3	2.0				ug/L	32341	Standard
	Ti	47	32.7	22.1	**0.0146**	0.029	199.6	ug/L	31	Standard
	V	51	3987.0	2.0	**0.3807**	0.015	4.0	ug/L	1621	Standard
	Cr	52	13169.1	1.1	**0.9384**	0.047	5.0	ug/L	7503	Standard
	Cr	53	2435.2	5.4	**0.5529**	0.154	27.8	ug/L	2322	Standard
	Mn	55	6236.3	3.9	**0.4958**	0.031	6.3	ug/L	1683	Standard
	Co	59	3109.3	3.4	**0.3788**	0.014	3.6	ug/L	432	Standard
	Ni	60	2574.6	2.2	**1.4597**	0.038	2.6	ug/L	369	Standard
	Cu	65	1294.7	2.7	**0.8256**	0.036	4.4	ug/L	160	Standard
	Zn	66	4433.3	0.1	**5.7827**	0.078	1.3	ug/L	192	Standard
>	**Ge**	72	296487.0	1.2				ug/L	294345	Standard
	As	75	241.0	6.2	**0.4093**	0.023	5.6	ug/L	-18	Standard
	Se	82	38.1	5.0	**0.3945**	0.038	9.7	ug/L	20	Standard
	Se-1	77	175.3	7.5	**0.0435**	0.335	768.3	ug/L	183	Standard
>	**Ga**	71	33.3	31.2				mg/L	27	Standard
	Rb	85	45.0	40.1				ug/L	47	Standard
	Y	89	263351.3	2.1				ug/L	260351	Standard
>	**Rh**	103	61.7	36.6				ug/L	65	Standard
	Mo	98	146.0	9.2	**0.0426**	0.006	13.0	ug/L	45	Standard
	Ag	107	1684.1	2.2	**0.3791**	0.010	2.8	ug/L	111	Standard
	Cd	111	216.2	4.9	**0.2117**	0.012	5.5	mg/L	6	Standard
	Cd	114	630.2	17.2	**0.2016**	0.038	18.8	ug/L	13	Standard
>	**In**	115	331821.6	0.6				ug/L	325147	Standard
	Sn	118	118.7	9.6	**0.0498**	0.017	33.7	ug/L	80	Standard
	Sb	123	1700.3	5.7	**0.5080**	0.033	6.5	ug/L	123	Standard
	Ba	135	940.7	2.6	**0.7172**	0.022	3.1	ug/L	24	Standard
	Ce	140	13.3	57.3				ug/L	7	Standard
>	**Tb**	159	577953.5	1.6				ug/L	582613	Standard
	Ho	165	8.3	69.3				ug/L	17	Standard
	Tl	203	693.3	3.0	**0.0750**	0.003	3.8	ug/L	100	Standard
	Tl	205	1660.1	7.0	**0.0826**	0.006	6.7	ug/L	260	Standard
	Pb	206	1544.4	2.6	**0.2021**	0.008	4.1	ug/L	292	Standard
	Pb	207	1180.7	3.5	**0.1781**	0.011	6.1	ug/L	246	Standard
	Pb	208	2283.4	3.3	**0.1867**	0.011	5.6	ug/L	472	Standard
	U	238	3305.0	3.1	**0.3804**	0.016	4.2	ug/L	5	Standard
>	**Bi**	209	434032.4	1.4				ug/L	433909	Standard

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	Na	23	3.3	173.2	**0.5666**	2.035	359.2	mg/L	3	Standard
	Mg	24	38.3	39.8	**-0.4183**	0.310	74.2	mg/L	32	Standard
	K	39	18.3	15.7	**-0.0115**	0.020	169.6	mg/L	18	Standard
	Ca	43	46.7	32.7	**2.1031**	15.551	739.4	mg/L	47	Standard
	Fe	54	29.5	0.6	**-0.0165**	0.009	57.3	mg/L	24	Standard
	Fe	57	725.0	8.6	**-4.7169**	15.878	336.6	mg/L	688	Standard
>	**Sc-1**	45	33019.3	2.0				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	7.0	51.5				ug/L	4	Standard
	Br	81	1070.0	2.5				ug/L	993	Standard
	P	31	56.7	28.4				ug/L	53	Standard
	S	34	23.3	32.7				ug/L	25	Standard
	Sr	88	373.3	8.2				ug/L	340	Standard
	C	12	23.3	49.5				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	8.9	115.3				mg/L	5	Standard
	Ho-1	165	8.3	69.3				mg/L	17	Standard
	Er	166	23.3	24.7				mg/L	27	Standard
	I	127	1960.1	6.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	95.054		
	Al	27	-2.492		
	Sc	45			
	Ti	47			
	V	51	95.184		
	Cr	52	117.302		
	Cr	53			
	Mn	55	99.164		
	Co	59	94.703		
	Ni	60	91.230		
	Cu	65	103.205		
	Zn	66	92.524		
>	Ge	72		100.728	
	As	75	102.313		
	Se	82	98.627		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98			
|	Ag	107	94.778		
|	Cd	111	88.194		
|	Cd	114			
| >	In	115		102.053	
|	Sn	118			
|	Sb	123	126.996		
⌊	Ba	135	95.620		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	93.733		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	93.351		
|	U	238	95.096		
⌊>	Bi	209		100.028	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 3	Al	27	

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Method 6020 - Summary Report

Sample ID: QC Std 4
Sample Date/Time: Wednesday, August 30, 2017 12:51:43
Number of Replicates: 3
Autosampler Position: 203
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	120221.7	0.3				ug/L	129165	Standard
	Be	9	25.0	72.1	**0.0108**	0.014	130.2	ug/L	22	Standard
	Al	27	5295427.9	0.9	**50.0149**	0.566	1.1	ug/L	2003	Standard
	Sc	45	29238.2	2.6				ug/L	32341	Standard
	Ti	47	24239.0	1.0	**107.3071**	1.299	1.2	ug/L	31	Standard
	V	51	828.9	23.0	**-0.0967**	0.033	33.7	ug/L	1621	Standard
	Cr	52	5723.1	1.7	**-0.2295**	0.016	7.1	ug/L	7503	Standard
	Cr	53	4895.8	3.3	**4.6765**	0.266	5.7	ug/L	2322	Standard
	Mn	55	1232.4	3.5	**-0.0389**	0.005	13.3	ug/L	1683	Standard
	Co	59	471.3	1.0	**0.0142**	0.001	4.9	ug/L	432	Standard
	Ni	60	658.7	5.3	**0.2414**	0.024	10.0	ug/L	369	Standard
	Cu	65	356.7	4.7	**0.1646**	0.013	7.9	ug/L	160	Standard
	Zn	66	356.7	5.9	**0.2058**	0.034	16.5	ug/L	192	Standard
>	Ge	72	266904.3	0.3				ug/L	294345	Standard
	As	75	-94.9	45.6	**-0.0519**	0.064	123.7	ug/L	-18	Standard
	Se	82	17.4	23.1	**0.0881**	0.072	81.9	ug/L	20	Standard
	Se-1	77	471.0	6.3	**7.6586**	0.755	9.9	ug/L	183	Standard
>	Ga	71	101.7	42.4				mg/L	27	Standard
	Rb	85	450.0	8.4				ug/L	47	Standard
	Y	89	232096.4	2.3				ug/L	260351	Standard
>	Rh	103	51.7	5.6				ug/L	65	Standard
	Mo	98	224519.6	0.6	**92.3026**	0.470	0.5	ug/L	45	Standard
	Ag	107	111.7	9.1	**0.0034**	0.002	68.5	ug/L	111	Standard
	Cd	111	-64.5	16.5	**-0.0808**	0.012	14.7	mg/L	6	Standard
	Cd	114	250.1	4.6	**0.0704**	0.004	5.2	ug/L	13	Standard
>	In	115	310815.4	1.1				ug/L	325147	Standard
	Sn	118	56.7	2.7	**-0.0322**	0.003	9.1	ug/L	80	Standard
	Sb	123	128.3	14.3	**0.0246**	0.006	24.0	ug/L	123	Standard
	Ba	135	53.3	14.2	**0.0220**	0.006	29.1	ug/L	24	Standard
	Ce	140	30.0	33.3				ug/L	7	Standard
>	Tb	159	573191.2	0.8				ug/L	582613	Standard
	Ho	165	21.7	58.1				ug/L	17	Standard
	Tl	203	100.3	17.8	**0.0004**	0.003	647.4	ug/L	100	Standard
	Tl	205	238.3	2.4	**0.0057**	0.000	4.8	ug/L	260	Standard
	Pb	206	358.7	5.4	**0.0101**	0.004	37.8	ug/L	292	Standard
	Pb	207	293.3	6.7	**0.0107**	0.004	39.9	ug/L	246	Standard
	Pb	208	582.0	3.7	**0.0154**	0.003	18.1	ug/L	472	Standard
	U	238	4.3	35.3	**-0.0001**	0.000	240.4	ug/L	5	Standard
>	Bi	209	395247.7	0.5				ug/L	433909	Standard

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	Na	23	41.7	50.0	**16.4982**	9.009	54.6	mg/L	3	Standard
	Mg	24	541.7	1.1	**10.7803**	0.422	3.9	mg/L	32	Standard
	K	39	686.7	5.9	**5.6313**	0.399	7.1	mg/L	18	Standard
	Ca	43	65.0	13.3	**29.9198**	8.598	28.7	mg/L	47	Standard
	Fe	54	575.9	2.5	**12.2480**	0.615	5.0	mg/L	24	Standard
	Fe	57	916.7	5.6	**64.4823**	16.845	26.1	mg/L	688	Standard
>	**Sc-1**	45	29238.2	2.6				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	5.7	20.4				ug/L	4	Standard
	Br	81	680.0	6.7				ug/L	993	Standard
	P	31	51.7	36.6				ug/L	53	Standard
	S	34	20.0	25.0				ug/L	25	Standard
	Sr	88	395.0	9.1				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	16.7	124.9				mg/L	3	Standard
	Dy	164	9.7	100.8				mg/L	5	Standard
	Ho-1	165	21.7	58.1				mg/L	17	Standard
	Er	166	6.7	86.6				mg/L	27	Standard
	I	127	25476.4	4.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27	1.000		
	Sc	45			
	Ti	47	107.307		
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		90.677	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	92.303		
|	Ag	107			
|	Cd	111			
|	Cd	114			
| >	In	115			95.592
|	Sn	118			
|	Sb	123			
⌊	Ba	135			
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203			
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208			
|	U	238			
⌊>	Bi	209			91.090
⌈	Na	23	131.986		
|	Mg	24	215.607		
|	K	39	112.626		
|	Ca	43	199.465		
|	Fe	54	97.984		
|	Fe	57	515.858		
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 4	Al	27	
QC Std 4	Na	23	
QC Std 4	Mg	24	

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QC Std 4	Ca	43
QC Std 4	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 5
Sample Date/Time: Wednesday, August 30, 2017 12:54:49
Number of Replicates: 3
Autosampler Position: 204
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	123914.7	1.7				ug/L	129165	Standard
	Be	9	132814.7	1.5	**101.2785**	2.853	2.8	ug/L	22	Standard
	Al	27	5322239.4	1.4	**48.7785**	1.121	2.3	ug/L	2003	Standard
	Sc	45	29351.7	1.6				ug/L	32341	Standard
	Ti	47	24809.6	0.2	**107.2716**	1.328	1.2	ug/L	31	Standard
	V	51	591245.5	0.2	**99.6209**	1.440	1.4	ug/L	1621	Standard
	Cr	52	542990.2	1.4	**99.6658**	2.166	2.2	ug/L	7503	Standard
	Cr	53	72367.4	1.2	**104.9967**	2.525	2.4	ug/L	2322	Standard
	Mn	55	835387.5	1.3	**99.3511**	2.151	2.2	ug/L	1683	Standard
	Co	59	650401.5	2.3	**99.4407**	2.856	2.9	ug/L	432	Standard
	Ni	60	138826.7	2.4	**99.3292**	3.092	3.1	ug/L	369	Standard
	Cu	65	125989.2	2.3	**100.3987**	2.655	2.6	ug/L	160	Standard
	Zn	66	69970.9	1.9	**104.5131**	2.026	1.9	ug/L	192	Standard
>	**Ge**	72	273300.8	1.3				ug/L	294345	Standard
	As	75	70681.8	1.6	**102.0984**	1.569	1.5	ug/L	-18	Standard
	Se	82	5756.0	0.5	**101.7334**	1.207	1.2	ug/L	20	Standard
	Se-1	77	4885.5	1.3	**112.2524**	2.165	1.9	ug/L	183	Standard
>	**Ga**	71	130.0	10.2				mg/L	27	Standard
	Rb	85	558.3	6.0				ug/L	47	Standard
	Y	89	236535.4	0.9				ug/L	260351	Standard
>	**Rh**	103	56.7	28.4				ug/L	65	Standard
	Mo	98	232560.2	1.7	**94.4930**	1.021	1.1	ug/L	45	Standard
	Ag	107	353280.4	2.1	**89.4585**	1.631	1.8	ug/L	111	Standard
	Cd	111	91842.2	2.8	**99.3960**	2.307	2.3	mg/L	6	Standard
	Cd	114	260752.8	2.2	**99.4783**	1.529	1.5	ug/L	13	Standard
>	**In**	115	314524.8	2.6				ug/L	325147	Standard
	Sn	118	95.3	5.8	**0.0242**	0.007	29.9	ug/L	80	Standard
	Sb	123	309425.2	3.7	**100.8980**	2.919	2.9	ug/L	123	Standard
	Ba	135	121977.6	2.5	**101.2023**	1.522	1.5	ug/L	24	Standard
	Ce	140	61.7	44.7				ug/L	7	Standard
>	**Tb**	159	567839.3	3.0				ug/L	582613	Standard
	Ho	165	8.3	34.6				ug/L	17	Standard
	Tl	203	718817.7	1.1	**97.5141**	2.035	2.1	ug/L	100	Standard
	Tl	205	1663072.7	0.7	**96.9901**	1.901	2.0	ug/L	260	Standard
	Pb	206	565197.4	0.6	**99.9779**	1.891	1.9	ug/L	292	Standard
	Pb	207	468980.7	1.0	**96.8823**	2.216	2.3	ug/L	246	Standard
	Pb	208	882716.2	2.8	**97.4733**	3.636	3.7	ug/L	472	Standard
	U	238	805669.4	1.6	**98.5027**	2.710	2.8	ug/L	5	Standard
>	**Bi**	209	409202.7	1.2				ug/L	433909	Standard

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	Na	23	38.3	37.7	**14.9593**	6.009	40.2	mg/L	3	Standard
	Mg	24	556.7	14.3	**11.0764**	1.926	17.4	mg/L	32	Standard
	K	39	601.7	11.0	**4.8992**	0.623	12.7	mg/L	18	Standard
	Ca	43	66.7	18.9	**31.7125**	15.088	47.6	mg/L	47	Standard
	Fe	54	521.8	3.8	**10.9853**	0.289	2.6	mg/L	24	Standard
	Fe	57	903.4	1.4	**60.0842**	6.492	10.8	mg/L	688	Standard
>	**Sc-1**	45	29351.7	1.6				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	5.3	39.0				ug/L	4	Standard
	Br	81	933.4	8.1				ug/L	993	Standard
	P	31	35.0	24.7				ug/L	53	Standard
	S	34	26.7	28.6				ug/L	25	Standard
	Sr	88	323.3	7.1				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	5.9	101.5				mg/L	5	Standard
	Ho-1	165	8.3	34.6				mg/L	17	Standard
	Er	166	16.7	91.7				mg/L	27	Standard
	I	127	23217.8	3.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.279		
	Al	27	0.976		
	Sc	45			
	Ti	47	107.272		
	V	51	99.621		
	Cr	52	99.666		
	Cr	53			
	Mn	55	99.351		
	Co	59	99.441		
	Ni	60	99.329		
	Cu	65	100.399		
	Zn	66	104.513		
>	Ge	72		92.850	
	As	75	102.098		
	Se	82	101.733		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	94.493		
Ag	107	89.459		
Cd	111	99.396		
Cd	114			
In	115		96.733	
Sn	118			
Sb	123	100.898		
Ba	135	101.202		
Ce	140			
Tb	159			
Ho	165			
Tl	203	97.514		
Tl	205			
Pb	206			
Pb	207			
Pb	208	97.473		
U	238	98.503		
Bi	209		94.306	
Na	23	119.675		
Mg	24	221.529		
K	39	97.983		
Ca	43	211.416		
Fe	54	87.883		
Fe	57	480.674		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Na	23	
QC Std 5	Mg	24	

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QC Std 5	Ca	43
QC Std 5	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Wednesday, August 30, 2017 12:57:56
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	128978.4	1.5				ug/L	129165	Standard
	Be	9	68387.4	2.9	**50.1031**	2.128	4.2	ug/L	22	Standard
	Al	27	5775192.6	1.0	**50.8533**	1.128	2.2	ug/L	2003	Standard
	Sc	45	31648.0	0.6				ug/L	32341	Standard
	Ti	47	24663.1	1.0	**100.1547**	2.339	2.3	ug/L	31	Standard
	V	51	318077.9	0.5	**50.2180**	0.978	1.9	ug/L	1621	Standard
	Cr	52	294498.3	0.6	**50.1229**	1.116	2.2	ug/L	7503	Standard
	Cr	53	38413.6	1.2	**50.9467**	1.365	2.7	ug/L	2322	Standard
	Mn	55	449401.8	1.6	**50.1043**	1.323	2.6	ug/L	1683	Standard
	Co	59	349022.2	0.4	**50.0877**	0.935	1.9	ug/L	432	Standard
	Ni	60	74266.6	0.4	**49.7805**	0.637	1.3	ug/L	369	Standard
	Cu	65	67017.2	0.3	**50.0946**	0.819	1.6	ug/L	160	Standard
	Zn	66	35766.2	1.2	**50.0020**	1.167	2.3	ug/L	192	Standard
>	Ge	72	291006.8	1.5				ug/L	294345	Standard
	As	75	36533.4	0.1	**49.6118**	0.734	1.5	ug/L	-18	Standard
	Se	82	3079.6	0.4	**51.0073**	0.763	1.5	ug/L	20	Standard
	Se-1	77	2479.9	1.0	**51.5226**	0.424	0.8	ug/L	183	Standard
>	Ga	71	36.7	43.8				mg/L	27	Standard
	Rb	85	510.0	5.2				ug/L	47	Standard
	Y	89	253345.6	0.8				ug/L	260351	Standard
>	Rh	103	55.0	24.1				ug/L	65	Standard
	Mo	98	255908.7	0.5	**98.0729**	0.763	0.8	ug/L	45	Standard
	Ag	107	207043.4	0.6	**49.4392**	0.698	1.4	ug/L	111	Standard
	Cd	111	48500.4	1.0	**49.5013**	0.139	0.3	mg/L	6	Standard
	Cd	114	138992.0	2.2	**49.9956**	0.702	1.4	ug/L	13	Standard
>	In	115	333437.1	1.2				ug/L	325147	Standard
	Sn	118	36159.1	1.9	**50.5702**	0.483	1.0	ug/L	80	Standard
	Sb	123	169787.5	1.5	**52.2127**	0.319	0.6	ug/L	123	Standard
	Ba	135	64958.3	2.4	**50.8195**	0.838	1.6	ug/L	24	Standard
	Ce	140	71.7	16.1				ug/L	7	Standard
>	Tb	159	581756.0	2.5				ug/L	582613	Standard
	Ho	165	8.3	91.7				ug/L	17	Standard
	Tl	203	387650.6	0.8	**50.5716**	0.726	1.4	ug/L	100	Standard
	Tl	205	895812.0	1.9	**50.2368**	0.651	1.3	ug/L	260	Standard
	Pb	206	295035.2	0.6	**50.1658**	0.614	1.2	ug/L	292	Standard
	Pb	207	259775.1	0.6	**51.5874**	0.725	1.4	ug/L	246	Standard
	Pb	208	458240.7	3.1	**48.6440**	1.938	4.0	ug/L	472	Standard
	U	238	421725.2	1.9	**49.5912**	1.372	2.8	ug/L	5	Standard
>	Bi	209	425431.3	0.9				ug/L	433909	Standard

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	Na	23	20.0	66.1	**6.9280**	5.006	72.3	mg/L	3	Standard
	Mg	24	303.3	9.1	**5.0070**	0.522	10.4	mg/L	32	Standard
	K	39	705.0	11.7	**5.3281**	0.613	11.5	mg/L	18	Standard
	Ca	43	35.0	24.7	**-8.3814**	9.220	110.0	mg/L	47	Standard
	Fe	54	269.2	10.3	**4.9432**	0.537	10.9	mg/L	24	Standard
	Fe	57	735.0	7.7	**4.4263**	12.149	274.5	mg/L	688	Standard
>	**Sc-1**	45	31648.0	0.6				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	5.7	36.7				ug/L	4	Standard
	Br	81	943.4	15.9				ug/L	993	Standard
	P	31	41.7	27.7				ug/L	53	Standard
	S	34	21.7	58.1				ug/L	25	Standard
	Sr	88	356.7	14.3				ug/L	340	Standard
	C	12	33.3	17.3				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	19.7	89.4				mg/L	5	Standard
	Ho-1	165	8.3	91.7				mg/L	17	Standard
	Er	166	6.7	173.2				mg/L	27	Standard
	I	127	2643.6	10.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	100.206		
	Al	27	101.707		
	Sc	45			
	Ti	47	100.155		
	V	51	100.436		
	Cr	52	100.246		
	Cr	53			
	Mn	55	100.209		
	Co	59	100.175		
	Ni	60	99.561		
	Cu	65	100.189		
	Zn	66	100.004		
>	Ge	72		98.866	
	As	75	99.224		
	Se	82	102.015		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	98.073		
|	Ag	107	98.878		
|	Cd	111	99.003		
|	Cd	114			
| >	In	115		102.550	
|	Sn	118	101.140		
|	Sb	123	104.425		
⌊	Ba	135	101.639		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	101.143		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	97.288		
|	U	238	99.182		
⌊>	Bi	209		98.046	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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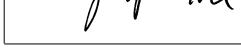

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Wednesday, August 30, 2017 13:01:02
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	129543.3	2.5				ug/L	129165	Standard
	Be	9	38.3	52.7	**0.0190**	0.014	73.8	ug/L	22	Standard
	Al	27	2195.2	2.8	**-0.0220**	0.000	0.3	ug/L	2003	Standard
	Sc	45	31906.9	2.5				ug/L	32341	Standard
	Ti	47	33.7	20.9	**0.0218**	0.028	130.0	ug/L	31	Standard
	V	51	1315.7	4.8	**-0.0302**	0.006	20.7	ug/L	1621	Standard
	Cr	52	6666.8	2.2	**-0.1483**	0.003	1.7	ug/L	7503	Standard
	Cr	53	1688.4	6.4	**-0.4155**	0.107	25.8	ug/L	2322	Standard
	Mn	55	1522.1	4.7	**-0.0179**	0.006	35.3	ug/L	1683	Standard
	Co	59	425.3	9.3	**0.0018**	0.004	246.6	ug/L	432	Standard
	Ni	60	363.0	2.2	**0.0037**	0.006	174.3	ug/L	369	Standard
	Cu	65	194.7	12.9	**0.0198**	0.017	86.8	ug/L	160	Standard
	Zn	66	178.7	4.2	**-0.0886**	0.009	9.7	ug/L	192	Standard
>	Ge	72	289333.8	2.0				ug/L	294345	Standard
	As	75	-25.7	173.1	**0.0541**	0.060	110.0	ug/L	-18	Standard
	Se	82	17.5	48.9	**0.0670**	0.149	222.7	ug/L	20	Standard
	Se-1	77	167.0	7.3	**-0.0520**	0.247	475.0	ug/L	183	Standard
>	Ga	71	51.7	43.6				mg/L	27	Standard
	Rb	85	38.3	19.9				ug/L	47	Standard
	Y	89	257218.0	3.1				ug/L	260351	Standard
>	Rh	103	38.3	61.6				ug/L	65	Standard
	Mo	98	397.5	4.4	**0.1392**	0.007	4.8	ug/L	45	Standard
	Ag	107	139.7	11.6	**0.0083**	0.004	46.7	ug/L	111	Standard
	Cd	111	10.3	34.2	**0.0004**	0.004	920.3	mg/L	6	Standard
	Cd	114	17.4	58.0	**-0.0199**	0.004	18.3	ug/L	13	Standard
>	In	115	332260.6	0.1				ug/L	325147	Standard
	Sn	118	95.3	7.4	**0.0167**	0.010	60.1	ug/L	80	Standard
	Sb	123	998.1	8.0	**0.2904**	0.025	8.6	ug/L	123	Standard
	Ba	135	31.7	4.8	**0.0021**	0.001	59.5	ug/L	24	Standard
	Ce	140	11.7	65.5				ug/L	7	Standard
>	Tb	159	582159.6	1.4				ug/L	582613	Standard
	Ho	165	13.3	86.6				ug/L	17	Standard
	Tl	203	126.7	23.7	**0.0025**	0.004	140.0	ug/L	100	Standard
	Tl	205	273.3	25.9	**0.0063**	0.004	56.4	ug/L	260	Standard
	Pb	206	368.7	4.9	**0.0061**	0.002	27.5	ug/L	292	Standard
	Pb	207	275.7	7.1	**0.0018**	0.003	146.4	ug/L	246	Standard
	Pb	208	524.3	4.9	**0.0036**	0.002	67.4	ug/L	472	Standard
	U	238	37.3	8.2	**0.0037**	0.000	10.7	ug/L	5	Standard
>	Bi	209	432480.3	2.1				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	33.3	22.9	**-0.4938**	0.163	33.0	mg/L	32	Standard
|	**K**	39	28.3	27.0	**0.0709**	0.062	87.0	mg/L	18	Standard
|	**Ca**	43	35.0	42.9	**-8.4932**	16.889	198.8	mg/L	47	Standard
|	**Fe**	54	37.3	66.6	**0.1634**	0.506	309.5	mg/L	24	Standard
|	**Fe**	57	653.3	4.2	**-15.7169**	5.896	37.5	mg/L	688	Standard
⌊>	**Sc-1**	45	31906.9	2.5				mg/L	32341	Standard
	Cl	35	4.7	24.7				ug/L	3	Standard
	Kr	83	4.0	25.0				ug/L	4	Standard
	Br	81	973.4	17.7				ug/L	993	Standard
	P	31	66.7	8.7				ug/L	53	Standard
	S	34	18.3	31.5				ug/L	25	Standard
	Sr	88	358.3	4.5				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	19.4	102.1				mg/L	5	Standard
	Ho-1	165	13.3	86.6				mg/L	17	Standard
	Er	166	13.3	43.3				mg/L	27	Standard
	I	127	9317.9	5.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		98.298	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	102.188
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	99.671
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Sb	123	

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Method 6020 - Summary Report

Sample ID: PBW 79 WG627041-05
Sample Date/Time: Wednesday, August 30, 2017 13:04:08
Number of Replicates: 3
Autosampler Position: 205
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	119974.9	1.9				ug/L	129165	Standard
	Be	9	31.7	36.5	**0.0163**	0.010	59.2	ug/L	22	Standard
	Al	27	2891.9	7.0	**-0.0139**	0.002	12.3	ug/L	2003	Standard
	Sc	45	29101.3	1.0				ug/L	32341	Standard
	Ti	47	29.0	22.6	**0.0116**	0.028	240.4	ug/L	31	Standard
	V	51	1281.6	8.3	**-0.0202**	0.017	83.5	ug/L	1621	Standard
	Cr	52	5054.2	1.5	**-0.3647**	0.011	3.1	ug/L	7503	Standard
	Cr	53	1261.7	10.5	**-0.8798**	0.215	24.4	ug/L	2322	Standard
	Mn	55	1684.8	6.3	**0.0147**	0.014	95.7	ug/L	1683	Standard
	Co	59	375.7	5.6	**-0.0012**	0.003	272.6	ug/L	432	Standard
	Ni	60	341.3	4.7	**0.0063**	0.010	159.5	ug/L	369	Standard
	Cu	65	128.3	15.3	**-0.0228**	0.016	69.7	ug/L	160	Standard
	Zn	66	321.3	9.6	**0.1475**	0.047	31.8	ug/L	192	Standard
>	**Ge**	72	269090.2	0.8				ug/L	294345	Standard
	As	75	-5.6	90.1	**0.0802**	0.007	9.2	ug/L	-18	Standard
	Se	82	15.3	46.3	**0.0470**	0.125	267.0	ug/L	20	Standard
	Se-1	77	150.0	11.1	**-0.1789**	0.408	228.1	ug/L	183	Standard
>	**Ga**	71	18.3	41.7				mg/L	27	Standard
	Rb	85	23.3	44.6				ug/L	47	Standard
	Y	89	232009.7	1.3				ug/L	260351	Standard
>	**Rh**	103	45.0	61.9				ug/L	65	Standard
	Mo	98	115.2	8.5	**0.0335**	0.004	12.2	ug/L	45	Standard
	Ag	107	136.0	4.1	**0.0095**	0.001	13.4	ug/L	111	Standard
	Cd	111	10.6	27.4	**0.0014**	0.003	226.5	mg/L	6	Standard
	Cd	114	11.8	49.5	**-0.0216**	0.002	10.3	ug/L	13	Standard
>	**In**	115	312242.1	0.5				ug/L	325147	Standard
	Sn	118	56.3	10.2	**-0.0331**	0.009	26.5	ug/L	80	Standard
	Sb	123	178.5	11.7	**0.0409**	0.007	16.0	ug/L	123	Standard
	Ba	135	32.3	12.9	**0.0042**	0.004	84.2	ug/L	24	Standard
	Ce	140	28.3	27.0				ug/L	7	Standard
>	**Tb**	159	562391.4	1.2				ug/L	582613	Standard
	Ho	165	13.3	21.7				ug/L	17	Standard
	Tl	203	92.0	15.1	**-0.0011**	0.002	161.7	ug/L	100	Standard
	Tl	205	168.3	4.5	**0.0012**	0.000	34.2	ug/L	260	Standard
	Pb	206	313.7	5.8	**0.0003**	0.003	1141.3	ug/L	292	Standard
	Pb	207	248.3	10.1	**-0.0004**	0.005	1123.7	ug/L	246	Standard
	Pb	208	475.3	6.1	**0.0016**	0.003	178.8	ug/L	472	Standard
	U	238	20.0	42.7	**0.0018**	0.001	56.6	ug/L	5	Standard
>	**Bi**	209	406753.9	0.6				ug/L	433909	Standard

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⌈	**Na**	23	1.7	173.2	**0.0717**	1.178	1644.0	mg/L	3	Standard
|	**Mg**	24	51.7	56.7	**-0.0259**	0.646	2494.2	mg/L	32	Standard
|	**K**	39	23.3	44.6	**0.0487**	0.086	176.2	mg/L	18	Standard
|	**Ca**	43	28.3	10.2	**-12.8707**	3.673	28.5	mg/L	47	Standard
|	**Fe**	54	30.7	58.3	**0.0882**	0.399	452.6	mg/L	24	Standard
|	**Fe**	57	675.0	10.2	**4.2171**	16.711	396.3	mg/L	688	Standard
⌊>	**Sc-1**	45	29101.3	1.0				mg/L	32341	Standard
	Cl	35	0.0					ug/L	3	Standard
	Kr	83	4.7	44.6				ug/L	4	Standard
	Br	81	836.7	7.7				ug/L	993	Standard
	P	31	41.7	42.1				ug/L	53	Standard
	S	34	28.3	56.7				ug/L	25	Standard
	Sr	88	355.0	13.9				ug/L	340	Standard
	C	12	13.3	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	6.0	100.7				mg/L	5	Standard
	Ho-1	165	13.3	21.7				mg/L	17	Standard
	Er	166	13.3	86.6				mg/L	27	Standard
	I	127	2173.5	3.5				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		92.885	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		91.420	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	96.031
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	93.742
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: LCSW 79 WG627041-06
Sample Date/Time: Wednesday, August 30, 2017 13:07:14
Number of Replicates: 3
Autosampler Position: 206
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	127803.8	3.1				ug/L	129165	Standard
	Be	9	68804.3	2.2	**50.9044**	2.584	5.1	ug/L	22	Standard
	Al	27	7015.0	1.1	**0.0212**	0.001	6.2	ug/L	2003	Standard
	Sc	45	32339.5	1.8				ug/L	32341	Standard
	Ti	47	47.7	9.5	**0.0758**	0.016	20.8	ug/L	31	Standard
	V	51	318910.2	1.0	**49.8151**	1.172	2.4	ug/L	1621	Standard
	Cr	52	296420.7	1.0	**49.9105**	1.242	2.5	ug/L	7503	Standard
	Cr	53	38264.9	0.7	**50.1687**	1.097	2.2	ug/L	2322	Standard
	Mn	55	451637.7	1.2	**49.8202**	1.310	2.6	ug/L	1683	Standard
	Co	59	348921.3	0.6	**49.5423**	1.016	2.1	ug/L	432	Standard
	Ni	60	76385.4	1.1	**50.6681**	1.284	2.5	ug/L	369	Standard
	Cu	65	69094.5	1.0	**51.1037**	1.088	2.1	ug/L	160	Standard
	Zn	66	36613.9	0.3	**50.6437**	0.550	1.1	ug/L	192	Standard
>	**Ge**	72	294123.7	1.4				ug/L	294345	Standard
	As	75	37238.7	0.7	**50.0319**	0.758	1.5	ug/L	-18	Standard
	Se	82	3082.3	1.3	**50.5064**	0.825	1.6	ug/L	20	Standard
	Se-1	77	2408.2	2.2	**49.3647**	1.729	3.5	ug/L	183	Standard
>	**Ga**	71	40.0	21.7				mg/L	27	Standard
	Rb	85	43.3	24.0				ug/L	47	Standard
	Y	89	261238.6	2.3				ug/L	260351	Standard
>	**Rh**	103	60.0	22.0				ug/L	65	Standard
	Mo	98	144.3	6.5	**0.0420**	0.004	8.6	ug/L	45	Standard
	Ag	107	210413.7	1.0	**50.6188**	0.533	1.1	ug/L	111	Standard
	Cd	111	48939.8	1.2	**50.3259**	0.626	1.2	mg/L	6	Standard
	Cd	114	134067.3	0.3	**48.5900**	0.156	0.3	ug/L	13	Standard
>	**In**	115	330939.8	0.1				ug/L	325147	Standard
	Sn	118	120.0	14.7	**0.0521**	0.025	48.2	ug/L	80	Standard
	Sb	123	161271.4	2.4	**49.9681**	1.224	2.4	ug/L	123	Standard
	Ba	135	63678.6	1.9	**50.1967**	0.946	1.9	ug/L	24	Standard
	Ce	140	80.0	16.5				ug/L	7	Standard
>	**Tb**	159	580708.4	2.0				ug/L	582613	Standard
	Ho	165	38.3	27.2				ug/L	17	Standard
	Tl	203	403768.9	0.3	**51.3521**	1.108	2.2	ug/L	100	Standard
	Tl	205	930209.4	0.4	**50.8592**	0.923	1.8	ug/L	260	Standard
	Pb	206	303597.2	1.4	**50.3170**	0.532	1.1	ug/L	292	Standard
	Pb	207	255582.4	0.9	**49.4740**	0.833	1.7	ug/L	246	Standard
	Pb	208	461604.1	3.6	**47.7802**	2.565	5.4	ug/L	472	Standard
	U	238	414995.3	1.4	**47.5744**	1.442	3.0	ug/L	5	Standard
>	**Bi**	209	436480.0	2.0				ug/L	433909	Standard

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	Na	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
	Mg	24	38.3	45.8	**-0.4074**	0.340	83.5	mg/L	32	Standard
	K	39	21.7	66.6	**0.0166**	0.109	658.0	mg/L	18	Standard
	Ca	43	61.7	26.1	**19.2443**	17.486	90.9	mg/L	47	Standard
	Fe	54	36.6	68.8	**0.1331**	0.492	369.8	mg/L	24	Standard
	Fe	57	695.0	7.3	**-8.3683**	9.037	108.0	mg/L	688	Standard
>	**Sc-1**	45	32339.5	1.8				mg/L	32341	Standard
	Cl	35	1.3	173.2				ug/L	3	Standard
	Kr	83	6.0	16.7				ug/L	4	Standard
	Br	81	1090.0	9.3				ug/L	993	Standard
	P	31	58.3	55.1				ug/L	53	Standard
	S	34	15.0	88.2				ug/L	25	Standard
	Sr	88	371.7	25.7				ug/L	340	Standard
	C	12	16.7	69.3				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	9.7	105.8				mg/L	5	Standard
	Ho-1	165	38.3	27.2				mg/L	17	Standard
	Er	166	6.7	86.6				mg/L	27	Standard
	I	127	3360.4	7.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		98.946	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		99.925	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	101.781	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	100.593	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: LCSW 79 WG627041-06
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Method 6020 - Summary Report

Sample ID: L1708121202 WG627041-01
Sample Date/Time: Wednesday, August 30, 2017 13:10:19
Number of Replicates: 3
Autosampler Position: 207
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	132394.3	1.5				ug/L	129165	Standard
	Be	9	56.7	28.4	**0.0316**	0.011	35.7	ug/L	22	Standard
	Al	27	10668906.0	1.8	**91.5578**	2.701	3.0	ug/L	2003	Standard
	Sc	45	31963.7	1.4				ug/L	32341	Standard
	Ti	47	927.4	4.4	**3.8107**	0.229	6.0	ug/L	31	Standard
	V	51	9905.4	2.8	**1.3962**	0.068	4.9	ug/L	1621	Standard
	Cr	52	16755.6	1.8	**1.7279**	0.091	5.3	ug/L	7503	Standard
	Cr	53	5601.1	16.3	**5.3781**	1.428	26.6	ug/L	2322	Standard
	Mn	55	215381.9	1.4	**24.9064**	0.738	3.0	ug/L	1683	Standard
	Co	59	2374.2	2.1	**0.2955**	0.009	3.2	ug/L	432	Standard
	Ni	60	4043.9	1.9	**2.5941**	0.099	3.8	ug/L	369	Standard
	Cu	65	1572.7	4.2	**1.0997**	0.036	3.3	ug/L	160	Standard
	Zn	66	4510.3	0.3	**6.2677**	0.117	1.9	ug/L	192	Standard
>	Ge	72	279531.4	1.7				ug/L	294345	Standard
	As	75	301.4	9.5	**0.5139**	0.043	8.4	ug/L	-18	Standard
	Se	82	55.9	11.6	**0.7407**	0.109	14.7	ug/L	20	Standard
	Se-1	77	417.7	9.5	**5.9130**	1.071	18.1	ug/L	183	Standard
>	Ga	71	71.7	10.7				mg/L	27	Standard
	Rb	85	26342.9	1.2				ug/L	47	Standard
	Y	89	246336.4	0.4				ug/L	260351	Standard
>	Rh	103	151.7	18.2				ug/L	65	Standard
	Mo	98	2716.6	2.8	**1.0574**	0.022	2.1	ug/L	45	Standard
	Ag	107	161.0	9.7	**0.0144**	0.003	23.4	ug/L	111	Standard
	Cd	111	44.3	22.9	**0.0364**	0.011	29.8	mg/L	6	Standard
	Cd	114	164.7	9.9	**0.0348**	0.005	15.4	ug/L	13	Standard
>	In	115	324106.2	1.6				ug/L	325147	Standard
	Sn	118	571.7	7.4	**0.7066**	0.048	6.9	ug/L	80	Standard
	Sb	123	1391.4	7.2	**0.4229**	0.037	8.7	ug/L	123	Standard
	Ba	135	42176.3	2.2	**33.9384**	0.235	0.7	ug/L	24	Standard
	Ce	140	2508.5	2.6				ug/L	7	Standard
>	Tb	159	574831.8	3.2				ug/L	582613	Standard
	Ho	165	68.3	16.9				ug/L	17	Standard
	Tl	203	246.7	10.4	**0.0207**	0.003	16.5	ug/L	100	Standard
	Tl	205	543.3	18.9	**0.0239**	0.006	25.5	ug/L	260	Standard
	Pb	206	1199.4	2.7	**0.1630**	0.008	5.0	ug/L	292	Standard
	Pb	207	984.0	1.2	**0.1573**	0.001	0.7	ug/L	246	Standard
	Pb	208	1839.0	4.5	**0.1580**	0.011	7.0	ug/L	472	Standard
	U	238	2259.5	3.2	**0.2837**	0.007	2.6	ug/L	5	Standard
>	Bi	209	397432.1	1.3				ug/L	433909	Standard

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⌈	**Na**	23	193.3	14.7	**71.3086**	10.342	14.5	mg/L	3	Standard
|	**Mg**	24	7663.6	2.6	**153.4368**	6.096	4.0	mg/L	32	Standard
|	**K**	39	351.7	13.2	**2.5591**	0.373	14.6	mg/L	18	Standard
|	**Ca**	43	196.7	6.4	**165.0960**	15.743	9.5	mg/L	47	Standard
|	**Fe**	54	33.9	58.4	**0.0901**	0.401	445.0	mg/L	24	Standard
|	**Fe**	57	1245.1	8.0	**120.3945**	26.937	22.4	mg/L	688	Standard
⌊>	**Sc-1**	45	31963.7	1.4				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	4.7	53.9				ug/L	4	Standard
	Br	81	5524.3	6.6				ug/L	993	Standard
	P	31	50.0	20.0				ug/L	53	Standard
	S	34	11.7	65.5				ug/L	25	Standard
	Sr	88	371.7	9.5				ug/L	340	Standard
	C	12	30.0	57.7				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	46.7	24.7				mg/L	3	Standard
	Dy	164	69.8	43.9				mg/L	5	Standard
	Ho-1	165	68.3	16.9				mg/L	17	Standard
	Er	166	73.3	43.8				mg/L	27	Standard
	I	127	78218.5	12.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.500	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.967	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	99.680	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	91.593	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708121203 WG627041-02
Sample Date/Time: Wednesday, August 30, 2017 13:13:25
Number of Replicates: 3
Autosampler Position: 208
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	132547.3	0.8				ug/L	129165	Standard
	Be	9	36.7	34.3	**0.0174**	0.009	52.0	ug/L	22	Standard
	Al	27	10096690.7	1.4	**86.5307**	1.694	2.0	ug/L	2003	Standard
	Sc	45	31437.6	1.6				ug/L	32341	Standard
	Ti	47	620.7	1.0	**2.4928**	0.050	2.0	ug/L	31	Standard
	V	51	8350.5	4.5	**1.1296**	0.070	6.2	ug/L	1621	Standard
	Cr	52	15836.9	0.7	**1.5402**	0.028	1.8	ug/L	7503	Standard
	Cr	53	5889.5	2.3	**5.7278**	0.270	4.7	ug/L	2322	Standard
	Mn	55	219656.8	0.7	**25.2217**	0.383	1.5	ug/L	1683	Standard
	Co	59	1612.4	3.4	**0.1799**	0.009	5.0	ug/L	432	Standard
	Ni	60	3683.1	0.4	**2.3223**	0.014	0.6	ug/L	369	Standard
	Cu	65	1091.0	2.8	**0.7185**	0.029	4.0	ug/L	160	Standard
	Zn	66	2166.8	1.9	**2.8111**	0.056	2.0	ug/L	192	Standard
>	Ge	72	281479.4	0.9				ug/L	294345	Standard
	As	75	265.3	30.9	**0.4598**	0.113	24.6	ug/L	-18	Standard
	Se	82	44.3	13.7	**0.5344**	0.111	20.7	ug/L	20	Standard
	Se-1	77	428.7	4.8	**6.0908**	0.547	9.0	ug/L	183	Standard
>	Ga	71	46.7	24.7				mg/L	27	Standard
	Rb	85	23792.0	1.9				ug/L	47	Standard
	Y	89	248497.5	3.1				ug/L	260351	Standard
>	Rh	103	151.7	11.6				ug/L	65	Standard
	Mo	98	2091.4	2.6	**0.8044**	0.020	2.5	ug/L	45	Standard
	Ag	107	128.3	12.1	**0.0061**	0.004	61.3	ug/L	111	Standard
	Cd	111	11.2	36.4	**0.0016**	0.004	269.4	mg/L	6	Standard
	Cd	114	66.6	29.5	**-0.0017**	0.007	421.9	ug/L	13	Standard
>	In	115	326696.6	0.3				ug/L	325147	Standard
	Sn	118	435.7	5.5	**0.5059**	0.033	6.5	ug/L	80	Standard
	Sb	123	503.1	13.6	**0.1402**	0.022	15.5	ug/L	123	Standard
	Ba	135	43031.1	2.9	**34.3548**	1.038	3.0	ug/L	24	Standard
	Ce	140	325.0	14.1				ug/L	7	Standard
>	Tb	159	575278.8	2.0				ug/L	582613	Standard
	Ho	165	40.0	50.0				ug/L	17	Standard
	Tl	203	110.0	1.6	**0.0016**	0.000	29.6	ug/L	100	Standard
	Tl	205	271.7	18.5	**0.0076**	0.003	39.9	ug/L	260	Standard
	Pb	206	350.0	5.6	**0.0080**	0.004	46.6	ug/L	292	Standard
	Pb	207	281.3	6.2	**0.0077**	0.005	60.5	ug/L	246	Standard
	Pb	208	528.0	2.5	**0.0087**	0.002	17.5	ug/L	472	Standard
	U	238	2379.2	2.4	**0.2980**	0.009	3.0	ug/L	5	Standard
>	Bi	209	398650.5	1.6				ug/L	433909	Standard

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	Na	23	176.7	3.3	**66.2424**	2.555	3.9	mg/L	3	Standard
	Mg	24	6508.1	5.2	**132.3639**	9.037	6.8	mg/L	32	Standard
	K	39	351.7	15.3	**2.6046**	0.437	16.8	mg/L	18	Standard
	Ca	43	200.0	17.3	**172.2529**	38.463	22.3	mg/L	47	Standard
	Fe	54	47.5	39.8	**0.3835**	0.377	98.3	mg/L	24	Standard
	Fe	57	1198.4	1.7	**114.0932**	8.269	7.2	mg/L	688	Standard
>	**Sc-1**	45	31437.6	1.6				mg/L	32341	Standard
	Cl	35	1.3	173.2				ug/L	3	Standard
	Kr	83	7.7	52.7				ug/L	4	Standard
	Br	81	4830.8	7.4				ug/L	993	Standard
	P	31	66.7	18.9				ug/L	53	Standard
	S	34	21.7	48.0				ug/L	25	Standard
	Sr	88	460.0	12.5				ug/L	340	Standard
	C	12	36.7	68.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	13.3	114.6				mg/L	3	Standard
	Dy	164	56.5	48.1				mg/L	5	Standard
	Ho-1	165	40.0	50.0				mg/L	17	Standard
	Er	166	73.3	31.5				mg/L	27	Standard
	I	127	71835.1	13.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		102.618	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		95.629	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115	100.476	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209	91.874	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708121203 WG627041-02
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Method 6020 - Summary Report

Sample ID: L1708121204S WG627041-08
Sample Date/Time: Wednesday, August 30, 2017 13:16:30
Number of Replicates: 3
Autosampler Position: 209
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	134768.4	0.4				ug/L	129165	Standard
	Be	9	69561.0	0.5	**48.7543**	0.370	0.8	ug/L	22	Standard
	Al	27	10675301.0	1.2	**89.9784**	1.377	1.5	ug/L	2003	Standard
	Sc	45	32033.9	3.5				ug/L	32341	Standard
	Ti	47	1009.7	1.8	**4.1049**	0.088	2.1	ug/L	31	Standard
	V	51	325659.3	1.1	**52.8755**	0.441	0.8	ug/L	1621	Standard
	Cr	52	297739.0	0.6	**52.1527**	0.236	0.5	ug/L	7503	Standard
	Cr	53	41254.4	0.7	**56.5446**	0.554	1.0	ug/L	2322	Standard
	Mn	55	617330.7	0.5	**70.8420**	0.273	0.4	ug/L	1683	Standard
	Co	59	331798.5	1.0	**48.9561**	0.407	0.8	ug/L	432	Standard
	Ni	60	73951.4	1.3	**50.9743**	0.574	1.1	ug/L	369	Standard
	Cu	65	64725.0	1.9	**49.7439**	0.863	1.7	ug/L	160	Standard
	Zn	66	39015.5	0.9	**56.1217**	0.364	0.6	ug/L	192	Standard
>	Ge	72	282977.1	0.3				ug/L	294345	Standard
	As	75	37211.6	0.7	**51.9542**	0.247	0.5	ug/L	-18	Standard
	Se	82	2853.9	1.4	**48.5934**	0.818	1.7	ug/L	20	Standard
	Se-1	77	2529.9	2.0	**54.2381**	1.334	2.5	ug/L	183	Standard
>	Ga	71	51.7	20.1				mg/L	27	Standard
	Rb	85	27064.2	2.4				ug/L	47	Standard
	Y	89	251544.4	3.7				ug/L	260351	Standard
>	Rh	103	151.7	22.0				ug/L	65	Standard
	Mo	98	2879.8	3.1	**1.1036**	0.026	2.3	ug/L	45	Standard
	Ag	107	182556.6	0.5	**44.1276**	0.446	1.0	ug/L	111	Standard
	Cd	111	46673.6	1.5	**48.2245**	0.355	0.7	mg/L	6	Standard
	Cd	114	131935.2	5.1	**48.0278**	1.758	3.7	ug/L	13	Standard
>	In	115	329369.2	1.5				ug/L	325147	Standard
	Sn	118	665.0	4.3	**0.8264**	0.042	5.1	ug/L	80	Standard
	Sb	123	166130.9	2.9	**51.7121**	0.770	1.5	ug/L	123	Standard
	Ba	135	103838.8	2.7	**82.2494**	0.995	1.2	ug/L	24	Standard
	Ce	140	583.3	14.5				ug/L	7	Standard
>	Tb	159	579085.3	1.5				ug/L	582613	Standard
	Ho	165	85.0	20.4				ug/L	17	Standard
	Tl	203	375709.9	0.4	**52.4077**	0.525	1.0	ug/L	100	Standard
	Tl	205	871260.3	1.5	**52.2441**	0.431	0.8	ug/L	260	Standard
	Pb	206	282201.2	0.4	**51.3091**	0.747	1.5	ug/L	292	Standard
	Pb	207	237585.7	0.8	**50.4445**	0.403	0.8	ug/L	246	Standard
	Pb	208	439349.4	2.6	**49.8732**	1.917	3.8	ug/L	472	Standard
	U	238	412169.8	1.5	**51.8262**	1.427	2.8	ug/L	5	Standard
>	Bi	209	397887.9	1.3				ug/L	433909	Standard

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	Na	23	168.3	37.4	**62.1854**	24.083	38.7	mg/L	3	Standard
	Mg	24	8312.3	1.5	**166.1977**	4.827	2.9	mg/L	32	Standard
	K	39	350.0	2.5	**2.5425**	0.156	6.1	mg/L	18	Standard
	Ca	43	181.7	11.5	**148.2048**	17.302	11.7	mg/L	47	Standard
	Fe	54	45.8	15.9	**0.3327**	0.134	40.1	mg/L	24	Standard
	Fe	57	1401.7	3.3	**155.7366**	14.998	9.6	mg/L	688	Standard
>	**Sc-1**	45	32033.9	3.5				mg/L	32341	Standard
	Cl	35	4.7	107.9				ug/L	3	Standard
	Kr	83	5.3	57.3				ug/L	4	Standard
	Br	81	5070.8	0.9				ug/L	993	Standard
	P	31	76.7	26.4				ug/L	53	Standard
	S	34	18.3	63.0				ug/L	25	Standard
	Sr	88	368.3	17.2				ug/L	340	Standard
	C	12	46.7	12.4				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	26.7	43.3				mg/L	3	Standard
	Dy	164	63.2	34.2				mg/L	5	Standard
	Ho-1	165	85.0	20.4				mg/L	17	Standard
	Er	166	73.3	31.5				mg/L	27	Standard
	I	127	91384.3	12.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.338	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		96.138	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115	101.298	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209	91.698	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708121205S WG627041-10
Sample Date/Time: Wednesday, August 30, 2017 13:19:35
Number of Replicates: 3
Autosampler Position: 210
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	135002.2	1.5				ug/L	129165	Standard
	Be	9	69247.9	0.9	**48.4595**	1.019	2.1	ug/L	22	Standard
	Al	27	10248496.1	2.1	**86.2453**	2.531	2.9	ug/L	2003	Standard
	Sc	45	31990.4	3.0				ug/L	32341	Standard
	Ti	47	612.0	6.5	**2.4459**	0.143	5.8	ug/L	31	Standard
	V	51	317457.5	0.6	**51.6270**	0.332	0.6	ug/L	1621	Standard
	Cr	52	287566.3	0.2	**50.4156**	0.513	1.0	ug/L	7503	Standard
	Cr	53	40041.2	1.4	**54.8954**	0.651	1.2	ug/L	2322	Standard
	Mn	55	626708.5	0.5	**72.0461**	0.762	1.1	ug/L	1683	Standard
	Co	59	326386.8	0.9	**48.2425**	0.822	1.7	ug/L	432	Standard
	Ni	60	72250.9	0.4	**49.8853**	0.677	1.4	ug/L	369	Standard
	Cu	65	63445.9	0.4	**48.8450**	0.618	1.3	ug/L	160	Standard
	Zn	66	35607.1	1.2	**51.2788**	0.779	1.5	ug/L	192	Standard
>	**Ge**	72	282503.5	0.9				ug/L	294345	Standard
	As	75	36728.7	0.3	**51.3694**	0.343	0.7	ug/L	-18	Standard
	Se	82	2902.7	0.7	**49.5152**	0.748	1.5	ug/L	20	Standard
	Se-1	77	2556.2	1.4	**54.9444**	1.210	2.2	ug/L	183	Standard
>	**Ga**	71	48.3	11.9				mg/L	27	Standard
	Rb	85	23216.1	1.0				ug/L	47	Standard
	Y	89	245984.4	1.7				ug/L	260351	Standard
>	**Rh**	103	195.0	11.2				ug/L	65	Standard
	Mo	98	1852.4	2.0	**0.6966**	0.017	2.4	ug/L	45	Standard
	Ag	107	179842.0	0.3	**42.9554**	0.349	0.8	ug/L	111	Standard
	Cd	111	46664.6	1.8	**47.6470**	0.896	1.9	mg/L	6	Standard
	Cd	114	131019.7	3.1	**47.1517**	1.579	3.3	ug/L	13	Standard
>	**In**	115	333298.2	0.6				ug/L	325147	Standard
	Sn	118	429.3	1.7	**0.4847**	0.013	2.6	ug/L	80	Standard
	Sb	123	165097.9	1.8	**50.7932**	0.995	2.0	ug/L	123	Standard
	Ba	135	106007.6	1.6	**82.9915**	1.588	1.9	ug/L	24	Standard
	Ce	140	323.3	10.1				ug/L	7	Standard
>	**Tb**	159	583574.9	0.8				ug/L	582613	Standard
	Ho	165	43.3	43.7				ug/L	17	Standard
	Tl	203	376085.6	0.9	**51.8126**	1.583	3.1	ug/L	100	Standard
	Tl	205	871509.5	0.7	**51.6100**	1.033	2.0	ug/L	260	Standard
	Pb	206	282510.2	0.3	**50.7292**	1.487	2.9	ug/L	292	Standard
	Pb	207	237873.2	1.0	**49.8762**	1.144	2.3	ug/L	246	Standard
	Pb	208	439058.4	2.3	**49.2283**	2.369	4.8	ug/L	472	Standard
	U	238	411833.7	1.4	**51.1438**	1.912	3.7	ug/L	5	Standard
>	**Bi**	209	403034.5	2.7				ug/L	433909	Standard

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⌈	**Na**	23	160.0	11.3	**59.0077**	8.055	13.7	mg/L	3	Standard
|	**Mg**	24	6674.8	2.7	**133.4608**	7.111	5.3	mg/L	32	Standard
|	**K**	39	278.3	22.7	**1.9991**	0.530	26.5	mg/L	18	Standard
|	**Ca**	43	176.7	21.2	**143.8268**	43.539	30.3	mg/L	47	Standard
|	**Fe**	54	38.1	40.1	**0.1776**	0.318	179.0	mg/L	24	Standard
|	**Fe**	57	1170.0	3.0	**102.8175**	11.479	11.2	mg/L	688	Standard
⌊>	**Sc-1**	45	31990.4	3.0				mg/L	32341	Standard
	Cl	35	3.3	34.6				ug/L	3	Standard
	Kr	83	5.3	60.3				ug/L	4	Standard
	Br	81	4707.4	9.8				ug/L	993	Standard
	P	31	71.7	17.6				ug/L	53	Standard
	S	34	15.0	33.3				ug/L	25	Standard
	Sr	88	413.3	10.6				ug/L	340	Standard
	C	12	46.7	44.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	16.7	34.6				mg/L	3	Standard
	Dy	164	33.5	36.6				mg/L	5	Standard
	Ho-1	165	43.3	43.7				mg/L	17	Standard
	Er	166	66.7	31.2				mg/L	27	Standard
	I	127	73657.0	12.1				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		104.519	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		95.977	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	102.507	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	92.885	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708121206SD WG627041-09
Sample Date/Time: Wednesday, August 30, 2017 13:22:41
Number of Replicates: 3
Autosampler Position: 211
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	132713.7	1.0				ug/L	129165	Standard
	Be	9	69333.3	1.4	**49.3504**	0.896	1.8	ug/L	22	Standard
	Al	27	10856586.5	1.0	**92.9224**	0.440	0.5	ug/L	2003	Standard
	Sc	45	31566.2	2.1				ug/L	32341	Standard
	Ti	47	935.7	5.5	**3.8548**	0.221	5.7	ug/L	31	Standard
	V	51	323901.1	0.8	**53.4047**	1.522	2.9	ug/L	1621	Standard
	Cr	52	290279.2	1.3	**51.6210**	1.759	3.4	ug/L	7503	Standard
	Cr	53	40428.9	2.1	**56.2504**	1.883	3.3	ug/L	2322	Standard
	Mn	55	610024.4	1.4	**71.0890**	2.373	3.3	ug/L	1683	Standard
	Co	59	325904.9	0.6	**48.8247**	1.136	2.3	ug/L	432	Standard
	Ni	60	73058.1	1.0	**51.1375**	1.507	2.9	ug/L	369	Standard
	Cu	65	63344.8	0.5	**49.4309**	1.160	2.3	ug/L	160	Standard
	Zn	66	37877.3	0.2	**55.3143**	1.114	2.0	ug/L	192	Standard
>	**Ge**	72	278786.5	2.1				ug/L	294345	Standard
	As	75	36663.7	1.1	**51.9760**	1.343	2.6	ug/L	-18	Standard
	Se	82	2655.2	2.3	**45.9028**	1.987	4.3	ug/L	20	Standard
	Se-1	77	2455.9	2.6	**53.4025**	1.945	3.6	ug/L	183	Standard
>	**Ga**	71	45.0	40.1				mg/L	27	Standard
	Rb	85	26945.6	0.8				ug/L	47	Standard
	Y	89	242687.2	2.3				ug/L	260351	Standard
>	**Rh**	103	211.7	21.2				ug/L	65	Standard
	Mo	98	2567.4	3.7	**0.9846**	0.024	2.4	ug/L	45	Standard
	Ag	107	179416.4	0.3	**43.4719**	0.638	1.5	ug/L	111	Standard
	Cd	111	46217.5	1.5	**47.8650**	0.230	0.5	mg/L	6	Standard
	Cd	114	131822.5	3.5	**48.1084**	1.052	2.2	ug/L	13	Standard
>	**In**	115	328596.4	1.4				ug/L	325147	Standard
	Sn	118	584.3	2.7	**0.7137**	0.013	1.8	ug/L	80	Standard
	Sb	123	166092.5	2.9	**51.8228**	0.813	1.6	ug/L	123	Standard
	Ba	135	106013.1	2.7	**84.1692**	1.110	1.3	ug/L	24	Standard
	Ce	140	535.0	8.9				ug/L	7	Standard
>	**Tb**	159	577007.6	2.5				ug/L	582613	Standard
	Ho	165	60.0	54.6				ug/L	17	Standard
	Tl	203	374899.0	0.8	**52.5482**	1.175	2.2	ug/L	100	Standard
	Tl	205	861289.8	2.3	**51.9015**	1.640	3.2	ug/L	260	Standard
	Pb	206	280504.1	0.5	**51.2441**	0.953	1.9	ug/L	292	Standard
	Pb	207	237290.7	0.6	**50.6251**	0.883	1.7	ug/L	246	Standard
	Pb	208	439116.8	3.0	**50.0867**	2.202	4.4	ug/L	472	Standard
	U	238	410597.1	1.7	**51.8756**	1.627	3.1	ug/L	5	Standard
>	**Bi**	209	396020.1	1.5				ug/L	433909	Standard

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⌈	**Na**	23	230.0	7.5	**86.0002**	5.165	6.0	mg/L	3	Standard
|	**Mg**	24	8053.8	1.1	**163.3705**	5.273	3.2	mg/L	32	Standard
|	**K**	39	325.0	8.1	**2.3869**	0.250	10.5	mg/L	18	Standard
|	**Ca**	43	213.3	19.1	**186.3282**	48.692	26.1	mg/L	47	Standard
|	**Fe**	54	43.0	54.5	**0.2957**	0.504	170.5	mg/L	24	Standard
|	**Fe**	57	1316.7	1.3	**140.5689**	9.202	6.5	mg/L	688	Standard
⌊>	**Sc-1**	45	31566.2	2.1				mg/L	32341	Standard
	Cl	35	3.3	69.3				ug/L	3	Standard
	Kr	83	5.0	20.0				ug/L	4	Standard
	Br	81	4557.4	1.5				ug/L	993	Standard
	P	31	85.0	50.9				ug/L	53	Standard
	S	34	16.7	75.5				ug/L	25	Standard
	Sr	88	415.0	3.6				ug/L	340	Standard
	C	12	53.3	57.3				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	20.0	50.0				mg/L	3	Standard
	Dy	164	76.8	68.5				mg/L	5	Standard
	Ho-1	165	60.0	54.6				mg/L	17	Standard
	Er	166	66.7	22.9				mg/L	27	Standard
	I	127	89957.6	13.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		102.747	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.714	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	101.061	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	91.268	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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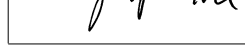

Method 6020 - Summary Report

Sample ID: L1708121207SD WG627041-11
Sample Date/Time: Wednesday, August 30, 2017 13:25:46
Number of Replicates: 3
Autosampler Position: 212
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	135498.2	0.5				ug/L	129165	Standard
	Be	9	69400.3	0.7	**48.3800**	0.467	1.0	ug/L	22	Standard
	Al	27	13875248.1	1.6	**116.3259**	1.538	1.3	ug/L	2003	Standard
	Sc	45	31955.4	3.3				ug/L	32341	Standard
	Ti	47	658.3	6.0	**2.6888**	0.143	5.3	ug/L	31	Standard
	V	51	318604.6	0.3	**52.7404**	0.765	1.5	ug/L	1621	Standard
	Cr	52	287194.4	0.6	**51.2678**	0.950	1.9	ug/L	7503	Standard
	Cr	53	40883.4	1.7	**57.1642**	1.708	3.0	ug/L	2322	Standard
	Mn	55	618903.8	1.0	**72.4176**	1.560	2.2	ug/L	1683	Standard
	Co	59	324274.5	0.8	**48.7815**	0.889	1.8	ug/L	432	Standard
	Ni	60	71797.0	0.4	**50.4527**	0.609	1.2	ug/L	369	Standard
	Cu	65	62857.1	1.3	**49.2539**	1.127	2.3	ug/L	160	Standard
	Zn	66	35442.1	1.4	**51.9568**	1.346	2.6	ug/L	192	Standard
>	Ge	72	277588.3	1.2				ug/L	294345	Standard
	As	75	36545.4	0.4	**52.0180**	0.408	0.8	ug/L	-18	Standard
	Se	82	2828.1	2.2	**49.0894**	0.869	1.8	ug/L	20	Standard
	Se-1	77	2714.9	1.2	**59.6967**	1.219	2.0	ug/L	183	Standard
>	Ga	71	41.7	61.6				mg/L	27	Standard
	Rb	85	24042.4	2.1				ug/L	47	Standard
	Y	89	242478.0	3.4				ug/L	260351	Standard
>	Rh	103	253.3	24.1				ug/L	65	Standard
	Mo	98	1897.6	1.2	**0.7252**	0.016	2.3	ug/L	45	Standard
	Ag	107	177811.4	1.2	**43.1217**	0.667	1.5	ug/L	111	Standard
	Cd	111	46321.1	1.4	**48.0176**	0.196	0.4	mg/L	6	Standard
	Cd	114	131332.0	1.9	**47.9837**	0.724	1.5	ug/L	13	Standard
>	In	115	328277.1	1.0				ug/L	325147	Standard
	Sn	118	435.0	5.0	**0.5022**	0.037	7.4	ug/L	80	Standard
	Sb	123	169168.2	2.6	**52.8362**	0.938	1.8	ug/L	123	Standard
	Ba	135	106548.5	2.7	**84.6788**	1.516	1.8	ug/L	24	Standard
	Ce	140	401.7	9.7				ug/L	7	Standard
>	Tb	159	581792.6	2.1				ug/L	582613	Standard
	Ho	165	73.3	30.7				ug/L	17	Standard
	Tl	203	369988.2	1.0	**51.7291**	0.972	1.9	ug/L	100	Standard
	Tl	205	872706.5	1.1	**52.4587**	1.144	2.2	ug/L	260	Standard
	Pb	206	281216.2	0.9	**51.2481**	1.032	2.0	ug/L	292	Standard
	Pb	207	235179.8	0.3	**50.0489**	0.650	1.3	ug/L	246	Standard
	Pb	208	437698.2	3.8	**49.8041**	2.540	5.1	ug/L	472	Standard
	U	238	412663.6	1.2	**52.0050**	1.303	2.5	ug/L	5	Standard
>	Bi	209	396993.3	1.4				ug/L	433909	Standard

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	Na	23	190.0	16.0	**70.3967**	13.367	19.0	mg/L	3	Standard
	Mg	24	9277.8	2.5	**186.1629**	9.275	5.0	mg/L	32	Standard
	K	39	363.3	9.8	**2.6494**	0.283	10.7	mg/L	18	Standard
	Ca	43	211.7	9.5	**181.2307**	21.964	12.1	mg/L	47	Standard
	Fe	54	29.2	39.0	**-0.0004**	0.245	57861.6	mg/L	24	Standard
	Fe	57	1280.1	1.7	**128.4386**	9.066	7.1	mg/L	688	Standard
>	**Sc-1**	45	31955.4	3.3				mg/L	32341	Standard
	Cl	35	1.3	173.2				ug/L	3	Standard
	Kr	83	4.0	90.1				ug/L	4	Standard
	Br	81	6288.0	6.3				ug/L	993	Standard
	P	31	51.7	20.1				ug/L	53	Standard
	S	34	28.3	36.7				ug/L	25	Standard
	Sr	88	355.0	11.5				ug/L	340	Standard
	C	12	20.0	50.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	20.0	50.0				mg/L	3	Standard
	Dy	164	50.8	31.2				mg/L	5	Standard
	Ho-1	165	73.3	30.7				mg/L	17	Standard
	Er	166	53.3	47.2				mg/L	27	Standard
	I	127	83486.9	12.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		104.903	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.307	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	100.963	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	91.492	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Al 27 Upper, S, EEE	Al	27	

Sample ID: L1708121207SD WG627041-11
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Method 6020 - Summary Report

Sample ID: L1708121202PS WG627096-03
Sample Date/Time: Wednesday, August 30, 2017 13:28:52
Number of Replicates: 3
Autosampler Position: 213
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	134285.8	0.5				ug/L	129165	Standard
	Be	9	72802.8	1.4	**51.2097**	0.700	1.4	ug/L	22	Standard
	Al	27	10717192.0	1.4	**90.6536**	1.160	1.3	ug/L	2003	Standard
	Sc	45	32344.5	1.3				ug/L	32341	Standard
	Ti	47	917.4	1.5	**3.7459**	0.076	2.0	ug/L	31	Standard
	V	51	331034.9	0.9	**54.1346**	0.815	1.5	ug/L	1621	Standard
	Cr	52	300331.4	0.5	**52.9988**	0.612	1.2	ug/L	7503	Standard
	Cr	53	42267.2	1.7	**58.4294**	1.260	2.2	ug/L	2322	Standard
	Mn	55	653510.5	1.2	**75.5369**	1.308	1.7	ug/L	1683	Standard
	Co	59	343930.2	0.9	**51.1078**	0.765	1.5	ug/L	432	Standard
	Ni	60	75912.4	1.0	**52.7050**	0.859	1.6	ug/L	369	Standard
	Cu	65	66985.8	1.3	**51.8513**	0.882	1.7	ug/L	160	Standard
	Zn	66	39964.6	1.4	**57.9047**	1.104	1.9	ug/L	192	Standard
>	**Ge**	72	281008.0	0.6				ug/L	294345	Standard
	As	75	37933.1	0.1	**53.3322**	0.370	0.7	ug/L	-18	Standard
	Se	82	3119.5	2.3	**53.5055**	0.944	1.8	ug/L	20	Standard
	Se-1	77	2739.6	3.3	**59.4816**	1.842	3.1	ug/L	183	Standard
>	**Ga**	71	80.0	27.2				mg/L	27	Standard
	Rb	85	26372.9	2.3				ug/L	47	Standard
	Y	89	241801.6	2.5				ug/L	260351	Standard
>	**Rh**	103	228.3	13.4				ug/L	65	Standard
	Mo	98	2576.1	0.5	**0.9805**	0.011	1.1	ug/L	45	Standard
	Ag	107	185923.5	0.7	**44.6975**	0.284	0.6	ug/L	111	Standard
	Cd	111	48378.6	1.5	**49.7167**	0.462	0.9	mg/L	6	Standard
	Cd	114	138115.6	2.7	**50.0236**	1.078	2.2	ug/L	13	Standard
>	**In**	115	331140.3	0.6				ug/L	325147	Standard
	Sn	118	554.0	2.7	**0.6645**	0.017	2.6	ug/L	80	Standard
	Sb	123	171921.5	3.3	**53.2308**	1.433	2.7	ug/L	123	Standard
	Ba	135	111136.3	2.4	**87.5649**	1.632	1.9	ug/L	24	Standard
	Ce	140	2670.2	3.4				ug/L	7	Standard
>	**Tb**	159	579321.4	2.4				ug/L	582613	Standard
	Ho	165	73.3	33.6				ug/L	17	Standard
	Tl	203	374509.8	1.6	**52.0116**	1.295	2.5	ug/L	100	Standard
	Tl	205	873161.6	0.2	**52.1313**	0.808	1.6	ug/L	260	Standard
	Pb	206	290739.4	0.8	**52.6307**	1.154	2.2	ug/L	292	Standard
	Pb	207	241919.7	0.6	**51.1381**	0.646	1.3	ug/L	246	Standard
	Pb	208	451037.6	3.0	**50.9778**	2.293	4.5	ug/L	472	Standard
	U	238	429285.3	1.4	**53.7403**	1.625	3.0	ug/L	5	Standard
>	**Bi**	209	399690.2	1.7				ug/L	433909	Standard

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⌈	**Na**	23	198.3	3.9	**72.3275**	2.874	4.0	mg/L	3	Standard
|	**Mg**	24	7408.5	3.5	**146.4490**	3.315	2.3	mg/L	32	Standard
|	**K**	39	375.0	9.6	**2.7035**	0.274	10.1	mg/L	18	Standard
|	**Ca**	43	198.3	10.2	**164.1811**	20.054	12.2	mg/L	47	Standard
|	**Fe**	54	48.1	27.9	**0.3704**	0.271	73.2	mg/L	24	Standard
|	**Fe**	57	1276.7	8.3	**124.2043**	27.879	22.4	mg/L	688	Standard
⌊>	**Sc-1**	45	32344.5	1.3				mg/L	32341	Standard
	Cl	35	4.7	137.8				ug/L	3	Standard
	Kr	83	5.3	47.2				ug/L	4	Standard
	Br	81	5857.8	7.4				ug/L	993	Standard
	P	31	53.3	21.7				ug/L	53	Standard
	S	34	20.0	43.3				ug/L	25	Standard
	Sr	88	351.7	4.1				ug/L	340	Standard
	C	12	36.7	15.7				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	30.0	66.7				mg/L	3	Standard
	Dy	164	85.7	21.9				mg/L	5	Standard
	Ho-1	165	73.3	33.6				mg/L	17	Standard
	Er	166	90.0	29.4				mg/L	27	Standard
	I	127	83244.6	10.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		103.964	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		95.469	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	101.843
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.114
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708121202SDL WG627096-04
Sample Date/Time: Wednesday, August 30, 2017 13:31:57
Number of Replicates: 3
Autosampler Position: 214
Sample Description: 5
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	126440.5	1.7				ug/L	129165	Standard
	Be	9	40.0	66.1	**0.0209**	0.019	91.5	ug/L	22	Standard
	Al	27	2228969.9	1.7	**19.9983**	0.615	3.1	ug/L	2003	Standard
	Sc	45	29368.4	0.4				ug/L	32341	Standard
	Ti	47	217.7	2.6	**0.8258**	0.031	3.8	ug/L	31	Standard
	V	51	3656.2	6.6	**0.3772**	0.045	11.9	ug/L	1621	Standard
	Cr	52	9526.7	1.7	**0.4510**	0.028	6.3	ug/L	7503	Standard
	Cr	53	2450.2	5.4	**0.8575**	0.212	24.7	ug/L	2322	Standard
	Mn	55	44415.0	1.4	**5.0985**	0.085	1.7	ug/L	1683	Standard
	Co	59	828.0	4.5	**0.0670**	0.006	9.3	ug/L	432	Standard
	Ni	60	1157.0	1.7	**0.5869**	0.016	2.7	ug/L	369	Standard
	Cu	65	569.7	3.9	**0.3275**	0.021	6.3	ug/L	160	Standard
	Zn	66	1561.7	4.5	**1.9968**	0.095	4.8	ug/L	192	Standard
>	**Ge**	72	273500.8	0.7				ug/L	294345	Standard
	As	75	35.6	22.9	**0.1397**	0.011	8.2	ug/L	-18	Standard
	Se	82	36.5	15.8	**0.4172**	0.098	23.5	ug/L	20	Standard
	Se-1	77	239.0	4.1	**1.8747**	0.235	12.5	ug/L	183	Standard
>	**Ga**	71	48.3	33.3				mg/L	27	Standard
	Rb	85	5287.6	2.3				ug/L	47	Standard
	Y	89	232512.6	1.9				ug/L	260351	Standard
>	**Rh**	103	83.3	6.9				ug/L	65	Standard
	Mo	98	546.1	4.6	**0.2010**	0.010	4.8	ug/L	45	Standard
	Ag	107	134.7	4.3	**0.0078**	0.001	18.3	ug/L	111	Standard
	Cd	111	18.8	21.4	**0.0095**	0.004	43.7	mg/L	6	Standard
	Cd	114	52.5	5.5	**-0.0068**	0.001	16.3	ug/L	13	Standard
>	**In**	115	324998.8	0.2				ug/L	325147	Standard
	Sn	118	154.0	0.6	**0.1041**	0.002	1.9	ug/L	80	Standard
	Sb	123	1051.4	6.8	**0.3141**	0.022	7.1	ug/L	123	Standard
	Ba	135	8871.9	1.3	**7.1017**	0.078	1.1	ug/L	24	Standard
	Ce	140	581.7	9.8				ug/L	7	Standard
>	**Tb**	159	572454.2	0.8				ug/L	582613	Standard
	Ho	165	31.7	36.5				ug/L	17	Standard
	Tl	203	133.0	10.5	**0.0046**	0.002	43.3	ug/L	100	Standard
	Tl	205	251.7	14.4	**0.0062**	0.002	34.3	ug/L	260	Standard
	Pb	206	508.0	4.1	**0.0358**	0.004	10.4	ug/L	292	Standard
	Pb	207	404.7	8.6	**0.0330**	0.008	23.1	ug/L	246	Standard
	Pb	208	765.7	1.7	**0.0348**	0.002	4.4	ug/L	472	Standard
	U	238	506.0	6.0	**0.0622**	0.003	5.3	ug/L	5	Standard
>	**Bi**	209	402529.7	0.7				ug/L	433909	Standard

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	Na	23	40.0	12.5	**15.5929**	2.057	13.2	mg/L	3	Standard
	Mg	24	1595.1	1.1	**33.8421**	0.476	1.4	mg/L	32	Standard
	K	39	105.0	21.8	**0.7308**	0.188	25.8	mg/L	18	Standard
	Ca	43	68.3	44.1	**33.6803**	35.585	105.7	mg/L	47	Standard
	Fe	54	22.4	23.5	**-0.1013**	0.119	117.1	mg/L	24	Standard
	Fe	57	841.7	8.9	**44.4407**	18.705	42.1	mg/L	688	Standard
>	**Sc-1**	45	29368.4	0.4				mg/L	32341	Standard
	Cl	35	2.7	43.3				ug/L	3	Standard
	Kr	83	8.0	33.1				ug/L	4	Standard
	Br	81	1823.4	3.2				ug/L	993	Standard
	P	31	48.3	15.8				ug/L	53	Standard
	S	34	15.0	33.3				ug/L	25	Standard
	Sr	88	381.7	17.8				ug/L	340	Standard
	C	12	10.0	173.2				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	41.7	26.4				mg/L	5	Standard
	Ho-1	165	31.7	36.5				mg/L	17	Standard
	Er	166	33.3	45.8				mg/L	27	Standard
	I	127	21154.8	4.4				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		97.891	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		92.918	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

Sample ID: L1708121202SDL WG627096-04
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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	99.954	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	92.768	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708121202SDL WG627096-04
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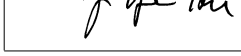

Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Wednesday, August 30, 2017 13:35:04
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	132199.3	1.8				ug/L	129165	Standard
	Be	9	70523.8	2.0	**50.3993**	1.343	2.7	ug/L	22	Standard
	Al	27	5762623.7	0.7	**49.5084**	1.170	2.4	ug/L	2003	Standard
	Sc	45	31943.7	4.5				ug/L	32341	Standard
	Ti	47	24717.8	0.4	**100.6742**	1.598	1.6	ug/L	31	Standard
	V	51	319277.5	0.7	**50.5573**	0.610	1.2	ug/L	1621	Standard
	Cr	52	296725.1	0.5	**50.6630**	0.573	1.1	ug/L	7503	Standard
	Cr	53	36950.0	2.0	**49.0432**	0.681	1.4	ug/L	2322	Standard
	Mn	55	445716.3	0.5	**49.8380**	0.643	1.3	ug/L	1683	Standard
	Co	59	347603.4	1.0	**50.0282**	0.210	0.4	ug/L	432	Standard
	Ni	60	73890.7	0.2	**49.6796**	0.779	1.6	ug/L	369	Standard
	Cu	65	66903.1	0.7	**50.1608**	0.882	1.8	ug/L	160	Standard
	Zn	66	36036.5	0.8	**50.5363**	1.091	2.2	ug/L	192	Standard
>	Ge	72	290125.1	1.4				ug/L	294345	Standard
	As	75	36168.0	0.1	**49.2644**	0.671	1.4	ug/L	-18	Standard
	Se	82	3031.5	2.0	**50.3495**	0.322	0.6	ug/L	20	Standard
	Se-1	77	2400.5	2.8	**49.9076**	0.981	2.0	ug/L	183	Standard
>	Ga	71	45.0	48.4				mg/L	27	Standard
	Rb	85	543.3	6.9				ug/L	47	Standard
	Y	89	258327.0	3.5				ug/L	260351	Standard
>	Rh	103	81.7	19.7				ug/L	65	Standard
	Mo	98	257254.9	1.1	**95.9748**	1.691	1.8	ug/L	45	Standard
	Ag	107	208383.8	1.7	**48.4338**	0.742	1.5	ug/L	111	Standard
	Cd	111	49137.1	1.6	**48.8170**	0.347	0.7	mg/L	6	Standard
	Cd	114	141171.4	1.9	**49.4311**	0.502	1.0	ug/L	13	Standard
>	In	115	342529.0	0.9				ug/L	325147	Standard
	Sn	118	36939.0	2.4	**50.2890**	0.937	1.9	ug/L	80	Standard
	Sb	123	170218.7	3.3	**50.9490**	1.215	2.4	ug/L	123	Standard
	Ba	135	66480.2	2.0	**50.6291**	0.538	1.1	ug/L	24	Standard
	Ce	140	140.0	60.1				ug/L	7	Standard
>	Tb	159	583971.5	2.3				ug/L	582613	Standard
	Ho	165	8.3	69.3				ug/L	17	Standard
	Tl	203	389612.4	0.3	**50.0193**	0.720	1.4	ug/L	100	Standard
	Tl	205	908400.9	2.1	**50.1410**	1.420	2.8	ug/L	260	Standard
	Pb	206	295757.7	0.4	**49.4916**	0.961	1.9	ug/L	292	Standard
	Pb	207	260974.7	0.6	**51.0051**	1.116	2.2	ug/L	246	Standard
	Pb	208	459281.2	3.0	**47.9887**	2.236	4.7	ug/L	472	Standard
	U	238	425845.3	2.0	**49.2874**	1.797	3.6	ug/L	5	Standard
>	Bi	209	432342.8	1.7				ug/L	433909	Standard

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	Na	23	26.7	28.6	**9.4068**	3.310	35.2	mg/L	3	Standard
	Mg	24	276.7	6.8	**4.4100**	0.141	3.2	mg/L	32	Standard
	K	39	628.3	5.3	**4.7018**	0.446	9.5	mg/L	18	Standard
	Ca	43	45.0	11.1	**2.0004**	4.146	207.2	mg/L	47	Standard
	Fe	54	251.2	18.5	**4.5327**	0.954	21.0	mg/L	24	Standard
	Fe	57	790.0	4.2	**15.7814**	10.585	67.1	mg/L	688	Standard
>	**Sc-1**	45	31943.7	4.5				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	5.7	44.4				ug/L	4	Standard
	Br	81	970.0	13.6				ug/L	993	Standard
	P	31	48.3	15.8				ug/L	53	Standard
	S	34	11.7	107.9				ug/L	25	Standard
	Sr	88	366.7	7.8				ug/L	340	Standard
	C	12	6.7	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	12.4	126.0				mg/L	5	Standard
	Ho-1	165	8.3	69.3				mg/L	17	Standard
	Er	166	20.0	50.0				mg/L	27	Standard
	I	127	3482.1	3.5				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	100.799		
	Al	27	99.017		
	Sc	45			
	Ti	47	100.674		
	V	51	101.115		
	Cr	52	101.326		
	Cr	53			
	Mn	55	99.676		
	Co	59	100.056		
	Ni	60	99.359		
	Cu	65	100.322		
	Zn	66	101.073		
>	Ge	72		98.566	
	As	75	98.529		
	Se	82	100.699		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	95.975		
|	Ag	107	96.868		
|	Cd	111	97.634		
|	Cd	114			
| >	In	115		105.346	
|	Sn	118	100.578		
|	Sb	123	101.898		
⌊	Ba	135	101.258		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	100.039		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	95.977		
|	U	238	98.575		
⌊>	Bi	209		99.639	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Wednesday, August 30, 2017 13:38:10
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	131933.9	2.6				ug/L	129165	Standard
	Be	9	65.0	40.0	**0.0376**	0.018	48.1	ug/L	22	Standard
	Al	27	2815.3	17.8	**-0.0171**	0.004	21.3	ug/L	2003	Standard
	Sc	45	31192.1	2.1				ug/L	32341	Standard
	Ti	47	39.7	19.1	**0.0461**	0.029	63.5	ug/L	31	Standard
	V	51	1517.6	14.8	**0.0023**	0.038	1669.8	ug/L	1621	Standard
	Cr	52	7076.0	0.8	**-0.0767**	0.005	6.8	ug/L	7503	Standard
	Cr	53	1375.1	4.8	**-0.8562**	0.071	8.3	ug/L	2322	Standard
	Mn	55	1628.8	5.5	**-0.0060**	0.008	140.8	ug/L	1683	Standard
	Co	59	437.0	4.7	**0.0036**	0.004	99.1	ug/L	432	Standard
	Ni	60	350.0	3.3	**-0.0052**	0.008	146.3	ug/L	369	Standard
	Cu	65	253.7	12.2	**0.0642**	0.022	33.7	ug/L	160	Standard
	Zn	66	240.0	12.3	**-0.0022**	0.038	1747.7	ug/L	192	Standard
>	**Ge**	72	289430.5	1.2				ug/L	294345	Standard
	As	75	-43.3	124.9	**0.0292**	0.074	254.7	ug/L	-18	Standard
	Se	82	17.1	18.2	**0.0586**	0.049	84.1	ug/L	20	Standard
	Se-1	77	146.7	8.5	**-0.5083**	0.279	54.9	ug/L	183	Standard
>	**Ga**	71	18.3	31.5				mg/L	27	Standard
	Rb	85	53.3	39.0				ug/L	47	Standard
	Y	89	258615.9	2.4				ug/L	260351	Standard
>	**Rh**	103	61.7	36.6				ug/L	65	Standard
	Mo	98	274.5	25.0	**0.0901**	0.026	28.6	ug/L	45	Standard
	Ag	107	125.7	7.2	**0.0044**	0.002	47.1	ug/L	111	Standard
	Cd	111	13.1	30.5	**0.0030**	0.004	132.2	mg/L	6	Standard
	Cd	114	31.8	28.6	**-0.0149**	0.003	21.7	ug/L	13	Standard
>	**In**	115	337856.4	0.1				ug/L	325147	Standard
	Sn	118	118.0	14.5	**0.0458**	0.024	51.8	ug/L	80	Standard
	Sb	123	655.8	12.1	**0.1814**	0.024	13.3	ug/L	123	Standard
	Ba	135	34.3	11.8	**0.0037**	0.003	83.6	ug/L	24	Standard
	Ce	140	16.7	17.3				ug/L	7	Standard
>	**Tb**	159	580520.8	0.7				ug/L	582613	Standard
	Ho	165	11.7	65.5				ug/L	17	Standard
	Tl	203	112.7	19.3	**0.0005**	0.002	492.1	ug/L	100	Standard
	Tl	205	215.0	18.2	**0.0030**	0.002	63.3	ug/L	260	Standard
	Pb	206	331.3	7.0	**-0.0010**	0.003	313.5	ug/L	292	Standard
	Pb	207	293.7	7.9	**0.0044**	0.004	86.4	ug/L	246	Standard
	Pb	208	516.7	7.1	**0.0020**	0.004	184.4	ug/L	472	Standard
	U	238	71.0	19.6	**0.0074**	0.001	19.0	ug/L	5	Standard
>	**Bi**	209	439422.1	1.9				ug/L	433909	Standard

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	Na	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
	Mg	24	45.0	40.1	**-0.2355**	0.386	164.1	mg/L	32	Standard
	K	39	26.7	39.0	**0.0626**	0.082	131.4	mg/L	18	Standard
	Ca	43	40.0	66.1	**-2.3764**	28.661	1206.1	mg/L	47	Standard
	Fe	54	46.1	24.6	**0.3673**	0.260	70.8	mg/L	24	Standard
	Fe	57	711.7	5.9	**1.3826**	6.501	470.2	mg/L	688	Standard
>	**Sc-1**	45	31192.1	2.1				mg/L	32341	Standard
	Cl	35	2.7	86.6				ug/L	3	Standard
	Kr	83	6.3	9.1				ug/L	4	Standard
	Br	81	876.7	16.0				ug/L	993	Standard
	P	31	46.7	34.4				ug/L	53	Standard
	S	34	16.7	17.3				ug/L	25	Standard
	Sr	88	356.7	13.3				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	6.7	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	2.2	249.0				mg/L	5	Standard
	Ho-1	165	11.7	65.5				mg/L	17	Standard
	Er	166	23.3	49.5				mg/L	27	Standard
	I	127	9733.1	0.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		98.330	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	103.909	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	101.271	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130512
Sample Date/Time: Wednesday, August 30, 2017 13:41:17
Number of Replicates: 3
Autosampler Position: 215
Sample Description: 50
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	119911.0	1.1				ug/L	129165	Standard
	Be	9	23.3	44.6	**0.0097**	0.008	87.3	ug/L	22	Standard
	Al	27	77509.4	1.3	**0.6934**	0.014	2.0	ug/L	2003	Standard
	Sc	45	28278.0	1.8				ug/L	32341	Standard
	Ti	47	28.0	12.9	**0.0079**	0.016	202.5	ug/L	31	Standard
	V	51	1398.9	1.8	**0.0011**	0.004	382.4	ug/L	1621	Standard
	Cr	52	5439.3	1.7	**-0.2870**	0.017	6.0	ug/L	7503	Standard
	Cr	53	1466.7	8.8	**-0.5603**	0.194	34.6	ug/L	2322	Standard
	Mn	55	3013.6	3.0	**0.1772**	0.011	6.3	ug/L	1683	Standard
	Co	59	372.0	6.2	**-0.0015**	0.004	233.1	ug/L	432	Standard
	Ni	60	369.7	1.5	**0.0283**	0.004	13.8	ug/L	369	Standard
	Cu	65	208.0	10.3	**0.0426**	0.018	41.5	ug/L	160	Standard
	Zn	66	1130.7	2.6	**1.3876**	0.046	3.3	ug/L	192	Standard
>	**Ge**	72	267800.6	0.1				ug/L	294345	Standard
	As	75	5232.9	0.3	**7.7955**	0.020	0.3	ug/L	-18	Standard
	Se	82	15.3	32.8	**0.0478**	0.090	189.1	ug/L	20	Standard
	Se-1	77	154.7	5.2	**-0.0488**	0.199	407.6	ug/L	183	Standard
>	**Ga**	71	33.3	31.2				mg/L	27	Standard
	Rb	85	75.0	6.7				ug/L	47	Standard
	Y	89	230331.1	1.4				ug/L	260351	Standard
>	**Rh**	103	68.3	15.2				ug/L	65	Standard
	Mo	98	96.9	9.5	**0.0257**	0.003	12.2	ug/L	45	Standard
	Ag	107	109.0	5.7	**0.0024**	0.001	61.6	ug/L	111	Standard
	Cd	111	10.2	53.9	**0.0010**	0.006	610.4	mg/L	6	Standard
	Cd	114	28.5	62.8	**-0.0152**	0.007	45.9	ug/L	13	Standard
>	**In**	115	314481.3	1.6				ug/L	325147	Standard
	Sn	118	54.3	20.3	**-0.0366**	0.017	45.4	ug/L	80	Standard
	Sb	123	129.1	11.7	**0.0243**	0.004	17.3	ug/L	123	Standard
	Ba	135	792.7	3.9	**0.6350**	0.023	3.6	ug/L	24	Standard
	Ce	140	18.3	83.3				ug/L	7	Standard
>	**Tb**	159	563142.3	1.4				ug/L	582613	Standard
	Ho	165	11.7	49.5				ug/L	17	Standard
	Tl	203	88.3	17.4	**-0.0016**	0.002	130.5	ug/L	100	Standard
	Tl	205	190.0	27.5	**0.0026**	0.003	122.3	ug/L	260	Standard
	Pb	206	292.7	4.0	**-0.0030**	0.002	61.0	ug/L	292	Standard
	Pb	207	254.7	9.8	**0.0014**	0.005	391.1	ug/L	246	Standard
	Pb	208	510.3	6.4	**0.0060**	0.004	64.6	ug/L	472	Standard
	U	238	16.0	27.2	**0.0014**	0.001	40.4	ug/L	5	Standard
>	**Bi**	209	403262.8	0.7				ug/L	433909	Standard

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	Na	23	1.7	173.2	**0.0827**	1.197	1447.5	mg/L	3	Standard
	Mg	24	283.3	8.2	**5.2890**	0.500	9.5	mg/L	32	Standard
	K	39	28.3	27.0	**0.0978**	0.062	63.8	mg/L	18	Standard
	Ca	43	48.3	33.3	**12.4925**	20.044	160.4	mg/L	47	Standard
	Fe	54	25.9	89.4	**0.0008**	0.536	64344.3	mg/L	24	Standard
	Fe	57	650.0	8.1	**2.9218**	16.799	574.9	mg/L	688	Standard
>	**Sc-1**	45	28278.0	1.8				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	7.7	30.1				ug/L	4	Standard
	Br	81	1266.7	9.6				ug/L	993	Standard
	P	31	36.7	67.3				ug/L	53	Standard
	S	34	18.3	41.7				ug/L	25	Standard
	Sr	88	333.3	7.5				ug/L	340	Standard
	C	12	10.0	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	10.0	173.2				mg/L	3	Standard
	Dy	164	9.5	5.0				mg/L	5	Standard
	Ho-1	165	11.7	49.5				mg/L	17	Standard
	Er	166	10.0	100.0				mg/L	27	Standard
	I	127	5721.1	4.5				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		92.835	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		90.982	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	96.720
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.937
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708130513
Sample Date/Time: Wednesday, August 30, 2017 13:44:22
Number of Replicates: 3
Autosampler Position: 216
Sample Description: 50
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	122372.2	0.2				ug/L	129165	Standard
	Be	9	21.7	48.0	**0.0079**	0.008	101.0	ug/L	22	Standard
	Al	27	78605.1	1.8	**0.6887**	0.013	1.9	ug/L	2003	Standard
	Sc	45	29049.5	0.9				ug/L	32341	Standard
	Ti	47	21.7	22.8	**-0.0200**	0.022	111.7	ug/L	31	Standard
	V	51	1587.4	6.1	**0.0335**	0.019	55.6	ug/L	1621	Standard
	Cr	52	5782.1	3.6	**-0.2226**	0.038	17.0	ug/L	7503	Standard
	Cr	53	1475.1	2.6	**-0.5488**	0.051	9.3	ug/L	2322	Standard
	Mn	55	2611.2	1.6	**0.1281**	0.005	4.1	ug/L	1683	Standard
	Co	59	356.0	5.1	**-0.0040**	0.003	80.5	ug/L	432	Standard
	Ni	60	357.7	4.1	**0.0194**	0.013	66.0	ug/L	369	Standard
	Cu	65	186.0	6.5	**0.0246**	0.011	44.4	ug/L	160	Standard
	Zn	66	1121.4	3.1	**1.3728**	0.067	4.9	ug/L	192	Standard
>	**Ge**	72	267951.0	0.8				ug/L	294345	Standard
	As	75	5022.3	1.5	**7.4819**	0.158	2.1	ug/L	-18	Standard
	Se	82	15.5	31.9	**0.0530**	0.091	172.2	ug/L	20	Standard
	Se-1	77	174.0	2.5	**0.4175**	0.111	26.7	ug/L	183	Standard
>	**Ga**	71	43.3	67.6				mg/L	27	Standard
	Rb	85	61.7	9.4				ug/L	47	Standard
	Y	89	228574.8	1.5				ug/L	260351	Standard
>	**Rh**	103	56.7	20.4				ug/L	65	Standard
	Mo	98	81.7	9.7	**0.0195**	0.003	17.3	ug/L	45	Standard
	Ag	107	109.7	7.4	**0.0026**	0.002	80.7	ug/L	111	Standard
	Cd	111	7.3	63.8	**-0.0023**	0.005	217.1	mg/L	6	Standard
	Cd	114	13.8	94.5	**-0.0209**	0.005	23.5	ug/L	13	Standard
>	**In**	115	314524.1	0.5				ug/L	325147	Standard
	Sn	118	45.7	27.7	**-0.0496**	0.019	37.6	ug/L	80	Standard
	Sb	123	95.5	16.4	**0.0134**	0.005	36.9	ug/L	123	Standard
	Ba	135	771.4	2.0	**0.6173**	0.016	2.6	ug/L	24	Standard
	Ce	140	13.3	57.3				ug/L	7	Standard
>	**Tb**	159	557493.1	2.4				ug/L	582613	Standard
	Ho	165	6.7	43.3				ug/L	17	Standard
	Tl	203	90.7	5.6	**-0.0014**	0.001	45.7	ug/L	100	Standard
	Tl	205	221.7	8.5	**0.0043**	0.001	27.1	ug/L	260	Standard
	Pb	206	292.7	4.7	**-0.0036**	0.003	73.3	ug/L	292	Standard
	Pb	207	249.0	3.2	**-0.0004**	0.002	427.9	ug/L	246	Standard
	Pb	208	451.0	1.6	**-0.0012**	0.001	53.9	ug/L	472	Standard
	U	238	13.3	37.7	**0.0010**	0.001	60.3	ug/L	5	Standard
>	**Bi**	209	407805.4	0.8				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	260.0	5.1	**4.6014**	0.319	6.9	mg/L	32	Standard
|	**K**	39	28.3	71.3	**0.0929**	0.174	187.0	mg/L	18	Standard
|	**Ca**	43	41.7	25.0	**2.8606**	11.918	416.6	mg/L	47	Standard
|	**Fe**	54	25.8	31.0	**-0.0203**	0.178	876.5	mg/L	24	Standard
|	**Fe**	57	705.0	14.5	**12.1413**	25.528	210.3	mg/L	688	Standard
⌊>	**Sc-1**	45	29049.5	0.9				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	3.7	41.7				ug/L	4	Standard
	Br	81	1196.7	8.2				ug/L	993	Standard
	P	31	33.3	22.9				ug/L	53	Standard
	S	34	15.0	0.0				ug/L	25	Standard
	Sr	88	388.3	8.6				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	21.7	117.7				mg/L	5	Standard
	Ho-1	165	6.7	43.3				mg/L	17	Standard
	Er	166	33.3	45.8				mg/L	27	Standard
	I	127	5317.6	6.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		94.741	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		91.033	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	96.733	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	93.984	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708135404
Sample Date/Time: Wednesday, August 30, 2017 13:47:27
Number of Replicates: 3
Autosampler Position: 217
Sample Description: 50
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	122478.1	1.3				ug/L	129165	Standard
	Be	9	40.0	33.1	**0.0221**	0.010	46.5	ug/L	22	Standard
	Al	27	26848.8	1.2	**0.2079**	0.002	0.9	ug/L	2003	Standard
	Sc	45	28864.1	2.8				ug/L	32341	Standard
	Ti	47	28.7	5.3	**0.0097**	0.007	68.0	ug/L	31	Standard
	V	51	1550.5	6.4	**0.0248**	0.017	68.1	ug/L	1621	Standard
	Cr	52	5778.1	1.4	**-0.2327**	0.014	6.2	ug/L	7503	Standard
	Cr	53	1131.7	0.5	**-1.0849**	0.009	0.8	ug/L	2322	Standard
	Mn	55	31579.2	1.5	**3.6154**	0.059	1.6	ug/L	1683	Standard
	Co	59	678.3	4.5	**0.0453**	0.005	10.3	ug/L	432	Standard
	Ni	60	407.3	6.3	**0.0531**	0.018	34.7	ug/L	369	Standard
	Cu	65	205.3	1.6	**0.0389**	0.003	7.0	ug/L	160	Standard
	Zn	66	1063.4	4.0	**1.2699**	0.063	4.9	ug/L	192	Standard
>	Ge	72	270253.9	0.1				ug/L	294345	Standard
	As	75	-47.9	12.5	**0.0185**	0.009	47.0	ug/L	-18	Standard
	Se	82	12.3	21.6	**-0.0068**	0.048	697.2	ug/L	20	Standard
	Se-1	77	140.3	7.9	**-0.4273**	0.264	61.7	ug/L	183	Standard
>	Ga	71	35.0	24.7				mg/L	27	Standard
	Rb	85	221.7	13.6				ug/L	47	Standard
	Y	89	233273.9	1.2				ug/L	260351	Standard
>	Rh	103	76.7	38.2				ug/L	65	Standard
	Mo	98	24.5	32.4	**-0.0037**	0.003	87.2	ug/L	45	Standard
	Ag	107	113.0	8.5	**0.0034**	0.003	74.8	ug/L	111	Standard
	Cd	111	12.0	22.1	**0.0028**	0.003	103.8	mg/L	6	Standard
	Cd	114	40.3	13.8	**-0.0109**	0.002	19.0	ug/L	13	Standard
>	In	115	315515.7	0.7				ug/L	325147	Standard
	Sn	118	51.7	16.2	**-0.0409**	0.012	29.7	ug/L	80	Standard
	Sb	123	75.4	26.4	**0.0068**	0.007	96.8	ug/L	123	Standard
	Ba	135	492.7	3.9	**0.3848**	0.017	4.5	ug/L	24	Standard
	Ce	140	4140.6	3.3				ug/L	7	Standard
>	Tb	159	559674.5	1.7				ug/L	582613	Standard
	Ho	165	88.3	34.6				ug/L	17	Standard
	Tl	203	83.0	6.3	**-0.0025**	0.001	24.6	ug/L	100	Standard
	Tl	205	170.0	18.4	**0.0011**	0.002	150.6	ug/L	260	Standard
	Pb	206	380.7	5.9	**0.0112**	0.005	40.7	ug/L	292	Standard
	Pb	207	353.3	2.3	**0.0203**	0.002	8.6	ug/L	246	Standard
	Pb	208	647.7	0.9	**0.0197**	0.001	2.9	ug/L	472	Standard
	U	238	37.0	23.1	**0.0039**	0.001	27.9	ug/L	5	Standard
>	Bi	209	412934.1	1.1				ug/L	433909	Standard

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	Na	23	3.3	86.6	**0.7816**	1.205	154.1	mg/L	3	Standard
	Mg	24	48.3	36.3	**-0.0964**	0.365	378.8	mg/L	32	Standard
	K	39	25.0	34.6	**0.0665**	0.081	121.3	mg/L	18	Standard
	Ca	43	36.7	31.5	**-2.8631**	12.730	444.6	mg/L	47	Standard
	Fe	54	25.9	41.1	**-0.0109**	0.250	2291.0	mg/L	24	Standard
	Fe	57	665.0	2.6	**3.1396**	3.387	107.9	mg/L	688	Standard
>	**Sc-1**	45	28864.1	2.8				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	3.7	31.5				ug/L	4	Standard
	Br	81	920.0	7.6				ug/L	993	Standard
	P	31	46.7	55.0				ug/L	53	Standard
	S	34	13.3	86.6				ug/L	25	Standard
	Sr	88	388.3	9.7				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	148.2	19.9				mg/L	5	Standard
	Ho-1	165	88.3	34.6				mg/L	17	Standard
	Er	166	106.7	51.6				mg/L	27	Standard
	I	127	2293.5	5.3				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		94.823	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		91.815	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
|>	In	115	97.038
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	95.166
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708128501
Sample Date/Time: Wednesday, August 30, 2017 13:50:32
Number of Replicates: 3
Autosampler Position: 218
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	120717.3	0.3				ug/L	129165	Standard
	Be	9	36.7	20.8	**0.0199**	0.006	30.5	ug/L	22	Standard
	Al	27	88955.4	2.0	**0.7961**	0.016	2.0	ug/L	2003	Standard
	Sc	45	28934.3	2.3				ug/L	32341	Standard
	Ti	47	33.0	46.7	**0.0276**	0.067	241.8	ug/L	31	Standard
	V	51	1510.5	6.8	**0.0162**	0.018	109.5	ug/L	1621	Standard
	Cr	52	5904.5	2.2	**-0.2167**	0.026	11.9	ug/L	7503	Standard
	Cr	53	1025.0	12.4	**-1.2562**	0.193	15.4	ug/L	2322	Standard
	Mn	55	184351.8	0.9	**21.8648**	0.188	0.9	ug/L	1683	Standard
	Co	59	1107.7	0.9	**0.1105**	0.001	1.2	ug/L	432	Standard
	Ni	60	374.0	10.9	**0.0271**	0.030	109.6	ug/L	369	Standard
	Cu	65	187.0	5.1	**0.0230**	0.008	34.0	ug/L	160	Standard
	Zn	66	652.3	3.8	**0.6401**	0.037	5.8	ug/L	192	Standard
>	**Ge**	72	272170.8	0.2				ug/L	294345	Standard
	As	75	-36.0	28.0	**0.0362**	0.015	40.3	ug/L	-18	Standard
	Se	82	14.7	20.9	**0.0336**	0.055	163.7	ug/L	20	Standard
	Se-1	77	137.0	14.6	**-0.5306**	0.475	89.5	ug/L	183	Standard
>	**Ga**	71	51.7	11.2				mg/L	27	Standard
	Rb	85	228.3	12.5				ug/L	47	Standard
	Y	89	233375.3	0.9				ug/L	260351	Standard
>	**Rh**	103	43.3	48.0				ug/L	65	Standard
	Mo	98	45.5	20.7	**0.0049**	0.004	83.7	ug/L	45	Standard
	Ag	107	125.3	20.9	**0.0066**	0.007	99.5	ug/L	111	Standard
	Cd	111	19.6	52.0	**0.0112**	0.011	100.1	mg/L	6	Standard
	Cd	114	51.8	58.2	**-0.0063**	0.012	187.9	ug/L	13	Standard
>	**In**	115	314028.8	1.2				ug/L	325147	Standard
	Sn	118	55.7	3.7	**-0.0346**	0.003	8.4	ug/L	80	Standard
	Sb	123	96.2	5.9	**0.0137**	0.002	15.4	ug/L	123	Standard
	Ba	135	784.0	5.5	**0.6287**	0.032	5.0	ug/L	24	Standard
	Ce	140	2113.5	3.4				ug/L	7	Standard
>	**Tb**	159	563086.1	0.8				ug/L	582613	Standard
	Ho	165	76.7	21.0				ug/L	17	Standard
	Tl	203	127.7	37.9	**0.0035**	0.006	187.3	ug/L	100	Standard
	Tl	205	320.0	28.2	**0.0098**	0.005	53.2	ug/L	260	Standard
	Pb	206	383.3	10.9	**0.0117**	0.007	60.8	ug/L	292	Standard
	Pb	207	317.3	11.3	**0.0129**	0.007	55.3	ug/L	246	Standard
	Pb	208	558.7	6.7	**0.0100**	0.004	40.8	ug/L	472	Standard
	U	238	83.3	51.4	**0.0095**	0.005	54.5	ug/L	5	Standard
>	**Bi**	209	412831.0	0.3				ug/L	433909	Standard

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	Na	23	3.3	86.6	**0.7801**	1.203	154.2	mg/L	3	Standard
	Mg	24	53.3	19.5	**0.0200**	0.240	1198.7	mg/L	32	Standard
	K	39	15.0	33.3	**-0.0198**	0.045	227.8	mg/L	18	Standard
	Ca	43	28.3	27.0	**-12.6944**	9.169	72.2	mg/L	47	Standard
	Fe	54	32.8	9.9	**0.1394**	0.070	50.0	mg/L	24	Standard
	Fe	57	730.0	7.2	**19.1064**	9.785	51.2	mg/L	688	Standard
>	**Sc-1**	45	28934.3	2.3				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	5.7	50.9				ug/L	4	Standard
	Br	81	1033.4	11.7				ug/L	993	Standard
	P	31	41.7	13.9				ug/L	53	Standard
	S	34	18.3	15.7				ug/L	25	Standard
	Sr	88	336.7	14.9				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	125.8	25.2				mg/L	5	Standard
	Ho-1	165	76.7	21.0				mg/L	17	Standard
	Er	166	86.7	46.6				mg/L	27	Standard
	I	127	2336.8	2.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		93.460	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		92.467	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115	96.580	
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209	95.142	
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708128501
Report Date/Time: Wednesday, August 30, 2017 13:52:43
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Method 6020 - Summary Report

Sample ID: QC Std 4
Sample Date/Time: Wednesday, August 30, 2017 13:53:39
Number of Replicates: 3
Autosampler Position: 203
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	125298.9	6.1				ug/L	129165	Standard
	Be	9	15.0	88.2	**0.0028**	0.010	373.6	ug/L	22	Standard
	Al	27	5212988.1	0.2	**47.3546**	2.878	6.1	ug/L	2003	Standard
	Sc	45	29637.3	2.9				ug/L	32341	Standard
	Ti	47	24538.2	1.8	**104.7084**	6.139	5.9	ug/L	31	Standard
	V	51	759.5	47.4	**-0.1136**	0.061	53.9	ug/L	1621	Standard
	Cr	52	5849.1	3.0	**-0.2464**	0.051	20.7	ug/L	7503	Standard
	Cr	53	5624.4	3.8	**5.4833**	0.667	12.2	ug/L	2322	Standard
	Mn	55	1546.4	23.2	**-0.0070**	0.046	664.6	ug/L	1683	Standard
	Co	59	474.0	3.9	**0.0119**	0.003	22.3	ug/L	432	Standard
	Ni	60	649.7	2.5	**0.2175**	0.025	11.5	ug/L	369	Standard
	Cu	65	378.7	4.0	**0.1716**	0.024	13.9	ug/L	160	Standard
	Zn	66	381.7	6.5	**0.2218**	0.017	7.6	ug/L	192	Standard
>	**Ge**	72	277373.9	4.5				ug/L	294345	Standard
	As	75	-81.9	51.3	**-0.0290**	0.063	217.7	ug/L	-18	Standard
	Se	82	17.3	44.1	**0.0712**	0.119	166.4	ug/L	20	Standard
	Se-1	77	534.3	2.6	**8.7171**	0.402	4.6	ug/L	183	Standard
>	**Ga**	71	106.7	15.1				mg/L	27	Standard
	Rb	85	463.3	9.4				ug/L	47	Standard
	Y	89	238455.4	5.5				ug/L	260351	Standard
>	**Rh**	103	63.3	44.9				ug/L	65	Standard
	Mo	98	224285.4	1.1	**88.1083**	5.311	6.0	ug/L	45	Standard
	Ag	107	120.0	5.8	**0.0042**	0.002	42.0	ug/L	111	Standard
	Cd	111	-66.0	7.4	**-0.0793**	0.008	10.3	mg/L	6	Standard
	Cd	114	365.0	10.1	**0.1082**	0.012	11.2	ug/L	13	Standard
>	**In**	115	325944.3	5.2				ug/L	325147	Standard
	Sn	118	60.7	6.7	**-0.0305**	0.002	5.2	ug/L	80	Standard
	Sb	123	100.3	22.7	**0.0137**	0.006	43.7	ug/L	123	Standard
	Ba	135	51.0	10.4	**0.0180**	0.002	11.4	ug/L	24	Standard
	Ce	140	31.7	9.1				ug/L	7	Standard
>	**Tb**	159	589853.3	5.6				ug/L	582613	Standard
	Ho	165	8.3	34.6				ug/L	17	Standard
	Tl	203	105.7	8.6	**0.0004**	0.002	529.4	ug/L	100	Standard
	Tl	205	233.3	12.6	**0.0047**	0.002	50.7	ug/L	260	Standard
	Pb	206	354.0	1.2	**0.0057**	0.003	48.7	ug/L	292	Standard
	Pb	207	318.0	5.1	**0.0121**	0.001	7.0	ug/L	246	Standard
	Pb	208	547.0	11.1	**0.0077**	0.004	57.8	ug/L	472	Standard
	U	238	11.3	13.5	**0.0007**	0.000	30.6	ug/L	5	Standard
>	**Bi**	209	419320.8	5.8				ug/L	433909	Standard

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⌈	**Na**	23	38.3	7.5	**14.7815**	1.214	8.2	mg/L	3	Standard
|	**Mg**	24	623.3	4.1	**12.3896**	0.452	3.6	mg/L	32	Standard
|	**K**	39	640.0	4.8	**5.1702**	0.399	7.7	mg/L	18	Standard
|	**Ca**	43	63.3	16.4	**26.9199**	10.271	38.2	mg/L	47	Standard
|	**Fe**	54	572.3	10.2	**12.0129**	1.603	13.3	mg/L	24	Standard
|	**Fe**	57	1000.0	5.8	**82.1135**	18.896	23.0	mg/L	688	Standard
⌊>	**Sc-1**	45	29637.3	2.9				mg/L	32341	Standard
	Cl	35	3.3	34.6				ug/L	3	Standard
	Kr	83	5.7	62.0				ug/L	4	Standard
	Br	81	956.7	8.8				ug/L	993	Standard
	P	31	51.7	14.8				ug/L	53	Standard
	S	34	13.3	21.7				ug/L	25	Standard
	Sr	88	405.0	8.6				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	12.5	86.6				mg/L	5	Standard
	Ho-1	165	8.3	34.6				mg/L	17	Standard
	Er	166	16.7	91.7				mg/L	27	Standard
	I	127	20367.0	4.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27	0.947		
⌈	Sc	45			
|	Ti	47	104.708		
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		94.234	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	88.108		
Ag	107			
Cd	111			
Cd	114			
In	115			100.245
Sn	118			
Sb	123			
Ba	135			
Ce	140			
Tb	159			
Ho	165			
Tl	203			
Tl	205			
Pb	206			
Pb	207			
Pb	208			
U	238			
Bi	209			96.638
Na	23	118.252		
Mg	24	247.793		
K	39	103.404		
Ca	43	179.466		
Fe	54	96.103		
Fe	57	656.908		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 4	Al	27	
QC Std 4	Mg	24	
QC Std 4	Ca	43	

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QC Std 4	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 5
Sample Date/Time: Wednesday, August 30, 2017 13:56:44
Number of Replicates: 3
Autosampler Position: 204
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	124272.6	1.2				ug/L	129165	Standard
	Be	9	134075.8	2.1	**101.9308**	2.775	2.7	ug/L	22	Standard
	Al	27	5317565.6	1.9	**48.5955**	1.454	3.0	ug/L	2003	Standard
	Sc	45	29957.9	1.6				ug/L	32341	Standard
	Ti	47	24847.4	1.4	**104.4871**	2.083	2.0	ug/L	31	Standard
	V	51	587325.7	0.6	**96.2343**	1.110	1.2	ug/L	1621	Standard
	Cr	52	539452.0	0.8	**96.2492**	1.114	1.2	ug/L	7503	Standard
	Cr	53	71555.3	1.8	**100.8604**	2.636	2.6	ug/L	2322	Standard
	Mn	55	832635.5	0.5	**96.2962**	1.205	1.3	ug/L	1683	Standard
	Co	59	649553.4	0.5	**96.5761**	0.671	0.7	ug/L	432	Standard
	Ni	60	138918.6	1.0	**96.6560**	1.700	1.8	ug/L	369	Standard
	Cu	65	128002.5	1.4	**99.2047**	2.038	2.1	ug/L	160	Standard
	Zn	66	70728.4	1.7	**102.7419**	1.917	1.9	ug/L	192	Standard
>	Ge	72	280998.9	0.8				ug/L	294345	Standard
	As	75	72001.3	0.6	**101.1553**	0.901	0.9	ug/L	-18	Standard
	Se	82	6031.1	1.6	**103.6711**	1.621	1.6	ug/L	20	Standard
	Se-1	77	5046.2	2.7	**112.7933**	4.048	3.6	ug/L	183	Standard
>	Ga	71	120.0	32.5				mg/L	27	Standard
	Rb	85	538.3	7.0				ug/L	47	Standard
	Y	89	243313.2	3.8				ug/L	260351	Standard
>	Rh	103	90.0	43.4				ug/L	65	Standard
	Mo	98	237233.7	0.5	**94.0140**	1.492	1.6	ug/L	45	Standard
	Ag	107	353685.3	0.9	**87.3534**	1.843	2.1	ug/L	111	Standard
	Cd	111	93732.9	0.3	**98.9397**	1.297	1.3	mg/L	6	Standard
	Cd	114	265578.6	1.7	**98.8053**	0.473	0.5	ug/L	13	Standard
>	In	115	322470.2	1.3				ug/L	325147	Standard
	Sn	118	95.3	10.0	**0.0207**	0.012	60.1	ug/L	80	Standard
	Sb	123	315039.8	2.4	**100.1843**	1.205	1.2	ug/L	123	Standard
	Ba	135	124763.5	2.8	**100.9480**	2.016	2.0	ug/L	24	Standard
	Ce	140	61.7	40.0				ug/L	7	Standard
>	Tb	159	579047.9	1.8				ug/L	582613	Standard
	Ho	165	13.3	78.1				ug/L	17	Standard
	Tl	203	731927.2	0.8	**97.5530**	1.832	1.9	ug/L	100	Standard
	Tl	205	1713083.5	2.2	**98.1622**	3.037	3.1	ug/L	260	Standard
	Pb	206	567645.1	1.2	**98.6442**	1.529	1.6	ug/L	292	Standard
	Pb	207	477812.8	1.2	**96.9733**	1.921	2.0	ug/L	246	Standard
	Pb	208	868006.2	2.5	**94.1690**	3.283	3.5	ug/L	472	Standard
	U	238	806661.7	1.3	**96.8916**	2.159	2.2	ug/L	5	Standard
>	Bi	209	416495.0	1.2				ug/L	433909	Standard

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	Na	23	26.7	47.2	**9.9887**	5.072	50.8	mg/L	3	Standard
	Mg	24	578.3	4.8	**11.2808**	0.723	6.4	mg/L	32	Standard
	K	39	580.0	8.2	**4.6138**	0.399	8.7	mg/L	18	Standard
	Ca	43	66.7	28.4	**30.3460**	22.750	75.0	mg/L	47	Standard
	Fe	54	550.6	2.8	**11.3846**	0.495	4.3	mg/L	24	Standard
	Fe	57	920.0	2.9	**59.5438**	6.242	10.5	mg/L	688	Standard
>	**Sc-1**	45	29957.9	1.6				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	8.3	27.7				ug/L	4	Standard
	Br	81	956.7	2.6				ug/L	993	Standard
	P	31	51.7	24.4				ug/L	53	Standard
	S	34	20.0	66.1				ug/L	25	Standard
	Sr	88	375.0	7.1				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	19.0	106.3				mg/L	5	Standard
	Ho-1	165	13.3	78.1				mg/L	17	Standard
	Er	166	20.0	50.0				mg/L	27	Standard
	I	127	19606.1	8.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.931		
	Al	27	0.972		
	Sc	45			
	Ti	47	104.487		
	V	51	96.234		
	Cr	52	96.249		
	Cr	53			
	Mn	55	96.296		
	Co	59	96.576		
	Ni	60	96.656		
	Cu	65	99.205		
	Zn	66	102.742		
>	Ge	72		95.466	
	As	75	101.155		
	Se	82	103.671		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	94.014		
Ag	107	87.353		
Cd	111	98.940		
Cd	114			
In	115			99.177
Sn	118			
Sb	123	100.184		
Ba	135	100.948		
Ce	140			
Tb	159			
Ho	165			
Tl	203	97.553		
Tl	205			
Pb	206			
Pb	207			
Pb	208	94.169		
U	238	96.892		
Bi	209			95.987
Na	23	79.909		
Mg	24	225.616		
K	39	92.276		
Ca	43	202.307		
Fe	54	91.077		
Fe	57	476.351		
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 5	Al	27	
QC Std 5	Na	23	
QC Std 5	Mg	24	

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QC Std 5	Ca	43
QC Std 5	Fe	57

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Wednesday, August 30, 2017 13:59:51
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	128526.2	1.3				ug/L	129165	Standard
	Be	9	68174.8	2.8	**50.0969**	0.778	1.6	ug/L	22	Standard
	Al	27	5705416.4	0.6	**50.4078**	0.349	0.7	ug/L	2003	Standard
	Sc	45	31088.5	2.1				ug/L	32341	Standard
	Ti	47	24777.9	1.0	**100.3728**	1.643	1.6	ug/L	31	Standard
	V	51	320027.5	1.2	**50.4012**	0.636	1.3	ug/L	1621	Standard
	Cr	52	296314.2	0.8	**50.3096**	0.332	0.7	ug/L	7503	Standard
	Cr	53	38544.0	2.4	**50.9922**	1.305	2.6	ug/L	2322	Standard
	Mn	55	450032.0	0.9	**50.0486**	0.525	1.0	ug/L	1683	Standard
	Co	59	351391.1	0.8	**50.3026**	0.333	0.7	ug/L	432	Standard
	Ni	60	74912.4	0.7	**50.0927**	0.145	0.3	ug/L	369	Standard
	Cu	65	67681.9	1.7	**50.4705**	1.034	2.0	ug/L	160	Standard
	Zn	66	36167.1	0.4	**50.4399**	0.416	0.8	ug/L	192	Standard
>	**Ge**	72	291681.2	0.8				ug/L	294345	Standard
	As	75	36445.6	0.8	**49.3714**	0.246	0.5	ug/L	-18	Standard
	Se	82	3080.6	0.3	**50.8993**	0.402	0.8	ug/L	20	Standard
	Se-1	77	2462.5	2.2	**51.0016**	0.815	1.6	ug/L	183	Standard
>	**Ga**	71	30.0	44.1				mg/L	27	Standard
	Rb	85	551.7	8.4				ug/L	47	Standard
	Y	89	260190.4	1.5				ug/L	260351	Standard
>	**Rh**	103	68.3	33.0				ug/L	65	Standard
	Mo	98	255656.3	1.0	**97.0464**	1.173	1.2	ug/L	45	Standard
	Ag	107	207797.5	1.7	**49.1510**	1.228	2.5	ug/L	111	Standard
	Cd	111	49655.4	0.5	**50.2010**	0.354	0.7	mg/L	6	Standard
	Cd	114	141519.0	1.3	**50.4260**	0.538	1.1	ug/L	13	Standard
>	**In**	115	336628.5	1.0				ug/L	325147	Standard
	Sn	118	36644.3	1.9	**50.7626**	0.448	0.9	ug/L	80	Standard
	Sb	123	171203.0	1.1	**52.1491**	0.052	0.1	ug/L	123	Standard
	Ba	135	66366.7	1.9	**51.4300**	0.605	1.2	ug/L	24	Standard
	Ce	140	73.3	21.9				ug/L	7	Standard
>	**Tb**	159	575851.4	1.9				ug/L	582613	Standard
	Ho	165	8.3	34.6				ug/L	17	Standard
	Tl	203	393356.0	1.5	**50.4686**	0.469	0.9	ug/L	100	Standard
	Tl	205	910644.1	3.0	**50.2230**	0.859	1.7	ug/L	260	Standard
	Pb	206	299596.7	1.4	**50.1028**	0.707	1.4	ug/L	292	Standard
	Pb	207	264183.9	1.5	**51.5981**	0.700	1.4	ug/L	246	Standard
	Pb	208	457373.5	2.9	**47.7632**	2.159	4.5	ug/L	472	Standard
	U	238	424336.1	1.1	**49.0820**	1.327	2.7	ug/L	5	Standard
>	**Bi**	209	432561.1	1.6				ug/L	433909	Standard

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	Na	23	13.3	57.3	**4.5316**	2.995	66.1	mg/L	3	Standard
	Mg	24	251.7	14.6	**4.0435**	0.699	17.3	mg/L	32	Standard
	K	39	625.0	10.0	**4.7980**	0.520	10.8	mg/L	18	Standard
	Ca	43	41.7	54.1	**-0.2583**	25.301	9796.6	mg/L	47	Standard
	Fe	54	273.1	8.5	**5.1264**	0.483	9.4	mg/L	24	Standard
	Fe	57	835.0	10.0	**31.5098**	23.355	74.1	mg/L	688	Standard
>	**Sc-1**	45	31088.5	2.1				mg/L	32341	Standard
	Cl	35	0.0					ug/L	3	Standard
	Kr	83	5.7	50.9				ug/L	4	Standard
	Br	81	953.4	12.2				ug/L	993	Standard
	P	31	38.3	64.3				ug/L	53	Standard
	S	34	23.3	32.7				ug/L	25	Standard
	Sr	88	360.0	6.4				ug/L	340	Standard
	C	12	6.7	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	10.0	173.2				mg/L	3	Standard
	Dy	164	26.0	59.1				mg/L	5	Standard
	Ho-1	165	8.3	34.6				mg/L	17	Standard
	Er	166	13.3	86.6				mg/L	27	Standard
	I	127	2590.2	5.4				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	100.194		
	Al	27	100.816		
	Sc	45			
	Ti	47	100.373		
	V	51	100.802		
	Cr	52	100.619		
	Cr	53			
	Mn	55	100.097		
	Co	59	100.605		
	Ni	60	100.185		
	Cu	65	100.941		
	Zn	66	100.880		
>	Ge	72		99.095	
	As	75	98.743		
	Se	82	101.799		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	97.046		
|	Ag	107	98.302		
|	Cd	111	100.402		
|	Cd	114			
| >	In	115		103.531	
|	Sn	118	101.525		
|	Sb	123	104.298		
⌊	Ba	135	102.860		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	100.937		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	95.526		
|	U	238	98.164		
⌊>	Bi	209		99.689	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Wednesday, August 30, 2017 14:02:57
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	128301.0	1.6				ug/L	129165	Standard
	Be	9	41.7	45.4	**0.0220**	0.014	64.4	ug/L	22	Standard
	Al	27	2200.2	6.2	**-0.0218**	0.001	6.4	ug/L	2003	Standard
	Sc	45	31350.7	2.5				ug/L	32341	Standard
	Ti	47	33.7	4.5	**0.0212**	0.008	39.6	ug/L	31	Standard
	V	51	1537.2	6.2	**0.0040**	0.018	462.4	ug/L	1621	Standard
	Cr	52	6890.9	1.7	**-0.1159**	0.015	12.8	ug/L	7503	Standard
	Cr	53	1265.1	5.2	**-1.0204**	0.078	7.6	ug/L	2322	Standard
	Mn	55	1563.1	4.5	**-0.0144**	0.005	34.8	ug/L	1683	Standard
	Co	59	420.7	2.6	**0.0008**	0.001	104.0	ug/L	432	Standard
	Ni	60	340.7	3.3	**-0.0128**	0.008	61.4	ug/L	369	Standard
	Cu	65	210.7	7.4	**0.0312**	0.014	43.5	ug/L	160	Standard
	Zn	66	195.3	6.5	**-0.0664**	0.022	33.1	ug/L	192	Standard
>	Ge	72	291037.1	1.6				ug/L	294345	Standard
	As	75	-43.4	58.4	**0.0299**	0.033	111.4	ug/L	-18	Standard
	Se	82	19.2	12.8	**0.0912**	0.046	50.7	ug/L	20	Standard
	Se-1	77	141.0	7.0	**-0.6520**	0.235	36.1	ug/L	183	Standard
>	Ga	71	38.3	27.2				mg/L	27	Standard
	Rb	85	45.0	11.1				ug/L	47	Standard
	Y	89	258274.6	1.4				ug/L	260351	Standard
>	Rh	103	45.0	55.6				ug/L	65	Standard
	Mo	98	498.8	17.8	**0.1767**	0.036	20.4	ug/L	45	Standard
	Ag	107	132.0	3.3	**0.0062**	0.001	16.7	ug/L	111	Standard
	Cd	111	12.2	17.6	**0.0022**	0.002	95.1	mg/L	6	Standard
	Cd	114	30.5	35.3	**-0.0152**	0.004	26.1	ug/L	13	Standard
>	In	115	335203.5	1.0				ug/L	325147	Standard
	Sn	118	105.3	17.0	**0.0294**	0.025	83.4	ug/L	80	Standard
	Sb	123	1096.3	7.3	**0.3178**	0.025	7.9	ug/L	123	Standard
	Ba	135	28.0	29.2	**-0.0011**	0.006	586.4	ug/L	24	Standard
	Ce	140	13.3	43.3				ug/L	7	Standard
>	Tb	159	575996.4	0.9				ug/L	582613	Standard
	Ho	165	8.3	34.6				ug/L	17	Standard
	Tl	203	109.3	22.0	**0.0002**	0.003	1097.7	ug/L	100	Standard
	Tl	205	265.0	15.0	**0.0059**	0.002	30.9	ug/L	260	Standard
	Pb	206	322.3	11.9	**-0.0018**	0.005	258.2	ug/L	292	Standard
	Pb	207	278.3	8.1	**0.0022**	0.004	184.1	ug/L	246	Standard
	Pb	208	514.3	5.1	**0.0025**	0.004	156.3	ug/L	472	Standard
	U	238	44.7	13.7	**0.0045**	0.001	12.3	ug/L	5	Standard
>	Bi	209	433655.9	3.3				ug/L	433909	Standard

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	Na	23	1.7	173.2	**0.0075**	1.067	14255.5	mg/L	3	Standard
	Mg	24	43.3	46.6	**-0.2827**	0.395	139.7	mg/L	32	Standard
	K	39	26.7	28.6	**0.0623**	0.065	104.3	mg/L	18	Standard
	Ca	43	30.0	28.9	**-13.4308**	9.643	71.8	mg/L	47	Standard
	Fe	54	25.8	44.7	**-0.0609**	0.243	398.7	mg/L	24	Standard
	Fe	57	685.0	6.4	**-5.5303**	11.782	213.0	mg/L	688	Standard
>	**Sc-1**	45	31350.7	2.5				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	3.3	34.6				ug/L	4	Standard
	Br	81	1000.0	9.8				ug/L	993	Standard
	P	31	41.7	18.3				ug/L	53	Standard
	S	34	10.0	100.0				ug/L	25	Standard
	Sr	88	360.0	9.7				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	-1.0	50.0				mg/L	5	Standard
	Ho-1	165	8.3	34.6				mg/L	17	Standard
	Er	166	20.0	50.0				mg/L	27	Standard
	I	127	8684.2	3.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		98.876	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
> Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
> In	115	103.093	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
> Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
> Bi	209	99.942	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
> Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 7	Sb	123	

Sample ID: QC Std 7
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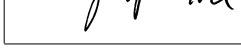

Method 6020 - Summary Report

Sample ID: QC Std 8
Sample Date/Time: Wednesday, August 30, 2017 14:06:04
Number of Replicates: 3
Autosampler Position: 202
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	131138.4	0.8				ug/L	129165	Standard
	Be	9	271.7	10.5	**0.1869**	0.020	10.7	ug/L	22	Standard
	Al	27	2036.8	6.3	**-0.0236**	0.001	5.3	ug/L	2003	Standard
	Sc	45	31691.4	1.5				ug/L	32341	Standard
	Ti	47	31.3	11.2	**0.0111**	0.013	114.2	ug/L	31	Standard
	V	51	3848.7	8.3	**0.3686**	0.053	14.5	ug/L	1621	Standard
	Cr	52	12073.1	2.2	**0.7820**	0.014	1.7	ug/L	7503	Standard
	Cr	53	2003.5	3.1	**0.0028**	0.028	1001.2	ug/L	2322	Standard
	Mn	55	6115.6	1.8	**0.4930**	0.024	4.8	ug/L	1683	Standard
	Co	59	3028.3	0.6	**0.3741**	0.009	2.3	ug/L	432	Standard
	Ni	60	2615.6	1.4	**1.5137**	0.041	2.7	ug/L	369	Standard
	Cu	65	1243.1	1.2	**0.8017**	0.024	3.0	ug/L	160	Standard
	Zn	66	4373.3	2.6	**5.7926**	0.143	2.5	ug/L	192	Standard
>	**Ge**	72	292002.0	2.1				ug/L	294345	Standard
	As	75	267.3	18.4	**0.4494**	0.065	14.4	ug/L	-18	Standard
	Se	82	36.2	12.4	**0.3724**	0.075	20.1	ug/L	20	Standard
	Se-1	77	160.7	3.8	**-0.2259**	0.128	56.5	ug/L	183	Standard
>	**Ga**	71	36.7	15.7				mg/L	27	Standard
	Rb	85	35.0	42.9				ug/L	47	Standard
	Y	89	259620.2	3.2				ug/L	260351	Standard
>	**Rh**	103	48.3	46.6				ug/L	65	Standard
	Mo	98	188.6	8.0	**0.0583**	0.005	9.4	ug/L	45	Standard
	Ag	107	1663.1	2.3	**0.3703**	0.008	2.1	ug/L	111	Standard
	Cd	111	238.5	6.7	**0.2322**	0.016	7.0	mg/L	6	Standard
	Cd	114	627.2	13.8	**0.1985**	0.030	15.3	ug/L	13	Standard
>	**In**	115	334955.6	0.4				ug/L	325147	Standard
	Sn	118	103.7	2.9	**0.0272**	0.004	15.4	ug/L	80	Standard
	Sb	123	1788.0	4.6	**0.5297**	0.023	4.4	ug/L	123	Standard
	Ba	135	911.7	2.0	**0.6876**	0.015	2.2	ug/L	24	Standard
	Ce	140	21.7	48.0				ug/L	7	Standard
>	**Tb**	159	576178.2	0.9				ug/L	582613	Standard
	Ho	165	11.7	65.5				ug/L	17	Standard
	Tl	203	663.7	6.0	**0.0706**	0.005	6.7	ug/L	100	Standard
	Tl	205	1521.7	8.9	**0.0744**	0.006	8.3	ug/L	260	Standard
	Pb	206	1492.4	1.4	**0.1918**	0.005	2.6	ug/L	292	Standard
	Pb	207	1211.4	1.3	**0.1825**	0.006	3.2	ug/L	246	Standard
	Pb	208	2211.7	1.8	**0.1777**	0.006	3.5	ug/L	472	Standard
	U	238	3229.7	2.3	**0.3693**	0.016	4.3	ug/L	5	Standard
>	**Bi**	209	436910.3	2.1				ug/L	433909	Standard

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	Na	23	1.7	173.2	**0.0270**	1.101	4080.1	mg/L	3	Standard
	Mg	24	35.0	14.3	**-0.4581**	0.091	19.9	mg/L	32	Standard
	K	39	18.3	41.7	**-0.0052**	0.060	1144.5	mg/L	18	Standard
	Ca	43	36.7	28.4	**-6.5113**	11.596	178.1	mg/L	47	Standard
	Fe	54	25.3	51.0	**-0.0784**	0.264	336.6	mg/L	24	Standard
	Fe	57	710.0	10.2	**-1.5956**	16.087	1008.2	mg/L	688	Standard
>	**Sc-1**	45	31691.4	1.5				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	4.0	43.3				ug/L	4	Standard
	Br	81	933.4	1.6				ug/L	993	Standard
	P	31	51.7	14.8				ug/L	53	Standard
	S	34	6.7	43.3				ug/L	25	Standard
	Sr	88	355.0	9.9				ug/L	340	Standard
	C	12	16.7	69.3				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	10.0	100.0				mg/L	3	Standard
	Dy	164	16.0	128.2				mg/L	5	Standard
	Ho-1	165	11.7	65.5				mg/L	17	Standard
	Er	166	13.3	43.3				mg/L	27	Standard
	I	127	2073.5	8.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	93.448		
	Al	27			
	Sc	45			
	Ti	47			
	V	51	92.155		
	Cr	52	97.751		
	Cr	53			
	Mn	55	98.604		
	Co	59	93.518		
	Ni	60	94.608		
	Cu	65	100.212		
	Zn	66	92.682		
>	Ge	72		99.204	
	As	75	112.351		
	Se	82	93.090		
	Se-1	77			
>	Ga	71			

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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98			
|	Ag	107	92.572		
|	Cd	111	96.758		
|	Cd	114			
| >	In	115		103.017	
|	Sn	118			
|	Sb	123	132.433		
⌊	Ba	135	91.678		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	88.278		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	88.850		
|	U	238	92.335		
⌊>	Bi	209		100.692	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
QC Std 8	Sb	123	

Sample ID: QC Std 8
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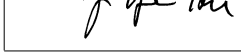

Method 6020 - Summary Report

Sample ID: PBS K4 WG627718-02
Sample Date/Time: Wednesday, August 30, 2017 14:13:39
Number of Replicates: 3
Autosampler Position: 301
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	127828.7	0.8				ug/L	129165	Standard
	Be	9	36.7	82.2	**0.0182**	0.022	121.1	ug/L	22	Standard
	Al	27	3683.8	4.6	**-0.0085**	0.001	17.5	ug/L	2003	Standard
	Sc	45	31153.7	1.4				ug/L	32341	Standard
	Ti	47	40.3	16.5	**0.0485**	0.026	53.3	ug/L	31	Standard
	V	51	1694.1	6.4	**0.0294**	0.014	46.2	ug/L	1621	Standard
	Cr	52	7360.1	1.4	**-0.0301**	0.015	49.6	ug/L	7503	Standard
	Cr	53	1240.1	8.2	**-1.0513**	0.109	10.4	ug/L	2322	Standard
	Mn	55	3422.7	3.2	**0.1949**	0.013	6.5	ug/L	1683	Standard
	Co	59	449.3	10.6	**0.0053**	0.008	154.1	ug/L	432	Standard
	Ni	60	447.7	3.9	**0.0602**	0.014	23.4	ug/L	369	Standard
	Cu	65	197.3	10.4	**0.0215**	0.015	69.8	ug/L	160	Standard
	Zn	66	763.0	1.0	**0.7358**	0.032	4.3	ug/L	192	Standard
>	Ge	72	290187.8	2.3				ug/L	294345	Standard
	As	75	-31.0	145.5	**0.0466**	0.062	132.5	ug/L	-18	Standard
	Se	82	14.1	50.3	**0.0094**	0.121	1288.8	ug/L	20	Standard
	Se-1	77	124.3	10.5	**-1.0138**	0.323	31.9	ug/L	183	Standard
>	Ga	71	28.3	20.4				mg/L	27	Standard
	Rb	85	45.0	38.5				ug/L	47	Standard
	Y	89	253471.7	2.4				ug/L	260351	Standard
>	Rh	103	43.3	48.0				ug/L	65	Standard
	Mo	98	537.4	25.3	**0.1981**	0.052	26.4	ug/L	45	Standard
	Ag	107	123.0	4.5	**0.0051**	0.001	26.1	ug/L	111	Standard
	Cd	111	14.8	33.9	**0.0054**	0.005	95.3	mg/L	6	Standard
	Cd	114	36.7	84.6	**-0.0126**	0.011	91.4	ug/L	13	Standard
>	In	115	323862.1	0.8				ug/L	325147	Standard
	Sn	118	123.0	6.5	**0.0601**	0.011	18.6	ug/L	80	Standard
	Sb	123	433.0	27.8	**0.1192**	0.037	31.1	ug/L	123	Standard
	Ba	135	145.0	4.8	**0.0940**	0.005	5.1	ug/L	24	Standard
	Ce	140	103.3	29.6				ug/L	7	Standard
>	Tb	159	558216.6	2.1				ug/L	582613	Standard
	Ho	165	15.0	57.7				ug/L	17	Standard
	Tl	203	68.3	9.7	**-0.0050**	0.001	16.4	ug/L	100	Standard
	Tl	205	165.0	21.2	**0.0003**	0.002	525.5	ug/L	260	Standard
	Pb	206	674.0	5.4	**0.0565**	0.005	8.0	ug/L	292	Standard
	Pb	207	537.0	4.2	**0.0522**	0.003	5.5	ug/L	246	Standard
	Pb	208	998.3	3.7	**0.0525**	0.005	9.6	ug/L	472	Standard
	U	238	35.3	34.6	**0.0034**	0.001	39.6	ug/L	5	Standard
>	Bi	209	435442.0	1.5				ug/L	433909	Standard

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⌈	**Na**	23	3.3	173.2	**0.6452**	2.171	336.6	mg/L	3	Standard
|	**Mg**	24	56.7	20.4	**0.0054**	0.254	4719.6	mg/L	32	Standard
|	**K**	39	21.7	35.3	**0.0230**	0.060	261.0	mg/L	18	Standard
|	**Ca**	43	45.0	40.1	**3.1676**	19.607	619.0	mg/L	47	Standard
|	**Fe**	54	34.1	26.2	**0.1153**	0.189	163.5	mg/L	24	Standard
|	**Fe**	57	680.0	12.7	**-5.9369**	18.770	316.2	mg/L	688	Standard
⌊>	**Sc-1**	45	31153.7	1.4				mg/L	32341	Standard
	Cl	35	0.0					ug/L	3	Standard
	Kr	83	4.0	43.3				ug/L	4	Standard
	Br	81	1043.4	3.9				ug/L	993	Standard
	P	31	58.3	21.6				ug/L	53	Standard
	S	34	10.0	50.0				ug/L	25	Standard
	Sr	88	336.7	12.8				ug/L	340	Standard
	C	12	6.7	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	173.2				mg/L	3	Standard
	Dy	164	6.0	93.6				mg/L	5	Standard
	Ho-1	165	15.0	57.7				mg/L	17	Standard
	Er	166	13.3	43.3				mg/L	27	Standard
	I	127	1175.0	9.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		98.965	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		98.588	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	99.605
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	100.353
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: LCSS K4 WG627718-03
Sample Date/Time: Wednesday, August 30, 2017 14:16:44
Number of Replicates: 3
Autosampler Position: 302
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	128237.1	1.1				ug/L	129165	Standard
	Be	9	33889.5	2.0	**24.9609**	0.638	2.6	ug/L	22	Standard
	Al	27	3350.4	4.0	**-0.0116**	0.001	11.8	ug/L	2003	Standard
	Sc	45	31422.6	2.4				ug/L	32341	Standard
	Ti	47	36.0	21.7	**0.0334**	0.034	102.7	ug/L	31	Standard
	V	51	159350.2	2.1	**25.4768**	0.947	3.7	ug/L	1621	Standard
	Cr	52	150919.4	1.6	**25.4985**	0.890	3.5	ug/L	7503	Standard
	Cr	53	19093.7	2.6	**24.3844**	1.161	4.8	ug/L	2322	Standard
	Mn	55	221740.6	1.1	**25.0524**	0.631	2.5	ug/L	1683	Standard
	Co	59	173673.4	0.5	**25.3227**	0.565	2.2	ug/L	432	Standard
	Ni	60	37595.3	0.4	**25.5145**	0.339	1.3	ug/L	369	Standard
	Cu	65	33973.0	0.4	**25.7688**	0.462	1.8	ug/L	160	Standard
	Zn	66	18307.7	1.4	**25.8682**	0.533	2.1	ug/L	192	Standard
>	**Ge**	72	286106.5	1.7				ug/L	294345	Standard
	As	75	18130.7	0.2	**25.0882**	0.461	1.8	ug/L	-18	Standard
	Se	82	1533.6	2.1	**25.7189**	0.112	0.4	ug/L	20	Standard
	Se-1	77	1196.7	1.6	**23.3585**	0.611	2.6	ug/L	183	Standard
>	**Ga**	71	43.3	52.0				mg/L	27	Standard
	Rb	85	66.7	55.3				ug/L	47	Standard
	Y	89	253774.4	0.9				ug/L	260351	Standard
>	**Rh**	103	73.3	19.7				ug/L	65	Standard
	Mo	98	182.5	15.8	**0.0567**	0.011	19.8	ug/L	45	Standard
	Ag	107	104176.6	0.5	**25.0276**	0.183	0.7	ug/L	111	Standard
	Cd	111	24309.6	2.4	**24.9720**	0.628	2.5	mg/L	6	Standard
	Cd	114	67364.7	2.1	**24.3812**	0.504	2.1	ug/L	13	Standard
>	**In**	115	331222.3	0.2				ug/L	325147	Standard
	Sn	118	117.0	12.6	**0.0477**	0.021	43.8	ug/L	80	Standard
	Sb	123	81847.8	2.8	**25.3298**	0.745	2.9	ug/L	123	Standard
	Ba	135	32179.1	2.5	**25.3341**	0.688	2.7	ug/L	24	Standard
	Ce	140	61.7	41.6				ug/L	7	Standard
>	**Tb**	159	572632.7	1.0				ug/L	582613	Standard
	Ho	165	25.0	87.2				ug/L	17	Standard
	Tl	203	202501.7	1.0	**25.8647**	0.819	3.2	ug/L	100	Standard
	Tl	205	468039.3	0.8	**25.6996**	0.609	2.4	ug/L	260	Standard
	Pb	206	152425.2	0.3	**25.3540**	0.771	3.0	ug/L	292	Standard
	Pb	207	128643.2	1.5	**24.9914**	0.844	3.4	ug/L	246	Standard
	Pb	208	228931.7	2.8	**23.7803**	1.312	5.5	ug/L	472	Standard
	U	238	206581.0	1.6	**23.7921**	1.000	4.2	ug/L	5	Standard
>	**Bi**	209	434639.0	2.9				ug/L	433909	Standard

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	Na	23	1.7	173.2	**0.0055**	1.063	19417.9	mg/L	3	Standard
	Mg	24	46.7	16.4	**-0.2096**	0.174	82.9	mg/L	32	Standard
	K	39	25.0	20.0	**0.0484**	0.043	88.7	mg/L	18	Standard
	Ca	43	40.0	25.0	**-2.5956**	11.122	428.5	mg/L	47	Standard
	Fe	54	26.5	60.0	**-0.0511**	0.323	632.5	mg/L	24	Standard
	Fe	57	636.7	10.5	**-17.0183**	18.868	110.9	mg/L	688	Standard
>	**Sc-1**	45	31422.6	2.4				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	5.3	47.2				ug/L	4	Standard
	Br	81	1080.0	1.9				ug/L	993	Standard
	P	31	45.0	29.4				ug/L	53	Standard
	S	34	18.3	15.7				ug/L	25	Standard
	Sr	88	346.7	3.0				ug/L	340	Standard
	C	12	20.0	50.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	9.5	107.6				mg/L	5	Standard
	Ho-1	165	25.0	87.2				mg/L	17	Standard
	Er	166	10.0	100.0				mg/L	27	Standard
	I	127	1205.0	5.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		99.282	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		97.201	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		101.868
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		100.168
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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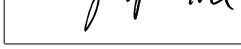

Method 6020 - Summary Report

Sample ID: L1708142801
Sample Date/Time: Wednesday, August 30, 2017 14:19:50
Number of Replicates: 3
Autosampler Position: 303
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	148164.3	0.4				ug/L	129165	Standard
	Be	9	138.3	10.4	**0.0794**	0.009	11.5	ug/L	22	Standard
	Al	27	383259.0	1.4	**2.8983**	0.037	1.3	ug/L	2003	Standard
	Sc	45	33099.5	3.9				ug/L	32341	Standard
	Ti	47	3491.1	0.7	**13.6730**	0.127	0.9	ug/L	31	Standard
	V	51	7945.7	65.4	**0.9851**	0.798	81.0	ug/L	1621	Standard
	Cr	52	1530213.1	0.8	**258.3984**	6.162	2.4	ug/L	7503	Standard
	Cr	53	193673.4	1.0	**260.4595**	6.937	2.7	ug/L	2322	Standard
	Mn	55	2943410.4	0.1	**319.8552**	5.377	1.7	ug/L	1683	Standard
	Co	59	41108.7	1.0	**5.6799**	0.153	2.7	ug/L	432	Standard
	Ni	60	76378.0	0.8	**49.7492**	1.172	2.4	ug/L	369	Standard
	Cu	65	186777.6	1.0	**135.8594**	1.442	1.1	ug/L	160	Standard
	Zn	66	80047.9	1.2	**109.1336**	2.362	2.2	ug/L	192	Standard
>	**Ge**	72	299504.1	1.6				ug/L	294345	Standard
	As	75	4134.3	3.8	**5.5333**	0.206	3.7	ug/L	-18	Standard
	Se	82	54.3	15.7	**0.6493**	0.125	19.3	ug/L	20	Standard
	Se-1	77	201.3	9.5	**0.5658**	0.407	71.9	ug/L	183	Standard
>	**Ga**	71	1595.1	2.0				mg/L	27	Standard
	Rb	85	5569.4	5.9				ug/L	47	Standard
	Y	89	281206.6	2.5				ug/L	260351	Standard
>	**Rh**	103	138.3	11.6				ug/L	65	Standard
	Mo	98	332896.1	0.4	**125.7083**	1.504	1.2	ug/L	45	Standard
	Ag	107	2349.2	0.3	**0.5278**	0.005	0.9	ug/L	111	Standard
	Cd	111	214.8	3.2	**0.2059**	0.004	2.1	mg/L	6	Standard
	Cd	114	1488.7	9.8	**0.5021**	0.056	11.2	ug/L	13	Standard
>	**In**	115	338413.7	1.2				ug/L	325147	Standard
	Sn	118	2659.6	2.5	**3.5557**	0.053	1.5	ug/L	80	Standard
	Sb	123	2597.8	2.2	**0.7696**	0.011	1.4	ug/L	123	Standard
	Ba	135	4764974.0	2.7	**3674.4127**	56.221	1.5	ug/L	24	Standard
	Ce	140	135173.8	2.2				ug/L	7	Standard
>	**Tb**	159	612207.9	1.9				ug/L	582613	Standard
	Ho	165	1935.1	8.0				ug/L	17	Standard
	Tl	203	1200.0	2.0	**0.1406**	0.005	3.3	ug/L	100	Standard
	Tl	205	2790.3	9.4	**0.1456**	0.015	10.5	ug/L	260	Standard
	Pb	206	136627.9	0.5	**22.8595**	0.452	2.0	ug/L	292	Standard
	Pb	207	109607.4	0.1	**21.4157**	0.414	1.9	ug/L	246	Standard
	Pb	208	205717.1	2.5	**21.4913**	0.949	4.4	ug/L	472	Standard
	U	238	4496.0	1.9	**0.5203**	0.017	3.3	ug/L	5	Standard
>	**Bi**	209	431856.5	1.9				ug/L	433909	Standard

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	Na	23	8.3	91.7	**2.3975**	2.812	117.3	mg/L	3	Standard
	Mg	24	266.7	10.3	**4.0427**	0.722	17.9	mg/L	32	Standard
	K	39	31.7	45.6	**0.0870**	0.107	122.4	mg/L	18	Standard
	Ca	43	45.0	29.4	**0.6207**	15.164	2443.1	mg/L	47	Standard
	Fe	54	1676.7	3.8	**32.4661**	2.234	6.9	mg/L	24	Standard
	Fe	57	1090.0	12.2	**76.6305**	35.969	46.9	mg/L	688	Standard
>	**Sc-1**	45	33099.5	3.9				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	5.3	21.7				ug/L	4	Standard
	Br	81	5754.4	2.9				ug/L	993	Standard
	P	31	53.3	5.4				ug/L	53	Standard
	S	34	28.3	53.9				ug/L	25	Standard
	Sr	88	351.7	16.5				ug/L	340	Standard
	C	12	56.7	71.3				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	536.7	19.7				mg/L	3	Standard
	Dy	164	3116.8	12.4				mg/L	5	Standard
	Ho-1	165	1935.1	8.0				mg/L	17	Standard
	Er	166	1813.4	8.8				mg/L	27	Standard
	I	127	118340.5	14.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		114.709	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		101.753	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	104.080
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	99.527
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Cr 52 Upper, S, EEE	Cr	52	
Cr 53 Upper, S, EEE	Cr	53	
Mn 55 Upper, S, EEE	Mn	55	

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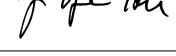

Cu 65 Upper, S, EEE	Cu	65
Zn 66 Upper, S, EEE	Zn	66
Mo 98 Upper, S, EEE	Mo	98
Ba 135 Upper, S, EEE	Ba	135

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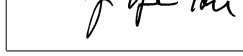

Method 6020 - Summary Report

Sample ID: L1708154004 WG627718-01
Sample Date/Time: Wednesday, August 30, 2017 14:22:56
Number of Replicates: 3
Autosampler Position: 304
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	122034.5	1.4				ug/L	129165	Standard
	Be	9	43.3	69.6	**0.0246**	0.023	92.8	ug/L	22	Standard
	Al	27	40352.0	1.3	**0.3345**	0.001	0.3	ug/L	2003	Standard
	Sc	45	28369.9	2.0				ug/L	32341	Standard
	Ti	47	59.0	1.7	**0.1468**	0.004	3.1	ug/L	31	Standard
	V	51	2713.1	3.4	**0.2313**	0.020	8.7	ug/L	1621	Standard
	Cr	52	5424.6	1.7	**-0.2815**	0.037	13.1	ug/L	7503	Standard
	Cr	53	1038.4	4.4	**-1.1979**	0.099	8.3	ug/L	2322	Standard
	Mn	55	62070.2	0.8	**7.4175**	0.204	2.7	ug/L	1683	Standard
	Co	59	1722.1	1.0	**0.2114**	0.006	2.9	ug/L	432	Standard
	Ni	60	642.7	5.0	**0.2321**	0.032	13.7	ug/L	369	Standard
	Cu	65	486.3	6.3	**0.2723**	0.026	9.6	ug/L	160	Standard
	Zn	66	1024.4	2.7	**1.2372**	0.046	3.8	ug/L	192	Standard
>	Ge	72	265774.9	1.9				ug/L	294345	Standard
	As	75	12.0	258.4	**0.1066**	0.047	43.7	ug/L	-18	Standard
	Se	82	18.8	25.5	**0.1149**	0.093	81.3	ug/L	20	Standard
	Se-1	77	140.3	10.1	**-0.3661**	0.397	108.5	ug/L	183	Standard
>	Ga	71	178.3	22.5				mg/L	27	Standard
	Rb	85	1260.1	8.1				ug/L	47	Standard
	Y	89	228914.0	3.0				ug/L	260351	Standard
>	Rh	103	60.0	44.1				ug/L	65	Standard
	Mo	98	247.0	14.2	**0.0882**	0.016	17.8	ug/L	45	Standard
	Ag	107	127.7	5.9	**0.0076**	0.002	29.1	ug/L	111	Standard
	Cd	111	14.1	24.8	**0.0053**	0.004	72.4	mg/L	6	Standard
	Cd	114	46.9	16.8	**-0.0080**	0.003	37.5	ug/L	13	Standard
>	In	115	310220.5	1.2				ug/L	325147	Standard
	Sn	118	53.3	20.0	**-0.0371**	0.016	42.2	ug/L	80	Standard
	Sb	123	84.2	6.2	**0.0101**	0.002	17.2	ug/L	123	Standard
	Ba	135	1571.4	9.0	**1.3003**	0.136	10.4	ug/L	24	Standard
	Ce	140	3887.2	6.4				ug/L	7	Standard
>	Tb	159	556439.9	2.2				ug/L	582613	Standard
	Ho	165	95.0	32.9				ug/L	17	Standard
	Tl	203	91.0	47.7	**-0.0011**	0.006	586.1	ug/L	100	Standard
	Tl	205	176.7	11.4	**0.0018**	0.001	69.8	ug/L	260	Standard
	Pb	206	1874.8	2.8	**0.2831**	0.013	4.7	ug/L	292	Standard
	Pb	207	1499.7	3.3	**0.2643**	0.014	5.4	ug/L	246	Standard
	Pb	208	2904.8	0.6	**0.2763**	0.004	1.4	ug/L	472	Standard
	U	238	177.7	18.7	**0.0216**	0.004	20.5	ug/L	5	Standard
>	Bi	209	401016.0	1.2				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	48.3	26.0	**-0.0742**	0.266	357.7	mg/L	32	Standard
|	**K**	39	15.0	66.7	**-0.0174**	0.089	507.7	mg/L	18	Standard
|	**Ca**	43	35.0	37.8	**-4.1323**	15.385	372.3	mg/L	47	Standard
|	**Fe**	54	37.4	28.2	**0.2627**	0.256	97.4	mg/L	24	Standard
|	**Fe**	57	711.7	9.0	**18.2306**	17.274	94.8	mg/L	688	Standard
⌊>	**Sc-1**	45	28369.9	2.0				mg/L	32341	Standard
	Cl	35	2.0	173.2				ug/L	3	Standard
	Kr	83	5.7	20.4				ug/L	4	Standard
	Br	81	890.0	9.8				ug/L	993	Standard
	P	31	31.7	9.1				ug/L	53	Standard
	S	34	18.3	15.7				ug/L	25	Standard
	Sr	88	380.0	17.2				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	113.3	37.0				mg/L	5	Standard
	Ho-1	165	95.0	32.9				mg/L	17	Standard
	Er	166	70.0	79.5				mg/L	27	Standard
	I	127	4895.9	43.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		94.480	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.294	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Sample ID: L1708154004 WG627718-01
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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		95.409
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		92.419
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708154004 WG627718-01
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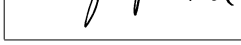

Method 6020 - Summary Report

Sample ID: L1708154004S WG627718-04
Sample Date/Time: Wednesday, August 30, 2017 14:26:01
Number of Replicates: 3
Autosampler Position: 305
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	118513.4	0.7				ug/L	129165	Standard
	Be	9	395.0	12.2	**0.3059**	0.036	11.8	ug/L	22	Standard
	Al	27	35770.5	1.7	**0.3017**	0.003	1.2	ug/L	2003	Standard
	Sc	45	29163.0	0.9				ug/L	32341	Standard
	Ti	47	72.0	25.0	**0.2031**	0.083	40.9	ug/L	31	Standard
	V	51	4045.5	1.5	**0.4579**	0.006	1.3	ug/L	1621	Standard
	Cr	52	6690.1	0.6	**-0.0483**	0.018	37.3	ug/L	7503	Standard
	Cr	53	1190.0	6.1	**-0.9788**	0.112	11.5	ug/L	2322	Standard
	Mn	55	63269.5	1.5	**7.5102**	0.023	0.3	ug/L	1683	Standard
	Co	59	3534.4	1.0	**0.4927**	0.010	2.0	ug/L	432	Standard
	Ni	60	979.4	3.9	**0.4751**	0.025	5.3	ug/L	369	Standard
	Cu	65	755.7	0.9	**0.4891**	0.013	2.6	ug/L	160	Standard
	Zn	66	1125.7	6.5	**1.3808**	0.090	6.5	ug/L	192	Standard
>	Ge	72	267554.6	1.3				ug/L	294345	Standard
	As	75	139.2	23.0	**0.2939**	0.050	16.9	ug/L	-18	Standard
	Se	82	26.9	8.5	**0.2597**	0.047	18.0	ug/L	20	Standard
	Se-1	77	132.7	2.4	**-0.5786**	0.103	17.7	ug/L	183	Standard
>	Ga	71	183.3	24.4				mg/L	27	Standard
	Rb	85	1246.7	6.5				ug/L	47	Standard
	Y	89	229400.6	1.8				ug/L	260351	Standard
>	Rh	103	43.3	26.6				ug/L	65	Standard
	Mo	98	106.7	8.5	**0.0307**	0.004	13.9	ug/L	45	Standard
	Ag	107	1085.7	5.0	**0.2560**	0.008	3.0	ug/L	111	Standard
	Cd	111	278.6	13.0	**0.2990**	0.046	15.5	mg/L	6	Standard
	Cd	114	721.9	4.1	**0.2556**	0.007	2.6	ug/L	13	Standard
>	In	115	307384.9	2.5				ug/L	325147	Standard
	Sn	118	52.7	8.6	**-0.0373**	0.006	17.3	ug/L	80	Standard
	Sb	123	163.2	5.4	**0.0367**	0.002	4.5	ug/L	123	Standard
	Ba	135	1745.1	0.7	**1.4597**	0.046	3.2	ug/L	24	Standard
	Ce	140	4118.9	4.1				ug/L	7	Standard
>	Tb	159	550119.7	2.0				ug/L	582613	Standard
	Ho	165	78.3	25.8				ug/L	17	Standard
	Tl	203	1880.1	3.0	**0.2459**	0.008	3.4	ug/L	100	Standard
	Tl	205	4452.3	4.2	**0.2555**	0.009	3.3	ug/L	260	Standard
	Pb	206	3092.3	1.9	**0.5014**	0.004	0.9	ug/L	292	Standard
	Pb	207	2500.9	1.1	**0.4740**	0.007	1.5	ug/L	246	Standard
	Pb	208	4878.6	1.3	**0.4973**	0.002	0.4	ug/L	472	Standard
	U	238	2025.8	3.3	**0.2515**	0.012	4.7	ug/L	5	Standard
>	Bi	209	402051.1	1.4				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	40.0	12.5	**-0.2852**	0.107	37.5	mg/L	32	Standard
|	**K**	39	40.0	43.3	**0.1902**	0.149	78.5	mg/L	18	Standard
|	**Ca**	43	31.7	9.1	**-9.0367**	3.388	37.5	mg/L	47	Standard
|	**Fe**	54	47.3	42.9	**0.4585**	0.451	98.4	mg/L	24	Standard
|	**Fe**	57	701.7	3.5	**10.6643**	7.695	72.2	mg/L	688	Standard
⌊>	**Sc-1**	45	29163.0	0.9				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	4.7	12.4				ug/L	4	Standard
	Br	81	820.0	7.6				ug/L	993	Standard
	P	31	33.3	8.7				ug/L	53	Standard
	S	34	25.0	20.0				ug/L	25	Standard
	Sr	88	368.3	14.9				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	135.2	22.2				mg/L	5	Standard
	Ho-1	165	78.3	25.8				mg/L	17	Standard
	Er	166	100.0	34.6				mg/L	27	Standard
	I	127	2673.6	3.1				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		91.753	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.898	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	94.537
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.658
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708154004S WG627718-04
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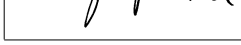

Method 6020 - Summary Report

Sample ID: L1708154004SD WG627718-05
Sample Date/Time: Wednesday, August 30, 2017 14:29:06
Number of Replicates: 3
Autosampler Position: 306
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	120561.1	1.2				ug/L	129165	Standard
	Be	9	386.7	21.5	**0.2945**	0.067	22.9	ug/L	22	Standard
	Al	27	14945.7	3.0	**0.0996**	0.005	4.9	ug/L	2003	Standard
	Sc	45	29221.5	1.8				ug/L	32341	Standard
	Ti	47	45.7	3.3	**0.0850**	0.008	9.6	ug/L	31	Standard
	V	51	3426.4	1.4	**0.3476**	0.007	1.9	ug/L	1621	Standard
	Cr	52	6451.4	2.1	**-0.1012**	0.013	12.7	ug/L	7503	Standard
	Cr	53	1095.0	6.9	**-1.1334**	0.111	9.8	ug/L	2322	Standard
	Mn	55	67624.9	0.4	**7.9921**	0.052	0.6	ug/L	1683	Standard
	Co	59	3479.7	2.0	**0.4809**	0.011	2.3	ug/L	432	Standard
	Ni	60	760.7	3.0	**0.3116**	0.014	4.4	ug/L	369	Standard
	Cu	65	574.3	5.3	**0.3386**	0.027	8.1	ug/L	160	Standard
	Zn	66	967.7	4.1	**1.1310**	0.060	5.3	ug/L	192	Standard
>	**Ge**	72	269144.3	1.0				ug/L	294345	Standard
	As	75	105.6	71.2	**0.2430**	0.110	45.3	ug/L	-18	Standard
	Se	82	23.6	7.0	**0.1964**	0.026	13.2	ug/L	20	Standard
	Se-1	77	143.0	8.5	**-0.3489**	0.293	84.1	ug/L	183	Standard
>	**Ga**	71	90.0	25.5				mg/L	27	Standard
	Rb	85	901.7	6.7				ug/L	47	Standard
	Y	89	233747.7	0.8				ug/L	260351	Standard
>	**Rh**	103	48.3	23.9				ug/L	65	Standard
	Mo	98	70.2	13.8	**0.0153**	0.004	25.7	ug/L	45	Standard
	Ag	107	1046.7	2.9	**0.2443**	0.009	3.5	ug/L	111	Standard
	Cd	111	231.3	3.0	**0.2443**	0.010	4.1	mg/L	6	Standard
	Cd	114	660.3	10.9	**0.2297**	0.025	10.9	ug/L	13	Standard
>	**In**	115	309435.8	1.3				ug/L	325147	Standard
	Sn	118	50.3	16.5	**-0.0414**	0.012	29.7	ug/L	80	Standard
	Sb	123	167.7	3.0	**0.0379**	0.002	6.2	ug/L	123	Standard
	Ba	135	1546.4	2.5	**1.2814**	0.017	1.3	ug/L	24	Standard
	Ce	140	3417.1	3.0				ug/L	7	Standard
>	**Tb**	159	557530.5	1.5				ug/L	582613	Standard
	Ho	165	41.7	13.9				ug/L	17	Standard
	Tl	203	1766.8	3.2	**0.2276**	0.008	3.3	ug/L	100	Standard
	Tl	205	3938.8	5.5	**0.2226**	0.013	5.6	ug/L	260	Standard
	Pb	206	2852.9	2.4	**0.4528**	0.012	2.6	ug/L	292	Standard
	Pb	207	2235.8	1.1	**0.4132**	0.007	1.6	ug/L	246	Standard
	Pb	208	4407.3	0.9	**0.4390**	0.003	0.7	ug/L	472	Standard
	U	238	1903.5	0.7	**0.2337**	0.001	0.3	ug/L	5	Standard
>	**Bi**	209	406385.9	0.4				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	48.3	21.5	**-0.1031**	0.228	221.5	mg/L	32	Standard
|	**K**	39	33.3	62.5	**0.1307**	0.171	131.1	mg/L	18	Standard
|	**Ca**	43	25.0	40.0	**-16.8013**	12.269	73.0	mg/L	47	Standard
|	**Fe**	54	37.3	21.2	**0.2326**	0.163	70.0	mg/L	24	Standard
|	**Fe**	57	740.0	5.5	**20.0310**	12.719	63.5	mg/L	688	Standard
⌊>	**Sc-1**	45	29221.5	1.8				mg/L	32341	Standard
	Cl	35	2.0	0.0				ug/L	3	Standard
	Kr	83	7.0	42.9				ug/L	4	Standard
	Br	81	876.7	14.3				ug/L	993	Standard
	P	31	55.0	24.1				ug/L	53	Standard
	S	34	11.7	24.7				ug/L	25	Standard
	Sr	88	370.0	5.4				ug/L	340	Standard
	C	12	6.7	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	104.0	20.4				mg/L	5	Standard
	Ho-1	165	41.7	13.9				mg/L	17	Standard
	Er	166	56.7	20.4				mg/L	27	Standard
	I	127	2236.8	2.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		93.339	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		91.438	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Sample ID: L1708154004SD WG627718-05
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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		95.168
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		93.657
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708154004SD WG627718-05
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Method 6020 - Summary Report

Sample ID: L1708154001
Sample Date/Time: Wednesday, August 30, 2017 14:32:12
Number of Replicates: 3
Autosampler Position: 307
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	118646.1	1.0				ug/L	129165	Standard
	Be	9	63.3	19.9	**0.0417**	0.010	24.7	ug/L	22	Standard
	Al	27	20040.1	14.7	**0.1509**	0.030	20.0	ug/L	2003	Standard
	Sc	45	29487.0	1.1				ug/L	32341	Standard
	Ti	47	58.7	13.7	**0.1409**	0.037	26.2	ug/L	31	Standard
	V	51	2069.3	7.7	**0.1131**	0.028	25.1	ug/L	1621	Standard
	Cr	52	5042.5	3.1	**-0.3717**	0.035	9.3	ug/L	7503	Standard
	Cr	53	981.7	4.6	**-1.3120**	0.075	5.7	ug/L	2322	Standard
	Mn	55	256466.8	0.9	**30.6819**	0.319	1.0	ug/L	1683	Standard
	Co	59	2673.6	7.9	**0.3537**	0.035	10.0	ug/L	432	Standard
	Ni	60	531.3	4.9	**0.1428**	0.022	15.1	ug/L	369	Standard
	Cu	65	282.0	7.5	**0.1006**	0.018	17.9	ug/L	160	Standard
	Zn	66	930.4	3.3	**1.0673**	0.055	5.2	ug/L	192	Standard
>	Ge	72	270503.7	0.7				ug/L	294345	Standard
	As	75	6.7	270.5	**0.0981**	0.027	27.0	ug/L	-18	Standard
	Se	82	18.5	8.6	**0.1040**	0.029	27.5	ug/L	20	Standard
	Se-1	77	134.7	10.8	**-0.5654**	0.360	63.6	ug/L	183	Standard
>	Ga	71	103.3	39.1				mg/L	27	Standard
	Rb	85	956.7	8.6				ug/L	47	Standard
	Y	89	235462.2	0.6				ug/L	260351	Standard
>	Rh	103	33.3	17.3				ug/L	65	Standard
	Mo	98	95.9	61.4	**0.0263**	0.025	94.9	ug/L	45	Standard
	Ag	107	164.0	34.5	**0.0174**	0.015	87.0	ug/L	111	Standard
	Cd	111	22.6	100.8	**0.0150**	0.026	170.3	mg/L	6	Standard
	Cd	114	68.7	108.6	**0.0008**	0.029	3735.4	ug/L	13	Standard
>	In	115	307801.9	0.9				ug/L	325147	Standard
	Sn	118	48.0	11.0	**-0.0445**	0.009	19.2	ug/L	80	Standard
	Sb	123	98.0	62.2	**0.0150**	0.021	137.9	ug/L	123	Standard
	Ba	135	1944.1	11.0	**1.6269**	0.198	12.2	ug/L	24	Standard
	Ce	140	10115.1	6.3				ug/L	7	Standard
>	Tb	159	555957.3	2.1				ug/L	582613	Standard
	Ho	165	128.3	16.2				ug/L	17	Standard
	Tl	203	129.7	96.5	**0.0042**	0.018	415.5	ug/L	100	Standard
	Tl	205	333.3	90.3	**0.0111**	0.018	163.4	ug/L	260	Standard
	Pb	206	56660.4	1.0	**10.0595**	0.058	0.6	ug/L	292	Standard
	Pb	207	44863.7	0.5	**9.3020**	0.161	1.7	ug/L	246	Standard
	Pb	208	85921.3	1.7	**9.5222**	0.017	0.2	ug/L	472	Standard
	U	238	183.7	72.9	**0.0222**	0.017	76.6	ug/L	5	Standard
>	Bi	209	405649.0	1.6				ug/L	433909	Standard

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Na	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
Mg	24	41.7	30.2	**-0.2562**	0.285	111.4	mg/L	32	Standard
K	39	16.7	17.3	**-0.0087**	0.026	292.0	mg/L	18	Standard
Ca	43	28.3	10.2	**-13.3037**	3.682	27.7	mg/L	47	Standard
Fe	54	30.8	23.1	**0.0824**	0.162	197.2	mg/L	24	Standard
Fe	57	750.0	11.1	**20.6096**	18.980	92.1	mg/L	688	Standard
Sc-1	45	29487.0	1.1				mg/L	32341	Standard
Cl	35	2.0	100.0				ug/L	3	Standard
Kr	83	5.3	21.7				ug/L	4	Standard
Br	81	966.7	21.5				ug/L	993	Standard
P	31	25.0	40.0				ug/L	53	Standard
S	34	25.0	52.9				ug/L	25	Standard
Sr	88	361.7	4.2				ug/L	340	Standard
C	12	10.0	173.2				mg/L	3	Standard
N	14	6.7	173.2				mg/L	0	Standard
Hg	202	0.0					mg/L	3	Standard
Dy	164	204.6	9.3				mg/L	5	Standard
Ho-1	165	128.3	16.2				mg/L	17	Standard
Er	166	113.3	33.4				mg/L	27	Standard
I	127	2103.5	4.6				mg/L	10150	Standard

QC Calculated Values

Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
Li	6		91.856	
Be	9			
Al	27			
Sc	45			
Ti	47			
V	51			
Cr	52			
Cr	53			
Mn	55			
Co	59			
Ni	60			
Cu	65			
Zn	66			
Ge	72		91.900	
As	75			
Se	82			
Se-1	77			
Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	94.665
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	93.487
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708154001PS WG627822-01
Sample Date/Time: Wednesday, August 30, 2017 14:35:18
Number of Replicates: 3
Autosampler Position: 308
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	117640.0	1.5				ug/L	129165	Standard
	Be	9	70778.3	2.4	**56.8258**	0.548	1.0	ug/L	22	Standard
	Al	27	19988.2	1.7	**0.1519**	0.003	2.2	ug/L	2003	Standard
	Sc	45	28834.1	0.7				ug/L	32341	Standard
	Ti	47	62.0	8.1	**0.1617**	0.026	15.9	ug/L	31	Standard
	V	51	315380.0	1.8	**54.7969**	1.271	2.3	ug/L	1621	Standard
	Cr	52	293836.9	2.4	**55.1391**	1.371	2.5	ug/L	7503	Standard
	Cr	53	37364.4	1.3	**54.7011**	0.534	1.0	ug/L	2322	Standard
	Mn	55	718168.8	1.7	**88.2260**	2.170	2.5	ug/L	1683	Standard
	Co	59	353451.4	1.6	**55.8061**	1.165	2.1	ug/L	432	Standard
	Ni	60	76092.0	2.0	**56.1463**	1.602	2.9	ug/L	369	Standard
	Cu	65	70882.4	1.4	**58.3079**	1.107	1.9	ug/L	160	Standard
	Zn	66	41292.5	2.4	**63.5899**	1.370	2.2	ug/L	192	Standard
>	**Ge**	72	264524.5	1.7				ug/L	294345	Standard
	As	75	39184.4	1.5	**58.5203**	0.967	1.7	ug/L	-18	Standard
	Se	82	3476.1	2.5	**63.3873**	1.460	2.3	ug/L	20	Standard
	Se-1	77	2664.6	1.9	**61.5968**	1.352	2.2	ug/L	183	Standard
>	**Ga**	71	181.7	23.7				mg/L	27	Standard
	Rb	85	1065.0	7.6				ug/L	47	Standard
	Y	89	228541.6	2.8				ug/L	260351	Standard
>	**Rh**	103	71.7	22.4				ug/L	65	Standard
	Mo	98	57.5	7.3	**0.0107**	0.002	20.5	ug/L	45	Standard
	Ag	107	206278.8	0.8	**54.4304**	1.140	2.1	ug/L	111	Standard
	Cd	111	51031.8	2.5	**57.5522**	1.433	2.5	mg/L	6	Standard
	Cd	114	143175.6	3.0	**56.9052**	1.287	2.3	ug/L	13	Standard
>	**In**	115	301802.5	2.0				ug/L	325147	Standard
	Sn	118	54.0	24.2	**-0.0338**	0.020	59.5	ug/L	80	Standard
	Sb	123	154080.8	4.0	**52.3572**	2.129	4.1	ug/L	123	Standard
	Ba	135	66330.3	2.6	**57.3507**	1.753	3.1	ug/L	24	Standard
	Ce	140	10967.3	2.0				ug/L	7	Standard
>	**Tb**	159	546585.3	1.3				ug/L	582613	Standard
	Ho	165	163.3	12.7				ug/L	17	Standard
	Tl	203	386873.6	1.5	**54.4221**	1.362	2.5	ug/L	100	Standard
	Tl	205	900902.8	0.7	**54.4797**	0.798	1.5	ug/L	260	Standard
	Pb	206	364862.0	2.0	**66.9162**	1.993	3.0	ug/L	292	Standard
	Pb	207	303578.5	1.5	**65.0184**	1.601	2.5	ug/L	246	Standard
	Pb	208	569291.0	2.8	**65.1732**	2.351	3.6	ug/L	472	Standard
	U	238	417693.8	1.8	**52.9577**	1.449	2.7	ug/L	5	Standard
>	**Bi**	209	394580.9	1.0				ug/L	433909	Standard

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⌈	**Na**	23	1.7	173.2	**0.0770**	1.187	1542.7	mg/L	3	Standard
|	**Mg**	24	28.3	53.9	**-0.5342**	0.347	64.9	mg/L	32	Standard
|	**K**	39	23.3	24.7	**0.0510**	0.048	94.7	mg/L	18	Standard
|	**Ca**	43	38.3	61.6	**-0.5431**	28.546	5256.5	mg/L	47	Standard
|	**Fe**	54	28.6	45.8	**0.0500**	0.302	602.6	mg/L	24	Standard
|	**Fe**	57	686.7	8.3	**8.7675**	13.563	154.7	mg/L	688	Standard
⌊>	**Sc-1**	45	28834.1	0.7				mg/L	32341	Standard
	Cl	35	2.0	0.0				ug/L	3	Standard
	Kr	83	4.7	12.4				ug/L	4	Standard
	Br	81	830.0	11.9				ug/L	993	Standard
	P	31	38.3	15.1				ug/L	53	Standard
	S	34	13.3	43.3				ug/L	25	Standard
	Sr	88	400.0	21.7				ug/L	340	Standard
	C	12	16.7	34.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	288.5	22.0				mg/L	5	Standard
	Ho-1	165	163.3	12.7				mg/L	17	Standard
	Er	166	170.0	27.0				mg/L	27	Standard
	I	127	2113.5	4.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		91.077	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		89.869	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		92.820
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		90.936
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708154001SDL WG627822-02
Sample Date/Time: Wednesday, August 30, 2017 14:38:23
Number of Replicates: 3
Autosampler Position: 309
Sample Description: 500
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	119077.9	1.8				ug/L	129165	Standard
	Be	9	25.0	20.0	**0.0110**	0.004	34.2	ug/L	22	Standard
	Al	27	5312.6	1.9	**0.0095**	0.002	16.3	ug/L	2003	Standard
	Sc	45	29241.5	0.3				ug/L	32341	Standard
	Ti	47	29.3	18.8	**0.0132**	0.024	184.2	ug/L	31	Standard
	V	51	1350.1	1.4	**-0.0084**	0.004	45.2	ug/L	1621	Standard
	Cr	52	4504.3	1.4	**-0.4683**	0.011	2.4	ug/L	7503	Standard
	Cr	53	893.4	8.5	**-1.4377**	0.115	8.0	ug/L	2322	Standard
	Mn	55	50982.3	1.3	**5.9813**	0.058	1.0	ug/L	1683	Standard
	Co	59	786.0	5.6	**0.0626**	0.007	11.1	ug/L	432	Standard
	Ni	60	353.7	4.6	**0.0154**	0.011	71.6	ug/L	369	Standard
	Cu	65	143.7	12.0	**-0.0104**	0.014	131.1	ug/L	160	Standard
	Zn	66	621.3	7.2	**0.6044**	0.067	11.1	ug/L	192	Standard
>	**Ge**	72	269012.5	0.3				ug/L	294345	Standard
	As	75	-5.8	849.6	**0.0800**	0.073	90.8	ug/L	-18	Standard
	Se	82	20.2	23.7	**0.1360**	0.087	63.7	ug/L	20	Standard
	Se-1	77	122.7	6.9	**-0.8380**	0.203	24.2	ug/L	183	Standard
>	**Ga**	71	48.3	33.3				mg/L	27	Standard
	Rb	85	175.0	11.4				ug/L	47	Standard
	Y	89	237886.4	1.2				ug/L	260351	Standard
>	**Rh**	103	60.0	22.0				ug/L	65	Standard
	Mo	98	32.2	27.9	**-0.0003**	0.004	1034.5	ug/L	45	Standard
	Ag	107	135.0	13.3	**0.0097**	0.004	46.2	ug/L	111	Standard
	Cd	111	13.0	20.3	**0.0042**	0.003	66.3	mg/L	6	Standard
	Cd	114	26.9	39.0	**-0.0157**	0.004	25.3	ug/L	13	Standard
>	**In**	115	307999.1	1.0				ug/L	325147	Standard
	Sn	118	52.3	5.8	**-0.0380**	0.005	14.2	ug/L	80	Standard
	Sb	123	1384.4	7.5	**0.4435**	0.039	8.8	ug/L	123	Standard
	Ba	135	385.7	2.4	**0.3040**	0.008	2.5	ug/L	24	Standard
	Ce	140	1406.7	1.4				ug/L	7	Standard
>	**Tb**	159	553182.7	0.7				ug/L	582613	Standard
	Ho	165	28.3	36.7				ug/L	17	Standard
	Tl	203	173.7	13.9	**0.0103**	0.003	32.3	ug/L	100	Standard
	Tl	205	376.7	14.6	**0.0137**	0.003	24.7	ug/L	260	Standard
	Pb	206	9975.3	0.5	**1.7410**	0.016	0.9	ug/L	292	Standard
	Pb	207	7864.7	2.8	**1.6023**	0.060	3.7	ug/L	246	Standard
	Pb	208	14889.2	0.6	**1.6226**	0.022	1.3	ug/L	472	Standard
	U	238	61.0	11.8	**0.0070**	0.001	13.6	ug/L	5	Standard
>	**Bi**	209	402087.3	0.9				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	40.0	21.7	**-0.2877**	0.189	65.7	mg/L	32	Standard
|	**K**	39	18.3	31.5	**0.0063**	0.049	771.2	mg/L	18	Standard
|	**Ca**	43	35.0	14.3	**-5.2085**	6.011	115.4	mg/L	47	Standard
|	**Fe**	54	31.1	61.6	**0.0946**	0.427	451.4	mg/L	24	Standard
|	**Fe**	57	721.7	4.7	**15.1964**	9.128	60.1	mg/L	688	Standard
⌊>	**Sc-1**	45	29241.5	0.3				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	5.3	71.0				ug/L	4	Standard
	Br	81	726.7	7.1				ug/L	993	Standard
	P	31	38.3	37.7				ug/L	53	Standard
	S	34	6.7	86.6				ug/L	25	Standard
	Sr	88	371.7	26.2				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	40.5	57.1				mg/L	5	Standard
	Ho-1	165	28.3	36.7				mg/L	17	Standard
	Er	166	60.0	16.7				mg/L	27	Standard
	I	127	1833.4	6.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		92.190	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		91.394	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115		94.726
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209		92.666
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Cr 52 Lower	Cr	52	

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Method 6020 - Summary Report

Sample ID: L1708154001SDL WG627822-02
Sample Date/Time: Wednesday, August 30, 2017 14:41:28
Number of Replicates: 3
Autosampler Position: 310
Sample Description: 2500
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	117823.0	0.5				ug/L	129165	Standard
	Be	9	31.7	24.1	**0.0166**	0.006	37.3	ug/L	22	Standard
	Al	27	2388.5	6.8	**-0.0182**	0.002	8.7	ug/L	2003	Standard
	Sc	45	29168.1	1.5				ug/L	32341	Standard
	Ti	47	20.3	15.8	**-0.0259**	0.014	55.6	ug/L	31	Standard
	V	51	1225.5	7.8	**-0.0288**	0.017	59.6	ug/L	1621	Standard
	Cr	52	4474.7	0.9	**-0.4701**	0.002	0.4	ug/L	7503	Standard
	Cr	53	875.0	3.2	**-1.4595**	0.040	2.7	ug/L	2322	Standard
	Mn	55	10364.2	0.5	**1.0710**	0.019	1.7	ug/L	1683	Standard
	Co	59	421.7	6.7	**0.0062**	0.004	64.3	ug/L	432	Standard
	Ni	60	297.0	7.8	**-0.0250**	0.015	58.7	ug/L	369	Standard
	Cu	65	102.7	7.8	**-0.0432**	0.007	15.1	ug/L	160	Standard
	Zn	66	501.3	3.3	**0.4254**	0.033	7.8	ug/L	192	Standard
>	**Ge**	72	267811.3	1.0				ug/L	294345	Standard
	As	75	-45.2	60.5	**0.0221**	0.039	178.3	ug/L	-18	Standard
	Se	82	15.6	14.0	**0.0539**	0.042	78.1	ug/L	20	Standard
	Se-1	77	137.3	7.2	**-0.4699**	0.222	47.3	ug/L	183	Standard
>	**Ga**	71	46.7	16.4				mg/L	27	Standard
	Rb	85	65.0	20.4				ug/L	47	Standard
	Y	89	231029.8	0.8				ug/L	260351	Standard
>	**Rh**	103	43.3	17.6				ug/L	65	Standard
	Mo	98	31.2	21.0	**-0.0007**	0.003	395.9	ug/L	45	Standard
	Ag	107	113.7	14.7	**0.0044**	0.004	100.2	ug/L	111	Standard
	Cd	111	10.6	44.4	**0.0017**	0.005	312.0	mg/L	6	Standard
	Cd	114	15.4	49.6	**-0.0201**	0.003	15.0	ug/L	13	Standard
>	**In**	115	306618.5	0.6				ug/L	325147	Standard
	Sn	118	46.3	24.1	**-0.0469**	0.017	35.4	ug/L	80	Standard
	Sb	123	522.5	10.3	**0.1570**	0.017	10.8	ug/L	123	Standard
	Ba	135	74.7	19.0	**0.0408**	0.012	30.5	ug/L	24	Standard
	Ce	140	81.7	55.2				ug/L	7	Standard
>	**Tb**	159	551924.7	0.8				ug/L	582613	Standard
	Ho	165	13.3	43.3				ug/L	17	Standard
	Tl	203	59.3	2.6	**-0.0055**	0.000	5.1	ug/L	100	Standard
	Tl	205	123.3	32.8	**-0.0013**	0.002	180.9	ug/L	260	Standard
	Pb	206	1132.4	11.5	**0.1492**	0.024	16.3	ug/L	292	Standard
	Pb	207	920.0	9.5	**0.1422**	0.019	13.4	ug/L	246	Standard
	Pb	208	1711.4	6.1	**0.1419**	0.012	8.8	ug/L	472	Standard
	U	238	7.7	49.4	**0.0003**	0.000	143.4	ug/L	5	Standard
>	**Bi**	209	400642.3	1.2				ug/L	433909	Standard

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⌈	**Na**	23	5.0	0.0	**1.4306**	0.032	2.2	mg/L	3	Standard
|	**Mg**	24	36.7	28.4	**-0.3574**	0.235	65.7	mg/L	32	Standard
|	**K**	39	16.7	45.8	**-0.0073**	0.064	878.2	mg/L	18	Standard
|	**Ca**	43	30.0	44.1	**-11.0910**	15.147	136.6	mg/L	47	Standard
|	**Fe**	54	22.8	44.6	**-0.0897**	0.224	250.1	mg/L	24	Standard
|	**Fe**	57	698.3	2.7	**9.8282**	7.530	76.6	mg/L	688	Standard
⌊>	**Sc-1**	45	29168.1	1.5				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	6.3	36.5				ug/L	4	Standard
	Br	81	813.4	17.9				ug/L	993	Standard
	P	31	41.7	13.9				ug/L	53	Standard
	S	34	21.7	96.1				ug/L	25	Standard
	Sr	88	353.3	11.5				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	16.5	127.3				mg/L	5	Standard
	Ho-1	165	13.3	43.3				mg/L	17	Standard
	Er	166	3.3	173.2				mg/L	27	Standard
	I	127	1878.4	3.5				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		91.219	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.985	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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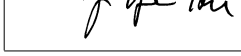

Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115		94.301
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209		92.333
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Cr 52 Lower	Cr	52	

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Wednesday, August 30, 2017 14:44:35
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	129027.1	0.8				ug/L	129165	Standard
	Be	9	68770.8	2.6	**50.3401**	0.895	1.8	ug/L	22	Standard
	Al	27	5738717.6	1.1	**50.5035**	0.603	1.2	ug/L	2003	Standard
	Sc	45	31272.2	0.7				ug/L	32341	Standard
	Ti	47	24930.5	0.3	**101.5604**	0.710	0.7	ug/L	31	Standard
	V	51	323069.4	1.2	**51.1761**	1.001	2.0	ug/L	1621	Standard
	Cr	52	297180.4	1.2	**50.7580**	0.976	1.9	ug/L	7503	Standard
	Cr	53	37543.1	1.5	**49.8935**	0.890	1.8	ug/L	2322	Standard
	Mn	55	452477.6	1.0	**50.6083**	0.614	1.2	ug/L	1683	Standard
	Co	59	350956.9	0.8	**50.5264**	0.527	1.0	ug/L	432	Standard
	Ni	60	75013.9	0.7	**50.4469**	0.310	0.6	ug/L	369	Standard
	Cu	65	68060.2	0.4	**51.0411**	0.579	1.1	ug/L	160	Standard
	Zn	66	36004.7	1.4	**50.5000**	0.941	1.9	ug/L	192	Standard
>	Ge	72	290037.8	0.8				ug/L	294345	Standard
	As	75	36589.6	0.9	**49.8485**	0.626	1.3	ug/L	-18	Standard
	Se	82	3133.5	1.0	**52.0708**	0.527	1.0	ug/L	20	Standard
	Se-1	77	2428.2	1.9	**50.5522**	1.287	2.5	ug/L	183	Standard
>	Ga	71	36.7	43.8				mg/L	27	Standard
	Rb	85	533.3	6.1				ug/L	47	Standard
	Y	89	258642.3	3.4				ug/L	260351	Standard
>	Rh	103	66.7	18.9				ug/L	65	Standard
	Mo	98	258118.9	1.3	**101.1443**	1.364	1.3	ug/L	45	Standard
	Ag	107	208659.4	0.9	**50.9434**	0.393	0.8	ug/L	111	Standard
	Cd	111	49277.4	0.2	**51.4278**	0.306	0.6	mg/L	6	Standard
	Cd	114	137835.7	2.1	**50.6973**	0.794	1.6	ug/L	13	Standard
>	In	115	326090.2	0.5				ug/L	325147	Standard
	Sn	118	35558.0	2.1	**50.8510**	0.879	1.7	ug/L	80	Standard
	Sb	123	163899.8	2.3	**51.5351**	0.917	1.8	ug/L	123	Standard
	Ba	135	63514.9	1.9	**50.8100**	0.696	1.4	ug/L	24	Standard
	Ce	140	83.3	29.6				ug/L	7	Standard
>	Tb	159	569711.4	2.2				ug/L	582613	Standard
	Ho	165	8.3	34.6				ug/L	17	Standard
	Tl	203	385455.1	0.1	**50.3036**	0.742	1.5	ug/L	100	Standard
	Tl	205	896090.7	0.3	**50.2754**	0.668	1.3	ug/L	260	Standard
	Pb	206	293415.2	0.5	**49.9118**	1.015	2.0	ug/L	292	Standard
	Pb	207	257664.5	0.5	**51.1849**	0.645	1.3	ug/L	246	Standard
	Pb	208	447256.8	2.9	**47.5022**	2.126	4.5	ug/L	472	Standard
	U	238	413048.2	1.2	**48.5912**	1.357	2.8	ug/L	5	Standard
>	Bi	209	425311.1	1.6				ug/L	433909	Standard

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⌈	**Na**	23	13.3	43.3	**4.4680**	2.220	49.7	mg/L	3	Standard
|	**Mg**	24	248.3	10.3	**3.9495**	0.526	13.3	mg/L	32	Standard
|	**K**	39	663.3	9.1	**5.0705**	0.505	10.0	mg/L	18	Standard
|	**Ca**	43	38.3	15.1	**-4.2587**	6.025	141.5	mg/L	47	Standard
|	**Fe**	54	276.8	9.4	**5.1692**	0.532	10.3	mg/L	24	Standard
|	**Fe**	57	751.7	5.0	**10.4660**	9.409	89.9	mg/L	688	Standard
⌊>	**Sc-1**	45	31272.2	0.7				mg/L	32341	Standard
	Cl	35	0.0					ug/L	3	Standard
	Kr	83	4.0	43.3				ug/L	4	Standard
	Br	81	926.7	4.4				ug/L	993	Standard
	P	31	85.0	86.7				ug/L	53	Standard
	S	34	20.0	43.3				ug/L	25	Standard
	Sr	88	386.7	6.4				ug/L	340	Standard
	C	12	0.0					mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	19.0	88.8				mg/L	5	Standard
	Ho-1	165	8.3	34.6				mg/L	17	Standard
	Er	166	20.0	50.0				mg/L	27	Standard
	I	127	1918.5	10.1				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9	100.680		
⌊	Al	27	101.007		
⌈	Sc	45			
|	Ti	47	101.560		
|	V	51	102.352		
|	Cr	52	101.516		
|	Cr	53			
|	Mn	55	101.217		
|	Co	59	101.053		
|	Ni	60	100.894		
|	Cu	65	102.082		
|	Zn	66	101.000		
|>	Ge	72		98.537	
|	As	75	99.697		
|	Se	82	104.142		
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	101.144		
Ag	107	101.887		
Cd	111	102.856		
Cd	114			
In	115		100.290	
Sn	118	101.702		
Sb	123	103.070		
Ba	135	101.620		
Ce	140			
Tb	159			
Ho	165			
Tl	203	100.607		
Tl	205			
Pb	206			
Pb	207			
Pb	208	95.004		
U	238	97.182		
Bi	209		98.018	
Na	23			
Mg	24			
K	39			
Ca	43			
Fe	54			
Fe	57			
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Wednesday, August 30, 2017 14:47:41
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	126326.2	1.3				ug/L	129165	Standard
	Be	9	41.7	85.1	**0.0224**	0.026	117.9	ug/L	22	Standard
	Al	27	2065.1	8.3	**-0.0227**	0.002	7.8	ug/L	2003	Standard
	Sc	45	31905.2	2.3				ug/L	32341	Standard
	Ti	47	35.0	12.5	**0.0287**	0.019	64.6	ug/L	31	Standard
	V	51	1294.1	3.0	**-0.0316**	0.005	15.5	ug/L	1621	Standard
	Cr	52	6602.8	0.9	**-0.1485**	0.003	2.0	ug/L	7503	Standard
	Cr	53	1051.7	2.6	**-1.2957**	0.047	3.6	ug/L	2322	Standard
	Mn	55	1472.4	5.7	**-0.0220**	0.009	39.5	ug/L	1683	Standard
	Co	59	391.0	7.0	**-0.0026**	0.004	140.2	ug/L	432	Standard
	Ni	60	340.3	7.5	**-0.0095**	0.017	179.3	ug/L	369	Standard
	Cu	65	176.3	13.6	**0.0073**	0.018	244.7	ug/L	160	Standard
	Zn	66	169.7	10.6	**-0.0990**	0.027	26.9	ug/L	192	Standard
>	Ge	72	286614.2	0.6				ug/L	294345	Standard
	As	75	-51.8	73.4	**0.0173**	0.052	301.0	ug/L	-18	Standard
	Se	82	17.6	20.0	**0.0695**	0.061	87.2	ug/L	20	Standard
	Se-1	77	118.3	6.9	**-1.1185**	0.170	15.2	ug/L	183	Standard
>	Ga	71	35.0	24.7				mg/L	27	Standard
	Rb	85	35.0	28.6				ug/L	47	Standard
	Y	89	256449.2	1.7				ug/L	260351	Standard
>	Rh	103	45.0	48.4				ug/L	65	Standard
	Mo	98	247.8	14.5	**0.0832**	0.015	18.3	ug/L	45	Standard
	Ag	107	129.3	6.4	**0.0063**	0.002	34.5	ug/L	111	Standard
	Cd	111	11.4	17.9	**0.0018**	0.002	128.8	mg/L	6	Standard
	Cd	114	30.7	41.1	**-0.0149**	0.005	31.9	ug/L	13	Standard
>	In	115	327326.5	1.1				ug/L	325147	Standard
	Sn	118	96.7	10.6	**0.0205**	0.014	66.7	ug/L	80	Standard
	Sb	123	612.8	10.3	**0.1743**	0.019	11.1	ug/L	123	Standard
	Ba	135	28.7	5.3	**0.0000**	0.001	2639.5	ug/L	24	Standard
	Ce	140	18.3	41.7				ug/L	7	Standard
>	Tb	159	569231.6	2.5				ug/L	582613	Standard
	Ho	165	8.3	124.9				ug/L	17	Standard
	Tl	203	91.3	35.8	**-0.0018**	0.004	225.9	ug/L	100	Standard
	Tl	205	220.0	15.9	**0.0036**	0.002	50.7	ug/L	260	Standard
	Pb	206	350.3	9.5	**0.0039**	0.005	127.0	ug/L	292	Standard
	Pb	207	292.0	5.7	**0.0059**	0.003	44.4	ug/L	246	Standard
	Pb	208	521.7	5.5	**0.0042**	0.002	58.4	ug/L	472	Standard
	U	238	45.0	52.5	**0.0046**	0.003	58.5	ug/L	5	Standard
>	Bi	209	426062.2	1.2				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	40.0	50.0	**-0.3574**	0.410	114.7	mg/L	32	Standard
|	**K**	39	21.7	74.2	**0.0189**	0.124	655.0	mg/L	18	Standard
|	**Ca**	43	33.3	48.2	**-10.1828**	17.937	176.2	mg/L	47	Standard
|	**Fe**	54	34.3	37.9	**0.1070**	0.283	264.7	mg/L	24	Standard
|	**Fe**	57	693.3	8.3	**-6.5550**	11.705	178.6	mg/L	688	Standard
⌊>	**Sc-1**	45	31905.2	2.3				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	4.7	65.5				ug/L	4	Standard
	Br	81	943.4	10.5				ug/L	993	Standard
	P	31	55.0	27.3				ug/L	53	Standard
	S	34	21.7	66.6				ug/L	25	Standard
	Sr	88	375.0	4.8				ug/L	340	Standard
	C	12	16.7	91.7				mg/L	3	Standard
	N	14	10.0	100.0				mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	6.2	193.7				mg/L	5	Standard
	Ho-1	165	8.3	124.9				mg/L	17	Standard
	Er	166	10.0	173.2				mg/L	27	Standard
	I	127	7656.9	2.4				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		97.374	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	100.670
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	98.192
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708154002
Sample Date/Time: Wednesday, August 30, 2017 14:50:48
Number of Replicates: 3
Autosampler Position: 311
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	117467.0	1.5				ug/L	129165	Standard
	Be	9	31.7	39.7	**0.0167**	0.010	60.8	ug/L	22	Standard
	Al	27	26217.7	1.2	**0.2124**	0.002	1.2	ug/L	2003	Standard
	Sc	45	28303.1	3.7				ug/L	32341	Standard
	Ti	47	58.3	15.9	**0.1484**	0.046	31.3	ug/L	31	Standard
	V	51	2372.1	5.5	**0.1781**	0.016	9.0	ug/L	1621	Standard
	Cr	52	5343.9	1.2	**-0.2816**	0.016	5.7	ug/L	7503	Standard
	Cr	53	963.4	6.5	**-1.2922**	0.072	5.6	ug/L	2322	Standard
	Mn	55	159198.0	0.5	**19.6163**	0.304	1.5	ug/L	1683	Standard
	Co	59	2294.2	0.7	**0.3069**	0.010	3.2	ug/L	432	Standard
	Ni	60	564.7	2.8	**0.1807**	0.018	10.1	ug/L	369	Standard
	Cu	65	325.0	1.4	**0.1440**	0.008	5.8	ug/L	160	Standard
	Zn	66	905.4	7.0	**1.0746**	0.087	8.1	ug/L	192	Standard
>	Ge	72	261770.1	2.0				ug/L	294345	Standard
	As	75	30.9	120.8	**0.1357**	0.058	42.5	ug/L	-18	Standard
	Se	82	17.2	18.2	**0.0897**	0.059	66.0	ug/L	20	Standard
	Se-1	77	127.7	12.0	**-0.6361**	0.325	51.2	ug/L	183	Standard
>	Ga	71	146.7	28.4				mg/L	27	Standard
	Rb	85	1110.0	2.3				ug/L	47	Standard
	Y	89	226612.3	1.3				ug/L	260351	Standard
>	Rh	103	48.3	62.4				ug/L	65	Standard
	Mo	98	49.8	24.5	**0.0070**	0.005	69.7	ug/L	45	Standard
	Ag	107	106.7	1.1	**0.0025**	0.000	14.9	ug/L	111	Standard
	Cd	111	13.3	11.4	**0.0046**	0.002	33.4	mg/L	6	Standard
	Cd	114	15.3	49.8	**-0.0202**	0.003	14.5	ug/L	13	Standard
>	In	115	306594.3	1.4				ug/L	325147	Standard
	Sn	118	49.3	1.2	**-0.0422**	0.001	2.5	ug/L	80	Standard
	Sb	123	139.2	5.7	**0.0288**	0.002	7.2	ug/L	123	Standard
	Ba	135	1472.7	3.3	**1.2314**	0.059	4.8	ug/L	24	Standard
	Ce	140	6271.3	3.3				ug/L	7	Standard
>	Tb	159	556686.2	1.0				ug/L	582613	Standard
	Ho	165	140.0	17.9				ug/L	17	Standard
	Tl	203	61.3	28.5	**-0.0051**	0.002	47.5	ug/L	100	Standard
	Tl	205	116.7	2.5	**-0.0016**	0.000	13.9	ug/L	260	Standard
	Pb	206	52512.5	0.6	**9.5933**	0.087	0.9	ug/L	292	Standard
	Pb	207	41196.6	0.8	**8.7876**	0.071	0.8	ug/L	246	Standard
	Pb	208	80562.1	1.8	**9.1879**	0.125	1.4	ug/L	472	Standard
	U	238	105.0	5.8	**0.0127**	0.001	6.3	ug/L	5	Standard
>	Bi	209	394110.1	0.9				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	40.0	12.5	**-0.2546**	0.147	57.9	mg/L	32	Standard
|	**K**	39	20.0	86.6	**0.0235**	0.144	612.3	mg/L	18	Standard
|	**Ca**	43	31.7	24.1	**-8.0704**	8.028	99.5	mg/L	47	Standard
|	**Fe**	54	49.2	30.6	**0.5385**	0.352	65.3	mg/L	24	Standard
|	**Fe**	57	765.0	10.9	**32.1051**	14.720	45.8	mg/L	688	Standard
⌊>	**Sc-1**	45	28303.1	3.7				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	4.7	75.3				ug/L	4	Standard
	Br	81	733.4	5.2				ug/L	993	Standard
	P	31	28.3	36.7				ug/L	53	Standard
	S	34	23.3	24.7				ug/L	25	Standard
	Sr	88	358.3	4.5				ug/L	340	Standard
	C	12	10.0					mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	161.6	40.1				mg/L	5	Standard
	Ho-1	165	140.0	17.9				mg/L	17	Standard
	Er	166	106.7	35.5				mg/L	27	Standard
	I	127	2060.1	1.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		90.943	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		88.933	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		94.294
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		90.828
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: L1708154003
Sample Date/Time: Wednesday, August 30, 2017 14:53:54
Number of Replicates: 3
Autosampler Position: 312
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	119113.2	2.6				ug/L	129165	Standard
	Be	9	36.7	28.4	**0.0202**	0.008	37.8	ug/L	22	Standard
	Al	27	34440.8	2.7	**0.2875**	0.013	4.7	ug/L	2003	Standard
	Sc	45	29173.1	0.3				ug/L	32341	Standard
	Ti	47	68.0	19.5	**0.1876**	0.059	31.6	ug/L	31	Standard
	V	51	2970.3	1.2	**0.2769**	0.003	1.2	ug/L	1621	Standard
	Cr	52	5902.5	0.6	**-0.1881**	0.016	8.2	ug/L	7503	Standard
	Cr	53	993.4	8.8	**-1.2639**	0.147	11.6	ug/L	2322	Standard
	Mn	55	167754.2	0.4	**20.4069**	0.264	1.3	ug/L	1683	Standard
	Co	59	2804.3	3.6	**0.3823**	0.009	2.3	ug/L	432	Standard
	Ni	60	666.7	4.4	**0.2507**	0.029	11.5	ug/L	369	Standard
	Cu	65	414.3	4.9	**0.2140**	0.022	10.1	ug/L	160	Standard
	Zn	66	1081.0	4.6	**1.3279**	0.079	6.0	ug/L	192	Standard
>	Ge	72	265235.5	1.6				ug/L	294345	Standard
	As	75	-0.3	6520.6	**0.0879**	0.033	37.5	ug/L	-18	Standard
	Se	82	15.9	36.3	**0.0615**	0.103	167.5	ug/L	20	Standard
	Se-1	77	128.0	13.6	**-0.6640**	0.437	65.8	ug/L	183	Standard
>	Ga	71	150.0	29.1				mg/L	27	Standard
	Rb	85	1686.8	1.6				ug/L	47	Standard
	Y	89	228786.4	1.7				ug/L	260351	Standard
>	Rh	103	26.7	28.6				ug/L	65	Standard
	Mo	98	43.9	16.4	**0.0046**	0.003	67.4	ug/L	45	Standard
	Ag	107	106.0	11.5	**0.0023**	0.003	141.7	ug/L	111	Standard
	Cd	111	9.6	30.0	**0.0006**	0.004	596.6	mg/L	6	Standard
	Cd	114	18.6	27.8	**-0.0189**	0.002	10.1	ug/L	13	Standard
>	In	115	307373.1	3.1				ug/L	325147	Standard
	Sn	118	50.7	14.0	**-0.0402**	0.012	30.2	ug/L	80	Standard
	Sb	123	91.9	17.3	**0.0129**	0.005	36.0	ug/L	123	Standard
	Ba	135	1213.0	1.4	**1.0081**	0.043	4.3	ug/L	24	Standard
	Ce	140	10143.4	1.9				ug/L	7	Standard
>	Tb	159	553256.5	2.2				ug/L	582613	Standard
	Ho	165	121.7	6.3				ug/L	17	Standard
	Tl	203	54.0	1.9	**-0.0062**	0.000	4.1	ug/L	100	Standard
	Tl	205	146.7	7.1	**0.0000**	0.001	1032.7	ug/L	260	Standard
	Pb	206	41162.2	0.5	**7.3902**	0.116	1.6	ug/L	292	Standard
	Pb	207	33323.6	0.9	**6.9877**	0.160	2.3	ug/L	246	Standard
	Pb	208	63633.3	1.4	**7.1327**	0.063	0.9	ug/L	472	Standard
	U	238	119.3	9.0	**0.0143**	0.001	7.6	ug/L	5	Standard
>	Bi	209	400396.5	2.0				ug/L	433909	Standard

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⌈	**Na**	23	5.0	173.2	**1.4254**	3.523	247.1	mg/L	3	Standard
|	**Mg**	24	50.0	26.5	**-0.0643**	0.292	454.2	mg/L	32	Standard
|	**K**	39	23.3	53.9	**0.0486**	0.106	217.3	mg/L	18	Standard
|	**Ca**	43	35.0	75.6	**-5.1445**	31.119	604.9	mg/L	47	Standard
|	**Fe**	54	38.9	23.2	**0.2702**	0.204	75.5	mg/L	24	Standard
|	**Fe**	57	766.7	2.6	**26.9478**	5.029	18.7	mg/L	688	Standard
⌊>	**Sc-1**	45	29173.1	0.3				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	4.7	61.9				ug/L	4	Standard
	Br	81	730.0	7.1				ug/L	993	Standard
	P	31	36.7	51.6				ug/L	53	Standard
	S	34	11.7	49.5				ug/L	25	Standard
	Sr	88	340.0	10.6				ug/L	340	Standard
	C	12	20.0	132.3				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	207.7	11.1				mg/L	5	Standard
	Ho-1	165	121.7	6.3				mg/L	17	Standard
	Er	166	116.7	30.1				mg/L	27	Standard
	I	127	1950.1	7.6				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		92.218	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.110	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	94.533
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.277
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: L1708154003
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Method 6020 - Summary Report

Sample ID: L1708154004 WG627718-01
Sample Date/Time: Wednesday, August 30, 2017 15:00:51
Number of Replicates: 3
Autosampler Position: 313
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	138607.8	0.4				ug/L	129165	Standard
	Be	9	1660.1	8.9	**1.1227**	0.101	9.0	ug/L	22	Standard
	Al	27	4180240.3	1.0	**34.2323**	0.460	1.3	ug/L	2003	Standard
	Sc	45	38022.6	0.3				ug/L	32341	Standard
	Ti	47	3705.1	7.0	**14.5644**	1.048	7.2	ug/L	31	Standard
	V	51	189068.5	1.1	**28.9875**	0.288	1.0	ug/L	1621	Standard
	Cr	52	150206.6	0.5	**24.2484**	0.084	0.3	ug/L	7503	Standard
	Cr	53	18723.2	0.8	**22.7329**	0.187	0.8	ug/L	2322	Standard
	Mn	55	7023710.2	1.6	**765.7620**	10.214	1.3	ug/L	1683	Standard
	Co	59	149573.0	1.0	**20.8827**	0.165	0.8	ug/L	432	Standard
	Ni	60	36386.6	0.7	**23.6425**	0.123	0.5	ug/L	369	Standard
	Cu	65	34923.2	1.9	**25.3767**	0.443	1.7	ug/L	160	Standard
	Zn	66	52490.1	1.2	**71.6565**	0.801	1.1	ug/L	192	Standard
>	**Ge**	72	298565.3	0.3				ug/L	294345	Standard
	As	75	6321.5	0.7	**8.4396**	0.079	0.9	ug/L	-18	Standard
	Se	82	37.7	3.3	**0.3828**	0.019	5.1	ug/L	20	Standard
	Se-1	77	168.0	8.3	**-0.1450**	0.311	214.3	ug/L	183	Standard
>	**Ga**	71	18441.2	1.7				mg/L	27	Standard
	Rb	85	128183.3	1.2				ug/L	47	Standard
	Y	89	329274.6	0.8				ug/L	260351	Standard
>	**Rh**	103	70.0	7.1				ug/L	65	Standard
	Mo	98	1305.8	3.6	**0.5014**	0.023	4.5	ug/L	45	Standard
	Ag	107	375.0	0.9	**0.0670**	0.002	2.5	ug/L	111	Standard
	Cd	111	79.4	12.4	**0.0732**	0.010	13.0	mg/L	6	Standard
	Cd	114	224.4	15.6	**0.0569**	0.013	23.0	ug/L	13	Standard
>	**In**	115	324077.5	0.9				ug/L	325147	Standard
	Sn	118	85.7	9.4	**0.0062**	0.012	195.1	ug/L	80	Standard
	Sb	123	375.6	22.9	**0.1010**	0.026	25.8	ug/L	123	Standard
	Ba	135	146184.5	2.9	**117.7038**	3.106	2.6	ug/L	24	Standard
	Ce	140	421075.5	1.8				ug/L	7	Standard
>	**Tb**	159	599227.2	2.4				ug/L	582613	Standard
	Ho	165	7747.0	6.3				ug/L	17	Standard
	Tl	203	1254.4	2.5	**0.1482**	0.007	4.8	ug/L	100	Standard
	Tl	205	2982.0	2.5	**0.1567**	0.004	2.7	ug/L	260	Standard
	Pb	206	166496.5	1.0	**27.9658**	0.759	2.7	ug/L	292	Standard
	Pb	207	133655.6	0.6	**26.2143**	0.551	2.1	ug/L	246	Standard
	Pb	208	241814.7	3.6	**25.3617**	1.429	5.6	ug/L	472	Standard
	U	238	11296.2	1.6	**1.3128**	0.048	3.6	ug/L	5	Standard
>	**Bi**	209	430413.5	2.1				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	63.3	4.6	**-0.0953**	0.052	54.4	mg/L	32	Standard
|	**K**	39	126.7	18.2	**0.6714**	0.150	22.3	mg/L	18	Standard
|	**Ca**	43	28.3	27.0	**-20.7480**	6.852	33.0	mg/L	47	Standard
|	**Fe**	54	1900.0	2.6	**31.9662**	0.774	2.4	mg/L	24	Standard
|	**Fe**	57	1156.7	10.9	**57.4583**	25.037	43.6	mg/L	688	Standard
⌊>	**Sc-1**	45	38022.6	0.3				mg/L	32341	Standard
	Cl	35	2.7	43.3				ug/L	3	Standard
	Kr	83	7.7	19.9				ug/L	4	Standard
	Br	81	1260.1	8.9				ug/L	993	Standard
	P	31	45.0	22.2				ug/L	53	Standard
	S	34	20.0	25.0				ug/L	25	Standard
	Sr	88	351.7	9.1				ug/L	340	Standard
	C	12	33.3	45.8				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	53.3	71.0				mg/L	3	Standard
	Dy	164	12562.6	5.8				mg/L	5	Standard
	Ho-1	165	7747.0	6.3				mg/L	17	Standard
	Er	166	7158.4	3.1				mg/L	27	Standard
	I	127	13284.2	2.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		107.311	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		101.434	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	99.671
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	99.194
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

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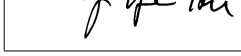

Method 6020 - Summary Report

Sample ID: L1708154004S WG627718-04
Sample Date/Time: Wednesday, August 30, 2017 15:03:57
Number of Replicates: 3
Autosampler Position: 314
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	136697.2	0.7				ug/L	129165	Standard
	Be	9	35361.2	2.7	**24.4321**	0.752	3.1	ug/L	22	Standard
	Al	27	3441645.2	0.9	**28.5724**	0.479	1.7	ug/L	2003	Standard
	Sc	45	37384.4	3.6				ug/L	32341	Standard
	Ti	47	3852.5	0.6	**15.2872**	0.259	1.7	ug/L	31	Standard
	V	51	316693.9	1.6	**49.1671**	1.108	2.3	ug/L	1621	Standard
	Cr	52	265150.6	0.3	**44.2302**	0.858	1.9	ug/L	7503	Standard
	Cr	53	33061.1	3.1	**42.6996**	1.891	4.4	ug/L	2322	Standard
	Mn	55	6431361.8	1.4	**707.6596**	17.133	2.4	ug/L	1683	Standard
	Co	59	319024.7	0.3	**45.0209**	0.859	1.9	ug/L	432	Standard
	Ni	60	66327.2	0.3	**43.6951**	0.569	1.3	ug/L	369	Standard
	Cu	65	59305.5	1.1	**43.5861**	1.145	2.6	ug/L	160	Standard
	Zn	66	61919.9	0.1	**85.3728**	1.453	1.7	ug/L	192	Standard
>	Ge	72	295894.4	1.6				ug/L	294345	Standard
	As	75	18374.0	0.9	**24.5822**	0.183	0.7	ug/L	-18	Standard
	Se	82	856.4	2.4	**13.7832**	0.277	2.0	ug/L	20	Standard
	Se-1	77	786.4	2.7	**13.4511**	0.210	1.6	ug/L	183	Standard
>	Ga	71	16443.9	3.4				mg/L	27	Standard
	Rb	85	130023.9	0.8				ug/L	47	Standard
	Y	89	321679.5	1.7				ug/L	260351	Standard
>	Rh	103	55.0	41.7				ug/L	65	Standard
	Mo	98	1196.2	2.0	**0.4518**	0.007	1.5	ug/L	45	Standard
	Ag	107	96530.9	0.7	**23.3909**	0.258	1.1	ug/L	111	Standard
	Cd	111	22740.5	1.0	**23.5626**	0.294	1.2	mg/L	6	Standard
	Cd	114	63150.5	1.1	**23.0529**	0.216	0.9	ug/L	13	Standard
>	In	115	328375.8	0.8				ug/L	325147	Standard
	Sn	118	92.3	16.3	**0.0140**	0.021	150.8	ug/L	80	Standard
	Sb	123	10084.2	2.5	**3.1322**	0.069	2.2	ug/L	123	Standard
	Ba	135	170722.7	2.1	**135.6654**	2.523	1.9	ug/L	24	Standard
	Ce	140	427719.8	2.1				ug/L	7	Standard
>	Tb	159	603327.7	2.1				ug/L	582613	Standard
	Ho	165	7450.2	3.2				ug/L	17	Standard
	Tl	203	183220.8	0.6	**23.7965**	0.217	0.9	ug/L	100	Standard
	Tl	205	424744.5	0.3	**23.7210**	0.406	1.7	ug/L	260	Standard
	Pb	206	276060.0	0.9	**46.7456**	0.879	1.9	ug/L	292	Standard
	Pb	207	226873.3	0.7	**44.8611**	0.513	1.1	ug/L	246	Standard
	Pb	208	416233.6	2.8	**43.9979**	1.611	3.7	ug/L	472	Standard
	U	238	204555.4	2.4	**23.9555**	0.779	3.3	ug/L	5	Standard
>	Bi	209	427199.2	1.4				ug/L	433909	Standard

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	Na	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
	Mg	24	58.3	13.1	**-0.1607**	0.152	94.4	mg/L	32	Standard
	K	39	111.7	5.2	**0.5864**	0.017	2.9	mg/L	18	Standard
	Ca	43	26.7	28.6	**-21.8902**	6.708	30.6	mg/L	47	Standard
	Fe	54	1501.8	2.6	**25.5957**	0.797	3.1	mg/L	24	Standard
	Fe	57	1045.0	3.7	**39.6118**	15.132	38.2	mg/L	688	Standard
>	**Sc-1**	45	37384.4	3.6				mg/L	32341	Standard
	Cl	35	3.3	69.3				ug/L	3	Standard
	Kr	83	5.3	21.7				ug/L	4	Standard
	Br	81	1183.4	6.8				ug/L	993	Standard
	P	31	46.7	22.3				ug/L	53	Standard
	S	34	30.0	60.1				ug/L	25	Standard
	Sr	88	355.0	12.3				ug/L	340	Standard
	C	12	13.3	43.3				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	73.3	47.9				mg/L	3	Standard
	Dy	164	12333.2	3.2				mg/L	5	Standard
	Ho-1	165	7450.2	3.2				mg/L	17	Standard
	Er	166	6654.8	3.5				mg/L	27	Standard
	I	127	13771.3	2.8				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		105.831	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		100.526	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	100.993	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	98.454	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1708154004SD WG627718-05
Sample Date/Time: Wednesday, August 30, 2017 15:11:30
Number of Replicates: 3
Autosampler Position: 315
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	133504.0	1.2				ug/L	129165	Standard
	Be	9	35242.7	4.3	**24.9414**	1.374	5.5	ug/L	22	Standard
	Al	27	2358021.9	2.1	**20.0357**	0.664	3.3	ug/L	2003	Standard
	Sc	45	36432.1	0.5				ug/L	32341	Standard
	Ti	47	3850.5	18.7	**15.2547**	2.869	18.8	ug/L	31	Standard
	V	51	288450.9	0.8	**44.6957**	0.634	1.4	ug/L	1621	Standard
	Cr	52	246257.6	1.9	**40.9246**	1.098	2.7	ug/L	7503	Standard
	Cr	53	30911.5	2.2	**39.6760**	1.242	3.1	ug/L	2322	Standard
	Mn	55	7048433.1	1.1	**774.4310**	13.629	1.8	ug/L	1683	Standard
	Co	59	331030.2	0.7	**46.6482**	0.648	1.4	ug/L	432	Standard
	Ni	60	57411.2	1.1	**37.7340**	0.530	1.4	ug/L	369	Standard
	Cu	65	52728.6	0.7	**38.6779**	0.533	1.4	ug/L	160	Standard
	Zn	66	49960.6	1.1	**68.7182**	1.232	1.8	ug/L	192	Standard
>	**Ge**	72	296293.8	0.7				ug/L	294345	Standard
	As	75	17127.0	1.4	**22.8896**	0.462	2.0	ug/L	-18	Standard
	Se	82	848.9	1.4	**13.6407**	0.102	0.7	ug/L	20	Standard
	Se-1	77	747.7	4.8	**12.5868**	0.894	7.1	ug/L	183	Standard
>	**Ga**	71	12428.4	0.9				mg/L	27	Standard
	Rb	85	109507.8	2.1				ug/L	47	Standard
	Y	89	314138.4	1.2				ug/L	260351	Standard
>	**Rh**	103	73.3	20.8				ug/L	65	Standard
	Mo	98	935.9	2.4	**0.3550**	0.012	3.3	ug/L	45	Standard
	Ag	107	98954.8	1.6	**24.2659**	0.176	0.7	ug/L	111	Standard
	Cd	111	23241.5	2.0	**24.3689**	0.150	0.6	mg/L	6	Standard
	Cd	114	64506.3	1.0	**23.8331**	0.309	1.3	ug/L	13	Standard
>	**In**	115	324481.2	1.4				ug/L	325147	Standard
	Sn	118	91.0	5.5	**0.0137**	0.009	65.0	ug/L	80	Standard
	Sb	123	12248.3	4.3	**3.8531**	0.116	3.0	ug/L	123	Standard
	Ba	135	163490.2	2.1	**131.4702**	1.020	0.8	ug/L	24	Standard
	Ce	140	398990.3	0.7				ug/L	7	Standard
>	**Tb**	159	588689.7	3.0				ug/L	582613	Standard
	Ho	165	6493.1	4.9				ug/L	17	Standard
	Tl	203	184780.3	0.3	**23.7800**	0.249	1.0	ug/L	100	Standard
	Tl	205	433460.5	1.5	**23.9847**	0.401	1.7	ug/L	260	Standard
	Pb	206	276020.8	0.2	**46.3084**	0.429	0.9	ug/L	292	Standard
	Pb	207	225846.5	0.9	**44.2491**	0.586	1.3	ug/L	246	Standard
	Pb	208	405569.9	3.7	**42.4784**	1.908	4.5	ug/L	472	Standard
	U	238	204419.2	2.3	**23.7202**	0.721	3.0	ug/L	5	Standard
>	**Bi**	209	431119.4	0.8				ug/L	433909	Standard

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⌈	**Na**	23	3.3	173.2	**0.4762**	1.879	394.5	mg/L	3	Standard
|	**Mg**	24	51.7	5.6	**-0.2548**	0.056	21.9	mg/L	32	Standard
|	**K**	39	68.3	29.6	**0.3138**	0.139	44.3	mg/L	18	Standard
|	**Ca**	43	28.3	36.7	**-19.6272**	9.758	49.7	mg/L	47	Standard
|	**Fe**	54	1204.6	5.4	**20.9461**	1.075	5.1	mg/L	24	Standard
|	**Fe**	57	968.4	2.5	**29.1628**	5.581	19.1	mg/L	688	Standard
⌊>	**Sc-1**	45	36432.1	0.5				mg/L	32341	Standard
	Cl	35	1.3	173.2				ug/L	3	Standard
	Kr	83	8.0	50.0				ug/L	4	Standard
	Br	81	1336.7	5.4				ug/L	993	Standard
	P	31	61.7	12.4				ug/L	53	Standard
	S	34	20.0	66.1				ug/L	25	Standard
	Sr	88	363.3	4.8				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	33.3	62.5				mg/L	3	Standard
	Dy	164	10746.9	4.9				mg/L	5	Standard
	Ho-1	165	6493.1	4.9				mg/L	17	Standard
	Er	166	5924.5	8.4				mg/L	27	Standard
	I	127	13375.9	4.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		103.359	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		100.662	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

Sample ID: L1708154004SD WG627718-05
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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	99.795	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	99.357	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	

Sample ID: L1708154004SD WG627718-05
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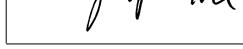

Method 6020 - Summary Report

Sample ID: L1708142801
Sample Date/Time: Wednesday, August 30, 2017 15:14:36
Number of Replicates: 3
Autosampler Position: 316
Sample Description: 5
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	128869.2	2.0				ug/L	129165	Standard
	Be	9	38.3	27.2	**0.0193**	0.008	40.0	ug/L	22	Standard
	Al	27	72052.6	1.5	**0.5944**	0.022	3.7	ug/L	2003	Standard
	Sc	45	29844.4	1.7				ug/L	32341	Standard
	Ti	47	649.7	2.9	**2.6810**	0.079	3.0	ug/L	31	Standard
	V	51	2770.4	26.1	**0.2252**	0.120	53.4	ug/L	1621	Standard
	Cr	52	277313.4	1.2	**49.9753**	0.833	1.7	ug/L	7503	Standard
	Cr	53	34370.6	2.5	**48.1246**	1.460	3.0	ug/L	2322	Standard
	Mn	55	504531.9	1.0	**59.5991**	0.683	1.1	ug/L	1683	Standard
	Co	59	7566.6	1.4	**1.0917**	0.019	1.8	ug/L	432	Standard
	Ni	60	14049.8	0.8	**9.7796**	0.122	1.2	ug/L	369	Standard
	Cu	65	34424.4	0.9	**27.1907**	0.258	0.9	ug/L	160	Standard
	Zn	66	16001.4	1.3	**23.5077**	0.242	1.0	ug/L	192	Standard
>	**Ge**	72	274766.4	0.6				ug/L	294345	Standard
	As	75	743.9	4.5	**1.1563**	0.048	4.1	ug/L	-18	Standard
	Se	82	23.2	10.6	**0.1807**	0.042	23.2	ug/L	20	Standard
	Se-1	77	142.0	10.6	**-0.4419**	0.375	84.9	ug/L	183	Standard
>	**Ga**	71	360.0	21.4				mg/L	27	Standard
	Rb	85	1036.7	0.7				ug/L	47	Standard
	Y	89	245289.6	0.5				ug/L	260351	Standard
>	**Rh**	103	71.7	54.2				ug/L	65	Standard
	Mo	98	57578.9	1.5	**23.3564**	0.505	2.2	ug/L	45	Standard
	Ag	107	521.7	3.4	**0.1068**	0.005	5.0	ug/L	111	Standard
	Cd	111	40.4	32.4	**0.0337**	0.015	43.1	mg/L	6	Standard
	Cd	114	319.6	18.9	**0.0958**	0.025	25.7	ug/L	13	Standard
>	**In**	115	314903.8	1.4				ug/L	325147	Standard
	Sn	118	513.7	2.5	**0.6450**	0.010	1.5	ug/L	80	Standard
	Sb	123	571.1	2.6	**0.1683**	0.005	2.7	ug/L	123	Standard
	Ba	135	839473.9	2.0	**695.7472**	10.866	1.6	ug/L	24	Standard
	Ce	140	24079.1	1.1				ug/L	7	Standard
>	**Tb**	159	568393.1	1.4				ug/L	582613	Standard
	Ho	165	338.3	7.0				ug/L	17	Standard
	Tl	203	312.7	7.7	**0.0287**	0.003	10.6	ug/L	100	Standard
	Tl	205	740.0	17.5	**0.0345**	0.008	22.7	ug/L	260	Standard
	Pb	206	25375.9	0.6	**4.4329**	0.056	1.3	ug/L	292	Standard
	Pb	207	20470.8	0.9	**4.1765**	0.076	1.8	ug/L	246	Standard
	Pb	208	38744.4	1.8	**4.2266**	0.106	2.5	ug/L	472	Standard
	U	238	828.4	0.3	**0.1006**	0.001	1.0	ug/L	5	Standard
>	**Bi**	209	409421.2	0.9				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	63.3	19.9	**0.1972**	0.261	132.2	mg/L	32	Standard
|	**K**	39	18.3	63.0	**0.0032**	0.095	2947.7	mg/L	18	Standard
|	**Ca**	43	31.7	50.8	**-9.9193**	18.444	185.9	mg/L	47	Standard
|	**Fe**	54	353.2	10.1	**7.1078**	0.650	9.2	mg/L	24	Standard
|	**Fe**	57	791.7	4.4	**28.8424**	10.626	36.8	mg/L	688	Standard
⌊>	**Sc-1**	45	29844.4	1.7				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	5.0	52.9				ug/L	4	Standard
	Br	81	1656.8	4.0				ug/L	993	Standard
	P	31	31.7	50.8				ug/L	53	Standard
	S	34	13.3	108.3				ug/L	25	Standard
	Sr	88	375.0	2.3				ug/L	340	Standard
	C	12	10.0	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	100.0	34.6				mg/L	3	Standard
	Dy	164	571.0	11.9				mg/L	5	Standard
	Ho-1	165	338.3	7.0				mg/L	17	Standard
	Er	166	326.7	8.8				mg/L	27	Standard
	I	127	23939.2	15.1				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		99.771	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		93.348	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	96.850
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	94.356
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1708142801
Sample Date/Time: Wednesday, August 30, 2017 15:17:41
Number of Replicates: 3
Autosampler Position: 317
Sample Description: 100
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	122226.3	2.8				ug/L	129165	Standard
	Be	9	15.0	66.7	**0.0028**	0.008	278.0	ug/L	22	Standard
	Al	27	5157.5	4.0	**0.0067**	0.003	40.9	ug/L	2003	Standard
	Sc	45	29108.0	4.2				ug/L	32341	Standard
	Ti	47	58.3	5.2	**0.1427**	0.010	7.3	ug/L	31	Standard
	V	51	1169.9	18.0	**-0.0378**	0.035	92.2	ug/L	1621	Standard
	Cr	52	17791.8	1.8	**2.0691**	0.032	1.6	ug/L	7503	Standard
	Cr	53	2515.2	1.2	**1.0476**	0.090	8.6	ug/L	2322	Standard
	Mn	55	26009.3	2.6	**2.9842**	0.064	2.1	ug/L	1683	Standard
	Co	59	741.7	5.7	**0.0566**	0.005	9.7	ug/L	432	Standard
	Ni	60	931.0	4.6	**0.4418**	0.038	8.6	ug/L	369	Standard
	Cu	65	1840.8	0.8	**1.3775**	0.027	1.9	ug/L	160	Standard
	Zn	66	1248.1	5.5	**1.5733**	0.085	5.4	ug/L	192	Standard
>	**Ge**	72	266847.6	1.2				ug/L	294345	Standard
	As	75	5.7	544.8	**0.0973**	0.047	47.9	ug/L	-18	Standard
	Se	82	16.8	14.9	**0.0769**	0.044	56.7	ug/L	20	Standard
	Se-1	77	123.7	14.7	**-0.7922**	0.416	52.5	ug/L	183	Standard
>	**Ga**	71	53.3	47.2				mg/L	27	Standard
	Rb	85	120.0	18.2				ug/L	47	Standard
	Y	89	230327.6	0.9				ug/L	260351	Standard
>	**Rh**	103	45.0	19.2				ug/L	65	Standard
	Mo	98	2410.7	6.8	**0.9792**	0.081	8.3	ug/L	45	Standard
	Ag	107	131.7	0.9	**0.0086**	0.001	6.4	ug/L	111	Standard
	Cd	111	12.3	34.3	**0.0033**	0.004	136.6	mg/L	6	Standard
	Cd	114	36.6	74.8	**-0.0121**	0.010	86.6	ug/L	13	Standard
>	**In**	115	310512.6	1.7				ug/L	325147	Standard
	Sn	118	65.3	13.8	**-0.0192**	0.012	64.1	ug/L	80	Standard
	Sb	123	91.9	7.4	**0.0126**	0.002	14.9	ug/L	123	Standard
	Ba	135	42173.3	1.4	**35.4266**	0.211	0.6	ug/L	24	Standard
	Ce	140	1243.4	4.4				ug/L	7	Standard
>	**Tb**	159	556048.2	2.4				ug/L	582613	Standard
	Ho	165	30.0	16.7				ug/L	17	Standard
	Tl	203	44.0	20.8	**-0.0076**	0.001	16.2	ug/L	100	Standard
	Tl	205	91.7	32.9	**-0.0032**	0.002	55.3	ug/L	260	Standard
	Pb	206	1568.1	1.7	**0.2269**	0.005	2.3	ug/L	292	Standard
	Pb	207	1295.4	6.4	**0.2204**	0.018	8.1	ug/L	246	Standard
	Pb	208	2430.4	2.1	**0.2220**	0.004	1.9	ug/L	472	Standard
	U	238	49.3	3.1	**0.0055**	0.000	4.1	ug/L	5	Standard
>	**Bi**	209	402048.5	0.6				ug/L	433909	Standard

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⌈	**Na**	23	1.7	173.2	**0.0675**	1.171	1735.2	mg/L	3	Standard
|	**Mg**	24	56.7	36.7	**0.0882**	0.460	522.0	mg/L	32	Standard
|	**K**	39	20.0	25.0	**0.0225**	0.050	221.0	mg/L	18	Standard
|	**Ca**	43	26.7	28.6	**-14.7867**	9.148	61.9	mg/L	47	Standard
|	**Fe**	54	40.4	25.9	**0.3130**	0.268	85.6	mg/L	24	Standard
|	**Fe**	57	733.4	10.9	**19.5705**	26.714	136.5	mg/L	688	Standard
⌊>	**Sc-1**	45	29108.0	4.2				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	6.7	31.2				ug/L	4	Standard
	Br	81	813.4	8.2				ug/L	993	Standard
	P	31	51.7	11.2				ug/L	53	Standard
	S	34	30.0	16.7				ug/L	25	Standard
	Sr	88	326.7	16.5				ug/L	340	Standard
	C	12	6.7	86.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	55.1	48.2				mg/L	5	Standard
	Ho-1	165	30.0	16.7				mg/L	17	Standard
	Er	166	33.3	148.0				mg/L	27	Standard
	I	127	3592.1	5.1				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		94.628	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.658	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		95.499
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		92.657
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Wednesday, August 30, 2017 15:20:48
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexION\Data\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	126699.3	1.6				ug/L	129165	Standard
	Be	9	68221.6	1.4	50.8624	0.367	0.7	ug/L	22	Standard
	Al	27	5616218.5	2.4	50.3359	1.193	2.4	ug/L	2003	Standard
	Sc	45	31706.5	3.0				ug/L	32341	Standard
	Ti	47	24506.5	1.9	99.2620	3.824	3.9	ug/L	31	Standard
	V	51	315049.1	0.7	49.6024	1.288	2.6	ug/L	1621	Standard
	Cr	52	293950.2	0.9	49.8892	1.488	3.0	ug/L	7503	Standard
	Cr	53	37148.8	1.3	49.0388	1.675	3.4	ug/L	2322	Standard
	Mn	55	446047.9	1.1	49.5937	1.415	2.9	ug/L	1683	Standard
	Co	59	346417.4	1.1	49.5825	1.522	3.1	ug/L	432	Standard
	Ni	60	73731.3	0.8	49.2861	1.137	2.3	ug/L	369	Standard
	Cu	65	67315.9	0.9	50.1829	1.318	2.6	ug/L	160	Standard
	Zn	66	36153.4	0.8	50.4104	1.418	2.8	ug/L	192	Standard
>	Ge	72	291839.6	2.0				ug/L	294345	Standard
	As	75	36428.4	0.3	49.3353	1.065	2.2	ug/L	-18	Standard
	Se	82	3071.5	1.4	50.7333	1.238	2.4	ug/L	20	Standard
	Se-1	77	2411.2	2.5	49.8315	0.526	1.1	ug/L	183	Standard
>	Ga	71	61.7	76.6				mg/L	27	Standard
	Rb	85	543.3	5.6				ug/L	47	Standard
	Y	89	255808.4	1.5				ug/L	260351	Standard
>	Rh	103	38.3	49.4				ug/L	65	Standard
	Mo	98	255381.5	0.9	99.2023	2.426	2.4	ug/L	45	Standard
	Ag	107	206670.0	0.6	50.0174	1.035	2.1	ug/L	111	Standard
	Cd	111	48578.5	0.6	50.2582	1.216	2.4	mg/L	6	Standard
	Cd	114	138608.5	2.7	50.5253	0.814	1.6	ug/L	13	Standard
>	In	115	329041.5	2.0				ug/L	325147	Standard
	Sn	118	35659.9	2.9	50.5408	1.082	2.1	ug/L	80	Standard
	Sb	123	163250.4	2.7	50.8719	0.843	1.7	ug/L	123	Standard
	Ba	135	64365.5	2.0	51.0372	0.976	1.9	ug/L	24	Standard
	Ce	140	85.0	25.6				ug/L	7	Standard
>	Tb	159	570358.8	2.8				ug/L	582613	Standard
	Ho	165	10.0	86.6				ug/L	17	Standard
	Tl	203	384081.1	0.9	49.8832	1.182	2.4	ug/L	100	Standard
	Tl	205	900978.1	1.0	50.2993	0.516	1.0	ug/L	260	Standard
	Pb	206	293312.6	0.7	49.6471	0.834	1.7	ug/L	292	Standard
	Pb	207	257248.7	2.0	50.8554	1.386	2.7	ug/L	246	Standard
	Pb	208	445807.2	3.9	47.1212	2.586	5.5	ug/L	472	Standard
	U	238	412677.0	1.6	48.3125	1.565	3.2	ug/L	5	Standard
>	Bi	209	427406.9	1.7				ug/L	433909	Standard

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	Na	23	10.0	50.0	**3.1818**	1.982	62.3	mg/L	3	Standard
	Mg	24	256.7	19.1	**4.0370**	0.899	22.3	mg/L	32	Standard
	K	39	620.0	13.3	**4.6516**	0.493	10.6	mg/L	18	Standard
	Ca	43	55.0	15.7	**13.4251**	10.925	81.4	mg/L	47	Standard
	Fe	54	279.0	17.2	**5.1477**	1.080	21.0	mg/L	24	Standard
	Fe	57	765.0	4.0	**11.3620**	12.183	107.2	mg/L	688	Standard
>	**Sc-1**	45	31706.5	3.0				mg/L	32341	Standard
	Cl	35	0.0					ug/L	3	Standard
	Kr	83	3.7	63.0				ug/L	4	Standard
	Br	81	1003.4	10.7				ug/L	993	Standard
	P	31	40.0	25.0				ug/L	53	Standard
	S	34	23.3	32.7				ug/L	25	Standard
	Sr	88	356.7	24.8				ug/L	340	Standard
	C	12	10.0	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	3.3	173.2				mg/L	3	Standard
	Dy	164	16.2	33.1				mg/L	5	Standard
	Ho-1	165	10.0	86.6				mg/L	17	Standard
	Er	166	10.0	100.0				mg/L	27	Standard
	I	127	2015.1	7.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	101.725		
	Al	27	100.672		
	Sc	45			
	Ti	47	99.262		
	V	51	99.205		
	Cr	52	99.778		
	Cr	53			
	Mn	55	99.187		
	Co	59	99.165		
	Ni	60	98.572		
	Cu	65	100.366		
	Zn	66	100.821		
>	Ge	72		99.149	
	As	75	98.671		
	Se	82	101.467		
	Se-1	77			
>	Ga	71			

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Rb	85			
Y	89			
Rh	103			
Mo	98	99.202		
Ag	107	100.035		
Cd	111	100.516		
Cd	114			
In	115		101.198	
Sn	118	101.082		
Sb	123	101.744		
Ba	135	102.074		
Ce	140			
Tb	159			
Ho	165			
Tl	203	99.766		
Tl	205			
Pb	206			
Pb	207			
Pb	208	94.242		
U	238	96.625		
Bi	209		98.502	
Na	23			
Mg	24			
K	39			
Ca	43			
Fe	54			
Fe	57			
Sc-1	45			
Cl	35			
Kr	83			
Br	81			
P	31			
S	34			
Sr	88			
C	12			
N	14			
Hg	202			
Dy	164			
Ho-1	165			
Er	166			
I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

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Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Wednesday, August 30, 2017 15:23:53
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	127131.2	1.0				ug/L	129165	Standard
	Be	9	23.3	68.9	**0.0085**	0.012	139.7	ug/L	22	Standard
	Al	27	2105.1	8.1	**-0.0224**	0.001	6.0	ug/L	2003	Standard
	Sc	45	31776.6	1.4				ug/L	32341	Standard
	Ti	47	33.7	19.1	**0.0225**	0.025	113.1	ug/L	31	Standard
	V	51	1263.1	2.6	**-0.0375**	0.003	8.8	ug/L	1621	Standard
	Cr	52	6201.9	1.7	**-0.2243**	0.005	2.3	ug/L	7503	Standard
	Cr	53	1060.0	9.0	**-1.2917**	0.113	8.7	ug/L	2322	Standard
	Mn	55	1494.7	3.4	**-0.0202**	0.004	21.3	ug/L	1683	Standard
	Co	59	384.7	4.2	**-0.0037**	0.002	40.2	ug/L	432	Standard
	Ni	60	296.3	2.7	**-0.0405**	0.003	8.4	ug/L	369	Standard
	Cu	65	170.3	8.4	**0.0021**	0.009	426.7	ug/L	160	Standard
	Zn	66	176.3	3.4	**-0.0906**	0.009	10.1	ug/L	192	Standard
>	**Ge**	72	287861.6	1.6				ug/L	294345	Standard
	As	75	-49.8	27.3	**0.0201**	0.019	94.2	ug/L	-18	Standard
	Se	82	11.8	50.0	**-0.0311**	0.096	309.2	ug/L	20	Standard
	Se-1	77	134.0	3.3	**-0.7747**	0.145	18.8	ug/L	183	Standard
>	**Ga**	71	43.3	35.3				mg/L	27	Standard
	Rb	85	43.3	35.3				ug/L	47	Standard
	Y	89	254223.0	3.1				ug/L	260351	Standard
>	**Rh**	103	45.0	19.2				ug/L	65	Standard
	Mo	98	272.4	30.2	**0.0921**	0.032	35.0	ug/L	45	Standard
	Ag	107	119.3	9.2	**0.0037**	0.003	73.6	ug/L	111	Standard
	Cd	111	9.4	52.1	**-0.0004**	0.005	1184.9	mg/L	6	Standard
	Cd	114	29.0	26.5	**-0.0156**	0.003	18.1	ug/L	13	Standard
>	**In**	115	329220.6	0.4				ug/L	325147	Standard
	Sn	118	100.3	7.0	**0.0250**	0.011	42.0	ug/L	80	Standard
	Sb	123	283.4	7.4	**0.0706**	0.007	9.7	ug/L	123	Standard
	Ba	135	50.0	9.2	**0.0168**	0.004	22.5	ug/L	24	Standard
	Ce	140	35.0	24.7				ug/L	7	Standard
>	**Tb**	159	571170.8	1.1				ug/L	582613	Standard
	Ho	165	15.0	33.3				ug/L	17	Standard
	Tl	203	79.7	9.5	**-0.0034**	0.001	24.5	ug/L	100	Standard
	Tl	205	168.3	22.3	**0.0007**	0.002	302.5	ug/L	260	Standard
	Pb	206	333.7	6.9	**0.0007**	0.003	431.2	ug/L	292	Standard
	Pb	207	286.3	5.0	**0.0044**	0.002	45.4	ug/L	246	Standard
	Pb	208	506.7	2.2	**0.0022**	0.001	66.7	ug/L	472	Standard
	U	238	40.3	40.8	**0.0041**	0.002	45.7	ug/L	5	Standard
>	**Bi**	209	428947.7	1.5				ug/L	433909	Standard

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	Na	23	1.7	173.2	**0.0058**	1.064	18462.8	mg/L	3	Standard
	Mg	24	46.7	62.8	**-0.2218**	0.598	269.8	mg/L	32	Standard
	K	39	18.3	83.3	**-0.0050**	0.120	2391.5	mg/L	18	Standard
	Ca	43	28.3	10.2	**-15.7108**	3.045	19.4	mg/L	47	Standard
	Fe	54	21.1	13.7	**-0.1655**	0.062	37.4	mg/L	24	Standard
	Fe	57	726.7	6.4	**1.7777**	8.392	472.0	mg/L	688	Standard
>	**Sc-1**	45	31776.6	1.4				mg/L	32341	Standard
	Cl	35	3.3	34.6				ug/L	3	Standard
	Kr	83	5.0	52.9				ug/L	4	Standard
	Br	81	943.4	9.5				ug/L	993	Standard
	P	31	63.3	27.7				ug/L	53	Standard
	S	34	25.0	20.0				ug/L	25	Standard
	Sr	88	345.0	7.7				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	9.2	186.9				mg/L	5	Standard
	Ho-1	165	15.0	33.3				mg/L	17	Standard
	Er	166	16.7	91.7				mg/L	27	Standard
	I	127	7231.7	3.9				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		97.797	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85	
Y	89	
Rh	103	
Mo	98	
Ag	107	
Cd	111	
Cd	114	
In	115	101.253
Sn	118	
Sb	123	
Ba	135	
Ce	140	
Tb	159	
Ho	165	
Tl	203	
Tl	205	
Pb	206	
Pb	207	
Pb	208	
U	238	
Bi	209	98.857
Na	23	
Mg	24	
K	39	
Ca	43	
Fe	54	
Fe	57	
Sc-1	45	
Cl	35	
Kr	83	
Br	81	
P	31	
S	34	
Sr	88	
C	12	
N	14	
Hg	202	
Dy	164	
Ho-1	165	
Er	166	
I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 7
Report Date/Time: Wednesday, August 30, 2017 15:26:04
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Method 6020 - Summary Report

Sample ID: PBS BX WG627720-01
Sample Date/Time: Wednesday, August 30, 2017 15:31:38
Number of Replicates: 3
Autosampler Position: 318
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	144923.3	2.1				ug/L	129165	Standard
	Be	9	41.7	18.3	**0.0185**	0.006	29.9	ug/L	22	Standard
	Al	27	19816.3	2.2	**0.1142**	0.006	5.6	ug/L	2003	Standard
	Sc	45	32613.4	0.4				ug/L	32341	Standard
	Ti	47	53.7	2.8	**0.1320**	0.004	2.7	ug/L	31	Standard
	V	51	-15336.1	3.9	**-3.0039**	0.121	4.0	ug/L	1621	Standard
	Cr	52	20392.4	2.5	**2.7281**	0.155	5.7	ug/L	7503	Standard
	Cr	53	207150.5	5.1	**326.5225**	20.881	6.4	ug/L	2322	Standard
	Mn	55	4133.2	3.8	**0.3361**	0.016	4.7	ug/L	1683	Standard
	Co	59	496.3	6.8	**0.0214**	0.005	21.6	ug/L	432	Standard
	Ni	60	482.0	0.8	**0.1266**	0.003	2.3	ug/L	369	Standard
	Cu	65	755.4	3.2	**0.5161**	0.012	2.3	ug/L	160	Standard
	Zn	66	1113.4	2.1	**1.4391**	0.060	4.2	ug/L	192	Standard
>	**Ge**	72	256151.1	1.5				ug/L	294345	Standard
	As	75	-876.2	18.8	**-1.2621**	0.261	20.7	ug/L	-18	Standard
	Se	82	10.8	22.7	**-0.0229**	0.050	218.6	ug/L	20	Standard
	Se-1	77	13505.0	4.7	**338.6082**	20.069	5.9	ug/L	183	Standard
>	**Ga**	71	253.3	6.3				mg/L	27	Standard
	Rb	85	201.7	24.3				ug/L	47	Standard
	Y	89	228415.6	0.8				ug/L	260351	Standard
>	**Rh**	103	51.7	24.4				ug/L	65	Standard
	Mo	98	192.0	8.6	**0.0553**	0.006	11.6	ug/L	45	Standard
	Ag	107	139.0	15.6	**0.0060**	0.005	85.8	ug/L	111	Standard
	Cd	111	29.1	11.0	**0.0177**	0.003	15.5	mg/L	6	Standard
	Cd	114	87.1	7.1	**0.0032**	0.002	58.8	ug/L	13	Standard
>	**In**	115	355824.0	1.2				ug/L	325147	Standard
	Sn	118	170.3	9.7	**0.1064**	0.022	21.1	ug/L	80	Standard
	Sb	123	227.4	14.5	**0.0478**	0.010	19.9	ug/L	123	Standard
	Ba	135	274.0	6.8	**0.1781**	0.013	7.4	ug/L	24	Standard
	Ce	140	656.7	17.1				ug/L	7	Standard
>	**Tb**	159	674567.1	1.7				ug/L	582613	Standard
	Ho	165	16.7	34.6				ug/L	17	Standard
	Tl	203	184.0	24.8	**0.0138**	0.007	48.3	ug/L	100	Standard
	Tl	205	403.3	27.0	**0.0172**	0.007	39.8	ug/L	260	Standard
	Pb	206	641.0	2.6	**0.0696**	0.003	3.7	ug/L	292	Standard
	Pb	207	505.7	6.9	**0.0632**	0.008	12.0	ug/L	246	Standard
	Pb	208	1209.4	2.4	**0.0962**	0.003	2.9	ug/L	472	Standard
	U	238	22.7	51.7	**0.0024**	0.002	64.4	ug/L	5	Standard
>	**Bi**	209	370937.5	0.5				ug/L	433909	Standard

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⌈	**Na**	23	3.3	86.6	**0.6066**	1.052	173.5	mg/L	3	Standard
|	**Mg**	24	55.0	36.4	**-0.0813**	0.397	488.6	mg/L	32	Standard
|	**K**	39	15.0	33.3	**-0.0348**	0.037	107.2	mg/L	18	Standard
|	**Ca**	43	36.7	41.7	**-7.7106**	16.137	209.3	mg/L	47	Standard
|	**Fe**	54	45.2	18.0	**0.3051**	0.164	53.7	mg/L	24	Standard
|	**Fe**	57	728.4	11.6	**-2.1329**	18.338	859.8	mg/L	688	Standard
⌊>	**Sc-1**	45	32613.4	0.4				mg/L	32341	Standard
	Cl	35	1.3	173.2				ug/L	3	Standard
	Kr	83	7.3	20.8				ug/L	4	Standard
	Br	81	1223.4	21.8				ug/L	993	Standard
	P	31	63.3	24.1				ug/L	53	Standard
	S	34	18.3	41.7				ug/L	25	Standard
	Sr	88	356.7	22.3				ug/L	340	Standard
	C	12	16.7	34.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	13.3	86.6				mg/L	3	Standard
	Dy	164	22.5	23.2				mg/L	5	Standard
	Ho-1	165	16.7	34.6				mg/L	17	Standard
	Er	166	16.7	69.3				mg/L	27	Standard
	I	127	31188.9	7.8				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		112.200	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		87.024	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	109.435
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	85.487
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
V 51 Lower	V	51	
Cr 53 Upper, S, EEE	Cr	53	
As 75 Lower	As	75	

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Method 6020 - Summary Report

Sample ID: LCSS BX WG627720-02
Sample Date/Time: Wednesday, August 30, 2017 15:34:44
Number of Replicates: 3
Autosampler Position: 319
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	155877.8	1.1				ug/L	129165	Standard
	Be	9	36896.6	4.0	**22.3597**	1.079	4.8	ug/L	22	Standard
	Al	27	24655.1	7.8	**0.1384**	0.013	9.2	ug/L	2003	Standard
	Sc	45	33273.2	2.8				ug/L	32341	Standard
	Ti	47	268.0	4.7	**1.0865**	0.064	5.9	ug/L	31	Standard
	V	51	143036.8	4.7	**24.7878**	0.986	4.0	ug/L	1621	Standard
	Cr	52	159526.2	1.6	**29.4218**	0.452	1.5	ug/L	7503	Standard
	Cr	53	237265.0	0.5	**363.3837**	5.456	1.5	ug/L	2322	Standard
	Mn	55	214493.9	1.8	**26.2913**	0.370	1.4	ug/L	1683	Standard
	Co	59	160572.7	2.4	**25.3917**	0.502	2.0	ug/L	432	Standard
	Ni	60	34861.4	2.1	**25.6637**	0.466	1.8	ug/L	369	Standard
	Cu	65	30374.1	1.0	**24.9864**	0.379	1.5	ug/L	160	Standard
	Zn	66	16725.9	1.7	**25.6294**	0.168	0.7	ug/L	192	Standard
>	**Ge**	72	263734.7	1.0				ug/L	294345	Standard
	As	75	14915.6	3.8	**22.3908**	0.635	2.8	ug/L	-18	Standard
	Se	82	1302.8	2.5	**23.6880**	0.782	3.3	ug/L	20	Standard
	Se-1	77	15955.1	3.7	**388.8723**	12.563	3.2	ug/L	183	Standard
>	**Ga**	71	341.7	5.5				mg/L	27	Standard
	Rb	85	196.7	23.1				ug/L	47	Standard
	Y	89	232805.0	0.7				ug/L	260351	Standard
>	**Rh**	103	43.3	13.3				ug/L	65	Standard
	Mo	98	82.0	8.7	**0.0147**	0.003	18.8	ug/L	45	Standard
	Ag	107	93237.4	1.2	**20.1075**	0.196	1.0	ug/L	111	Standard
	Cd	111	24639.3	2.0	**22.7235**	0.240	1.1	mg/L	6	Standard
	Cd	114	73038.9	1.6	**23.7337**	0.114	0.5	ug/L	13	Standard
>	**In**	115	368895.3	1.2				ug/L	325147	Standard
	Sn	118	378.0	4.1	**0.3615**	0.016	4.4	ug/L	80	Standard
	Sb	123	85957.3	2.9	**23.8802**	0.409	1.7	ug/L	123	Standard
	Ba	135	30535.4	0.9	**21.5814**	0.065	0.3	ug/L	24	Standard
	Ce	140	493.3	3.8				ug/L	7	Standard
>	**Tb**	159	722294.8	2.0				ug/L	582613	Standard
	Ho	165	25.0	60.0				ug/L	17	Standard
	Tl	203	167526.5	1.3	**24.9151**	0.598	2.4	ug/L	100	Standard
	Tl	205	387024.2	0.8	**24.7466**	0.407	1.6	ug/L	260	Standard
	Pb	206	127839.7	0.4	**24.7565**	0.196	0.8	ug/L	292	Standard
	Pb	207	107758.8	0.5	**24.3734**	0.398	1.6	ug/L	246	Standard
	Pb	208	262421.7	2.4	**31.7450**	1.065	3.4	ug/L	472	Standard
	U	238	190620.6	0.6	**25.5572**	0.454	1.8	ug/L	5	Standard
>	**Bi**	209	373116.0	1.2				ug/L	433909	Standard

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⌈	**Na**	23	1.7	173.2	**-0.0134**	1.031	7711.6	mg/L	3	Standard
|	**Mg**	24	65.0	53.8	**0.1002**	0.695	693.3	mg/L	32	Standard
|	**K**	39	31.7	18.2	**0.0869**	0.048	54.9	mg/L	18	Standard
|	**Ca**	43	13.3	78.1	**-32.5217**	10.738	33.0	mg/L	47	Standard
|	**Fe**	54	25.1	61.6	**-0.1019**	0.319	313.0	mg/L	24	Standard
|	**Fe**	57	768.4	15.3	**3.2557**	22.535	692.2	mg/L	688	Standard
⌊>	**Sc-1**	45	33273.2	2.8				mg/L	32341	Standard
	Cl	35	2.0	0.0				ug/L	3	Standard
	Kr	83	5.3	10.8				ug/L	4	Standard
	Br	81	1133.4	4.9				ug/L	993	Standard
	P	31	58.3	9.9				ug/L	53	Standard
	S	34	21.7	26.6				ug/L	25	Standard
	Sr	88	371.7	11.2				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	6.7	86.6				mg/L	3	Standard
	Dy	164	32.4	34.4				mg/L	5	Standard
	Ho-1	165	25.0	60.0				mg/L	17	Standard
	Er	166	20.0	50.0				mg/L	27	Standard
	I	127	18389.5	6.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		120.681	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		89.601	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	113.455	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	85.989	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Cr 53 Upper, S, EEE	Cr	53	
Se-1 77 Upper, S, EEE	Se-1	77	

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Method 6020 - Summary Report

Sample ID: LCSS DP WG627720-03
Sample Date/Time: Wednesday, August 30, 2017 15:37:49
Number of Replicates: 3
Autosampler Position: 320
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	162491.8	1.5				ug/L	129165	Standard
	Be	9	39130.6	5.9	**22.7315**	1.008	4.4	ug/L	22	Standard
	Al	27	6268.0	0.7	**0.0026**	0.000	15.9	ug/L	2003	Standard
	Sc	45	34694.7	2.3				ug/L	32341	Standard
	Ti	47	102.7	29.3	**0.3366**	0.126	37.4	ug/L	31	Standard
	V	51	150637.1	2.9	**25.7342**	1.032	4.0	ug/L	1621	Standard
	Cr	52	171273.7	1.2	**31.1964**	0.843	2.7	ug/L	7503	Standard
	Cr	53	252239.0	0.8	**380.6290**	3.221	0.8	ug/L	2322	Standard
	Mn	55	222985.0	1.0	**26.9319**	0.639	2.4	ug/L	1683	Standard
	Co	59	167628.6	1.1	**26.1169**	0.622	2.4	ug/L	432	Standard
	Ni	60	36900.5	0.8	**26.7716**	0.539	2.0	ug/L	369	Standard
	Cu	65	31992.4	1.8	**25.9304**	0.709	2.7	ug/L	160	Standard
	Zn	66	17077.6	1.3	**25.7835**	0.642	2.5	ug/L	192	Standard
>	**Ge**	72	267762.3	1.5				ug/L	294345	Standard
	As	75	14752.3	6.5	**21.8255**	1.515	6.9	ug/L	-18	Standard
	Se	82	1337.7	4.6	**23.9683**	1.429	6.0	ug/L	20	Standard
	Se-1	77	18363.5	1.4	**441.4945**	11.894	2.7	ug/L	183	Standard
>	**Ga**	71	341.7	21.0				mg/L	27	Standard
	Rb	85	88.3	16.3				ug/L	47	Standard
	Y	89	240043.3	0.9				ug/L	260351	Standard
>	**Rh**	103	48.3	36.3				ug/L	65	Standard
	Mo	98	79.4	4.1	**0.0129**	0.001	8.3	ug/L	45	Standard
	Ag	107	96738.6	1.6	**20.2010**	0.451	2.2	ug/L	111	Standard
	Cd	111	25704.0	1.9	**22.9570**	0.650	2.8	mg/L	6	Standard
	Cd	114	76645.3	2.2	**24.1191**	0.735	3.0	ug/L	13	Standard
>	**In**	115	381012.6	1.0				ug/L	325147	Standard
	Sn	118	181.3	9.9	**0.1049**	0.020	18.9	ug/L	80	Standard
	Sb	123	90498.4	1.8	**24.3502**	0.690	2.8	ug/L	123	Standard
	Ba	135	31806.0	0.9	**21.7669**	0.406	1.9	ug/L	24	Standard
	Ce	140	371.7	10.9				ug/L	7	Standard
>	**Tb**	159	751179.6	0.8				ug/L	582613	Standard
	Ho	165	33.3	56.8				ug/L	17	Standard
	Tl	203	171003.3	1.1	**25.5084**	0.808	3.2	ug/L	100	Standard
	Tl	205	396404.0	1.2	**25.4158**	0.234	0.9	ug/L	260	Standard
	Pb	206	128505.3	0.6	**24.9584**	0.462	1.9	ug/L	292	Standard
	Pb	207	108936.9	0.6	**24.7141**	0.677	2.7	ug/L	246	Standard
	Pb	208	272212.8	2.4	**33.0342**	1.463	4.4	ug/L	472	Standard
	U	238	194313.4	0.4	**26.1282**	0.614	2.4	ug/L	5	Standard
>	**Bi**	209	372104.8	2.2				ug/L	433909	Standard

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⌈	**Na**	23	1.7	173.2	**-0.0490**	0.969	1978.7	mg/L	3	Standard
|	**Mg**	24	73.3	47.9	**0.1894**	0.631	333.1	mg/L	32	Standard
|	**K**	39	15.0	0.0	**-0.0415**	0.002	6.0	mg/L	18	Standard
|	**Ca**	43	21.7	35.3	**-24.9298**	7.385	29.6	mg/L	47	Standard
|	**Fe**	54	44.5	47.3	**0.2333**	0.386	165.5	mg/L	24	Standard
|	**Fe**	57	853.4	4.4	**14.6456**	9.618	65.7	mg/L	688	Standard
⌊>	**Sc-1**	45	34694.7	2.3				mg/L	32341	Standard
	Cl	35	1.3	173.2				ug/L	3	Standard
	Kr	83	5.3	43.3				ug/L	4	Standard
	Br	81	1206.7	11.7				ug/L	993	Standard
	P	31	71.7	14.5				ug/L	53	Standard
	S	34	16.7	69.3				ug/L	25	Standard
	Sr	88	445.0	17.0				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	26.7	43.3				mg/L	3	Standard
	Dy	164	18.9	92.5				mg/L	5	Standard
	Ho-1	165	33.3	56.8				mg/L	17	Standard
	Er	166	23.3	65.5				mg/L	27	Standard
	I	127	16700.9	6.7				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		125.802	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		90.969	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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	Rb	85	
	Y	89	
>	Rh	103	
	Mo	98	
	Ag	107	
	Cd	111	
	Cd	114	
>	In	115	117.182
	Sn	118	
	Sb	123	
	Ba	135	
	Ce	140	
>	Tb	159	
	Ho	165	
	Tl	203	
	Tl	205	
	Pb	206	
	Pb	207	
	Pb	208	
	U	238	
>	Bi	209	85.756
	Na	23	
	Mg	24	
	K	39	
	Ca	43	
	Fe	54	
	Fe	57	
>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Cr 53 Upper, S, EEE	Cr	53	
Se-1 77 Upper, S, EEE	Se-1	77	

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Method 6020 - Summary Report

Sample ID: L1708142801
Sample Date/Time: Wednesday, August 30, 2017 15:40:55
Number of Replicates: 3
Autosampler Position: 321
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	199711.7	3.1				ug/L	129165	Standard
	Be	9	138.3	18.2	**0.0568**	0.013	22.8	ug/L	22	Standard
	Al	27	447298.3	0.6	**2.5055**	0.078	3.1	ug/L	2003	Standard
	Sc	45	35621.8	0.9				ug/L	32341	Standard
	Ti	47	5119.9	2.4	**20.5002**	0.580	2.8	ug/L	31	Standard
	V	51	13144.7	10.1	**1.8273**	0.238	13.0	ug/L	1621	Standard
	Cr	52	1686901.0	0.3	**290.5335**	5.178	1.8	ug/L	7503	Standard
	Cr	53	283348.2	3.1	**389.6576**	5.878	1.5	ug/L	2322	Standard
	Mn	55	3059499.5	1.7	**338.9874**	10.787	3.2	ug/L	1683	Standard
	Co	59	44370.5	1.1	**6.2556**	0.171	2.7	ug/L	432	Standard
	Ni	60	83095.6	0.5	**55.2006**	1.154	2.1	ug/L	369	Standard
	Cu	65	183780.3	1.0	**136.3007**	3.524	2.6	ug/L	160	Standard
	Zn	66	70215.0	1.1	**97.5604**	2.678	2.7	ug/L	192	Standard
>	**Ge**	72	293799.6	1.6				ug/L	294345	Standard
	As	75	3316.8	9.3	**4.5443**	0.457	10.1	ug/L	-18	Standard
	Se	82	39.6	17.3	**0.4252**	0.121	28.5	ug/L	20	Standard
	Se-1	77	10757.5	7.0	**233.7474**	12.892	5.5	ug/L	183	Standard
>	**Ga**	71	2101.8	2.8				mg/L	27	Standard
	Rb	85	6954.9	2.8				ug/L	47	Standard
	Y	89	266486.5	0.8				ug/L	260351	Standard
>	**Rh**	103	126.7	12.1				ug/L	65	Standard
	Mo	98	320176.9	1.2	**109.5342**	2.567	2.3	ug/L	45	Standard
	Ag	107	2359.2	2.4	**0.4778**	0.006	1.2	ug/L	111	Standard
	Cd	111	204.2	6.7	**0.1760**	0.014	8.1	mg/L	6	Standard
	Cd	114	1718.4	6.7	**0.5261**	0.041	7.9	ug/L	13	Standard
>	**In**	115	373579.1	1.4				ug/L	325147	Standard
	Sn	118	3666.1	2.6	**4.4713**	0.182	4.1	ug/L	80	Standard
	Sb	123	6237.8	2.2	**1.6949**	0.026	1.5	ug/L	123	Standard
	Ba	135	5515288.0	1.0	**3853.4826**	56.225	1.5	ug/L	24	Standard
	Ce	140	156477.4	1.8				ug/L	7	Standard
>	**Tb**	159	769470.1	0.4				ug/L	582613	Standard
	Ho	165	2518.5	2.8				ug/L	17	Standard
	Tl	203	982.4	4.8	**0.1219**	0.005	4.0	ug/L	100	Standard
	Tl	205	2065.1	8.9	**0.1138**	0.009	8.2	ug/L	260	Standard
	Pb	206	106400.3	0.5	**19.1141**	0.426	2.2	ug/L	292	Standard
	Pb	207	84314.6	1.1	**17.6877**	0.454	2.6	ug/L	246	Standard
	Pb	208	205488.4	1.3	**23.0574**	0.607	2.6	ug/L	472	Standard
	U	238	4682.7	3.5	**0.5823**	0.029	5.1	ug/L	5	Standard
>	**Bi**	209	402034.6	1.9				ug/L	433909	Standard

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	Na	23	20.0	75.0	**6.1006**	5.077	83.2	mg/L	3	Standard
	Mg	24	340.0	21.4	**4.9898**	1.363	27.3	mg/L	32	Standard
	K	39	63.3	32.9	**0.2899**	0.145	50.1	mg/L	18	Standard
	Ca	43	41.7	13.9	**-6.1477**	5.655	92.0	mg/L	47	Standard
	Fe	54	1712.7	3.7	**30.7404**	1.279	4.2	mg/L	24	Standard
	Fe	57	1240.1	6.7	**89.7327**	17.751	19.8	mg/L	688	Standard
>	**Sc-1**	45	35621.8	0.9				mg/L	32341	Standard
	Cl	35	4.7	65.5				ug/L	3	Standard
	Kr	83	8.3	18.3				ug/L	4	Standard
	Br	81	3543.7	4.5				ug/L	993	Standard
	P	31	73.3	19.7				ug/L	53	Standard
	S	34	25.0	20.0				ug/L	25	Standard
	Sr	88	425.0	5.4				ug/L	340	Standard
	C	12	26.7	57.3				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	1713.4	3.8				mg/L	3	Standard
	Dy	164	4408.6	4.4				mg/L	5	Standard
	Ho-1	165	2518.5	2.8				mg/L	17	Standard
	Er	166	2270.2	7.3				mg/L	27	Standard
	I	127	107196.6	12.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		154.617	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		99.815	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
| >	In	115	114.895
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	92.654
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Cr 52 Upper, S, EEE	Cr	52	
Cr 53 Upper, S, EEE	Cr	53	

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Mn 55 Upper, S, EEE	Mn	55
Cu 65 Upper, S, EEE	Cu	65
Se-1 77 Upper, S, EEE	Se-1	77
Mo 98 Upper, S, EEE	Mo	98
Ba 135 Upper, S, EEE	Ba	135

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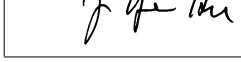

Method 6020 - Summary Report

Sample ID: L1708142801PS WG627859-01
Sample Date/Time: Wednesday, August 30, 2017 15:44:01
Number of Replicates: 3
Autosampler Position: 322
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	192476.8	1.7				ug/L	129165	Standard
	Be	9	86087.2	1.5	**42.2497**	0.666	1.6	ug/L	22	Standard
	Al	27	441501.1	1.6	**2.5662**	0.077	3.0	ug/L	2003	Standard
	Sc	45	34726.4	2.0				ug/L	32341	Standard
	Ti	47	4977.2	0.9	**20.2964**	0.319	1.6	ug/L	31	Standard
	V	51	360766.1	1.2	**57.4893**	0.665	1.2	ug/L	1621	Standard
	Cr	52	1970252.3	0.0	**345.8396**	2.568	0.7	ug/L	7503	Standard
	Cr	53	311338.0	0.7	**436.5371**	6.455	1.5	ug/L	2322	Standard
	Mn	55	3488580.9	1.0	**393.6458**	6.598	1.7	ug/L	1683	Standard
	Co	59	407049.6	1.0	**58.9386**	0.898	1.5	ug/L	432	Standard
	Ni	60	159734.0	1.1	**108.2986**	1.725	1.6	ug/L	369	Standard
	Cu	65	249652.4	1.1	**188.6101**	3.428	1.8	ug/L	160	Standard
	Zn	66	104809.6	0.8	**148.4803**	2.343	1.6	ug/L	192	Standard
>	**Ge**	72	288438.4	0.8				ug/L	294345	Standard
	As	75	41524.3	2.1	**56.8776**	1.588	2.8	ug/L	-18	Standard
	Se	82	3004.1	1.4	**50.1927**	1.015	2.0	ug/L	20	Standard
	Se-1	77	12245.3	0.3	**271.7958**	2.732	1.0	ug/L	183	Standard
>	**Ga**	71	2038.5	2.3				mg/L	27	Standard
	Rb	85	6738.2	0.3				ug/L	47	Standard
	Y	89	261239.8	1.2				ug/L	260351	Standard
>	**Rh**	103	161.7	11.7				ug/L	65	Standard
	Mo	98	321931.3	0.4	**112.4604**	1.308	1.2	ug/L	45	Standard
	Ag	107	198349.9	0.1	**43.1668**	0.375	0.9	ug/L	111	Standard
	Cd	111	52127.4	1.1	**48.4979**	0.814	1.7	mg/L	6	Standard
	Cd	114	155714.3	0.1	**51.0603**	0.440	0.9	ug/L	13	Standard
>	**In**	115	365804.5	0.8				ug/L	325147	Standard
	Sn	118	3708.1	2.2	**4.6207**	0.086	1.9	ug/L	80	Standard
	Sb	123	198258.2	0.5	**55.5769**	0.430	0.8	ug/L	123	Standard
	Ba	135	5501681.2	0.2	**3925.4912**	38.964	1.0	ug/L	24	Standard
	Ce	140	153717.5	0.5				ug/L	7	Standard
>	**Tb**	159	758249.4	1.0				ug/L	582613	Standard
	Ho	165	2633.6	2.8				ug/L	17	Standard
	Tl	203	368851.7	0.1	**50.9962**	0.396	0.8	ug/L	100	Standard
	Tl	205	856266.7	0.9	**50.8979**	0.850	1.7	ug/L	260	Standard
	Pb	206	392616.8	0.2	**70.7738**	0.760	1.1	ug/L	292	Standard
	Pb	207	321744.6	0.3	**67.7288**	0.394	0.6	ug/L	246	Standard
	Pb	208	764755.1	1.4	**86.0642**	1.629	1.9	ug/L	472	Standard
	U	238	435864.3	1.2	**54.3123**	0.647	1.2	ug/L	5	Standard
>	**Bi**	209	401418.2	0.8				ug/L	433909	Standard

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⌈	**Na**	23	15.0	100.0	**4.5871**	5.192	113.2	mg/L	3	Standard
|	**Mg**	24	378.3	11.5	**5.8536**	0.806	13.8	mg/L	32	Standard
|	**K**	39	55.0	18.2	**0.2409**	0.064	26.6	mg/L	18	Standard
|	**Ca**	43	40.0	21.7	**-6.8207**	8.230	120.7	mg/L	47	Standard
|	**Fe**	54	1479.6	1.4	**27.1798**	0.830	3.1	mg/L	24	Standard
|	**Fe**	57	1095.0	2.4	**65.5676**	1.214	1.9	mg/L	688	Standard
⌊>	**Sc-1**	45	34726.4	2.0				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	7.7	64.3				ug/L	4	Standard
	Br	81	3447.1	0.9				ug/L	993	Standard
	P	31	58.3	27.6				ug/L	53	Standard
	S	34	16.7	75.5				ug/L	25	Standard
	Sr	88	403.3	14.8				ug/L	340	Standard
	C	12	43.3	53.3				mg/L	3	Standard
	N	14	3.3	173.2				mg/L	0	Standard
	Hg	202	1706.8	2.4				mg/L	3	Standard
	Dy	164	3986.0	3.2				mg/L	5	Standard
	Ho-1	165	2633.6	2.8				mg/L	17	Standard
	Er	166	2183.5	11.4				mg/L	27	Standard
	I	127	108372.9	8.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		149.016	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		97.993	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	112.504	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	92.512	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Li 6 Int Std for sample	Li	6	Rerun sample
Cr 52 Upper, S, EEE	Cr	52	
Cr 53 Upper, S, EEE	Cr	53	

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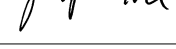

Mn 55 Upper, S, EEE	Mn	55
Ni 60 Upper, S, EEE	Ni	60
Cu 65 Upper, S, EEE	Cu	65
Zn 66 Upper, S, EEE	Zn	66
Se-1 77 Upper, S, EEE	Se-1	77
Mo 98 Upper, S, EEE	Mo	98
Ba 135 Upper, S, EEE	Ba	135

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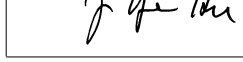

Method 6020 - Summary Report

Sample ID: L1708142801SDL WG627859-02
Sample Date/Time: Wednesday, August 30, 2017 15:47:06
Number of Replicates: 3
Autosampler Position: 323
Sample Description: 5
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	136877.2	1.2				ug/L	129165	Standard
	Be	9	46.7	44.6	**0.0234**	0.014	60.9	ug/L	22	Standard
	Al	27	78757.5	0.5	**0.6127**	0.005	0.9	ug/L	2003	Standard
	Sc	45	30804.6	1.7				ug/L	32341	Standard
	Ti	47	933.4	3.9	**3.8381**	0.164	4.3	ug/L	31	Standard
	V	51	1503.1	49.9	**0.0080**	0.122	1533.7	ug/L	1621	Standard
	Cr	52	307453.0	1.7	**54.6314**	0.615	1.1	ug/L	7503	Standard
	Cr	53	59315.9	0.3	**83.6603**	0.679	0.8	ug/L	2322	Standard
	Mn	55	537418.8	0.6	**62.4722**	0.151	0.2	ug/L	1683	Standard
	Co	59	8544.7	0.5	**1.2196**	0.014	1.1	ug/L	432	Standard
	Ni	60	16022.1	0.8	**11.0027**	0.126	1.1	ug/L	369	Standard
	Cu	65	35757.2	1.8	**27.7912**	0.398	1.4	ug/L	160	Standard
	Zn	66	20511.5	0.8	**29.7391**	0.175	0.6	ug/L	192	Standard
>	**Ge**	72	279253.3	0.7				ug/L	294345	Standard
	As	75	558.9	31.2	**0.8778**	0.246	28.0	ug/L	-18	Standard
	Se	82	14.2	42.5	**0.0185**	0.104	563.8	ug/L	20	Standard
	Se-1	77	2634.6	2.5	**57.4469**	1.687	2.9	ug/L	183	Standard
>	**Ga**	71	600.0	7.3				mg/L	27	Standard
	Rb	85	1336.7	10.1				ug/L	47	Standard
	Y	89	242117.6	1.0				ug/L	260351	Standard
>	**Rh**	103	58.3	32.5				ug/L	65	Standard
	Mo	98	59827.4	1.3	**23.6574**	0.243	1.0	ug/L	45	Standard
	Ag	107	559.0	7.3	**0.1127**	0.011	9.7	ug/L	111	Standard
	Cd	111	54.2	22.2	**0.0470**	0.013	27.8	mg/L	6	Standard
	Cd	114	341.1	8.9	**0.1005**	0.010	9.8	ug/L	13	Standard
>	**In**	115	323011.6	1.5				ug/L	325147	Standard
	Sn	118	704.0	4.9	**0.9010**	0.036	4.0	ug/L	80	Standard
	Sb	123	1138.4	2.7	**0.3437**	0.008	2.4	ug/L	123	Standard
	Ba	135	960519.5	1.0	**776.1150**	4.752	0.6	ug/L	24	Standard
	Ce	140	28979.4	0.8				ug/L	7	Standard
>	**Tb**	159	625569.2	1.3				ug/L	582613	Standard
	Ho	165	458.3	5.0				ug/L	17	Standard
	Tl	203	388.3	24.3	**0.0402**	0.013	31.5	ug/L	100	Standard
	Tl	205	865.0	25.5	**0.0429**	0.013	29.3	ug/L	260	Standard
	Pb	206	21497.6	0.6	**3.8385**	0.035	0.9	ug/L	292	Standard
	Pb	207	17143.4	0.5	**3.5744**	0.042	1.2	ug/L	246	Standard
	Pb	208	36215.4	1.0	**4.0439**	0.086	2.1	ug/L	472	Standard
	U	238	979.0	7.3	**0.1218**	0.008	6.6	ug/L	5	Standard
>	**Bi**	209	399790.0	1.3				ug/L	433909	Standard

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	Na	23	3.3	86.6	**0.6873**	1.123	163.3	mg/L	3	Standard
	Mg	24	93.3	12.4	**0.7862**	0.264	33.6	mg/L	32	Standard
	K	39	38.3	45.8	**0.1593**	0.145	90.8	mg/L	18	Standard
	Ca	43	36.7	41.7	**-5.4452**	16.898	310.3	mg/L	47	Standard
	Fe	54	366.2	17.7	**7.1490**	1.356	19.0	mg/L	24	Standard
	Fe	57	836.7	2.9	**33.4243**	4.700	14.1	mg/L	688	Standard
>	**Sc-1**	45	30804.6	1.7				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	6.3	48.2				ug/L	4	Standard
	Br	81	1280.1	15.2				ug/L	993	Standard
	P	31	70.0	28.6				ug/L	53	Standard
	S	34	13.3	57.3				ug/L	25	Standard
	Sr	88	351.7	12.1				ug/L	340	Standard
	C	12	10.0	100.0				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	326.7	11.6				mg/L	3	Standard
	Dy	164	630.1	13.1				mg/L	5	Standard
	Ho-1	165	458.3	5.0				mg/L	17	Standard
	Er	166	416.7	2.8				mg/L	27	Standard
	I	127	29954.6	5.3				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6		105.971	
	Be	9			
	Al	27			
	Sc	45			
	Ti	47			
	V	51			
	Cr	52			
	Cr	53			
	Mn	55			
	Co	59			
	Ni	60			
	Cu	65			
	Zn	66			
>	Ge	72		94.873	
	As	75			
	Se	82			
	Se-1	77			
>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	99.343	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	92.137	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	

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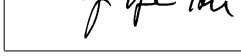

Method 6020 - Summary Report

Sample ID: L1708142801SDL WG627859-02
Sample Date/Time: Wednesday, August 30, 2017 15:50:12
Number of Replicates: 3
Autosampler Position: 324
Sample Description: 25
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	**Li**	6	126623.6	1.1				ug/L	129165	Standard
	Be	9	38.3	27.2	**0.0199**	0.008	39.8	ug/L	22	Standard
	Al	27	16250.4	3.5	**0.1046**	0.006	6.1	ug/L	2003	Standard
	Sc	45	30540.8	3.1				ug/L	32341	Standard
	Ti	47	201.0	6.7	**0.7335**	0.050	6.8	ug/L	31	Standard
	V	51	922.5	70.1	**-0.0874**	0.107	122.2	ug/L	1621	Standard
	Cr	52	63909.8	0.8	**10.2858**	0.086	0.8	ug/L	7503	Standard
	Cr	53	16118.6	1.0	**20.6532**	0.533	2.6	ug/L	2322	Standard
	Mn	55	105555.8	0.9	**12.0909**	0.087	0.7	ug/L	1683	Standard
	Co	59	1931.1	3.1	**0.2288**	0.005	2.1	ug/L	432	Standard
	Ni	60	3313.4	1.8	**2.0783**	0.064	3.1	ug/L	369	Standard
	Cu	65	7091.0	1.7	**5.3973**	0.073	1.4	ug/L	160	Standard
	Zn	66	4666.1	3.0	**6.4846**	0.100	1.5	ug/L	192	Standard
>	**Ge**	72	279895.7	1.6				ug/L	294345	Standard
	As	75	56.7	184.6	**0.1671**	0.148	88.4	ug/L	-18	Standard
	Se	82	12.8	33.7	**-0.0076**	0.072	937.5	ug/L	20	Standard
	Se-1	77	864.4	2.6	**16.2570**	0.836	5.1	ug/L	183	Standard
>	**Ga**	71	131.7	2.2				mg/L	27	Standard
	Rb	85	293.3	10.3				ug/L	47	Standard
	Y	89	237007.8	1.1				ug/L	260351	Standard
>	**Rh**	103	68.3	27.7				ug/L	65	Standard
	Mo	98	11076.7	3.0	**4.4900**	0.185	4.1	ug/L	45	Standard
	Ag	107	192.7	2.0	**0.0236**	0.001	3.3	ug/L	111	Standard
	Cd	111	18.6	46.4	**0.0099**	0.009	92.0	mg/L	6	Standard
	Cd	114	61.0	30.0	**-0.0029**	0.007	230.2	ug/L	13	Standard
>	**In**	115	314415.2	1.4				ug/L	325147	Standard
	Sn	118	148.0	8.4	**0.1027**	0.020	19.2	ug/L	80	Standard
	Sb	123	266.7	8.0	**0.0693**	0.008	11.0	ug/L	123	Standard
	Ba	135	185797.0	1.1	**154.2103**	0.543	0.4	ug/L	24	Standard
	Ce	140	5474.3	4.1				ug/L	7	Standard
>	**Tb**	159	599152.9	1.9				ug/L	582613	Standard
	Ho	165	110.0	15.7				ug/L	17	Standard
	Tl	203	91.0	13.8	**-0.0012**	0.002	155.2	ug/L	100	Standard
	Tl	205	228.3	12.1	**0.0048**	0.002	31.1	ug/L	260	Standard
	Pb	206	4415.0	0.9	**0.7379**	0.014	1.9	ug/L	292	Standard
	Pb	207	3563.1	2.3	**0.6956**	0.013	1.9	ug/L	246	Standard
	Pb	208	7206.3	1.8	**0.7571**	0.008	1.0	ug/L	472	Standard
	U	238	184.3	5.0	**0.0222**	0.001	4.2	ug/L	5	Standard
>	**Bi**	209	402974.9	1.0				ug/L	433909	Standard

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⌈	**Na**	23	3.3	173.2	**0.6684**	2.212	330.9	mg/L	3	Standard
|	**Mg**	24	56.7	31.0	**0.0274**	0.365	1331.4	mg/L	32	Standard
|	**K**	39	13.3	78.1	**-0.0410**	0.081	198.6	mg/L	18	Standard
|	**Ca**	43	30.0	16.7	**-12.6718**	4.803	37.9	mg/L	47	Standard
|	**Fe**	54	104.2	14.5	**1.6217**	0.269	16.6	mg/L	24	Standard
|	**Fe**	57	736.7	2.6	**11.0900**	1.317	11.9	mg/L	688	Standard
⌊>	**Sc-1**	45	30540.8	3.1				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	5.7	10.2				ug/L	4	Standard
	Br	81	866.7	18.0				ug/L	993	Standard
	P	31	50.0	40.0				ug/L	53	Standard
	S	34	23.3	99.0				ug/L	25	Standard
	Sr	88	391.7	14.0				ug/L	340	Standard
	C	12	6.7	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	70.0	28.6				mg/L	3	Standard
	Dy	164	138.7	14.7				mg/L	5	Standard
	Ho-1	165	110.0	15.7				mg/L	17	Standard
	Er	166	96.7	21.5				mg/L	27	Standard
	I	127	10717.1	1.5				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		98.032	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		95.091	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85		
⌈	Y	89		
⌊>	Rh	103		
⌈	Mo	98		
|	Ag	107		
|	Cd	111		
|	Cd	114		
| >	In	115		96.699
|	Sn	118		
|	Sb	123		
⌊	Ba	135		
⌈	Ce	140		
⌊>	Tb	159		
⌈	Ho	165		
|	Tl	203		
|	Tl	205		
|	Pb	206		
|	Pb	207		
|	Pb	208		
|	U	238		
⌊>	Bi	209		92.871
⌈	Na	23		
|	Mg	24		
|	K	39		
|	Ca	43		
|	Fe	54		
|	Fe	57		
⌊>	Sc-1	45		
	Cl	35		
	Kr	83		
	Br	81		
	P	31		
	S	34		
	Sr	88		
	C	12		
	N	14		
	Hg	202		
	Dy	164		
	Ho-1	165		
	Er	166		
	I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Ba 135 Upper, S, EEE	Ba	135	

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Method 6020 - Summary Report

Sample ID: L1708154001
Sample Date/Time: Wednesday, August 30, 2017 15:57:22
Number of Replicates: 3
Autosampler Position: 307
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	139268.9	1.8				ug/L	129165	Standard
	Be	9	2290.2	5.4	**1.5451**	0.089	5.8	ug/L	22	Standard
	Al	27	1855354.5	3.0	**15.0989**	0.424	2.8	ug/L	2003	Standard
	Sc	45	38523.9	2.6				ug/L	32341	Standard
	Ti	47	4677.1	30.7	**17.7513**	5.415	30.5	ug/L	31	Standard
	V	51	107232.1	0.6	**15.7552**	0.122	0.8	ug/L	1621	Standard
	Cr	52	83549.4	1.7	**12.4031**	0.213	1.7	ug/L	7503	Standard
	Cr	53	13439.3	1.1	**14.8880**	0.265	1.8	ug/L	2322	Standard
	Mn	55	29703295.0	0.7	**3125.5084**	36.880	1.2	ug/L	1683	Standard
	Co	59	248442.4	0.7	**33.5057**	0.266	0.8	ug/L	432	Standard
	Ni	60	20918.4	1.6	**13.0072**	0.213	1.6	ug/L	369	Standard
	Cu	65	16687.9	1.2	**11.6324**	0.126	1.1	ug/L	160	Standard
	Zn	66	35297.1	1.2	**46.3762**	0.698	1.5	ug/L	192	Standard
>	Ge	72	309425.3	0.4				ug/L	294345	Standard
	As	75	5248.0	0.2	**6.7781**	0.030	0.4	ug/L	-18	Standard
	Se	82	62.7	2.5	**0.7534**	0.028	3.7	ug/L	20	Standard
	Se-1	77	342.0	4.3	**3.3761**	0.283	8.4	ug/L	183	Standard
>	Ga	71	11372.6	0.6				mg/L	27	Standard
	Rb	85	104380.0	1.5				ug/L	47	Standard
	Y	89	413046.5	1.2				ug/L	260351	Standard
>	Rh	103	276.7	22.6				ug/L	65	Standard
	Mo	98	1855.8	9.8	**0.6927**	0.058	8.3	ug/L	45	Standard
	Ag	107	707.0	20.6	**0.1424**	0.032	22.3	ug/L	111	Standard
	Cd	111	489.5	12.2	**0.4860**	0.053	10.9	mg/L	6	Standard
	Cd	114	1293.2	11.0	**0.4360**	0.044	10.0	ug/L	13	Standard
>	In	115	335417.2	1.7				ug/L	325147	Standard
	Sn	118	130.3	10.9	**0.0640**	0.017	26.8	ug/L	80	Standard
	Sb	123	1188.3	11.4	**0.3452**	0.036	10.3	ug/L	123	Standard
	Ba	135	187656.1	2.6	**145.9811**	1.566	1.1	ug/L	24	Standard
	Ce	140	1072279.0	2.2				ug/L	7	Standard
>	Tb	159	629852.1	3.6				ug/L	582613	Standard
	Ho	165	15624.7	5.2				ug/L	17	Standard
	Tl	203	2075.1	13.0	**0.2453**	0.033	13.6	ug/L	100	Standard
	Tl	205	4712.4	14.4	**0.2441**	0.036	14.7	ug/L	260	Standard
	Pb	206	6360524.1	0.6	**1035.7413**	10.267	1.0	ug/L	292	Standard
	Pb	207	5062812.7	0.7	**962.7676**	12.328	1.3	ug/L	246	Standard
	Pb	208	9449372.3	3.3	**960.7732**	44.867	4.7	ug/L	472	Standard
	U	238	10450.6	3.8	**1.1751**	0.053	4.5	ug/L	5	Standard
>	Bi	209	444712.0	1.6				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	45.0	44.4	**-0.4213**	0.315	74.8	mg/L	32	Standard
|	**K**	39	85.0		**0.3949**	0.014	3.5	mg/L	18	Standard
|	**Ca**	43	35.0	37.8	**-14.9286**	12.363	82.8	mg/L	47	Standard
|	**Fe**	54	830.1	4.5	**13.4541**	0.814	6.1	mg/L	24	Standard
|	**Fe**	57	920.0	10.3	**9.5591**	20.881	218.4	mg/L	688	Standard
⌊>	**Sc-1**	45	38523.9	2.6				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	7.0	28.6				ug/L	4	Standard
	Br	81	1646.8	13.1				ug/L	993	Standard
	P	31	55.0	18.2				ug/L	53	Standard
	S	34	15.0	33.3				ug/L	25	Standard
	Sr	88	346.7	4.6				ug/L	340	Standard
	C	12	33.3	45.8				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	250.0	4.0				mg/L	3	Standard
	Dy	164	25898.1	3.5				mg/L	5	Standard
	Ho-1	165	15624.7	5.2				mg/L	17	Standard
	Er	166	13399.3	3.3				mg/L	27	Standard
	I	127	20794.3	1.4				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		107.822	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		105.123	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115		103.159
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209		102.490
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	
Pb 206 Upper, S, EEE	Pb	206	

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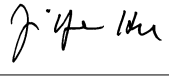

Pb 207 Upper, S, EEE	Pb	207
Pb 208 Upper, S, EEE	Pb	208

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Method 6020 - Summary Report

Sample ID: L1708154001PS WG627822-01
Sample Date/Time: Wednesday, August 30, 2017 16:00:28
Number of Replicates: 3
Autosampler Position: 308
Sample Description: 1
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	139144.4	1.1				ug/L	129165	Standard
	Be	9	75465.8	1.3	**51.2291**	0.337	0.7	ug/L	22	Standard
	Al	27	1844141.6	1.2	**15.0201**	0.129	0.9	ug/L	2003	Standard
	Sc	45	37643.4	2.4				ug/L	32341	Standard
	Ti	47	3766.1	1.9	**14.4869**	0.299	2.1	ug/L	31	Standard
	V	51	439186.2	1.1	**66.2119**	1.340	2.0	ug/L	1621	Standard
	Cr	52	384325.0	0.6	**62.7090**	0.980	1.6	ug/L	7503	Standard
	Cr	53	50361.9	1.2	**64.4035**	1.402	2.2	ug/L	2322	Standard
	Mn	55	30103401.1	0.6	**3212.9412**	49.088	1.5	ug/L	1683	Standard
	Co	59	614235.1	1.0	**84.1166**	1.591	1.9	ug/L	432	Standard
	Ni	60	98973.6	0.8	**63.3457**	1.097	1.7	ug/L	369	Standard
	Cu	65	88580.5	0.8	**63.1882**	1.089	1.7	ug/L	160	Standard
	Zn	66	73687.8	0.6	**98.5840**	1.507	1.5	ug/L	192	Standard
>	Ge	72	305079.3	1.0				ug/L	294345	Standard
	As	75	44314.7	0.5	**57.3830**	0.520	0.9	ug/L	-18	Standard
	Se	82	3223.7	1.3	**50.9220**	0.264	0.5	ug/L	20	Standard
	Se-1	77	2645.9	3.0	**52.5089**	2.013	3.8	ug/L	183	Standard
>	Ga	71	11624.5	1.1				mg/L	27	Standard
	Rb	85	102707.3	4.1				ug/L	47	Standard
	Y	89	401327.8	1.3				ug/L	260351	Standard
>	Rh	103	288.3	11.1				ug/L	65	Standard
	Mo	98	1561.1	2.0	**0.5819**	0.011	1.8	ug/L	45	Standard
	Ag	107	206259.9	1.3	**49.0230**	0.700	1.4	ug/L	111	Standard
	Cd	111	50982.4	1.0	**51.7975**	0.621	1.2	mg/L	6	Standard
	Cd	114	139206.3	1.3	**49.8477**	0.725	1.5	ug/L	13	Standard
>	In	115	334965.3	0.2				ug/L	325147	Standard
	Sn	118	139.3	9.0	**0.0770**	0.018	23.2	ug/L	80	Standard
	Sb	123	164044.9	1.9	**50.2172**	0.993	2.0	ug/L	123	Standard
	Ba	135	252425.3	2.2	**196.6600**	4.387	2.2	ug/L	24	Standard
	Ce	140	1086928.6	2.4				ug/L	7	Standard
>	Tb	159	632542.6	2.2				ug/L	582613	Standard
	Ho	165	15761.5	1.3				ug/L	17	Standard
	Tl	203	388301.8	0.4	**49.6082**	0.646	1.3	ug/L	100	Standard
	Tl	205	904207.0	1.0	**49.6664**	1.014	2.0	ug/L	260	Standard
	Pb	206	6535161.8	0.4	**1089.3354**	10.567	1.0	ug/L	292	Standard
	Pb	207	5251976.6	0.2	**1022.3794**	15.271	1.5	ug/L	246	Standard
	Pb	208	10062026.4	2.9	**1047.1775**	44.162	4.2	ug/L	472	Standard
	U	238	430246.8	1.3	**49.5472**	1.246	2.5	ug/L	5	Standard
>	Bi	209	434434.5	1.3				ug/L	433909	Standard

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⌈	**Na**	23	3.3	173.2	**0.4174**	1.777	425.7	mg/L	3	Standard
|	**Mg**	24	51.7	27.9	**-0.2803**	0.264	94.3	mg/L	32	Standard
|	**K**	39	75.0	11.5	**0.3429**	0.066	19.1	mg/L	18	Standard
|	**Ca**	43	36.7	56.8	**-12.7136**	19.651	154.6	mg/L	47	Standard
|	**Fe**	54	914.4	6.3	**15.2471**	1.246	8.2	mg/L	24	Standard
|	**Fe**	57	890.0	9.2	**7.7572**	18.456	237.9	mg/L	688	Standard
⌊>	**Sc-1**	45	37643.4	2.4				mg/L	32341	Standard
	Cl	35	2.0	173.2				ug/L	3	Standard
	Kr	83	4.3	74.2				ug/L	4	Standard
	Br	81	1650.1	9.5				ug/L	993	Standard
	P	31	40.0	57.3				ug/L	53	Standard
	S	34	13.3	43.3				ug/L	25	Standard
	Sr	88	328.3	15.9				ug/L	340	Standard
	C	12	36.7	41.7				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	306.7	12.3				mg/L	3	Standard
	Dy	164	26672.0	3.9				mg/L	5	Standard
	Ho-1	165	15761.5	1.3				mg/L	17	Standard
	Er	166	13415.9	4.5				mg/L	27	Standard
	I	127	20575.6	3.2				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		107.726	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		103.647	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115		103.020
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209		100.121
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	
Ba 135 Upper, S, EEE	Ba	135	
Pb 206 Upper, S, EEE	Pb	206	

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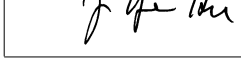

Pb 207 Upper, S, EEE	Pb	207
Pb 208 Upper, S, EEE	Pb	208

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Method 6020 - Summary Report

Sample ID: L1708154001SDL WG627822-02
Sample Date/Time: Wednesday, August 30, 2017 16:03:33
Number of Replicates: 3
Autosampler Position: 309
Sample Description: 5
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	127196.7	0.5				ug/L	129165	Standard
	Be	9	483.3	9.4	**0.3501**	0.032	9.2	ug/L	22	Standard
	Al	27	343073.0	1.7	**3.0239**	0.052	1.7	ug/L	2003	Standard
	Sc	45	32271.0	2.5				ug/L	32341	Standard
	Ti	47	723.4	3.1	**2.9026**	0.098	3.4	ug/L	31	Standard
	V	51	20669.8	0.9	**3.1253**	0.011	0.4	ug/L	1621	Standard
	Cr	52	19045.3	1.4	**2.0953**	0.065	3.1	ug/L	7503	Standard
	Cr	53	4417.3	2.4	**3.5522**	0.119	3.3	ug/L	2322	Standard
	Mn	55	5367603.0	1.3	**616.3141**	5.964	1.0	ug/L	1683	Standard
	Co	59	45063.6	1.1	**6.5857**	0.052	0.8	ug/L	432	Standard
	Ni	60	4021.9	0.7	**2.5384**	0.032	1.2	ug/L	369	Standard
	Cu	65	3222.7	1.6	**2.3519**	0.031	1.3	ug/L	160	Standard
	Zn	66	7592.9	1.8	**10.6272**	0.146	1.4	ug/L	192	Standard
>	Ge	72	283480.0	0.5				ug/L	294345	Standard
	As	75	958.8	5.0	**1.4226**	0.072	5.1	ug/L	-18	Standard
	Se	82	21.5	15.1	**0.1399**	0.054	38.5	ug/L	20	Standard
	Se-1	77	257.3	4.2	**2.0955**	0.271	12.9	ug/L	183	Standard
>	Ga	71	2191.8	4.1				mg/L	27	Standard
	Rb	85	18724.9	1.9				ug/L	47	Standard
	Y	89	267226.3	1.5				ug/L	260351	Standard
>	Rh	103	103.3	5.6				ug/L	65	Standard
	Mo	98	284.2	2.3	**0.1008**	0.002	2.4	ug/L	45	Standard
	Ag	107	233.7	9.9	**0.0335**	0.006	17.2	ug/L	111	Standard
	Cd	111	87.7	7.1	**0.0839**	0.007	8.1	mg/L	6	Standard
	Cd	114	274.9	13.7	**0.0778**	0.014	18.1	ug/L	13	Standard
>	In	115	317402.9	0.1				ug/L	325147	Standard
	Sn	118	65.7	13.1	**-0.0207**	0.013	60.5	ug/L	80	Standard
	Sb	123	995.9	6.5	**0.3041**	0.021	7.1	ug/L	123	Standard
	Ba	135	35681.6	1.4	**29.3171**	0.382	1.3	ug/L	24	Standard
	Ce	140	205862.8	2.1				ug/L	7	Standard
>	Tb	159	593298.6	0.9				ug/L	582613	Standard
	Ho	165	3020.3	1.2				ug/L	17	Standard
	Tl	203	466.0	6.4	**0.0496**	0.004	7.1	ug/L	100	Standard
	Tl	205	1091.7	2.1	**0.0551**	0.002	3.4	ug/L	260	Standard
	Pb	206	1135657.8	1.5	**201.3266**	3.839	1.9	ug/L	292	Standard
	Pb	207	905317.9	1.1	**187.4162**	2.660	1.4	ug/L	246	Standard
	Pb	208	1801544.4	1.9	**199.3517**	4.740	2.4	ug/L	472	Standard
	U	238	1947.8	2.8	**0.2379**	0.005	2.1	ug/L	5	Standard
>	Bi	209	408388.5	0.8				ug/L	433909	Standard

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⌈	**Na**	23	0.0		**-0.6085**	0.000	0.0	mg/L	3	Standard
|	**Mg**	24	45.0	19.2	**-0.2703**	0.170	63.0	mg/L	32	Standard
|	**K**	39	43.3	24.0	**0.1817**	0.074	40.5	mg/L	18	Standard
|	**Ca**	43	45.0	11.1	**1.6126**	5.783	358.6	mg/L	47	Standard
|	**Fe**	54	176.0	14.0	**2.9544**	0.482	16.3	mg/L	24	Standard
|	**Fe**	57	715.0	8.7	**-3.5087**	11.340	323.2	mg/L	688	Standard
⌊>	**Sc-1**	45	32271.0	2.5				mg/L	32341	Standard
	Cl	35	0.7	173.2				ug/L	3	Standard
	Kr	83	5.0	0.0				ug/L	4	Standard
	Br	81	996.7	8.2				ug/L	993	Standard
	P	31	41.7	25.0				ug/L	53	Standard
	S	34	18.3	56.8				ug/L	25	Standard
	Sr	88	371.7	11.0				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	66.7	8.7				mg/L	3	Standard
	Dy	164	4899.4	8.7				mg/L	5	Standard
	Ho-1	165	3020.3	1.2				mg/L	17	Standard
	Er	166	2743.6	1.1				mg/L	27	Standard
	I	127	6144.6	1.4				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6		98.476	
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		96.309	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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Rb	85		
Y	89		
Rh	103		
Mo	98		
Ag	107		
Cd	111		
Cd	114		
In	115	97.618	
Sn	118		
Sb	123		
Ba	135		
Ce	140		
Tb	159		
Ho	165		
Tl	203		
Tl	205		
Pb	206		
Pb	207		
Pb	208		
U	238		
Bi	209	94.118	
Na	23		
Mg	24		
K	39		
Ca	43		
Fe	54		
Fe	57		
Sc-1	45		
Cl	35		
Kr	83		
Br	81		
P	31		
S	34		
Sr	88		
C	12		
N	14		
Hg	202		
Dy	164		
Ho-1	165		
Er	166		
I	127		

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
Mn 55 Upper, S, EEE	Mn	55	
Pb 206 Upper, S, EEE	Pb	206	
Pb 207 Upper, S, EEE	Pb	207	

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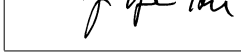

Pb 208 Upper, S, EEE Pb 208

Sample ID: L1708154001SDL WG627822-02
Report Date/Time: Wednesday, August 30, 2017 16:05:44
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Method 6020 - Summary Report

Sample ID: QC Std 6
Sample Date/Time: Wednesday, August 30, 2017 16:06:40
Number of Replicates: 3
Autosampler Position: 101
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	131173.7	0.5				ug/L	129165	Standard
	Be	9	71114.9	1.3	**51.2115**	0.900	1.8	ug/L	22	Standard
	Al	27	5860774.6	0.8	**50.7320**	0.174	0.3	ug/L	2003	Standard
	Sc	45	33492.0	0.5				ug/L	32341	Standard
	Ti	47	25907.5	0.6	**102.6767**	1.499	1.5	ug/L	31	Standard
	V	51	327774.8	0.3	**50.5089**	0.979	1.9	ug/L	1621	Standard
	Cr	52	301684.6	0.7	**50.1158**	1.258	2.5	ug/L	7503	Standard
	Cr	53	40168.2	2.0	**52.0458**	1.233	2.4	ug/L	2322	Standard
	Mn	55	460210.3	0.8	**50.0724**	0.649	1.3	ug/L	1683	Standard
	Co	59	360275.1	1.3	**50.4562**	0.556	1.1	ug/L	432	Standard
	Ni	60	76866.2	1.4	**50.2899**	0.986	2.0	ug/L	369	Standard
	Cu	65	69733.8	1.6	**50.8778**	1.246	2.4	ug/L	160	Standard
	Zn	66	36832.7	1.9	**50.2498**	0.693	1.4	ug/L	192	Standard
>	Ge	72	298181.7	2.1				ug/L	294345	Standard
	As	75	37164.0	1.8	**49.2513**	0.619	1.3	ug/L	-18	Standard
	Se	82	3075.3	3.1	**49.6966**	1.025	2.1	ug/L	20	Standard
	Se-1	77	2570.9	2.3	**52.1837**	1.643	3.1	ug/L	183	Standard
>	Ga	71	50.0	30.0				mg/L	27	Standard
	Rb	85	668.3	6.3				ug/L	47	Standard
	Y	89	256660.0	4.4				ug/L	260351	Standard
>	Rh	103	81.7	7.1				ug/L	65	Standard
	Mo	98	261125.0	1.2	**100.4481**	0.788	0.8	ug/L	45	Standard
	Ag	107	212251.2	1.3	**50.8710**	0.399	0.8	ug/L	111	Standard
	Cd	111	49568.7	0.8	**50.7870**	0.663	1.3	mg/L	6	Standard
	Cd	114	139673.4	1.1	**50.4372**	0.607	1.2	ug/L	13	Standard
>	In	115	332171.5	1.0				ug/L	325147	Standard
	Sn	118	36212.2	2.7	**50.8430**	1.429	2.8	ug/L	80	Standard
	Sb	123	166576.6	2.5	**51.4219**	1.272	2.5	ug/L	123	Standard
	Ba	135	63816.5	2.8	**50.1188**	1.343	2.7	ug/L	24	Standard
	Ce	140	106.7	10.8				ug/L	7	Standard
>	Tb	159	596003.6	1.0				ug/L	582613	Standard
	Ho	165	15.0	0.0				ug/L	17	Standard
	Tl	203	385026.6	0.9	**50.1583**	1.196	2.4	ug/L	100	Standard
	Tl	205	901111.4	1.2	**50.4611**	0.761	1.5	ug/L	260	Standard
	Pb	206	292394.4	0.6	**49.6425**	0.828	1.7	ug/L	292	Standard
	Pb	207	259092.5	0.3	**51.3776**	1.063	2.1	ug/L	246	Standard
	Pb	208	466323.4	2.6	**49.4386**	2.175	4.4	ug/L	472	Standard
	U	238	421330.5	1.0	**49.4748**	1.439	2.9	ug/L	5	Standard
>	Bi	209	426126.4	2.0				ug/L	433909	Standard

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	Na	23	13.3	43.3	**4.1237**	2.039	49.4	mg/L	3	Standard
	Mg	24	283.3	6.2	**4.2831**	0.311	7.3	mg/L	32	Standard
	K	39	651.7	9.7	**4.6361**	0.450	9.7	mg/L	18	Standard
	Ca	43	31.7	9.1	**-13.8605**	2.897	20.9	mg/L	47	Standard
	Fe	54	252.8	15.7	**4.3204**	0.761	17.6	mg/L	24	Standard
	Fe	57	878.4	12.0	**26.5145**	22.754	85.8	mg/L	688	Standard
>	**Sc-1**	45	33492.0	0.5				mg/L	32341	Standard
	Cl	35	1.3	86.6				ug/L	3	Standard
	Kr	83	4.7	44.6				ug/L	4	Standard
	Br	81	983.4	12.7				ug/L	993	Standard
	P	31	93.3	82.0				ug/L	53	Standard
	S	34	18.3	87.7				ug/L	25	Standard
	Sr	88	368.3	7.5				ug/L	340	Standard
	C	12	3.3	173.2				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	21.9	52.7				mg/L	5	Standard
	Ho-1	165	15.0	0.0				mg/L	17	Standard
	Er	166	30.0	0.0				mg/L	27	Standard
	I	127	2495.2	4.0				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
>	Li	6			
	Be	9	102.423		
	Al	27	101.464		
	Sc	45			
	Ti	47	102.677		
	V	51	101.018		
	Cr	52	100.232		
	Cr	53			
	Mn	55	100.145		
	Co	59	100.912		
	Ni	60	100.580		
	Cu	65	101.756		
	Zn	66	100.500		
>	Ge	72		101.303	
	As	75	98.503		
	Se	82	99.393		
	Se-1	77			
>	Ga	71			

Sample ID: QC Std 6
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⌊	Rb	85			
⌈	Y	89			
⌊>	Rh	103			
⌈	Mo	98	100.448		
|	Ag	107	101.742		
|	Cd	111	101.574		
|	Cd	114			
| >	In	115		102.160	
|	Sn	118	101.686		
|	Sb	123	102.844		
⌊	Ba	135	100.238		
⌈	Ce	140			
⌊>	Tb	159			
⌈	Ho	165			
|	Tl	203	100.317		
|	Tl	205			
|	Pb	206			
|	Pb	207			
|	Pb	208	98.877		
|	U	238	98.950		
⌊>	Bi	209		98.206	
⌈	Na	23			
|	Mg	24			
|	K	39			
|	Ca	43			
|	Fe	54			
|	Fe	57			
⌊>	Sc-1	45			
	Cl	35			
	Kr	83			
	Br	81			
	P	31			
	S	34			
	Sr	88			
	C	12			
	N	14			
	Hg	202			
	Dy	164			
	Ho-1	165			
	Er	166			
	I	127			

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 6
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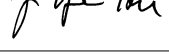

Method 6020 - Summary Report

Sample ID: QC Std 7
Sample Date/Time: Wednesday, August 30, 2017 16:09:46
Number of Replicates: 3
Autosampler Position: 102
Sample Description:
Method File: C:\NexIONData\Method\6020a.mth
Aliquot Volume (mL):
Diluted to Volume (mL):
User Name: JYH Nexion300X
Cumulative Autodilution Factor: 1
Nexion-ICP 200.8\6020

Concentration Results

IS	Analyte	Mass	Intensity	RSD	Conc.	SD	RSD	Units	Blank Intens.	Mode
>	Li	6	131557.0	1.0				ug/L	129165	Standard
	Be	9	28.3	44.4	**0.0115**	0.009	76.9	ug/L	22	Standard
	Al	27	1945.1	9.7	**-0.0245**	0.001	6.0	ug/L	2003	Standard
	Sc	45	32038.9	3.0				ug/L	32341	Standard
	Ti	47	35.3	1.6	**0.0260**	0.001	4.0	ug/L	31	Standard
	V	51	1336.6	10.4	**-0.0310**	0.019	60.3	ug/L	1621	Standard
	Cr	52	6564.1	1.0	**-0.1879**	0.014	7.2	ug/L	7503	Standard
	Cr	53	2628.6	6.5	**0.8370**	0.191	22.8	ug/L	2322	Standard
	Mn	55	2143.8	13.2	**0.0471**	0.026	56.0	ug/L	1683	Standard
	Co	59	422.7	3.2	**0.0003**	0.001	216.4	ug/L	432	Standard
	Ni	60	313.3	2.9	**-0.0340**	0.004	12.5	ug/L	369	Standard
	Cu	65	186.0	5.2	**0.0107**	0.005	47.1	ug/L	160	Standard
	Zn	66	163.7	3.7	**-0.1142**	0.006	5.1	ug/L	192	Standard
>	Ge	72	294901.4	2.1				ug/L	294345	Standard
	As	75	-89.8	39.2	**-0.0315**	0.046	146.4	ug/L	-18	Standard
	Se	82	12.5	35.5	**-0.0238**	0.068	285.6	ug/L	20	Standard
	Se-1	77	217.3	10.4	**0.9876**	0.511	51.7	ug/L	183	Standard
>	Ga	71	43.3	26.6				mg/L	27	Standard
	Rb	85	63.3	25.4				ug/L	47	Standard
	Y	89	257347.2	3.5				ug/L	260351	Standard
>	Rh	103	41.7	25.0				ug/L	65	Standard
	Mo	98	263.5	11.9	**0.0876**	0.012	14.0	ug/L	45	Standard
	Ag	107	125.7	14.3	**0.0049**	0.004	89.4	ug/L	111	Standard
	Cd	111	9.4	21.9	**-0.0005**	0.002	428.7	mg/L	6	Standard
	Cd	114	24.1	48.1	**-0.0175**	0.004	23.7	ug/L	13	Standard
>	In	115	332603.4	0.4				ug/L	325147	Standard
	Sn	118	94.7	4.0	**0.0156**	0.006	35.7	ug/L	80	Standard
	Sb	123	522.4	3.3	**0.1434**	0.005	3.4	ug/L	123	Standard
	Ba	135	31.3	16.1	**0.0018**	0.004	219.4	ug/L	24	Standard
	Ce	140	45.0	19.2				ug/L	7	Standard
>	Tb	159	592181.0	1.7				ug/L	582613	Standard
	Ho	165	10.0	50.0				ug/L	17	Standard
	Tl	203	134.3	19.6	**0.0035**	0.003	88.9	ug/L	100	Standard
	Tl	205	266.7	12.5	**0.0060**	0.002	29.6	ug/L	260	Standard
	Pb	206	506.0	16.9	**0.0290**	0.013	44.9	ug/L	292	Standard
	Pb	207	411.7	19.0	**0.0283**	0.014	50.1	ug/L	246	Standard
	Pb	208	762.3	17.2	**0.0283**	0.013	44.8	ug/L	472	Standard
	U	238	31.0	42.2	**0.0029**	0.001	49.3	ug/L	5	Standard
>	Bi	209	432849.2	1.4				ug/L	433909	Standard

Sample ID: QC Std 7
Report Date/Time: Wednesday, August 30, 2017 16:11:57
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⌈	**Na**	23	1.7	173.2	**0.0305**	1.107	3632.6	mg/L	3	Standard
|	**Mg**	24	60.0	8.3	**0.0400**	0.128	319.3	mg/L	32	Standard
|	**K**	39	18.3	15.7	**-0.0070**	0.023	328.7	mg/L	18	Standard
|	**Ca**	43	35.0	28.6	**-8.7046**	11.037	126.8	mg/L	47	Standard
|	**Fe**	54	46.4	16.7	**0.3490**	0.184	52.6	mg/L	24	Standard
|	**Fe**	57	665.0	4.0	**-13.6682**	4.465	32.7	mg/L	688	Standard
⌊>	**Sc-1**	45	32038.9	3.0				mg/L	32341	Standard
	Cl	35	2.0	100.0				ug/L	3	Standard
	Kr	83	3.3	34.6				ug/L	4	Standard
	Br	81	1050.0	7.8				ug/L	993	Standard
	P	31	48.3	15.8				ug/L	53	Standard
	S	34	18.3	41.7				ug/L	25	Standard
	Sr	88	343.3	0.8				ug/L	340	Standard
	C	12	13.3	114.6				mg/L	3	Standard
	N	14	0.0					mg/L	0	Standard
	Hg	202	0.0					mg/L	3	Standard
	Dy	164	13.0	115.8				mg/L	5	Standard
	Ho-1	165	10.0	50.0				mg/L	17	Standard
	Er	166	6.7	86.6				mg/L	27	Standard
	I	127	7225.1	4.7				mg/L	10150	Standard

QC Calculated Values

	Analyte	Mass	QC Std % Recovery	Int Std % Recovery	Spike % Recovery
⌈>	Li	6			
|	Be	9			
⌊	Al	27			
⌈	Sc	45			
|	Ti	47			
|	V	51			
|	Cr	52			
|	Cr	53			
|	Mn	55			
|	Co	59			
|	Ni	60			
|	Cu	65			
|	Zn	66			
|>	Ge	72		100.189	
|	As	75			
|	Se	82			
⌊	Se-1	77			
⌈>	Ga	71			

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⌊	Rb	85	
⌈	Y	89	
⌊>	Rh	103	
⌈	Mo	98	
|	Ag	107	
|	Cd	111	
|	Cd	114	
|>	In	115	102.293
|	Sn	118	
|	Sb	123	
⌊	Ba	135	
⌈	Ce	140	
⌊>	Tb	159	
⌈	Ho	165	
|	Tl	203	
|	Tl	205	
|	Pb	206	
|	Pb	207	
|	Pb	208	
|	U	238	
⌊>	Bi	209	99.756
⌈	Na	23	
|	Mg	24	
|	K	39	
|	Ca	43	
|	Fe	54	
|	Fe	57	
⌊>	Sc-1	45	
	Cl	35	
	Kr	83	
	Br	81	
	P	31	
	S	34	
	Sr	88	
	C	12	
	N	14	
	Hg	202	
	Dy	164	
	Ho-1	165	
	Er	166	
	I	127	

QC Out of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Sample ID: QC Std 7
Report Date/Time: Wednesday, August 30, 2017 16:11:57
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2.4 General Chemistry Data

2.4.1 Method 9056

2.4.1.1 Summary Data

Login Number: L17081305
Department: General Chromatography
Analyst: Craig Smith

METHOD

Analysis EPA300.0/SW846 9056

HOLDING TIMES

Sample Analysis: Hold times for NO2 and NO3 are 48 hours and the hold times for F, Cl, Br, and SO4 are 28 days. The hold time forms calculate the hold time based on 48 hours. All samples were analyzed in hold.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The client did not specify an MS/MSD for this sample delivery group. The laboratory selected sample 03 for MS/MSD analysis and recoveries out of range were observed for chloride and sulfate. Please see the applicable QC report for a detailed presentation of the failures.

Sample 03 initially contained amounts of chloride and sulfate greater than that of the MS/MSD spiking solution.

SAMPLES

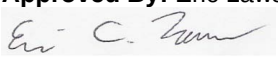
Samples: Samples 01, 03, 08, 10, and 12 were analyzed at dilutions only due to their pre-run screen results for CL which were greater than 200 ppm. Any sample that has a single anion load greater than 200 ppm will be diluted in order to prevent damage to the ion chromatograph, which is caused by repeated overloading of the analytical column and oversaturation of the conductivity suppressor and/or detector.

MANUAL INTEGRATION: Sample 03 (Dup, MS, MSD) were manually integrated. Reason #4: System Establishes Incorrect Baseline- The system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Sample 08 was manually integrated. Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128746
Approved By: Eric Lawson



Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: PZ06-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/25/2017 22:34
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** I3_082517-17
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	77.7	E	0.200	0.100
Sulfate	14808-79-8	65.9		1.00	0.500

E	Semiquantitative result (out of calibration range)

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: PZ06-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/25/2017 22:55
Collect Date: 08/23/2017 09:42 **Dilution:** 10 **File ID:** I3_082517-18
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	91.9		2.00	1.00
Sulfate	14808-79-8	65.7		10.0	5.00

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: PZ04-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/25/2017 23:15
Collect Date: 08/23/2017 10:58 **Dilution:** 20 **File ID:** I3_082517-19
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	364		4.00	2.00
Sulfate	14808-79-8	983		20.0	10.0

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW31-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 00:37
Collect Date: 08/23/2017 10:35 **Dilution:** 5 **File ID:** I3_082517-23
Sample Tag: DL01 **Units:** mg/L

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	489	E	1.00	0.500
Sulfate	14808-79-8	362		5.00	2.50

E	Semiquantitative result (out of calibration range)

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW31-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 00:57
Collect Date: 08/23/2017 10:35 **Dilution:** 50 **File ID:** I3_082517-24
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	780		10.0	5.00
Sulfate	14808-79-8	404		50.0	25.0

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW30-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 02:18
Collect Date: 08/23/2017 12:40 **Dilution:** 5 **File ID:** I3_082517-28
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	305	E	1.00	0.500
Sulfate	14808-79-8	340		5.00	2.50

E	Semiquantitative result (out of calibration range)

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** IC3
Client ID: MW30-082317 **Prep Method:** 300.0 **Prep Date:** 08/25/2017 17:49
Matrix: Water **Analytical Method:** 300.0 **Cal Date:** 06/26/2017 19:12
Workgroup #: WG627352 **Analyst:** CAS **Run Date:** 08/26/2017 02:39
Collect Date: 08/23/2017 12:40 **Dilution:** 50 **File ID:** I3_082517-29
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	343		10.0	5.00
Sulfate	14808-79-8	343		50.0	25.0

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	IC3
Client ID:	MW11S-082317	**Prep Method:**	300.0	**Prep Date:**	08/25/2017 17:49
Matrix:	Water	**Analytical Method:**	300.0	**Cal Date:**	06/26/2017 19:12
Workgroup #:	WG627352	**Analyst:**	CAS	**Run Date:**	08/26/2017 02:59
Collect Date:	08/23/2017 13:55	**Dilution:**	5	**File ID:**	I3_082517-30
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	558	E	1.00	0.500
Sulfate	14808-79-8	201		5.00	2.50

E	Semiquantitative result (out of calibration range)

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	IC3
Client ID:	MW11S-082317	**Prep Method:**	300.0	**Prep Date:**	08/25/2017 17:49
Matrix:	Water	**Analytical Method:**	300.0	**Cal Date:**	06/26/2017 19:12
Workgroup #:	WG627352	**Analyst:**	CAS	**Run Date:**	08/26/2017 03:20
Collect Date:	08/23/2017 13:55	**Dilution:**	50	**File ID:**	I3_082517-31
Sample Tag:	DL02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	724		10.0	5.00
Sulfate	14808-79-8	204		50.0	25.0

2.4.1.2 QC Summary Data

Example Calculations - Ion Chromatography

A. Methods 9056/300.0 (Quadratic with Offset)

1. Retrieve Curve Data from the ICAL Curve

c2 = the value of curve constant
c1= the curve slope
c0 = the curve offset

2. Obtain the area, y , from the instrument raw data

3. Calculate the concentration of the analyte, f(y), where:

$$f(y) = \frac{1}{2 * c_2} * \left(- c_1 \pm \sqrt{c_1^2 - 4 * c_2 * (c_0 - y)} \right)$$

Example Calculation:

Value of constant, c2, (curve):	0.0003
Value of curve constant, c1, (slope):	0.0869
Value of curve constant, c0, (offset):	-0.0103
Area of target analyte, y, (uS*min):	2.993
Calculated concentration, f(y), (mg/L):	31.1998864
or:	-40.1161215 *
Dilution factor (D):	1.00
Concentration of analyte in sample (mg/L):	31.200

* There are two possible solutions, but only one is valid.

B. Method 314.0 - Perchlorate (Linear)

Retrieve Curve Data from Linear Plot

c1 = the curve slope

Obtain the area, y , from the quantitation report

Calculate the concentration of the analyte, f(y), where:

f (y) = y / c1

Example Calculation:

Value of c1, slope:	0.0034
Area of target analyte, y:	0.083
Calculated concentration:	24.4117647
Dilution Factor:	1
Concentration in sample:	24.4117647

Microbac Laboratories Inc.

Instrument Run Log

Instrument: IC3 Dataset: 062617 ICAL IC3.SEQ

Analyst1: CAS Analyst2: NA

Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: Syringe Filter Lot#: 161205254

Eluent ID#: RGT40584

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM

Analytical WGs: WG618468 (MDL x7 Waters), WG618469 (MDL x7 Soils)

Internal STD: NA Surrogate STD: NA Calibration STD STD81395(26-JUN-2017)

CCV STD: STD81395 LCS STD: STD81396 MS/MSD STD: NS

Comments: System Backpressure: 2189 psi

SSCV STD: STD81396
Guard Column: AG14A-4MM S/N 160604051
Analytical Column: AS14A-4MM S/N 010871
Suppressor:: AERS 500 S/N 082540

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I3_062617-01	ELUENT	1	1		06/26/17 16:50
2	I3_062617-02	DI WATER	1	1		06/26/17 17:10
3	I3_062617-03	WG619464-01 STD	1	1	STD81395	06/26/17 17:31
4	I3_062617-04	WG619464-02 STD	1	1	STD81395	06/26/17 17:51
5	I3_062617-05	WG619464-03 STD	1	1	STD81395	06/26/17 18:11
6	I3_062617-06	WG619464-04 STD	1	1	STD81395	06/26/17 18:32
7	I3_062617-07	WG619464-05 STD	1	1	STD81395	06/26/17 18:52
8	I3_062617-08	WG619464-06 STD	1	1	STD81395	06/26/17 19:12
9	I3_062617-09	WG619464-07 SSCV	1	1	STD81396	06/26/17 19:33
10	I3_062617-10	LCRV @ Lvl 6	1	1	STD81396	06/26/17 19:53
11	I3_062617-11	LCRV @ Lvl 4	1	1	STD81396	06/26/17 20:13
12	I3_062617-12	LCRV @ Lvl 2	1	1	STD81396	06/26/17 20:34
13	I3_062617-13	LCRV @ Lvl 0	1	1		06/26/17 20:54
14	I3_062617-14	WG618473-01 ANION CCV	1	1	STD81395	06/26/17 21:15
15	I3_062617-15	WG618473-02 ANION CCB	1	1		06/26/17 21:35
16	I3_062617-16	WG618468-01 ANION BLANK	1	1		06/26/17 21:55
17	I3_062617-17	WG618468-02 ANION LCS	1	1	STD81396	06/26/17 22:16
18	I3_062617-18	WG618468-03 ANION LCS2	1	1	STD81396	06/26/17 22:36
19	I3_062617-19	L17060001-08 (F,CL,BR,SO4) MDL \#1	1	1	STD81396	06/26/17 22:56
20	I3_062617-20	L17060001-09 (F,CL,BR,SO4) MDL \#2	1	1	STD81396	06/26/17 23:17
21	I3_062617-21	L17060001-08 (NO2,NO3) MDL \#1	1	1	STD81396	06/26/17 23:37
22	I3_062617-22	L17060001-09 (NO2,NO3) MDL \#2	1	1	STD81396	06/26/17 23:57
23	I3_062617-23	WG618473-03 ANION CCV	1	1	STD81395	06/27/17 00:18
24	I3_062617-24	WG618473-04 ANION CCB	1	1		06/27/17 00:38
25	I3_062617-25	WG618469-01 ANION BLANK	7	1		06/27/17 00:58
26	I3_062617-26	WG618469-02 ANION LCS	7	1	STD81396	06/27/17 01:19
27	I3_062617-27	WG618469-03 ANION LCS2	7	1	STD81396	06/27/17 01:39
28	I3_062617-28	L17060001-15 (F,CL,BR,SO4) MDL \#1	7	1	STD81396	06/27/17 02:00
29	I3_062617-29	L17060001-16 (F,CL,BR,SO4) MDL \#2	7	1	STD81396	06/27/17 02:20
30	I3_062617-30	L17060001-15 (NO2,NO3) MDL \#1	7	1	STD81396	06/27/17 02:40
31	I3_062617-31	L17060001-16 (NO2,NO3) MDL \#2	7	1	STD81396	06/27/17 03:01

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: IC3 Dataset: 062617 ICAL IC3.SEQ

Analyst1: CAS Analyst2: NA

Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: Syringe Filter Lot#: 161205254

Eluent ID#: RGT40584

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM

Analytical WGs: WG618468 (MDL x7 Waters), WG618469 (MDL x7 Soils)

Internal STD: NA Surrogate STD: NA STD81395(26-JUN-2017)

CCV STD: STD81395 LCS STD: STD81396 NS

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
32	I3_062617-32	WG618473-05 ANION CCV	1	1	STD81395	06/27/17 03:21
33	I3_062617-33	WG618473-06 ANION CCB	1	1		06/27/17 03:41
34	I3_062617-34	END	1	1		06/27/17 04:02

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Approved: 27-JUN-17

Microbac Laboratories Inc.

Instrument Run Log

Instrument: IC3 Dataset: 082517 IC3.SEQ
Analyst1: CAS Analyst2: NA
Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: Syringe Filter Lot#: 161205254
Eluent ID#: RGT41063

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
Analytical WGs: WG627352 (Waters), WG627353 (Soils)

Internal STD: NA Surrogate STD: NA Calibration STD STD81395(26-JUN-2017)
CCV STD: STD81395 LCS STD: STD81396 MS/MSD STD: STD81396

Comments: System Backpressure: 2204 psi

Samples L17081298-01 and L17081299-03 were analyzed at dilutions only due to their pre-run screen results for sulfate, which were greater than the calibration maximum.

Samples L17081305 (-08,10,12) and L17081212 (-08,11,17) were analyzed at dilutions only due to their pre-run screen results for chloride, whcih were greater than 200 ppm.

Sample L17081262-01 was analyzed at a dilution only due to its pre-run screen result for chloride, which was greater than the calibration maximum.

Sample L17081305-03 was analyzed at a dilution only due to its pre-run screen results for chloride and sulfate, which were greater than their calibration maxima.

Sample L17081299-02 was analyzed at a dilution only due to its sample matrix. In order for a sample to be analyzed, it must first pass through a 0.45 um PTFE filter. This sample, as neat, would not do so. The minimum required dilution for filtration was a 10x.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	I3_082517-01	ELUENT	1	1		08/25/17 17:09
2	I3_082517-02	DI WATER	1	1		08/25/17 17:29
3	I3_082517-03	WG627354-01 ANION CCV	1	1	STD81395	08/25/17 17:49
4	I3_082517-04	WG627354-02 ANION CCB	1	1		08/25/17 18:10
5	I3_082517-05	WG627353-01 ANION BLANK	7	1		08/25/17 18:30
6	I3_082517-06	WG627353-02 ANION LCS	7	1	STD81396	08/25/17 18:51
7	I3_082517-07	WG627353-03 ANION LCS2	7	1	STD81396	08/25/17 19:11
8	I3_082517-08	L17081262-01 (CL) 10x	7	10		08/25/17 19:31
9	I3_082517-09	WG627352-01 ANION BLANK	1	1		08/25/17 19:52
10	I3_082517-10	WG627352-02 ANION LCS	1	1	STD81396	08/25/17 20:12
11	I3_082517-11	L17081298-01 (SO4) 100x	2	100		08/25/17 20:32
12	I3_082517-12	L17081299-02 (SO4) 10x REF	1	10		08/25/17 20:53
13	I3_082517-13	WG627352-04 DUP 1299-02	2	10		08/25/17 21:13
14	I3_082517-14	L17081299-03 (SO4) 400x	2	400		08/25/17 21:33
15	I3_082517-15	WG627354-03 ANION CCV	1	1	STD81395	08/25/17 21:54
16	I3_082517-16	WG627354-04 ANION CCB	1	1		08/25/17 22:14
17	I3_082517-17	L17081305-01 (CL,SO4)	1	1		08/25/17 22:34
18	I3_082517-18	L17081305-01 RR CL 10x	1	10		08/25/17 22:55
19	I3_082517-19	L17081305-03 (CL,SO4) 20x REF	1	20		08/25/17 23:15
20	I3_082517-20	WG627352-06 DUP 1305-03 20x	1	20		08/25/17 23:36
21	I3_082517-21	WG627352-07 MS 1305-03 20x	1	20	STD81396	08/25/17 23:56
22	I3_082517-22	WG627352-08 MSD 1305-03 20x	1	20	STD81396	08/26/17 00:16
23	I3_082517-23	L17081305-08 (CL,SO4) 5x	1	5		08/26/17 00:37
24	I3_082517-24	L17081305-08 RR CL 50x	1	50		08/26/17 00:57

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: IC3 Dataset: 082517 IC3.SEQ
Analyst1: CAS Analyst2: NA
Method: 300/9056 SOP: IC01 Rev: 19

Maintenance Log ID: Syringe Filter Lot#: 161205254
Eluent ID#: RGT41063

Workgroups: Column 1 ID: AG14A-4MM Column 2 ID: AS14A-4MM
Analytical WGs: WG627352 (Waters), WG627353 (Soils)

Internal STD: NA Surrogate STD: NA STD81395(26-JUN-2017)
CCV STD: STD81395 LCS STD: STD81396 STD81396

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
25	I3_082517-25	DI WATER	1	1		08/26/17 01:17
26	I3_082517-26	WG627354-05 ANION CCV	1	1	STD81395	08/26/17 01:38
27	I3_082517-27	WG627354-06 ANION CCB	1	1		08/26/17 01:58
28	I3_082517-28	L17081305-10 (CL,SO4) 5x	1	5		08/26/17 02:18
29	I3_082517-29	L17081305-10 RR CL 50x	1	50		08/26/17 02:39
30	I3_082517-30	L17081305-12 (CL,SO4) 5x	1	5		08/26/17 02:59
31	I3_082517-31	L17081305-12 RR CL 50x	1	50		08/26/17 03:20
32	I3_082517-32	L17081212-08 (CL,SO4) 10x	1	10		08/26/17 03:40
33	I3_082517-33	L17081212-08 RR CL 50x	1	50		08/26/17 04:00
34	I3_082517-34	DI WATER	1	1		08/26/17 04:21
35	I3_082517-35	WG627354-07 ANION CCV	1	1	STD81395	08/26/17 04:41
36	I3_082517-36	WG627354-08 ANION CCB	1	1		08/26/17 05:01
37	I3_082517-37	L17080945-01 (F,CL,SO4) RR 50x	2	50		08/26/17 05:22
38	I3_082517-38	L17080945-01 RR CL 500x	2	500		08/26/17 05:42
39	I3_082517-39	L17081212-11 (CL,SO4) 5x	1	5		08/26/17 06:02
40	I3_082517-40	L17081212-11 RR CL 50x	1	50		08/26/17 06:23
41	I3_082517-41	L17081212-17 (CL,SO4) 5x	1	5		08/26/17 06:43
42	I3_082517-42	L17081212-17 RR CL 50x	1	50		08/26/17 07:03
43	I3_082517-43	DI WATER	1	1		08/26/17 07:24
44	I3_082517-44	WG627354-09 ANION CCV	1	1	STD81395	08/26/17 07:44
45	I3_082517-45	WG627354-10 ANION CCB	1	1		08/26/17 08:05
46	I3_082517-46	END	1	1		08/26/17 08:25

Comments

Seq.	Rerun	Dil.	Reason	Analytes
21				
	Sample WG627352-07 MS 1305-03 20x had MS %Recs below the advisory limits for chloride and sulfate. This was due to the parent sample's initial matrix, which contained amounts of those analytes greater than their respective concentrations in the MS spiking solution.			
22				
	Sample WG627352-08 MSD 1305-03 20x had MSD %Recs below the advisory limits for chloride and sulfate. This was due to the parent sample's initial matrix, which contained amounts of those analytes greater than their respective concentrations in the MSD spiking solution.			
37				
	Sample L17080945-01 was not reported. This sample was re-analyzed to ensure that the correct dilutions were previously reported.			

Page: 2 Approved: 28-AUG-17

Microbac Laboratories Inc.

Data Checklist

Date: 26-JUN-2017
Analyst: CAS
Analyst: NA
Method: 300/9056
Instrument: IC3
Curve Workgroup: WG619464
Runlog ID: 83004
Analytical Workgroups: L17060001

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	2189 PSI
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	CAS
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	ECL

Primary Reviewer:
27-JUN-2017

Secondary Reviewer:
27-JUN-2017

CHECKLIST1 - Modified 03/05/2008
Generated: JUN-27-2017 11:56:01

Microbac Laboratories Inc.

Data Checklist

Date: 25-AUG-2017
Analyst: CAS
Analyst: NA
Method: 300/9056
Instrument: IC3
Curve Workgroup: NA
Runlog ID: 84210
Analytical Workgroups: L17081212, L17081262, L17081298, L17081299, L17081305

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	2204 PSI
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
Reruns	X
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	X
Check for completeness	X
Primary Reviewer	CAS
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	ECL

Primary Reviewer:
28-AUG-2017

Secondary Reviewer:
28-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-28-2017 12:29:09

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 300.0 **AAB#:** WG627352

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/25/2017	2.3	2	*	08/25/17	2.6	2	*
PZ06-082317	01	08/23/17					08/25/2017	2.3	2	*	08/25/17	2.5	2	*
PZ04-082317	03	08/23/17					08/25/2017	2.3	2	*	08/25/17	2.5	2	*
MW31-082317	08	08/23/17					08/25/2017	2.3	2	*	08/26/17	2.6	2	*
MW31-082317	08	08/23/17					08/25/2017	2.3	2	*	08/26/17	2.6	2	*
MW30-082317	10	08/23/17					08/25/2017	2.2	2	*	08/26/17	2.6	2	*
MW30-082317	10	08/23/17					08/25/2017	2.2	2	*	08/26/17	2.6	2	*
MW11S-082317	12	08/23/17					08/25/2017	2.2	2	*	08/26/17	2.6	2	*
MW11S-082317	12	08/23/17					08/25/2017	2.2	2	*	08/26/17	2.5	2	*

*** = SEE PROJECT QAPP REQUIREMENTS**

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5450779
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627352
Blank File ID: I3_082517-09
Blank Sample ID: WG627352-01
Prep Date: 08/25/17 17:49
Instrument ID: IC3
Analyzed Date: 08/25/17 19:52
Method: 300.0
Analyst: CAS

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627352-02	I3_082517-10	08/25/17 20:12	01
DUP	WG627352-04	I3_082517-13	08/25/17 21:13	DL01
PZ06-082317	L17081305-01	I3_082517-17	08/25/17 22:34	01
PZ06-082317	L17081305-01	I3_082517-18	08/25/17 22:55	DL01
PZ04-082317	L17081305-03	I3_082517-19	08/25/17 23:15	DL01
DUP	WG627352-06	I3_082517-20	08/25/17 23:36	DL01
MW31-082317	L17081305-08	I3_082517-23	08/26/17 00:37	DL01
MW31-082317	L17081305-08	I3_082517-24	08/26/17 00:57	DL02
MW30-082317	L17081305-10	I3_082517-28	08/26/17 02:18	DL01
MW30-082317	L17081305-10	I3_082517-29	08/26/17 02:39	DL02
MW11S-082317	L17081305-12	I3_082517-30	08/26/17 02:59	DL01
MW11S-082317	L17081305-12	I3_082517-31	08/26/17 03:20	DL02

Report Name: BLANK_SUMMARY
PDF File ID: 5450780
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/25/17 17:49 Sample ID: WG627352-01
Instrument ID: IC3 Run Date: 08/25/17 19:52 Prep Method: 300.0
File ID: I3_082517-09 Analyst: CAS Method: 300.0
Workgroup (AAB#): WG627352 Matrix: Water Units: mg/L
Contract #: Cal ID: IC3-26-JUN-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Chloride	0.100	0.200	0.100	1	U
Sulfate	0.500	1.00	0.500	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5450781
28-AUG-2017 13:11

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 Run Date: 08/25/2017 Sample ID: WG627352-02
Instrument ID: IC3 Run Time: 20:12 Prep Method: 300.0
File ID: I3_082517-10 Analyst: CAS Method: 300.0
Workgroup (AAB#): WG627352 Matrix: Water Units: mg/L
QC Key: WATERLOO Lot#: STD81396 Cal ID: IC3-26-JUN-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Chloride	8.00	8.18	102	90 - 110	
Sulfate	40.0	41.5	104	90 - 110	

LCS - Modified 03/06/2008
PDF File ID: 5450782
Report generated: 08/28/2017 13:11

Microbac Laboratories Inc.

DUPLICATE (DUP)

Sample Ref: L17081305-03 Cal ID: IC3 - Worknum: WG627352

Instrument ID: IC3 Method: 9056

Sample ID: WG627352-05 File ID: I3_082517-19 Dil: 20 Matrix: WATER

Duplicate ID: WG627352-06 File ID: I3_082517-20 Dil: 20 Units: mg/L

Analyte	Sample	Duplicate	RPD	RPD Limit	Q
Chloride	364	374	2.54	20	
Sulfate	983	986	0.356	20	

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_DUP_DRYWT - Modified 03/06/2008

PDF File ID: 5450784

Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum: L17081305 Cal ID: IC3- Worknum: WG627352

Instrument ID: IC3 Contract #: Method: 300.0

Parent ID: WG627352-05 File ID: I3_082517-19 Dil: 20 Matrix: WATER

Sample ID: WG627352-07 MS File ID: I3_082517-21 Dil: 20 Units: mg/L

Sample ID: WG627352-08 MSD File ID: I3_082517-22 Dil: 20

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Chloride	364	8.00	350	-184	8.00	349	-188	0.0916	90 - 110	20	*
Sulfate	983	40.0	938	-112	40.0	937	-114	0.102	90 - 110	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 05/26/2011

PDF File ID: 5450783

Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L17081305 **Instrument ID:** IC3

Analytical Method: 300.0 **Initial Calibration Date:** 26-JUN-17 19:12

ICAL Workgroup: WG619464 **Column ID:** F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Chloride		5.722	6.14		1.00000
Sulfate		7.790	8.18		1.00000

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 5451363
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 300.0
Instrument ID: IC3
Initial Calibration Date: 26-JUN-17 19:12
Column ID: F

Analyte	WG619464-01			WG619464-02			WG619464-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	0.200	0.0366000000	5.464	1.00	0.161800000	6.180	4.00	0.664500000	6.020
Sulfate	1.00	0.121400000	8.237	5.00	0.587100000	8.516	20.0	2.49160000	8.027

INT_CAL - Modified 03/06/2008
PDF File ID: 5451363
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L17081305
Analytical Method: 300.0
Instrument ID: IC3
Initial Calibration Date: 26-JUN-17 19:12
Column ID: F

Analyte	WG619464-04			WG619464-05			WG619464-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloride	8.00	1.38450000	5.778	12.0	2.12160000	5.656	24.0	4.58380000	5.236
Sulfate	40.0	5.17720000	7.726	60.0	8.09040000	7.416	120	17.6000000	6.818

INT_CAL - Modified 03/06/2008
PDF File ID: 5451363
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L17081305 Run Date: 06/26/2017 Sample ID: WG619464-07
Instrument ID: IC3 Run Time: 19:33 Method: 300.0
File ID: I3_062617-09 Analyst: CAS QC Key: WATERLOO
ICal Workgroup: WG619464 Cal ID: IC3 - 26-JUN-17

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloride		8.00	8.00	mg/L	5.86	0	10	
Sulfate		40.0	40.2	mg/L	7.75	0.400	10	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 5451364
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/25/2017 Sample ID: WG627354-02

Instrument ID: IC3 Run Time: 18:10 Method: 300.0

File ID: I3_082517-04 Analyst: CAS Units: mg/L

Workgroup (AAB#): WG627352 Cal ID: IC3 - 26-JUN-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.200	0.100	U
Sulfate	0.500	1.00	0.500	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5450786
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/25/2017	Sample ID:	WG627354-04
Instrument ID:	IC3	Run Time:	22:14	Method:	300.0
File ID:	I3_082517-16	Analyst:	CAS	Units:	mg/L
Workgroup (AAB#):	WG627352	Cal ID:	IC3 - 26-JUN-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.200	0.100	U
Sulfate	0.500	1.00	0.500	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5450786
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L17081305 Run Date: 08/26/2017 Sample ID: WG627354-06

Instrument ID: IC3 Run Time: 01:58 Method: 300.0

File ID: I3_082517-27 Analyst: CAS Units: mg/L

Workgroup (AAB#): WG627352 Cal ID: IC3 - 26-JUN-17

Matrix: WATER QAPP: WATERLOO

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.200	0.100	U
Sulfate	0.500	1.00	0.500	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5450786
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L17081305	Run Date:	08/26/2017	Sample ID:	WG627354-08
Instrument ID:	IC3	Run Time:	05:01	Method:	300.0
File ID:	I3_082517-36	Analyst:	CAS	Units:	mg/L
Workgroup (AAB#):	WG627352	Cal ID:	IC3 - 26-JUN-17		
Matrix:	WATER	QAPP:	WATERLOO		

Analytes	MDL	RDL	Concentration	Qualifier
Chloride	0.100	0.200	0.100	U
Sulfate	0.500	1.00	0.500	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 5450786
Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/25/2017 Sample ID: WG627354-01

Instrument ID: IC3 Run Time: 17:49 Method: 300.0

File ID: I3_082517-03 Analyst: CAS QC Key: WATERLOO

Workgroup (AAB#): WG627352 Cal ID: IC3 - 26-JUN-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		8.00	8.01	mg/L	5.86	0.0750	15	
Sulfate		40.0	40.5	mg/L	7.69	1.17	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5450785

Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/25/2017 Sample ID: WG627354-03

Instrument ID: IC3 Run Time: 21:54 Method: 300.0

File ID: I3_082517-15 Analyst: CAS QC Key: WATERLOO

Workgroup (AAB#): WG627352 Cal ID: IC3 - 26-JUN-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		8.00	8.05	mg/L	5.83	0.575	15	
Sulfate		40.0	40.6	mg/L	7.66	1.58	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5450785

Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/26/2017 Sample ID: WG627354-05

Instrument ID: IC3 Run Time: 01:38 Method: 300.0

File ID: I3_082517-26 Analyst: CAS QC Key: WATERLOO

Workgroup (AAB#): WG627352 Cal ID: IC3 - 26-JUN-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		8.00	8.04	mg/L	5.83	0.488	15	
Sulfate		40.0	40.6	mg/L	7.66	1.50	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 5450785

Report generated 08/28/2017 13:11

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L17081305 Run Date: 08/26/2017 Sample ID: WG627354-07

Instrument ID: IC3 Run Time: 04:41 Method: 300.0

File ID: I3_082517-35 Analyst: CAS QC Key: WATERLOO

Workgroup (AAB#): WG627352 Cal ID: IC3 - 26-JUN-17

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloride		8.00	8.04	mg/L	5.83	0.538	15	
Sulfate		40.0	40.6	mg/L	7.66	1.55	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

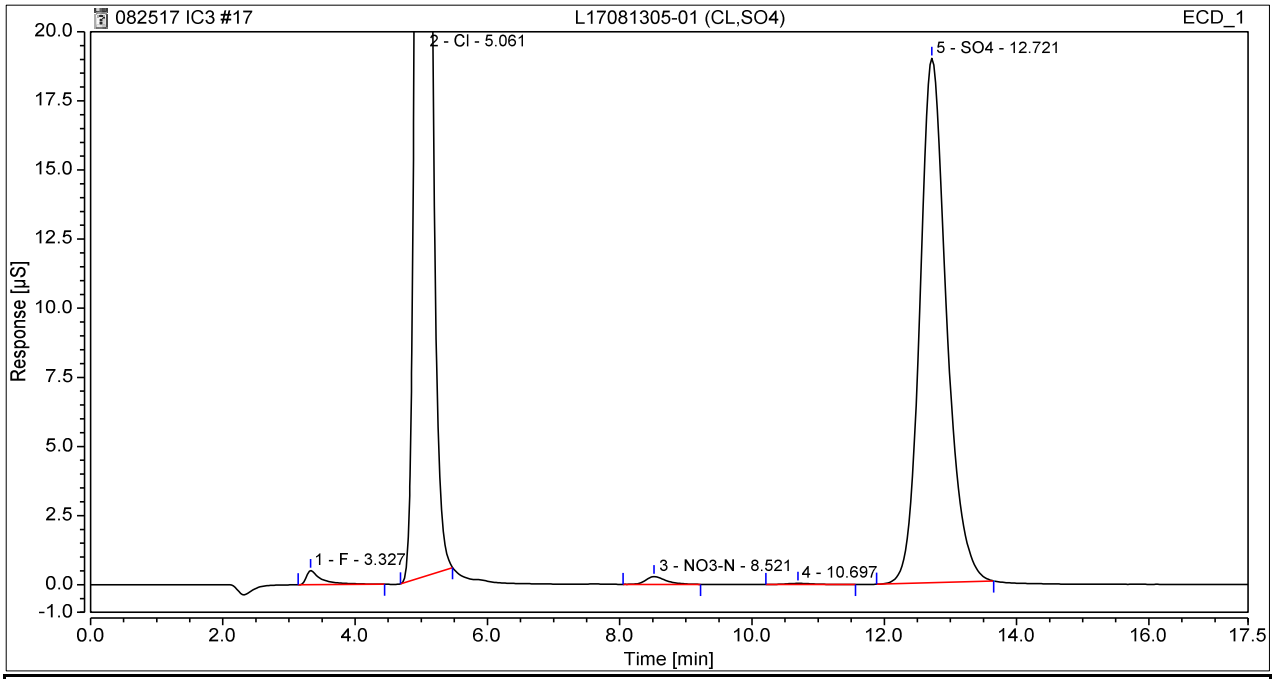
PDF File ID: 5450785

Report generated 08/28/2017 13:11

2.4.1.3 Sample Data

17 L17081305-01 (CL,SO4)
1,1 CAS

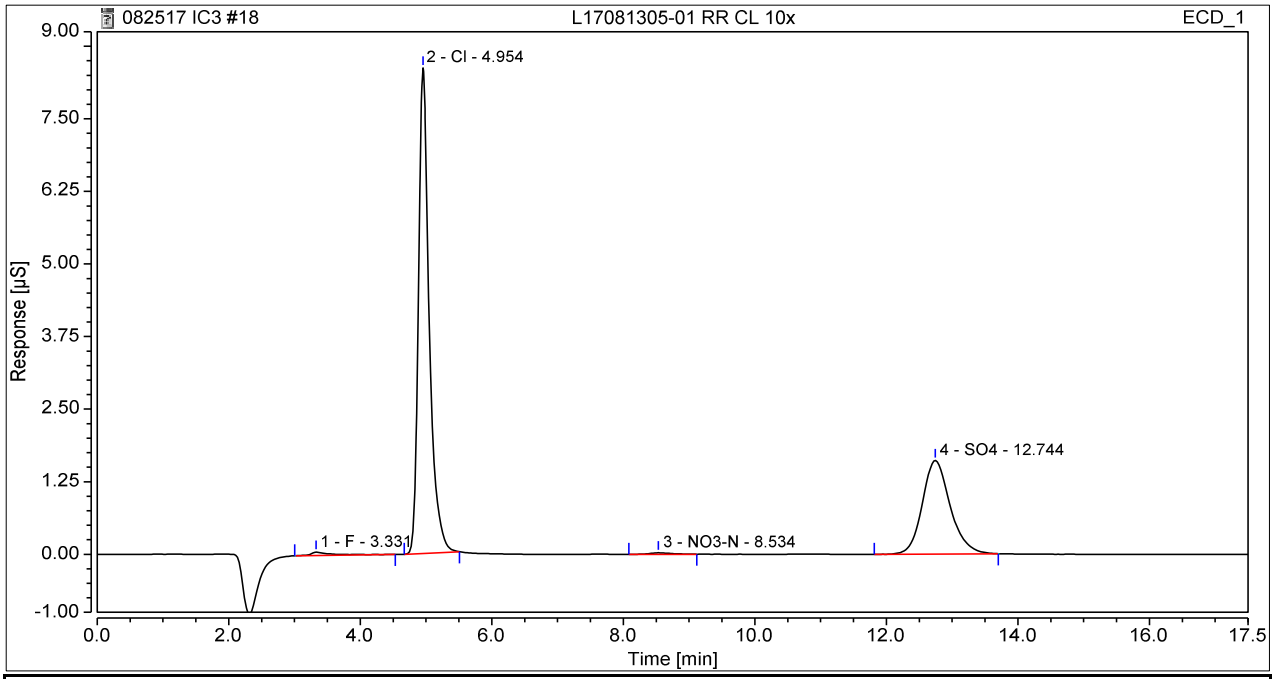
Sample Name:	**L17081305-01 (CL,SO4)**	*Injection Volume:*	**5000.0**
Vial Number:	**17**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 22:34**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.5111	0.1385	0.5	0.549	M
2	5.06	Cl	99.8060	20.6841	69.4	77.726	M
3	8.52	NO3-N	0.2789	0.0987	0.3	0.265	M
5	12.72	SO4	18.9618	8.8747	29.8	65.886	M
Total:			**119.56**	**29.80**	**100**	**144.43**	

18 L17081305-01 RR CL 10x
1,10 CAS

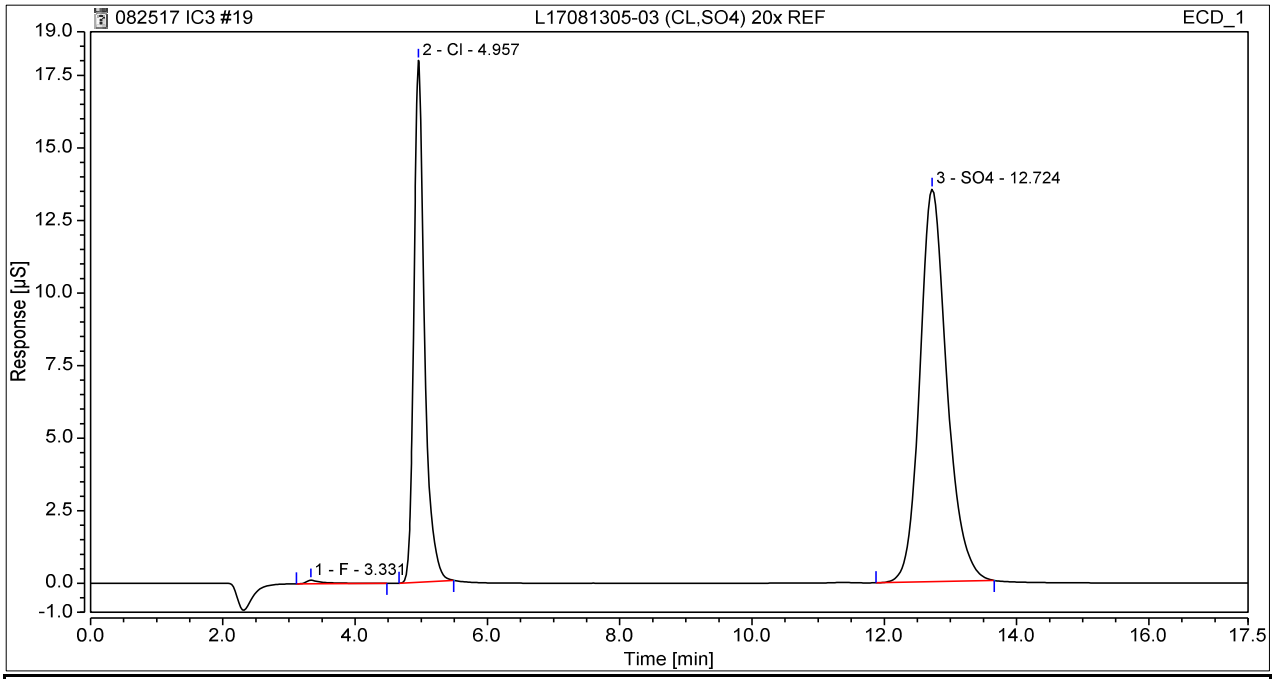
Sample Name:	**L17081305-01 RR CL 10x**	*Injection Volume:*	**5000.0**
Vial Number:	**18**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 22:55**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.0573	0.0214	0.9	0.057	M
2	4.95	Cl	8.3646	1.5815	65.7	9.188	M
3	8.53	NO3-N	0.0264	0.0100	0.4	0.032	M
4	12.74	SO4	1.6134	0.7925	32.9	6.574	M
Total:			**10.06**	**2.41**	**100**	**15.85**	

19 L17081305-03 (CL,SO4) 20x REF
1,20 CAS WG627352-05 REF (CL&SO4 screens>ICAL max)

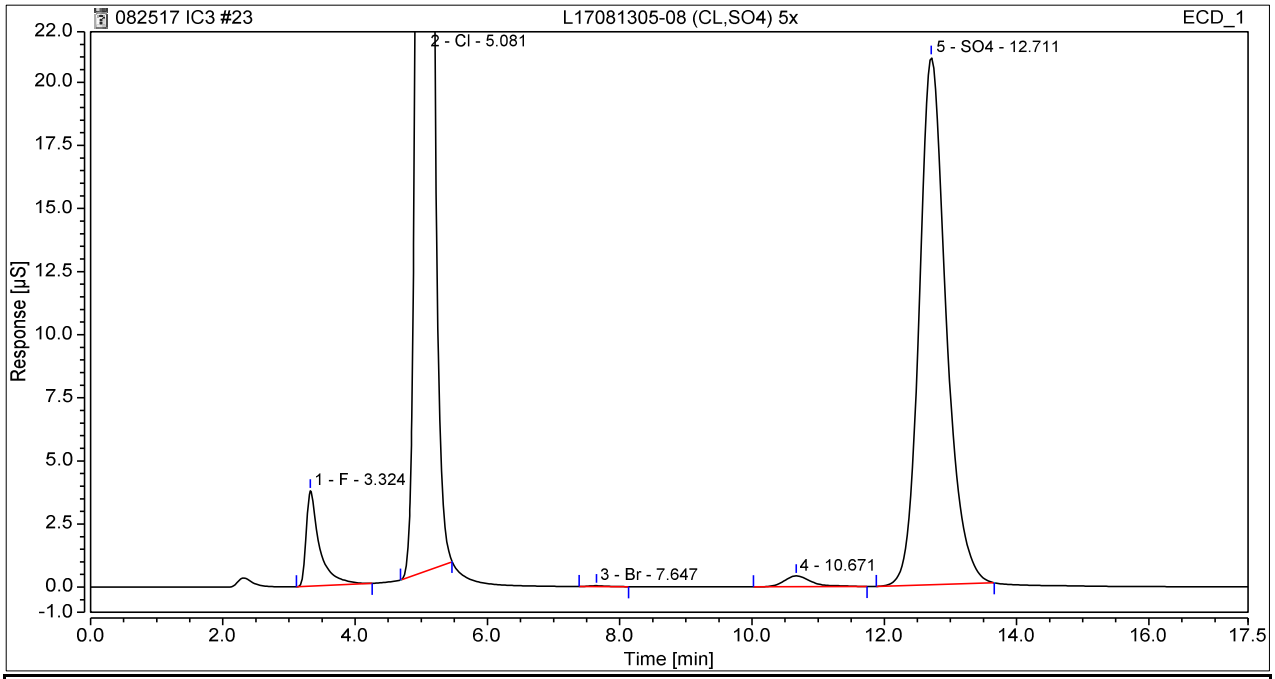
Sample Name:	**L17081305-03 (CL,SO4) 20x REF**	*Injection Volume:*	**5000.0**
Vial Number:	**19**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 23:15**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.1213	0.0360	0.4	0.119	M
2	4.96	Cl	17.9754	3.3582	34.2	18.219	M
3	12.72	SO4	13.5197	6.4190	65.4	49.136	M
Total:			**31.62**	**9.81**	**100**	**67.47**	

23 L17081305-08 (CL,SO4) 5x
1,5 CAS (CL screen>200ppm)

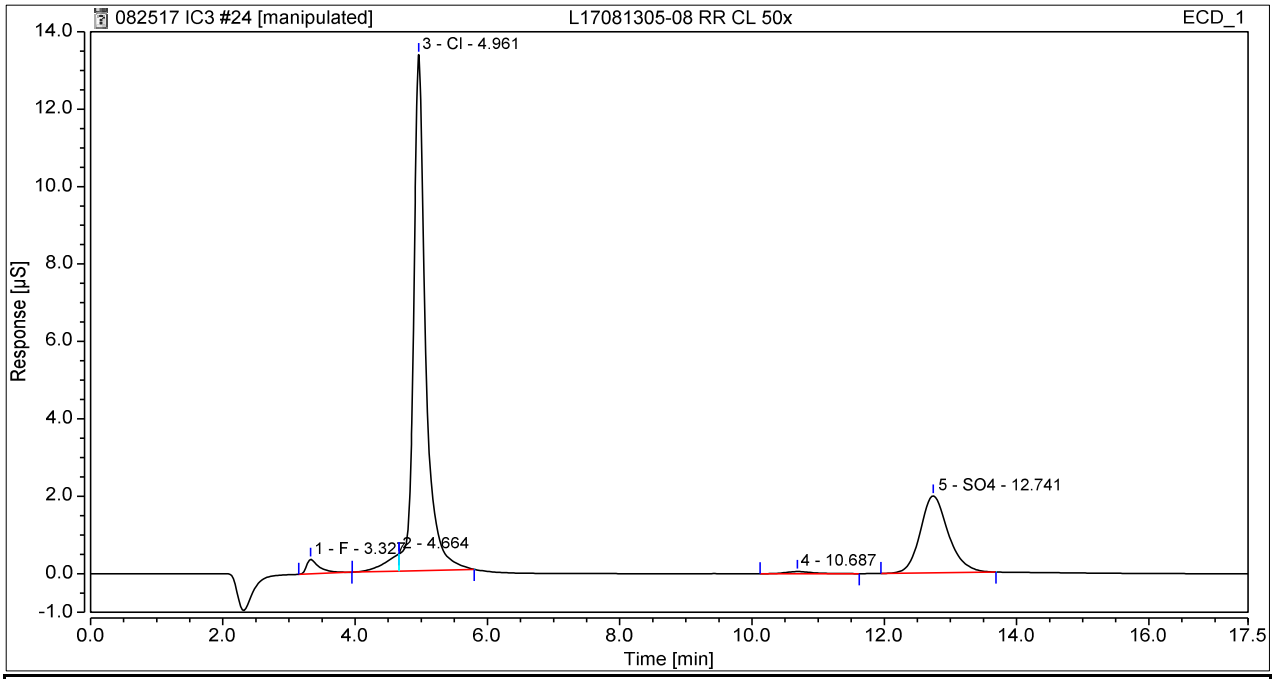
Sample Name:	**L17081305-08 (CL,SO4) 5x**	*Injection Volume:*	**5000.0**
Vial Number:	**23**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:37**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.32	F	3.7801	0.8832	2.2	3.611	M
2	5.08	Cl	148.2189	28.7404	72.4	97.825	M
3	7.65	Br	0.0337	0.0105	0.0	0.154	M
5	12.71	SO4	20.8955	9.8515	24.8	72.302	M
Total:			**172.93**	**39.49**	**99**	**173.89**	

24 L17081305-08 RR CL 50x 1,50 CAS

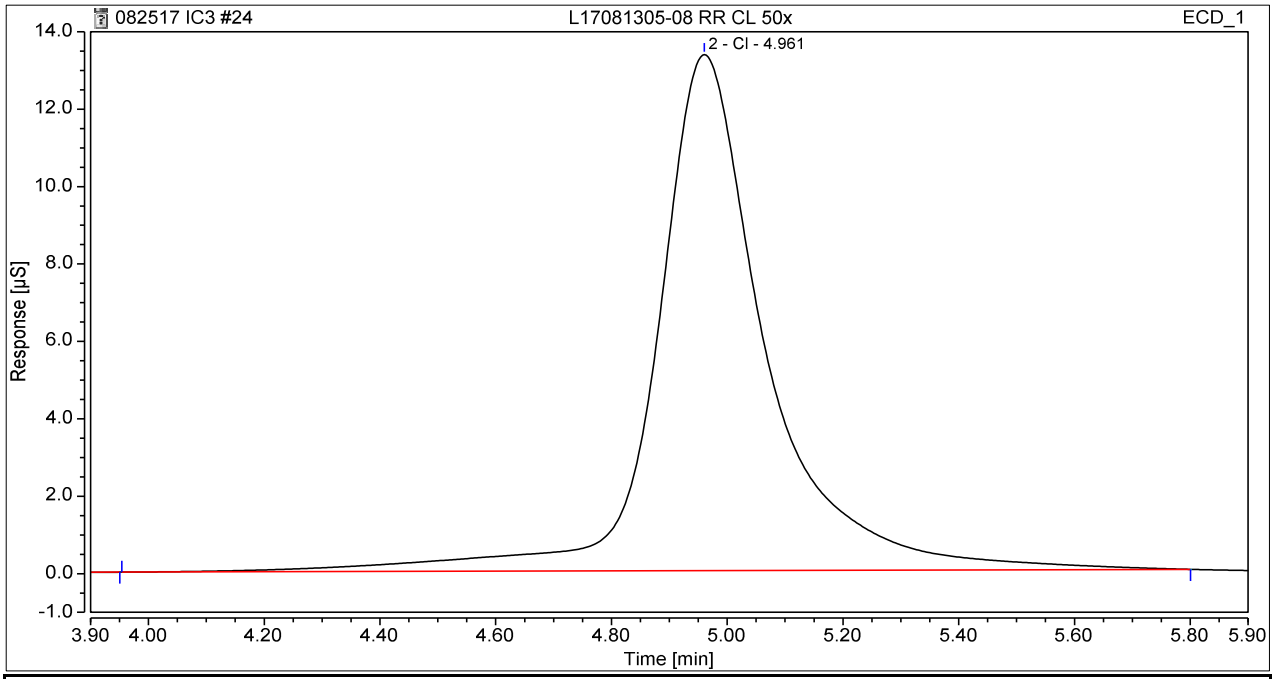
Sample Name:	**L17081305-08 RR CL 50x**	*Injection Volume:*	**5000.0**
Vial Number:	**24**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:57**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.3739	0.0844	2.1	0.322	M
3	4.96	Cl	13.3326	2.8212	70.2	15.607	M *
5	12.74	SO4	1.9858	0.9777	24.3	8.089	M
Total:			**15.69**	**3.88**	**97**	**24.02**	

24 L17081305-08 RR CL 50x 1,50 CAS

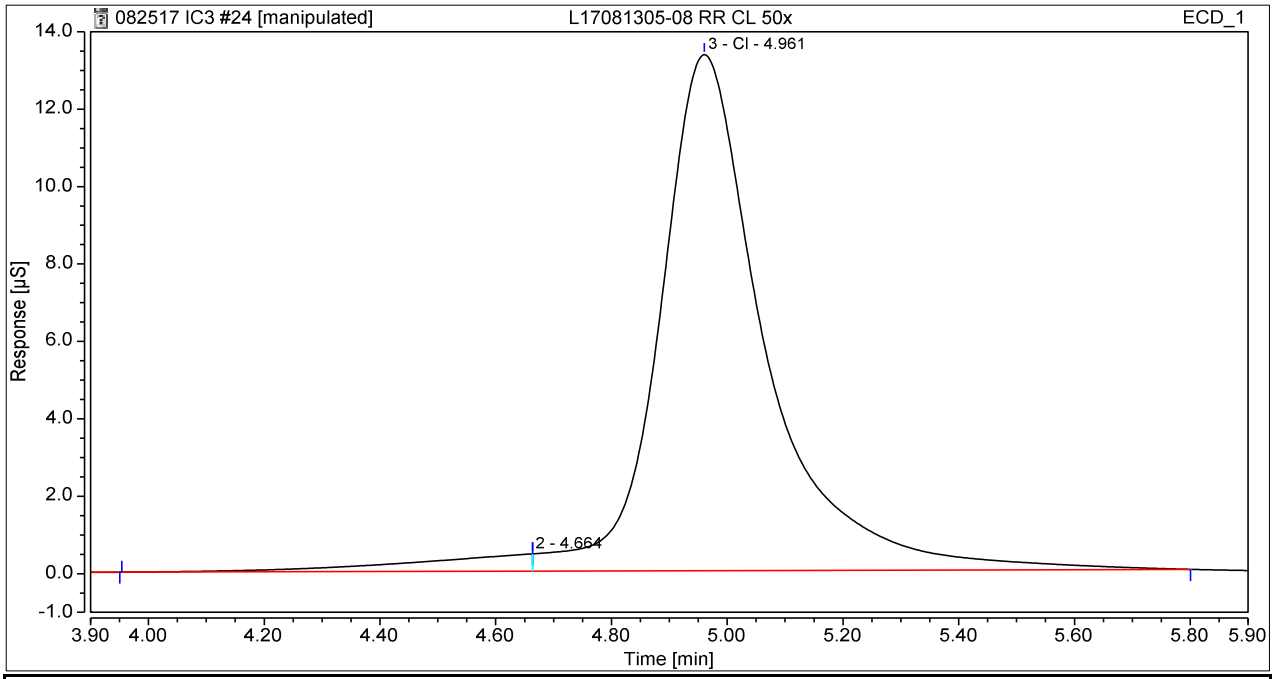
Sample Name:	**L17081305-08 RR CL 50x**	*Injection Volume:*	**5000.0**
Vial Number:	**24**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:57**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.3739	0.0844	2.1	0.322	M
2	4.96	Cl	13.3326	2.9276	72.9	16.132	M
4	12.74	SO4	1.9858	0.9777	24.3	8.089	M
Total:			**15.69**	**3.99**	**99**	**24.54**	

24 L17081305-08 RR CL 50x 1,50 CAS

Sample Name:	**L17081305-08 RR CL 50x**	*Injection Volume:*	**5000.0**
Vial Number:	**24**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:57**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.3739	0.0844	2.1	0.322	M
3	4.96	Cl	13.3326	2.8212	70.2	15.607	M *
5	12.74	SO4	1.9858	0.9777	24.3	8.089	M
Total:			**15.69**	**3.88**	**97**	**24.02**	

9056Rept/Integration

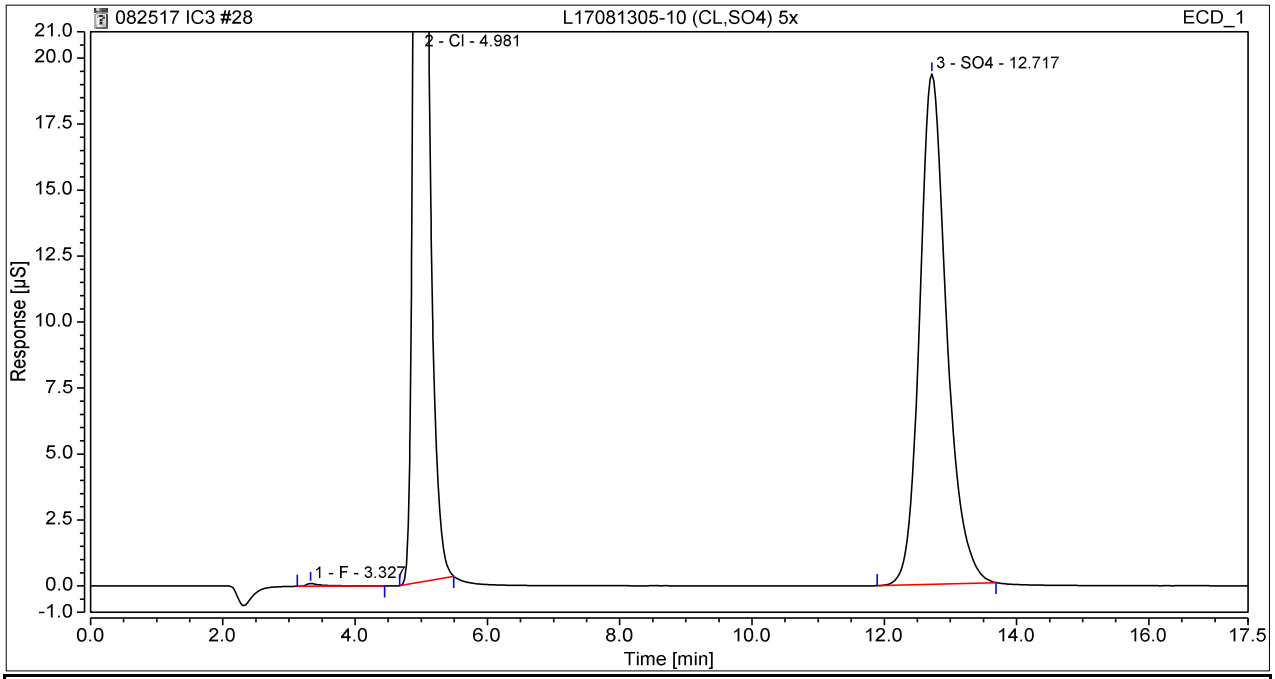
Analyst: 08/28/2017 11:38 Supervisor: 08/28/2017 12:15

#2 - Data system splits the peak incorrectly or integrates a false peak as a rider peak

Chromeleon (c) Dionex
Version 7.2.0.3765

28 L17081305-10 (CL,SO4) 5x
1,5 CAS (CL screen>200ppm)

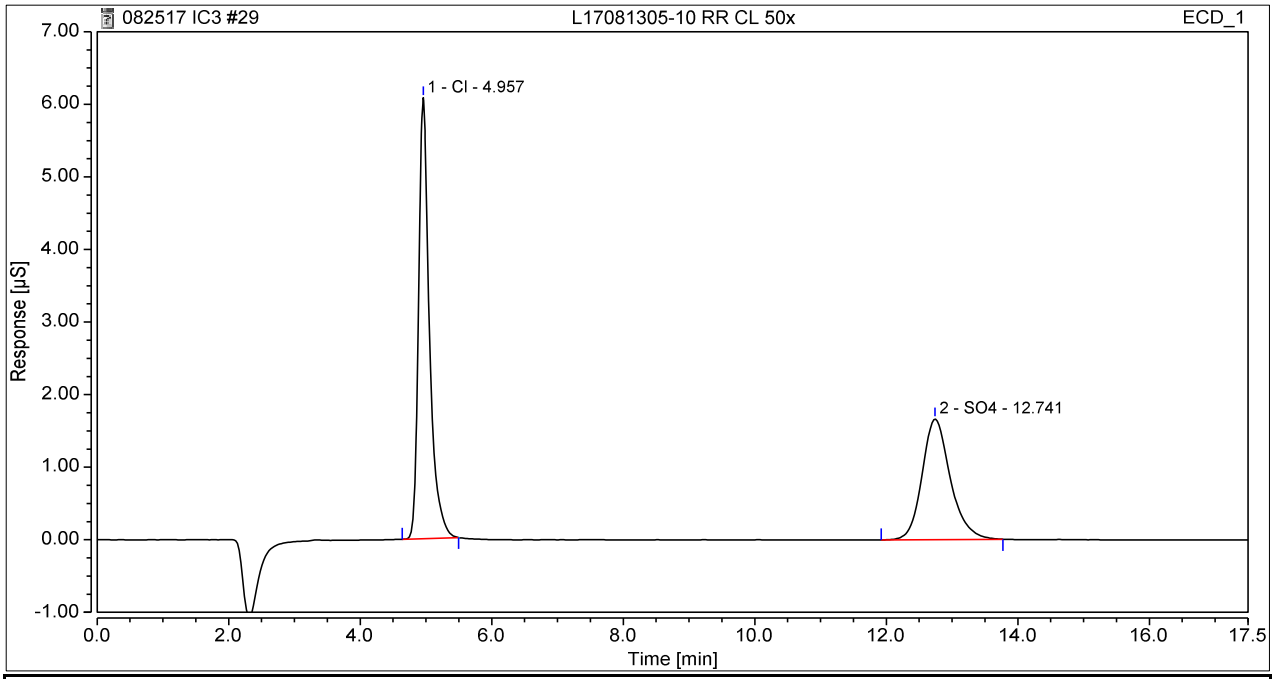
Sample Name:	**L17081305-10 (CL,SO4) 5x**	*Injection Volume:*	**5000.0**
Vial Number:	**28**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 2:18**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.1067	0.0312	0.1	0.099	M
2	4.98	Cl	76.7076	14.8211	61.7	60.978	M
3	12.72	SO4	19.3365	9.1794	38.2	67.902	M
Total:			**96.15**	**24.03**	**100**	**128.98**	

29 L17081305-10 RR CL 50x 1,50 CAS

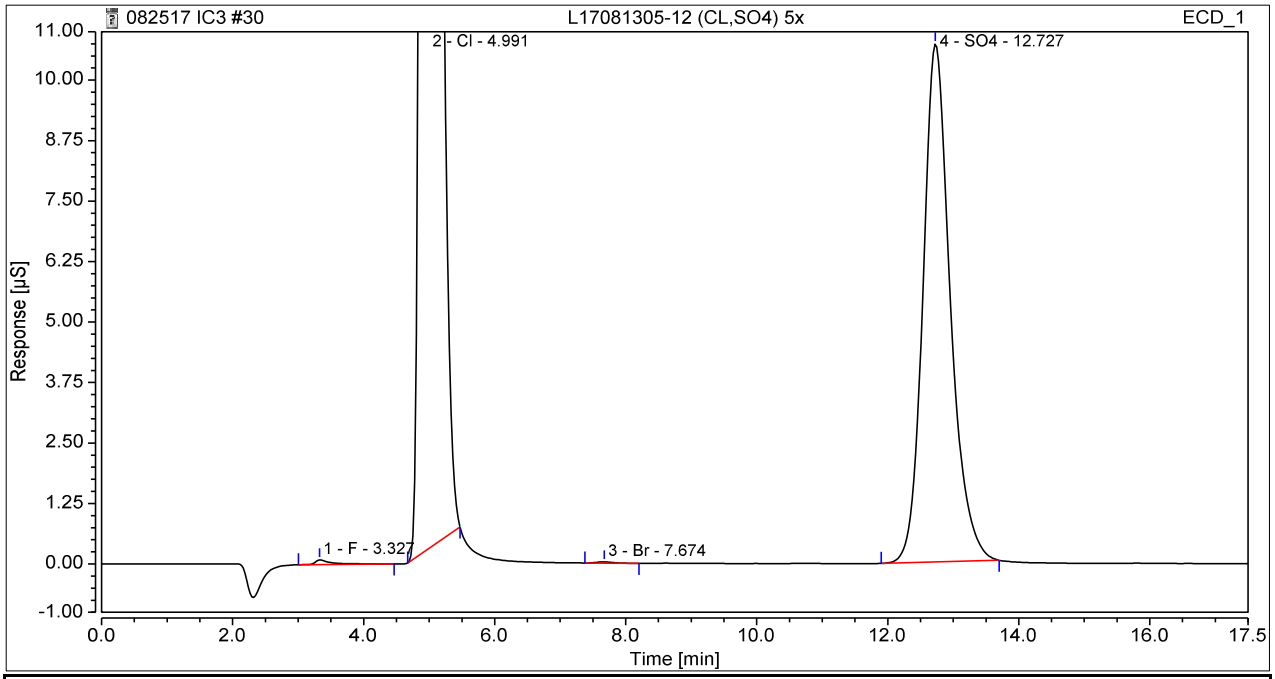
Sample Name:	**L17081305-10 RR CL 50x**	*Injection Volume:*	**5000.0**
Vial Number:	**29**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 2:39**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	4.96	Cl	6.0736	1.1591	58.4	6.855	M
2	12.74	SO4	1.6622	0.8272	41.6	6.858	M
Total:			**7.74**	**1.99**	**100**	**13.71**	

30 L17081305-12 (CL,SO4) 5x
1,5 CAS (CL screen>200ppm)

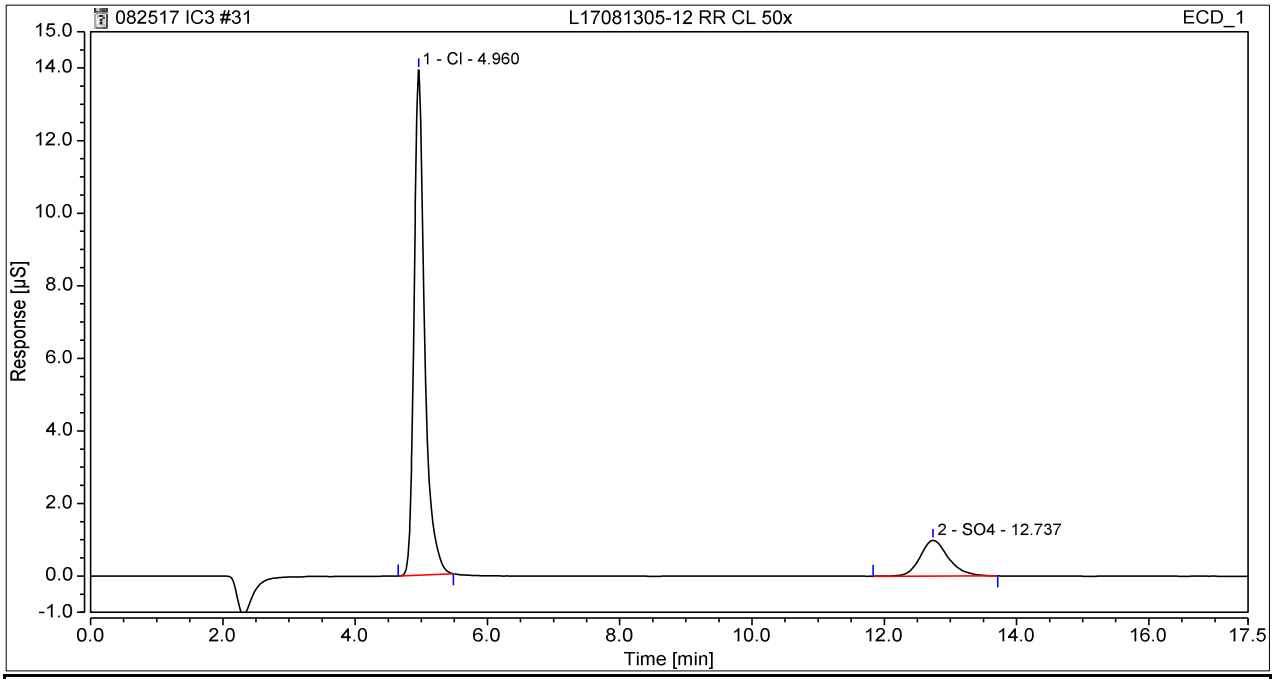
Sample Name:	**L17081305-12 (CL,SO4) 5x**	*Injection Volume:*	**5000.0**
Vial Number:	**30**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 2:59**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.0980	0.0302	0.1	0.094	M
2	4.99	Cl	183.4190	34.9421	87.0	111.681	M
3	7.67	Br	0.0257	0.0075	0.0	0.110	M
4	12.73	SO4	10.7096	5.1657	12.9	40.207	M
Total:			**194.25**	**40.15**	**100**	**152.09**	

31 L17081305-12 RR CL 50x
1,50 CAS

Sample Name:	**L17081305-12 RR CL 50x**	*Injection Volume:*	**5000.0**
Vial Number:	**31**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 3:20**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**

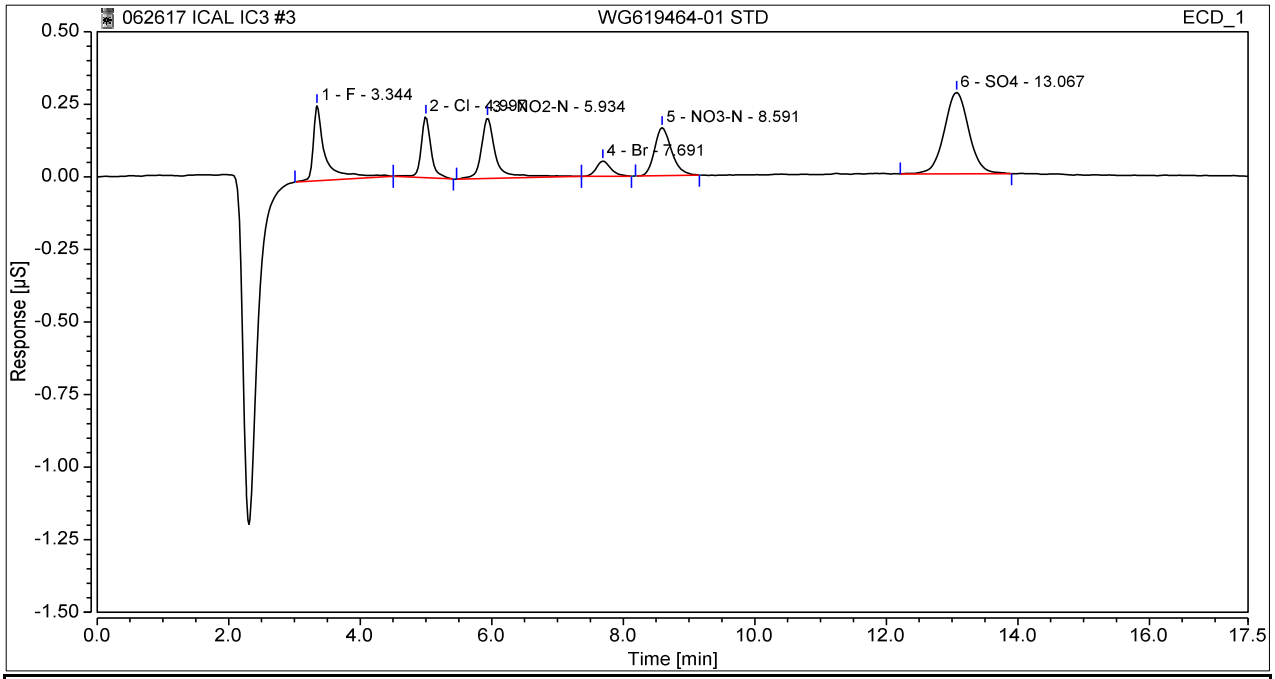


No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	4.96	Cl	13.9286	2.5962	84.1	14.484	M
2	12.74	SO4	0.9839	0.4904	15.9	4.082	M
Total:			**14.91**	**3.09**	**100**	**18.57**	

2.4.1.4 Standards Data

3 WG619464-01 STD
1,1 CAS STD81395

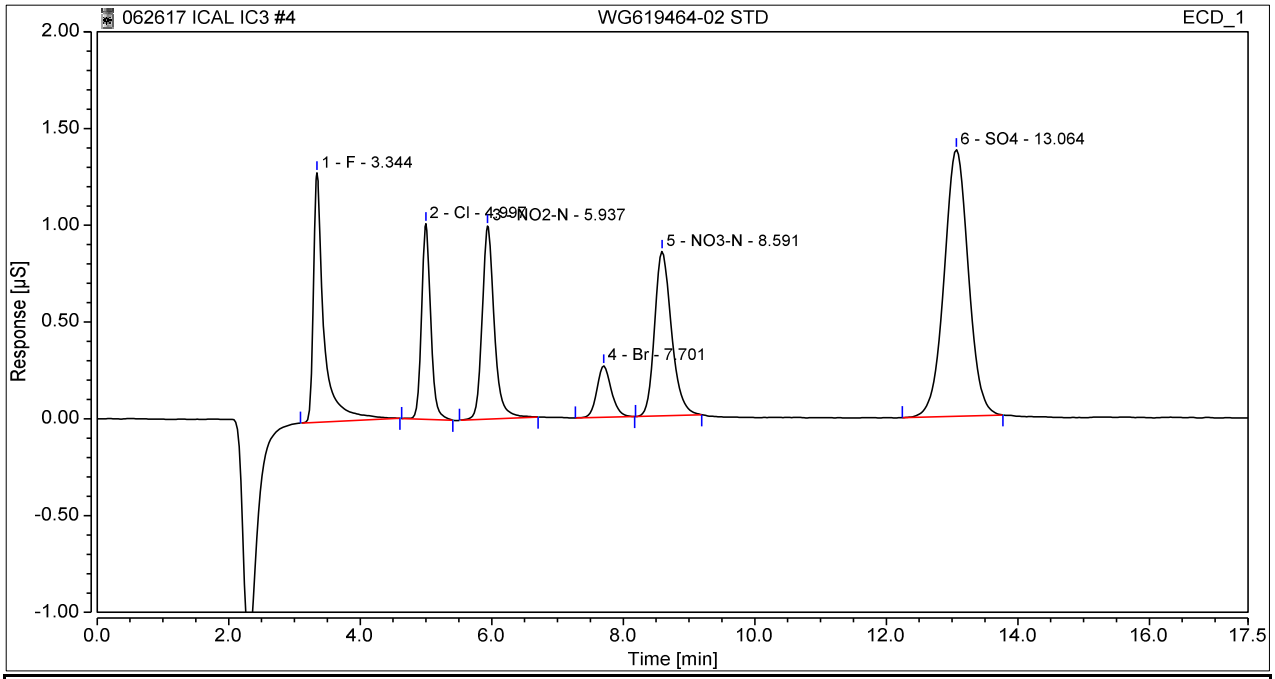
Sample Name:	**WG619464-01 STD**	*Injection Volume:*	**5000.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 17:31**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.34	F	0.2585	0.0556	16.8	0.201	M
2	5.00	Cl	0.2108	0.0366	11.1	0.201	M
3	5.93	NO2-N	0.2088	0.0539	16.3	0.123	M
4	7.69	Br	0.0525	0.0135	4.1	0.200	M
5	8.59	NO3-N	0.1650	0.0495	15.0	0.136	M
6	13.07	SO4	0.2798	0.1214	36.7	1.004	M
Total:			**1.18**	**0.33**	**100**	**1.86**	

4 WG619464-02 STD
1,1 CAS STD81395

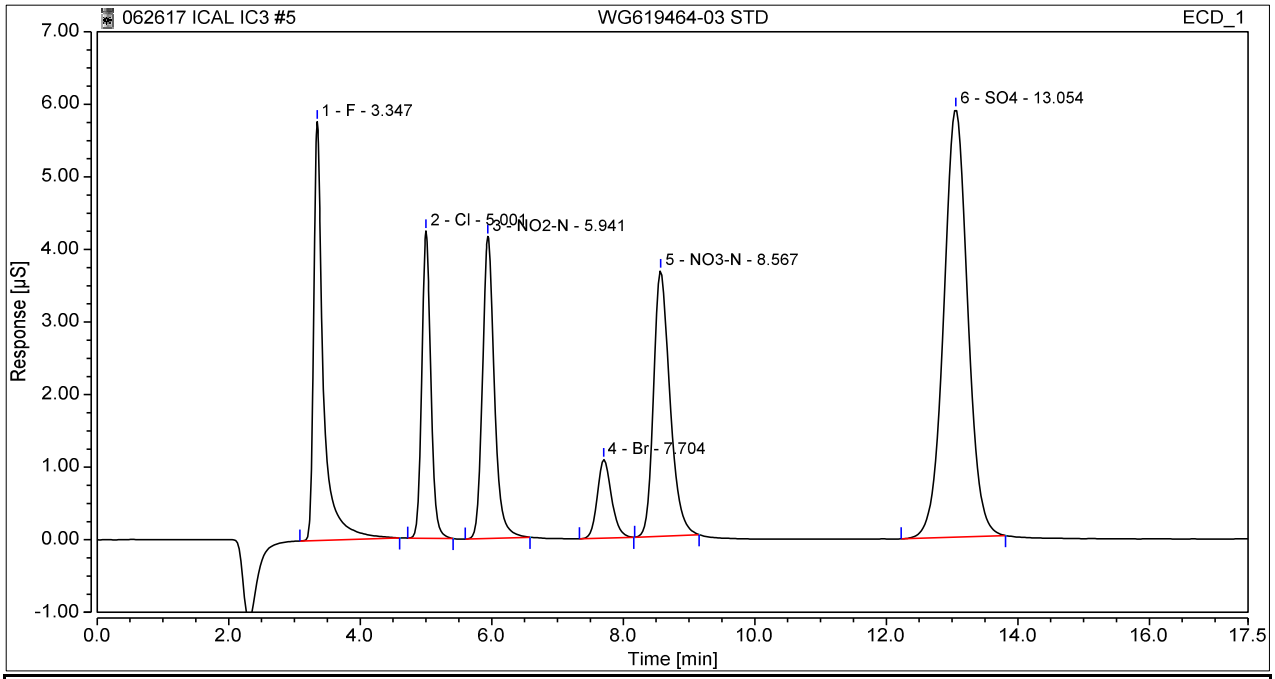
Sample Name:	**WG619464-02 STD**	*Injection Volume:*	**5000.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 17:51**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.34	F	1.2885	0.2394	15.7	0.970	M
2	5.00	Cl	1.0102	0.1618	10.6	0.980	M
3	5.94	NO2-N	0.9985	0.2133	14.0	0.588	M
4	7.70	Br	0.2656	0.0682	4.5	1.007	M
5	8.59	NO3-N	0.8501	0.2529	16.6	0.667	M
6	13.06	SO4	1.3765	0.5871	38.6	4.882	M
Total:			**5.79**	**1.52**	**100**	**9.09**	

5 WG619464-03 STD
1,1 CAS STD81395

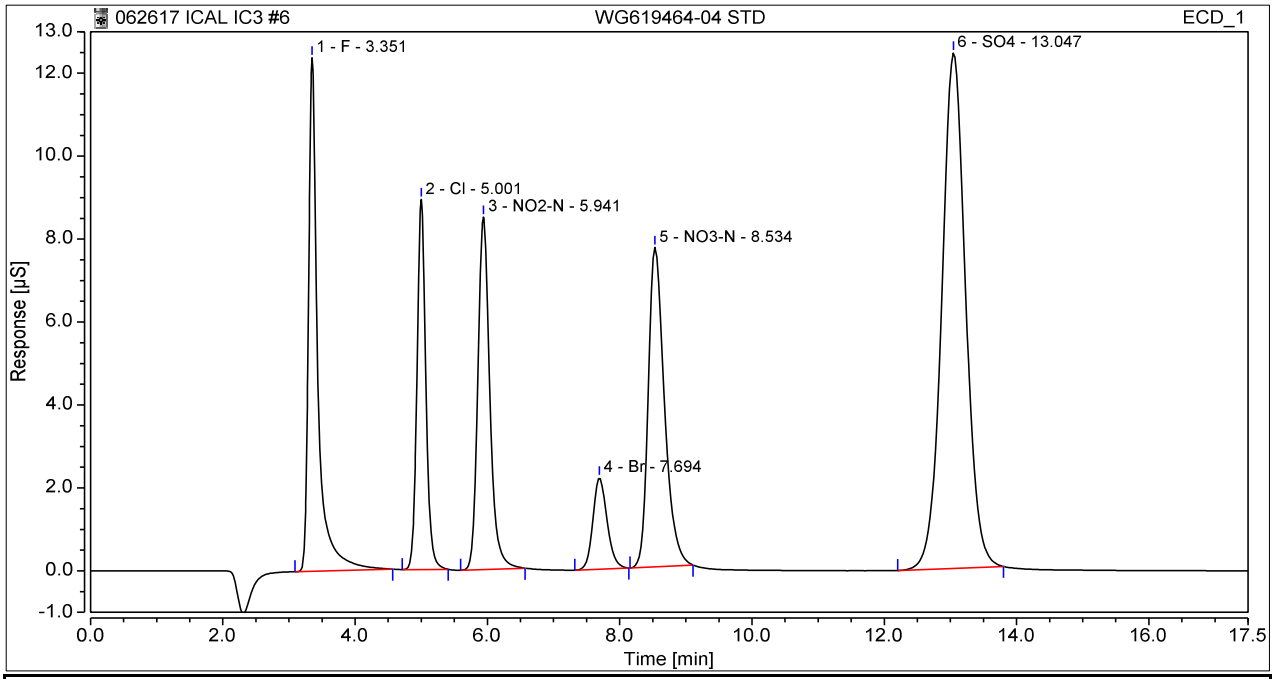
Sample Name:	**WG619464-03 STD**	*Injection Volume:*	**5000.0**
Vial Number:	**5**	*Channel:*	**ECD_1**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 18:11**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.35	F	5.7719	0.9865	15.6	4.027	M
2	5.00	Cl	4.2354	0.6645	10.5	4.012	M
3	5.94	NO2-N	4.1616	0.8708	13.7	2.464	M
4	7.70	Br	1.0841	0.2719	4.3	3.992	M
5	8.57	NO3-N	3.6597	1.0579	16.7	2.709	M
6	13.05	SO4	5.8961	2.4916	39.3	20.150	M
Total:			**24.81**	**6.34**	**100**	**37.35**	

6 WG619464-04 STD
1,1 CAS STD81395

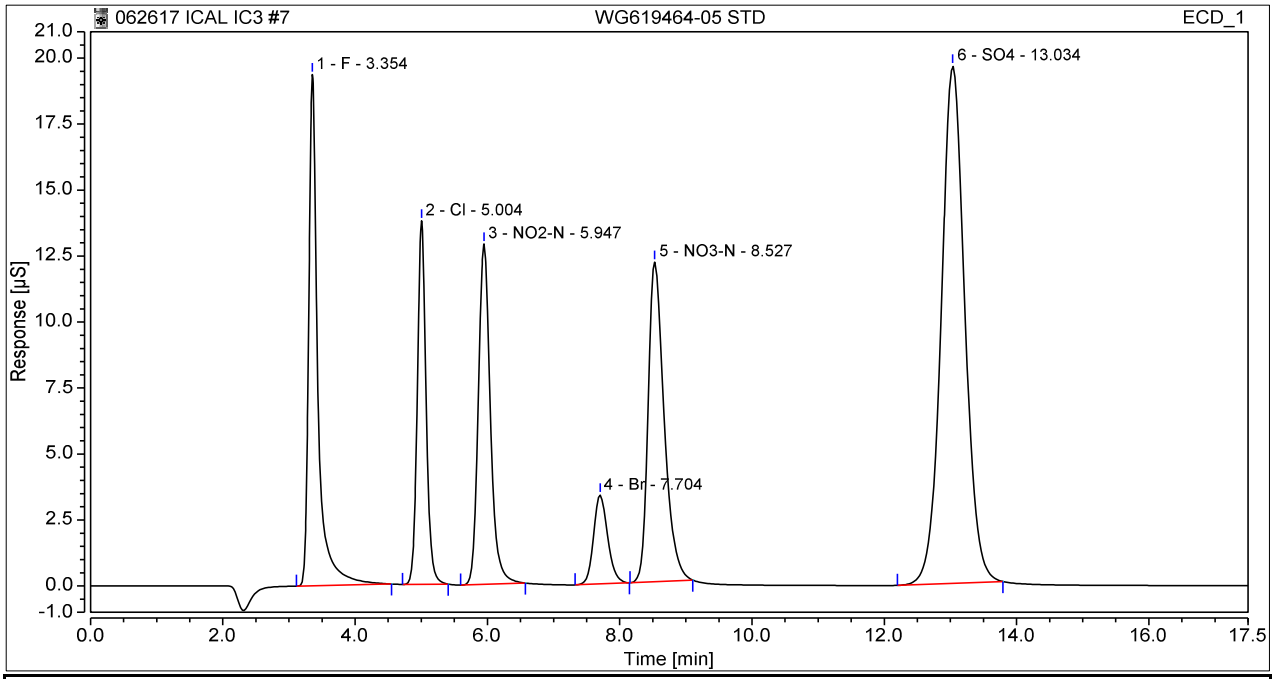
Sample Name:	**WG619464-04 STD**	*Injection Volume:*	**5000.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 18:32**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.35	F	12.3814	2.0239	15.5	8.101	M
2	5.00	Cl	8.9227	1.3845	10.6	8.110	M
3	5.94	NO2-N	8.4995	1.7748	13.6	4.941	M
4	7.69	Br	2.2058	0.5463	4.2	7.953	M
5	8.53	NO3-N	7.7062	2.1814	16.7	5.415	M
6	13.05	SO4	12.4331	5.1772	39.6	40.290	M
Total:			**52.15**	**13.09**	**100**	**74.81**	

7 WG619464-05 STD
1,1 CAS STD81395

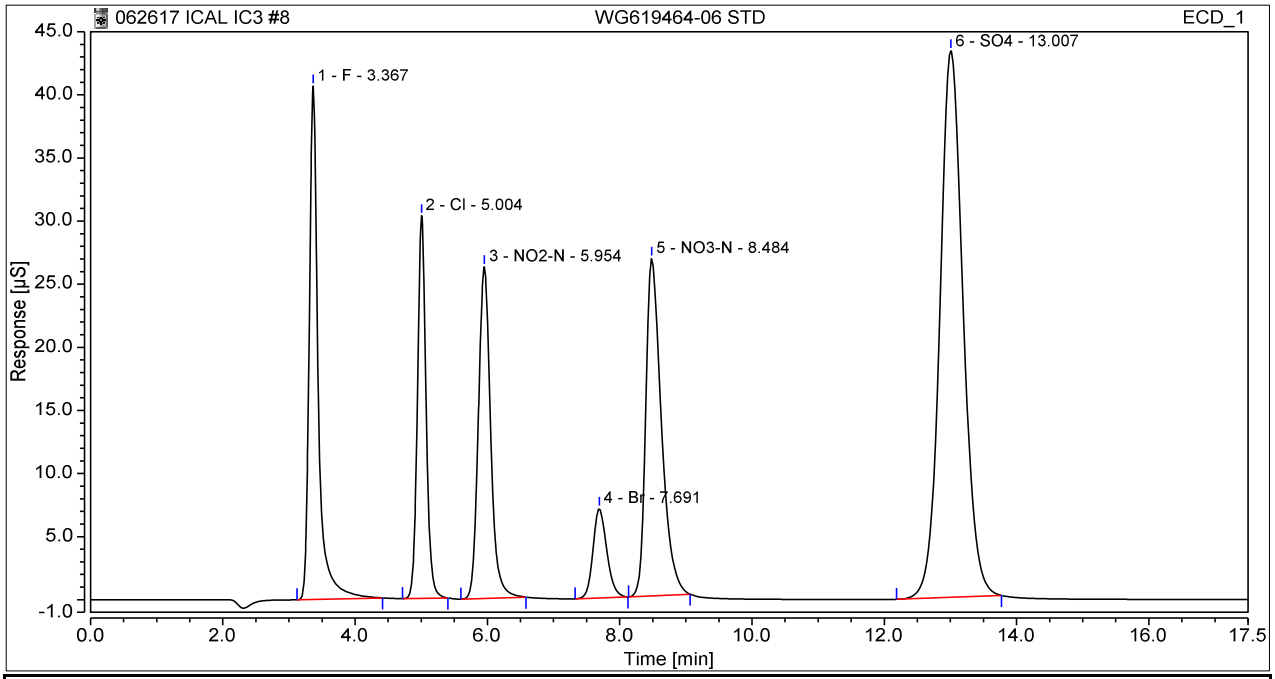
Sample Name:	**WG619464-05 STD**	*Injection Volume:*	**5000.0**
Vial Number:	**7**	*Channel:*	**ECD_1**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 18:52**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.35	F	19.3761	3.1114	15.4	12.185	M
2	5.00	Cl	13.7709	2.1216	10.5	12.057	M
3	5.95	NO2-N	12.8978	2.7130	13.4	7.401	M
4	7.70	Br	3.3740	0.8313	4.1	11.999	M
5	8.53	NO3-N	12.1159	3.3896	16.7	8.164	M
6	13.03	SO4	19.6070	8.0904	39.9	60.636	M
Total:			**81.14**	**20.26**	**100**	**112.44**	

8 WG619464-06 STD
1,1 CAS STD81395

Sample Name:	**WG619464-06 STD**	*Injection Volume:*	**5000.0**
Vial Number:	**8**	*Channel:*	**ECD_1**
Sample Type:	**Calibration Standard**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 19:12**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**

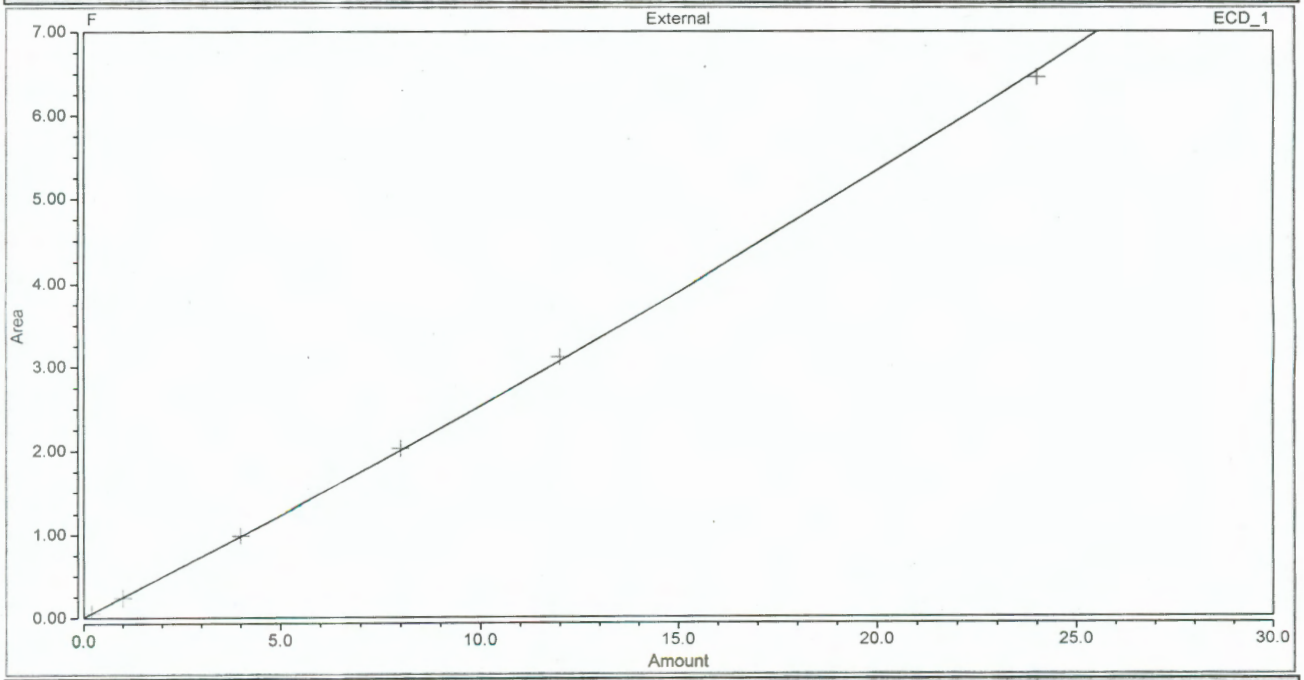


No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.37	F	40.6733	6.4495	14.9	23.750	M
2	5.00	Cl	30.3143	4.5838	10.6	23.868	M
3	5.95	NO2-N	26.2671	5.6315	13.0	14.465	M
4	7.69	Br	7.0882	1.7082	3.9	24.045	M
5	8.48	NO3-N	26.7492	7.3275	16.9	16.245	M
6	13.01	SO4	43.3001	17.6000	40.6	119.210	M
Total:			**174.39**	**43.30**	**100**	**221.58**	

Calibration

Calibration Details	F		
Calibration Type	Quad, WithOffset, 1/A²	*Offset (C0)*	0.0078
Evaluation Type	Area	*Slope (C1)*	0.2373
Number of Calibration Points	6	*Curve (C2)*	0.0014
Number of disabled Calibration Points	0	*R-Square*	0.9997

Calibration Plot F



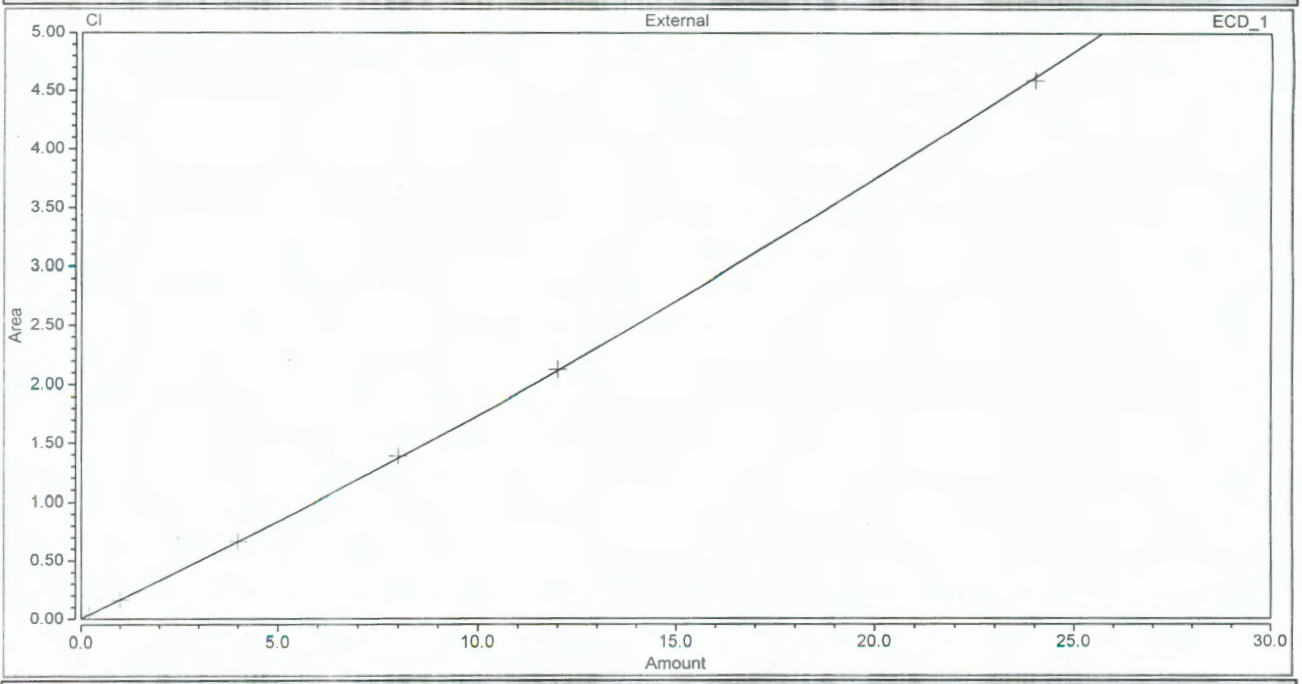
Calibration Results F

No.	Injection Name	Calibration Level	X Value ECD_1 F	Y Value ECD_1 F	Y Value ECD_1 F	Area µS*min ECD_1 F	Height µS ECD_1 F
1	WG618679-01 STD	01	0.2000	0.0556	0.0556	0.056	0.258
2	WG618679-02 STD	02	1.0000	0.2394	0.2394	0.239	1.288
3	WG618679-03 STD	03	4.0000	0.9865	0.9865	0.986	5.772
4	WG618679-04 STD	04	8.0000	2.0239	2.0239	2.024	12.381
5	WG618679-05 STD	05	12.0000	3.1114	3.1114	3.111	19.376
6	WG618679-06 STD	06	24.0000	6.4495	6.4495	6.450	40.673

Calibration

Calibration Details	Cl		
Calibration Type	Quad, WithOffset, 1/A²	*Offset (C0)*	0.0046
Evaluation Type	Area	*Slope (C1)*	0.1590
Number of Calibration Points	6	*Curve (C2)*	0.0014
Number of disabled Calibration Points	0	*R-Square*	0.9999

Calibration Plot Cl



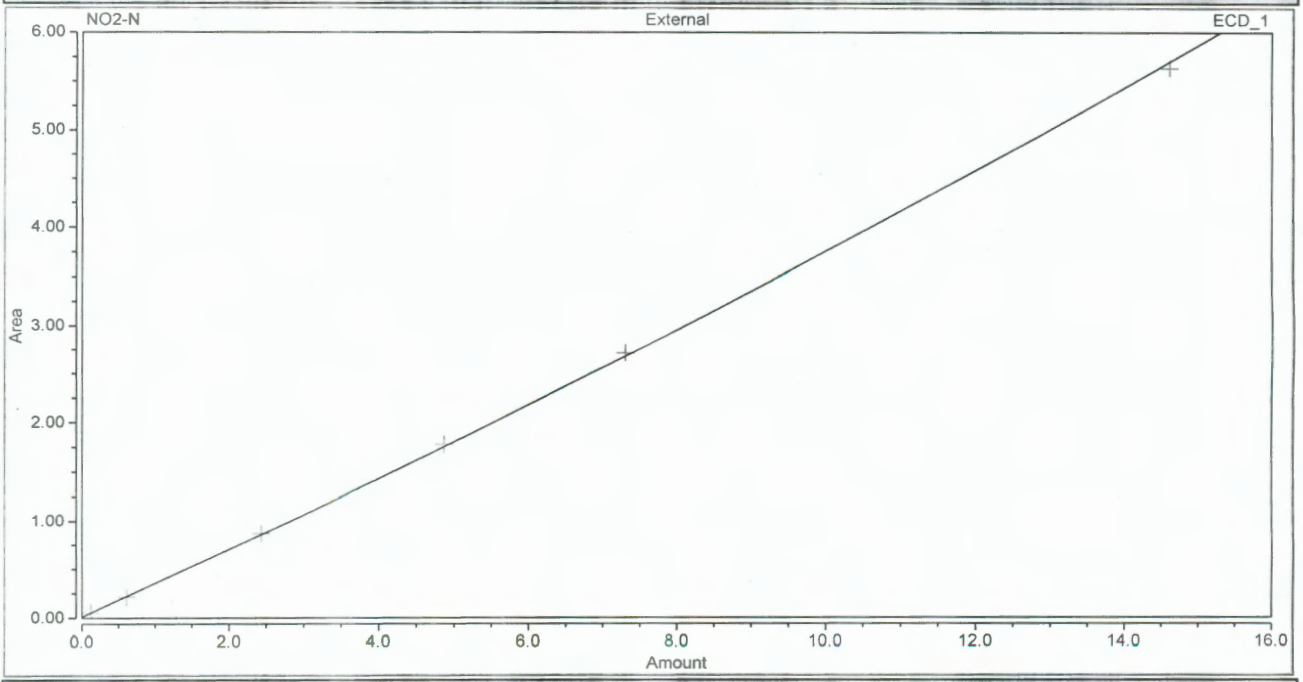
Calibration Results Cl

No.	Injection Name	Calibration Level	X Value ECD_1 Cl	Y Value ECD_1 Cl	Y Value ECD_1 Cl	Area µS*min ECD_1 Cl	Height µS ECD_1 Cl
1	WG618679-01 STD	01	0.2000	0.0366	0.0366	0.037	0.211
2	WG618679-02 STD	02	1.0000	0.1618	0.1618	0.162	1.010
3	WG618679-03 STD	03	4.0000	0.6645	0.6645	0.665	4.235
4	WG618679-04 STD	04	8.0000	1.3845	1.3845	1.385	8.923
5	WG618679-05 STD	05	12.0000	2.1216	2.1216	2.122	13.771
6	WG618679-06 STD	06	24.0000	4.5838	4.5838	4.584	30.314

Calibration

Calibration Details	NO2-N		
Calibration Type	Quad, WithOffset, 1/A²	*Offset (C0)*	0.0122
Evaluation Type	Area	*Slope (C1)*	0.3403
Number of Calibration Points	6	*Curve (C2)*	0.0033
Number of disabled Calibration Points	0	*R-Square*	0.9996

Calibration Plot NO2-N



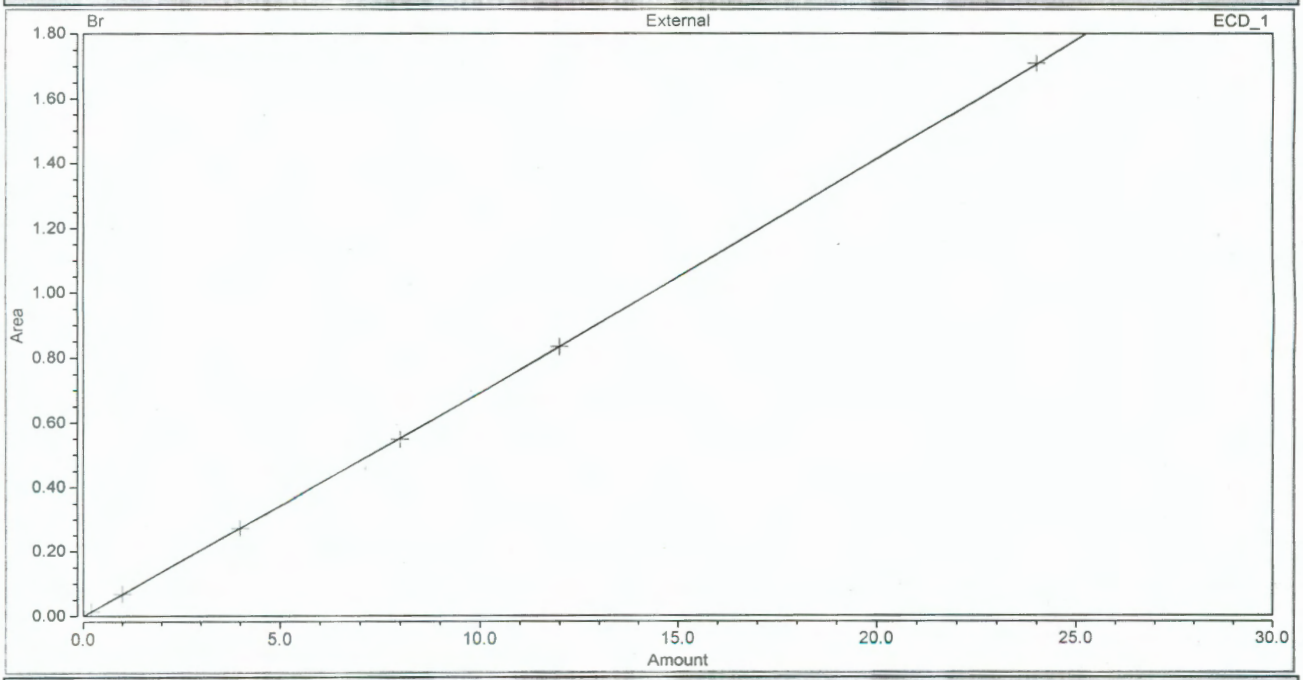
Calibration Results NO2-N

No.	Injection Name	Calibration Level	X Value ECD_1 NO2-N	Y Value ECD_1 NO2-N	Y Value ECD_1 NO2-N	Area µS*min ECD_1 NO2-N	Height µS ECD_1 NO2-N
1	WG618679-01 STD	01	0.1218	0.0539	0.0539	0.054	0.209
2	WG618679-02 STD	02	0.6089	0.2133	0.2133	0.213	0.998
3	WG618679-03 STD	03	2.4356	0.8708	0.8708	0.871	4.162
4	WG618679-04 STD	04	4.8714	1.7748	1.7748	1.775	8.500
5	WG618679-05 STD	05	7.3070	2.7130	2.7130	2.713	12.898
6	WG618679-06 STD	06	14.6140	5.6315	5.6315	5.632	26.267

Calibration

Calibration Details	Br		
Calibration Type	Quad, WithOffset, 1/A²	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.0675
Number of Calibration Points	6	*Curve (C2)*	0.0001
Number of disabled Calibration Points	0	*R-Square*	1.0000

Calibration Plot **Br**



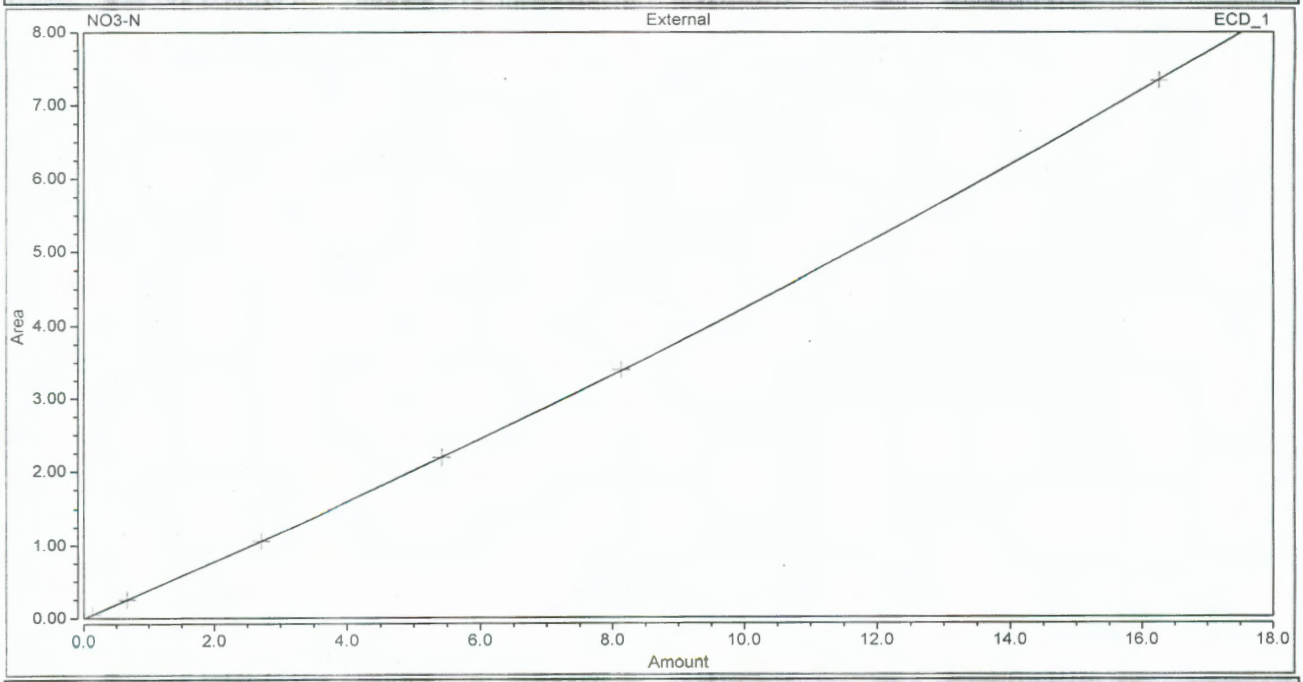
Calibration Results **Br**

No.	Injection Name	Calibration Level	X Value ECD_1 Br	Y Value ECD_1 Br	Y Value ECD_1 Br	Area µS*min ECD_1 Br	Height µS ECD_1 Br
1	WG618679-01 STD	01	0.2000	0.0135	0.0135	0.014	0.052
2	WG618679-02 STD	02	1.0000	0.0682	0.0682	0.068	0.266
3	WG618679-03 STD	03	4.0000	0.2719	0.2719	0.272	1.084
4	WG618679-04 STD	04	8.0000	0.5463	0.5463	0.546	2.206
5	WG618679-05 STD	05	12.0000	0.8313	0.8313	0.831	3.374
6	WG618679-06 STD	06	24.0000	1.7082	1.7082	1.708	7.088

Calibration

Calibration Details	NO3-N		
Calibration Type	Quad, WithOffset, 1/A²	*Offset (C0)*	-0.0020
Evaluation Type	Area	*Slope (C1)*	0.3793
Number of Calibration Points	6	*Curve (C2)*	0.0044
Number of disabled Calibration Points	0	*R-Square*	1.0000

Calibration Plot NO3-N



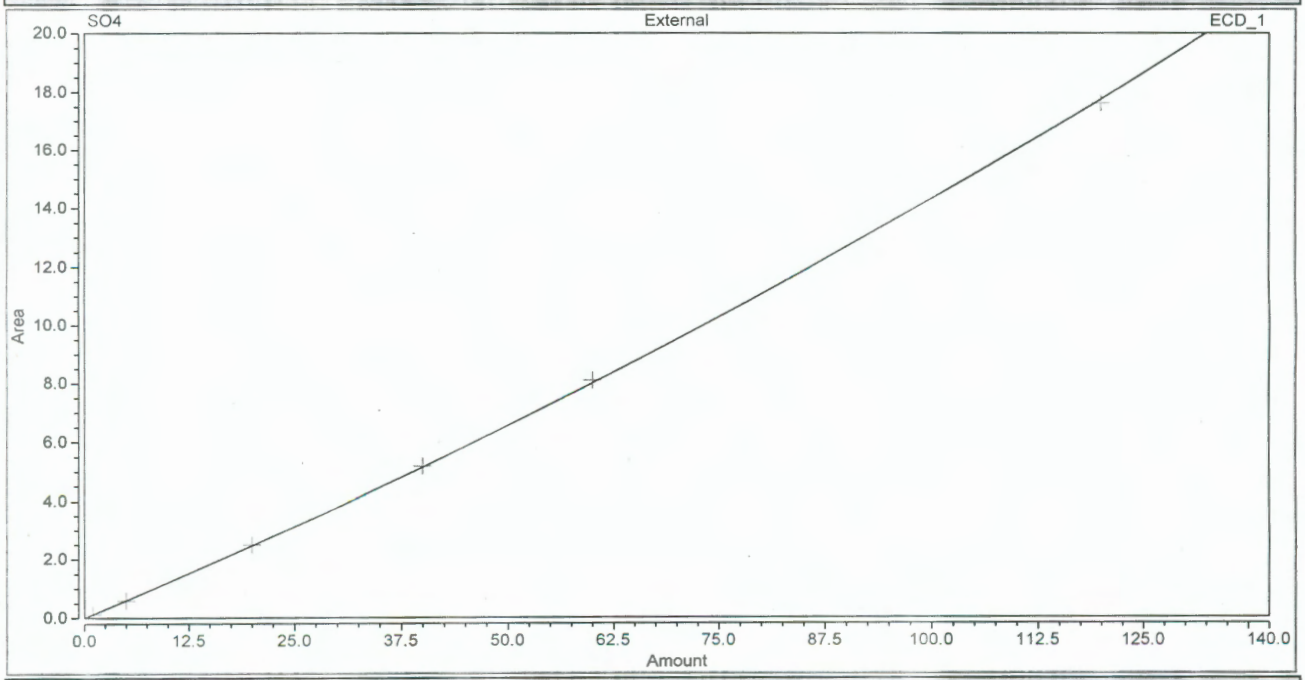
Calibration Results NO3-N

No.	Injection Name	Calibration Level	X Value ECD_1 NO3-N	Y Value ECD_1 NO3-N	Y Value ECD_1 NO3-N	Area µS*min ECD_1 NO3-N	Height µS ECD_1 NO3-N
1	WG618679-01 STD	01	0.1355	0.0495	0.0495	0.049	0.165
2	WG618679-02 STD	02	0.6675	0.2529	0.2529	0.253	0.850
3	WG618679-03 STD	03	2.7108	1.0579	1.0579	1.058	3.660
4	WG618679-04 STD	04	5.4216	2.1814	2.1814	2.181	7.706
5	WG618679-05 STD	05	8.1322	3.3896	3.3896	3.390	12.116
6	WG618679-06 STD	06	16.2644	7.3275	7.3275	7.328	26.749

Calibration

Calibration Details	SO4		
Calibration Type	Quad, WithOffset, 1/A²	*Offset (C0)*	0.0020
Evaluation Type	Area	*Slope (C1)*	0.1187
Number of Calibration Points	6	*Curve (C2)*	0.0002
Number of disabled Calibration Points	0	*R-Square*	0.9998

Calibration Plot SO4

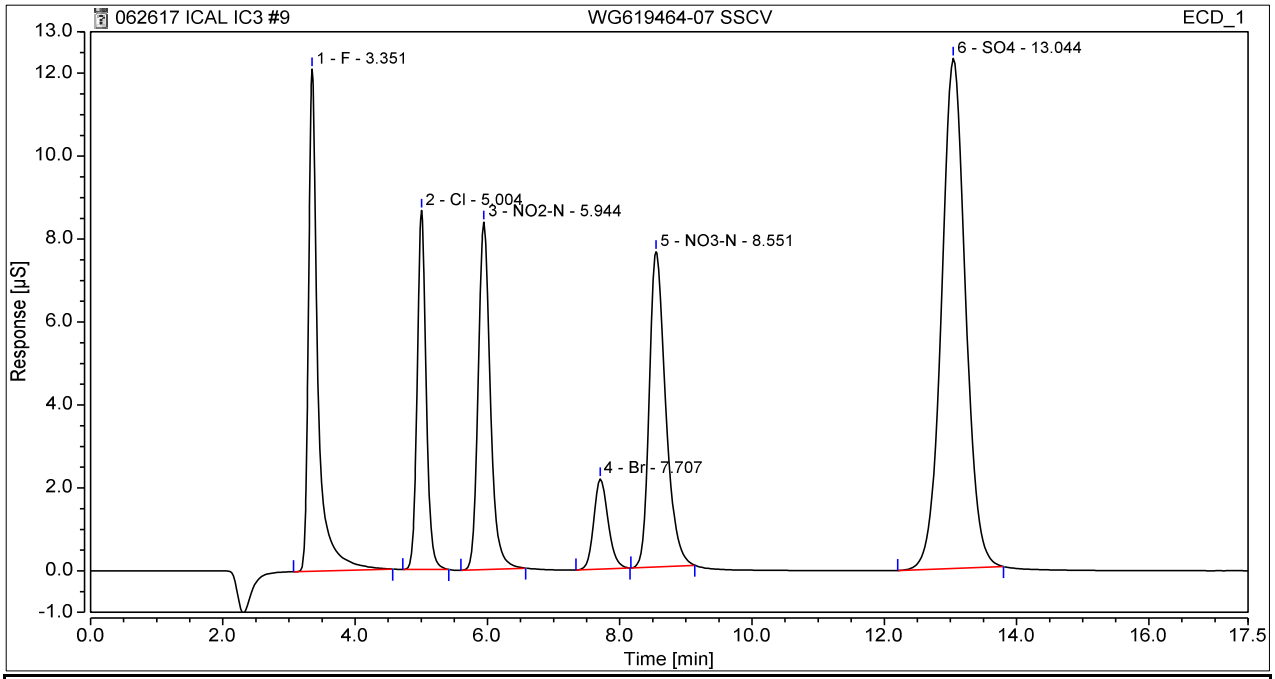


Calibration Results SO4

No.	Injection Name	Calibration Level	X Value ECD_1 SO4	Y Value ECD_1 SO4	Y Value ECD_1 SO4	Area µS*min ECD_1 SO4	Height µS ECD_1 SO4
1	WG618679-01 STD	01	1.0000	0.1214	0.1214	0.121	0.280
2	WG618679-02 STD	02	5.0000	0.5871	0.5871	0.587	1.377
3	WG618679-03 STD	03	20.0000	2.4916	2.4916	2.492	5.896
4	WG618679-04 STD	04	40.0000	5.1772	5.1772	5.177	12.433
5	WG618679-05 STD	05	60.0000	8.0904	8.0904	8.090	19.607
6	WG618679-06 STD	06	120.0000	17.6000	17.6000	17.600	43.300

9 WG619464-07 SSCV
1,1 CAS STD81396

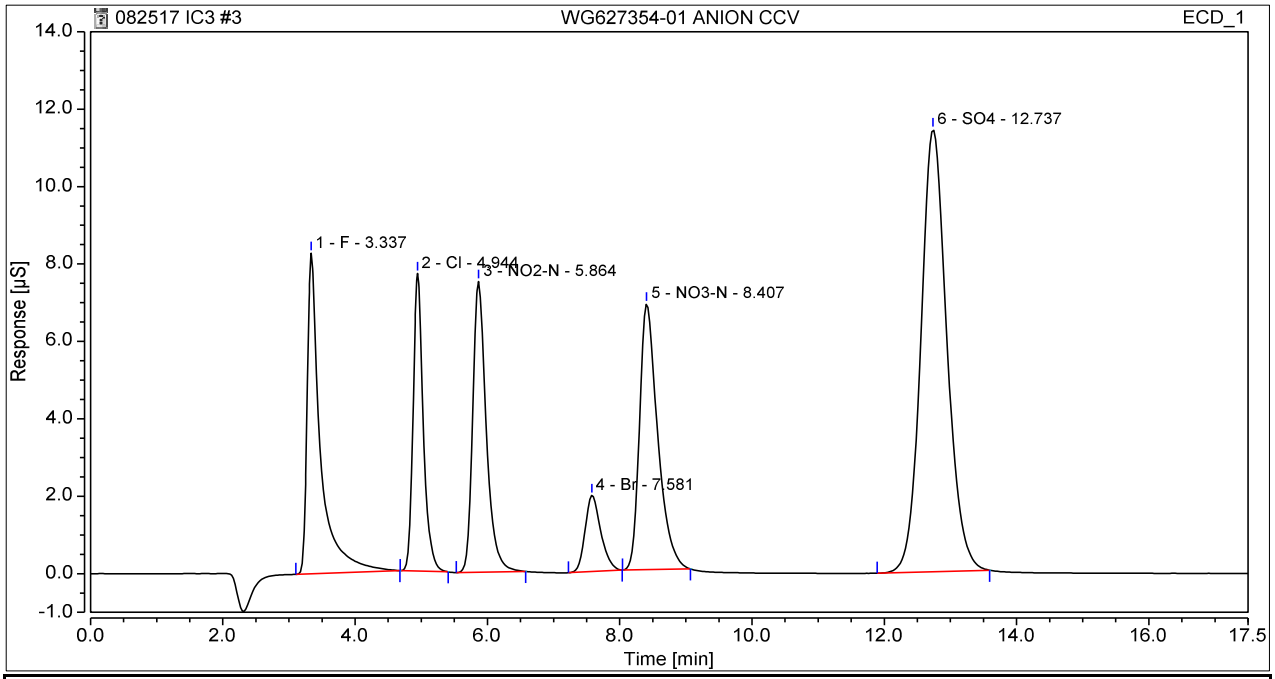
Sample Name:	**WG619464-07 SSCV**	*Injection Volume:*	**5000.0**
Vial Number:	**9**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_120116_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**06/26/2017 19:33**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.35	F	12.1106	2.0090	15.4	8.044	M
2	5.00	Cl	8.6611	1.3648	10.5	8.001	M
3	5.94	NO2-N	8.3761	1.7745	13.6	4.940	M
4	7.71	Br	2.1769	0.5471	4.2	7.964	M
5	8.55	NO3-N	7.6003	2.1796	16.7	5.410	M
6	13.04	SO4	12.3008	5.1606	39.6	40.170	M
Total:			**51.23**	**13.04**	**100**	**74.53**	

3 WG627354-01 ANION CCV
1,1 CAS STD81395 BP=2204psi

Sample Name:	**WG627354-01 ANION CCV**	*Injection Volume:*	**5000.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 17:49**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.34	F	8.2808	1.9236	14.8	7.715	M
2	4.94	Cl	7.6874	1.3656	10.5	8.006	M
3	5.86	NO2-N	7.5152	1.7789	13.7	4.952	M
4	7.58	Br	1.9704	0.5404	4.2	7.869	M
5	8.41	NO3-N	6.8699	2.1907	16.9	5.436	M
6	12.74	SO4	11.4255	5.2015	40.0	40.466	M
Total:			**43.75**	**13.00**	**100**	**74.44**	

3 WG627354-01 ANION CCV
1,1 CAS STD81395 BP=2204psi

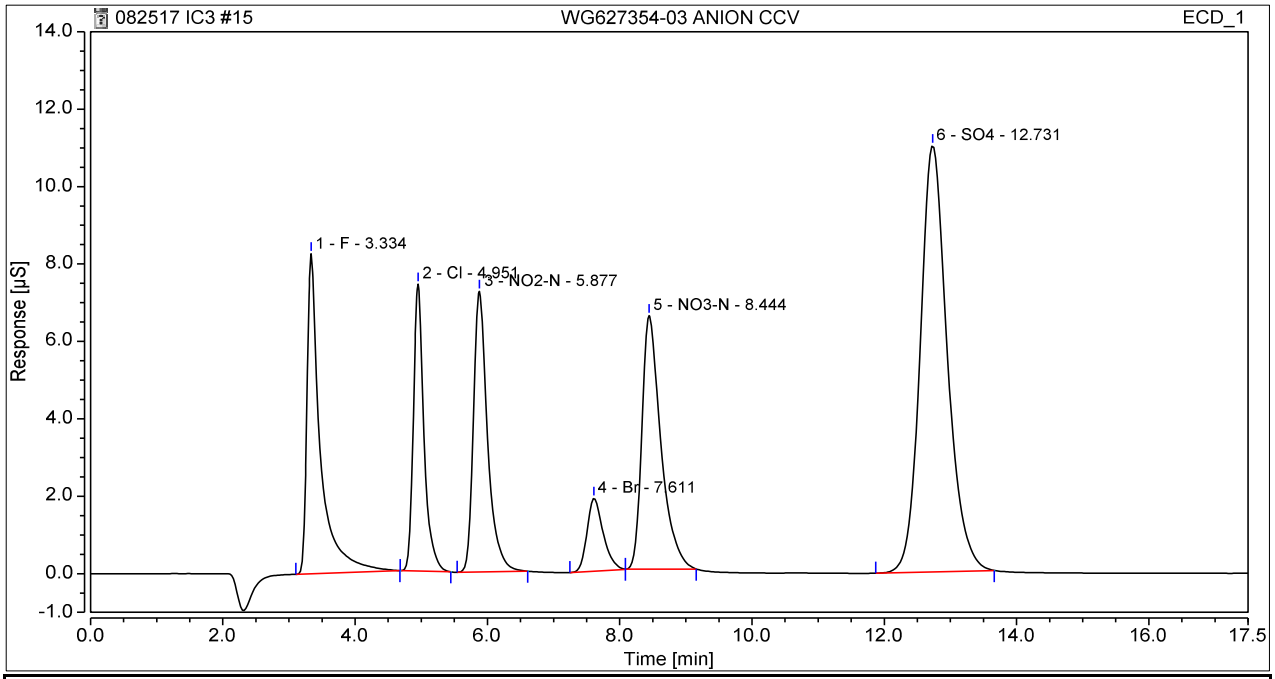
Sequence Details

Name:	**WG627354-01 ANION CCV**	*Run Time:*	**17.50**
Vial Number:	**3**	*Injection Volume:*	**10.00**
Instrument Method:	**9056**	*Channel:*	**ECD_1**
Processing Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**8/25/2017 17:49**	*Sample Weight:*	**1.0000**

WG627354-	Actual mg/L	Recovered mg/L	% Difference	Pass/Fail
F	8.00	**7.715319702**	**-3.558503719**	**PASS**
CL	8.00	**8.005869266**	**0.07336582791**	**PASS**
NO2	4.87	**4.951622279**	**1.676022147**	**PASS**
BR	8.00	**7.868903396**	**-1.638707548**	**PASS**
NO3	5.42	**5.436223861**	**0.2808830384**	**PASS**
SO4	40.00	**40.46592141**	**1.164803537**	**PASS**

15 WG627354-03 ANION CCV
1,1 CAS STD81395

Sample Name:	**WG627354-03 ANION CCV**	*Injection Volume:*	**5000.0**
Vial Number:	**15**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 21:54**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	8.2638	1.9296	14.8	7.738	M
2	4.95	Cl	7.4136	1.3730	10.5	8.046	M
3	5.88	NO2-N	7.2500	1.7887	13.7	4.978	M
4	7.61	Br	1.8831	0.5334	4.1	7.768	M
5	8.44	NO3-N	6.5503	2.1813	16.7	5.414	M
6	12.73	SO4	11.0170	5.2245	40.1	40.632	M
Total:			**42.38**	**13.03**	**100**	**74.58**	

15 WG627354-03 ANION CCV
1,1 CAS STD81395

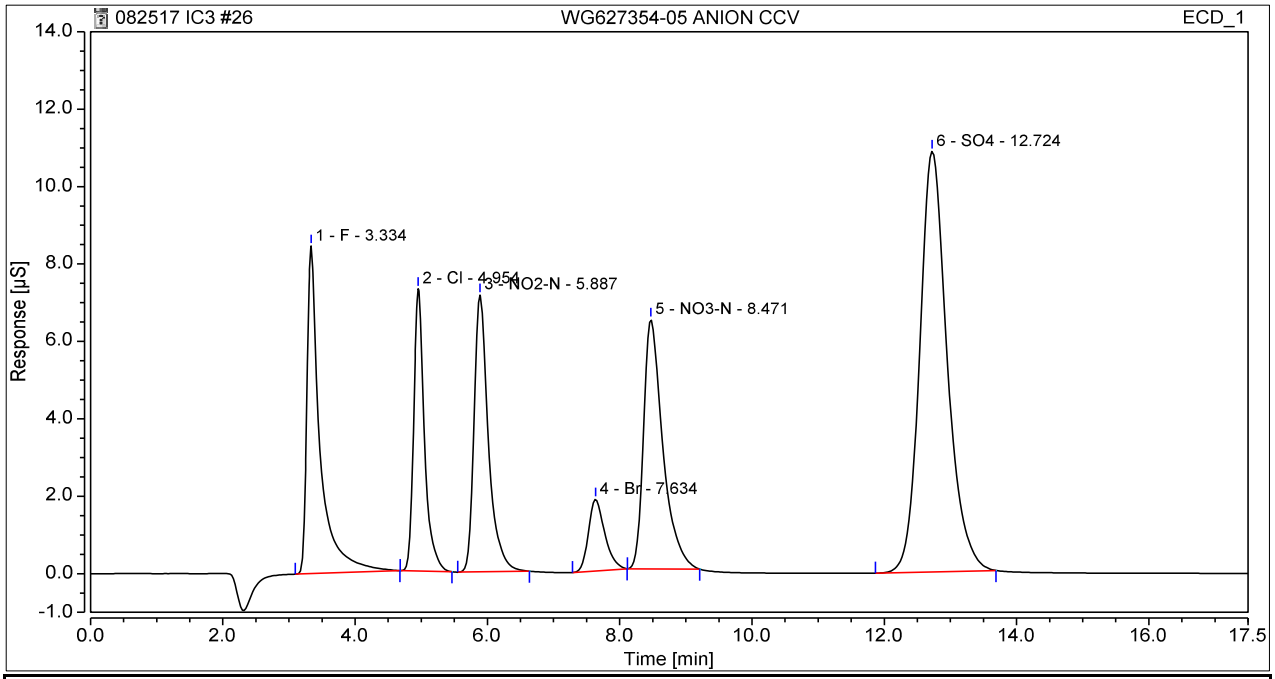
Sequence Details

Name:	**WG627354-03 ANION CCV**	*Run Time:*	**17.50**
Vial Number:	**15**	*Injection Volume:*	**10.00**
Instrument Method:	**9056**	*Channel:*	**ECD_1**
Processing Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**8/25/2017 21:54**	*Sample Weight:*	**1.0000**

WG627354-	Actual mg/L	Recovered mg/L	% Difference	Pass/Fail
F	8.00	**7.738453043**	**-3.269336958**	**PASS**
CL	8.00	**8.046474837**	**0.5809354659**	**PASS**
NO2	4.87	**4.977950566**	**2.216644068**	**PASS**
BR	8.00	**7.768274947**	**-2.896563168**	**PASS**
NO3	5.42	**5.4143793**	**-0.1221531446**	**PASS**
SO4	40.00	**40.63234825**	**1.580870617**	**PASS**

26 WG627354-05 ANION CCV
1,1 CAS STD81395

Sample Name:	**WG627354-05 ANION CCV**	*Injection Volume:*	**5000.0**
Vial Number:	**26**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 1:38**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	8.4625	1.9411	14.9	7.782	M
2	4.95	Cl	7.2901	1.3716	10.5	8.039	M
3	5.89	NO2-N	7.1520	1.7902	13.7	4.982	M
4	7.63	Br	1.8510	0.5289	4.1	7.703	M
5	8.47	NO3-N	6.4431	2.1756	16.7	5.401	M
6	12.72	SO4	10.8647	5.2202	40.1	40.601	M
Total:			**42.06**	**13.03**	**100**	**74.51**	

26 WG627354-05 ANION CCV
1,1 CAS STD81395

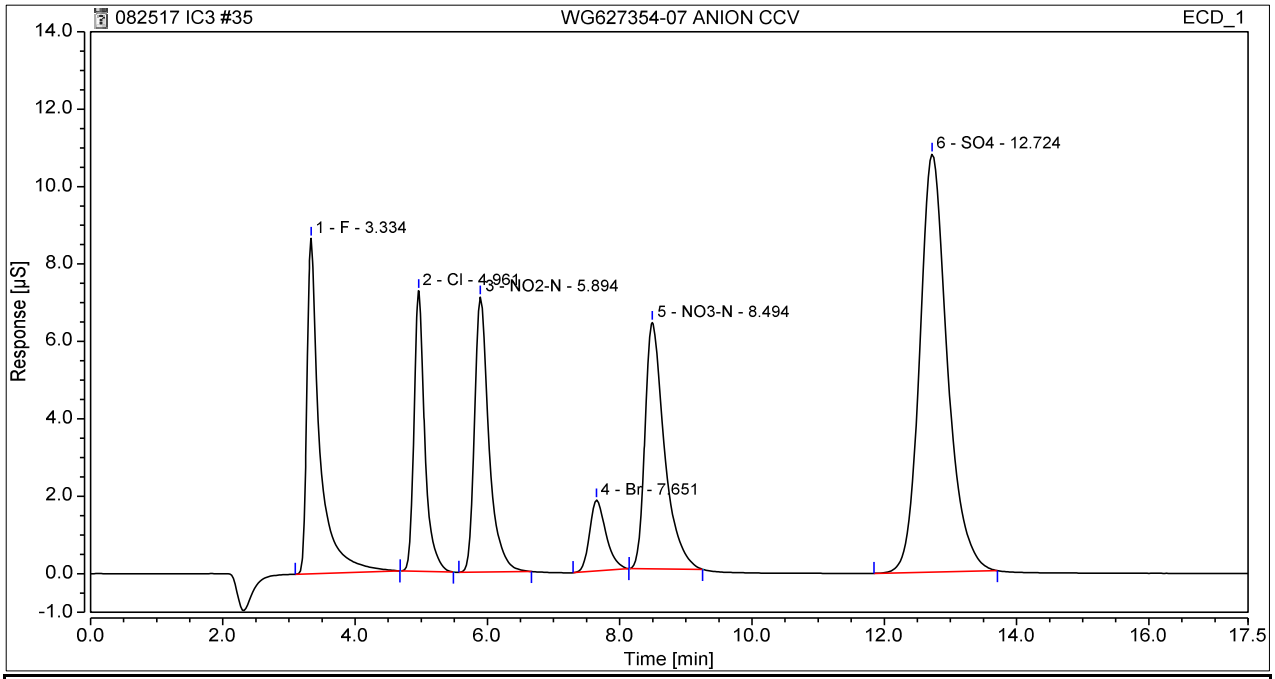
Sequence Details

Name:	**WG627354-05 ANION CCV**	*Run Time:*	**17.50**
Vial Number:	**26**	*Injection Volume:*	**10.00**
Instrument Method:	**9056**	*Channel:*	**ECD_1**
Processing Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**8/26/2017 1:38**	*Sample Weight:*	**1.0000**

WG627354-	Actual mg/L	Recovered mg/L	% Difference	Pass/Fail
F	8.00	**7.782432155**	**-2.719598063**	**PASS**
CL	8.00	**8.038987057**	**0.4873382141**	**PASS**
NO2	4.87	**4.981863452**	**2.296990798**	**PASS**
BR	8.00	**7.703400986**	**-3.707487676**	**PASS**
NO3	5.42	**5.40106992**	**-0.3677136471**	**PASS**
SO4	40.00	**40.60086802**	**1.502170043**	**PASS**

35 WG627354-07 ANION CCV
1,1 CAS STD81395

Sample Name:	**WG627354-07 ANION CCV**	*Injection Volume:*	**5000.0**
Vial Number:	**35**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 4:41**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	8.6660	1.9478	14.9	7.809	M
2	4.96	Cl	7.2471	1.3724	10.5	8.043	M
3	5.89	NO2-N	7.1044	1.7922	13.7	4.987	M
4	7.65	Br	1.8313	0.5268	4.0	7.673	M
5	8.49	NO3-N	6.3651	2.1741	16.7	5.397	M
6	12.72	SO4	10.7944	5.2226	40.1	40.618	M
Total:			**42.01**	**13.04**	**100**	**74.53**	

35 WG627354-07 ANION CCV
1,1 CAS STD81395

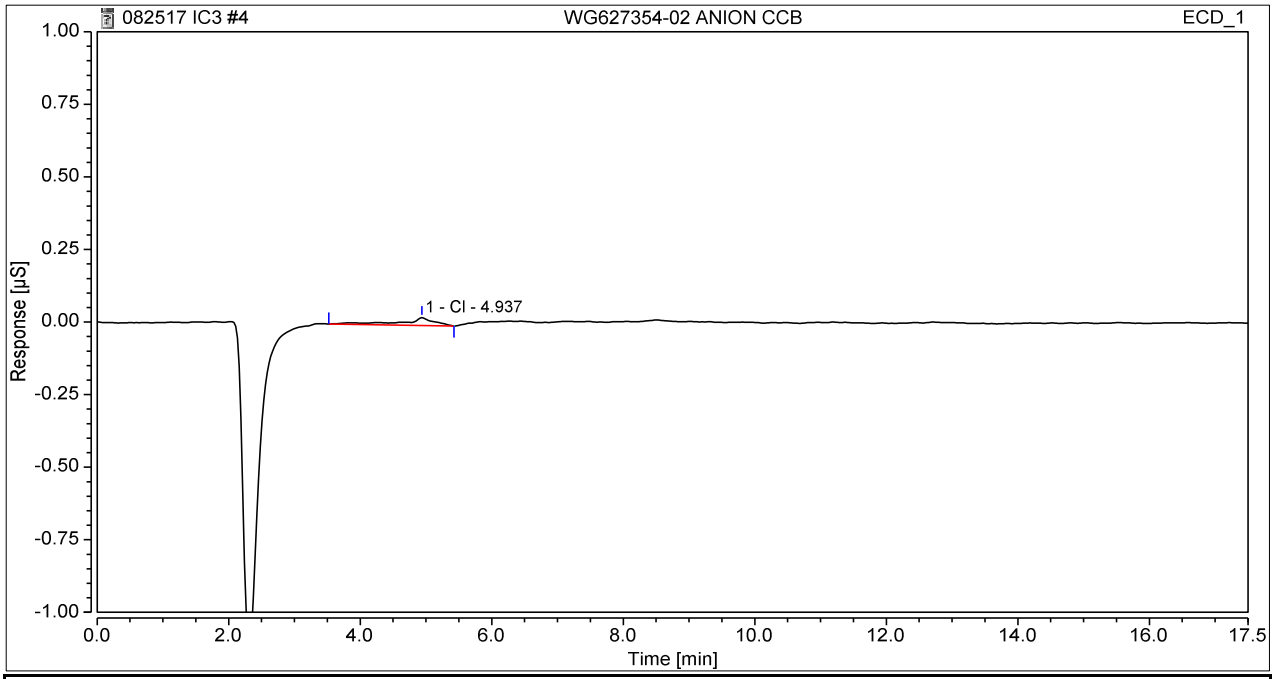
Sequence Details

Name:	**WG627354-07 ANION CCV**	*Run Time:*	**17.50**
Vial Number:	**35**	*Injection Volume:*	**10.00**
Instrument Method:	**9056**	*Channel:*	**ECD_1**
Processing Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**8/26/2017 4:41**	*Sample Weight:*	**1.0000**

WG627354-	Actual mg/L	Recovered mg/L	% Difference	Pass/Fail
F	8.00	**7.808577618**	**-2.392779771**	**PASS**
CL	8.00	**8.043417726**	**0.5427215739**	**PASS**
NO2	4.87	**4.987203751**	**2.406647862**	**PASS**
BR	8.00	**7.673096856**	**-4.086289304**	**PASS**
NO3	5.42	**5.397397305**	**-0.4354740773**	**PASS**
SO4	40.00	**40.61822903**	**1.545572587**	**PASS**

4 WG627354-02 ANION CCB
1,1 CAS

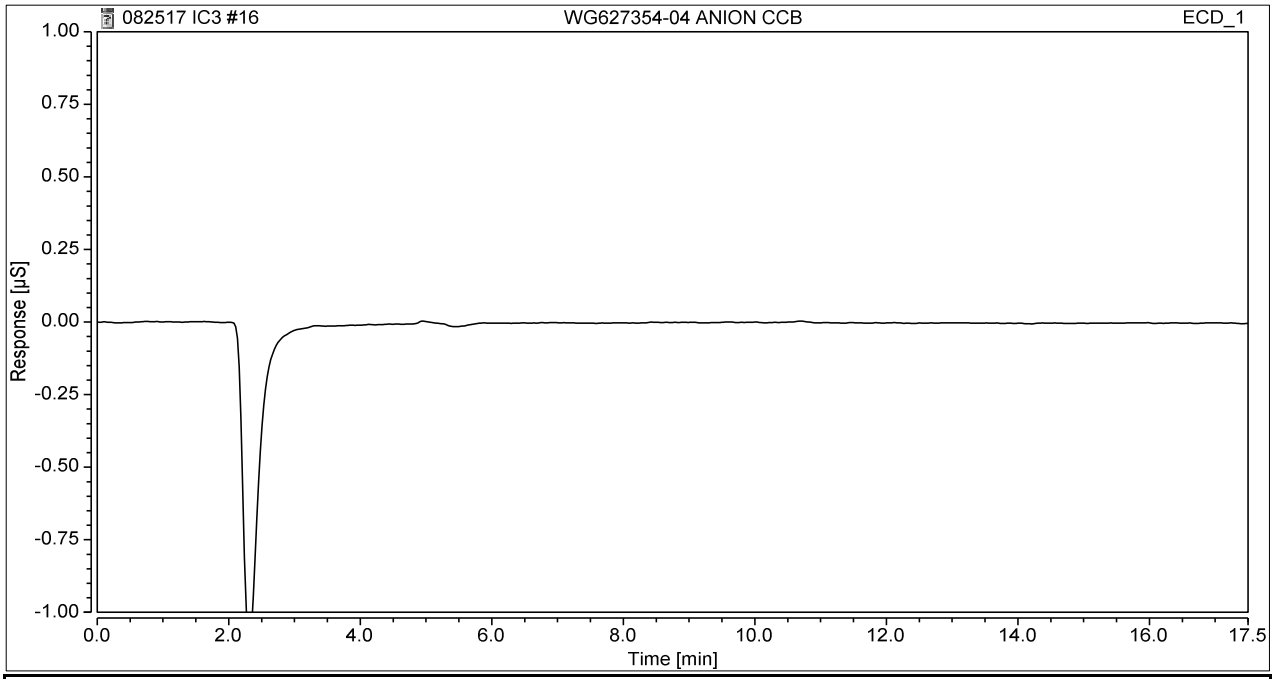
Sample Name:	**WG627354-02 ANION CCB**	*Injection Volume:*	**5000.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 18:10**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	4.94	Cl	0.0267	0.0160	100.0	0.071	M
Total:			**0.03**	**0.02**	**100**	**0.07**	

16 WG627354-04 ANION CCB
1,1 CAS

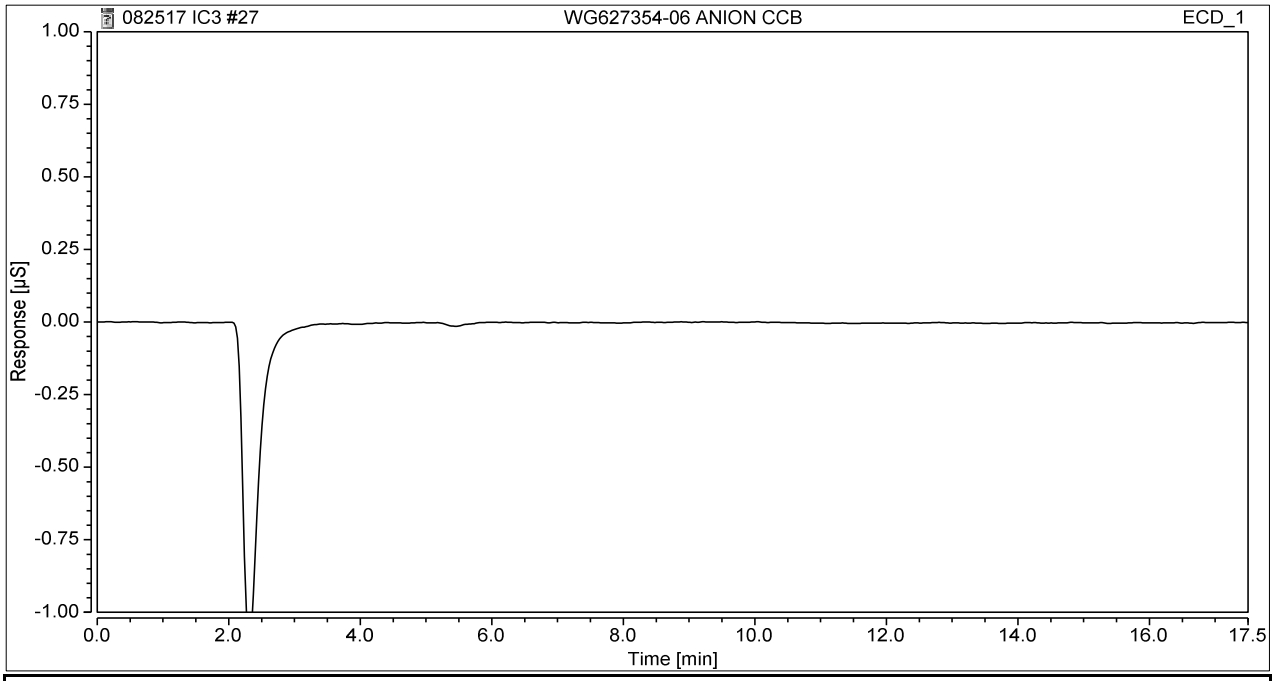
Sample Name:	**WG627354-04 ANION CCB**	*Injection Volume:*	**5000.0**
Vial Number:	**16**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 22:14**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			**0.00**	**0.00**	**0**	**0.00**	

27 WG627354-06 ANION CCB
1,1 CAS

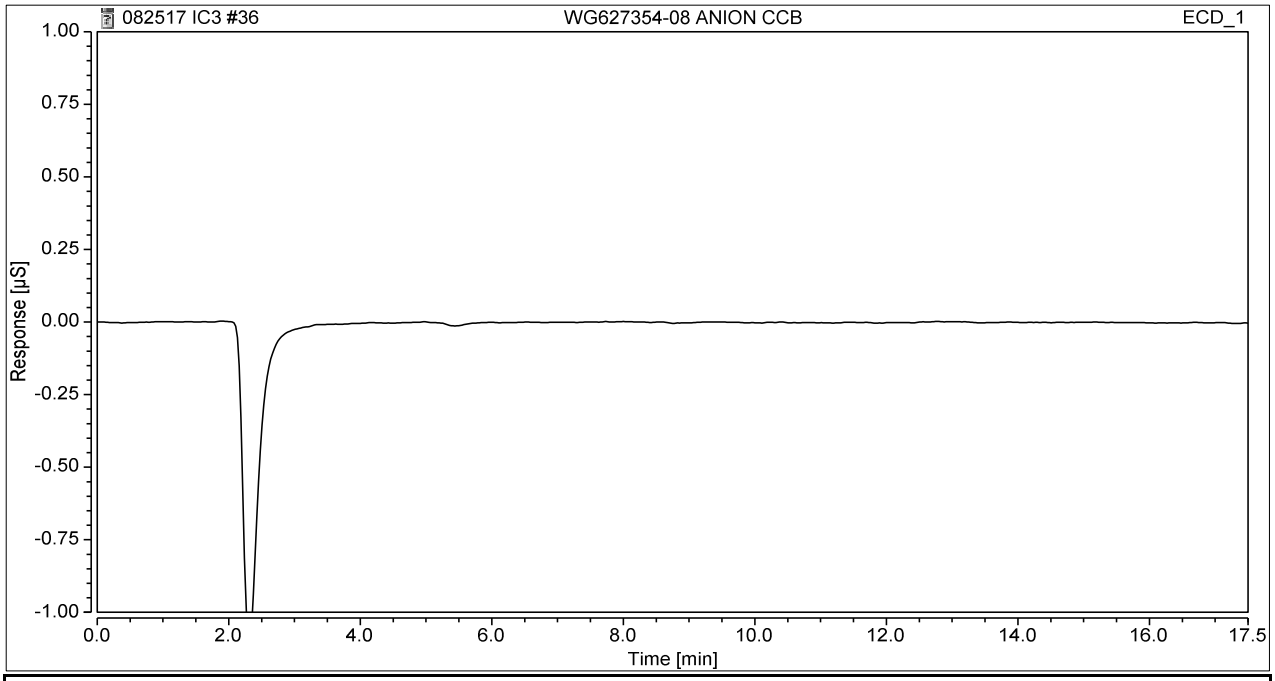
Sample Name:	**WG627354-06 ANION CCB**	*Injection Volume:*	**5000.0**
Vial Number:	**27**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 1:58**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			**0.00**	**0.00**	**0**	**0.00**	

36 WG627354-08 ANION CCB
1,1 CAS

Sample Name:	**WG627354-08 ANION CCB**	*Injection Volume:*	**5000.0**
Vial Number:	**36**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 5:01**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			**0.00**	**0.00**	**0**	**0.00**	

RETENTION TIME WINDOWS

Lab Name: MICROBAC Laboratories, Inc.

Instrument ID: IC1

IC Column: AG14A-SC/AS14A-SC

	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	6/5/2013	6/5/2013	6/6/2013
File #	WG432976-05	WG432976-07	WG433275-01
Time	16:16	18:25	16:50

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.41	3.40	3.41	0.017
Cl	4.87	4.87	4.88	0.017
NO2-N	5.67	5.66	5.67	0.017
Br	7.01	6.99	7.02	0.046
NO3-N	7.76	7.74	7.77	0.046
SO4	13.35	13.35	13.35	0.000

Instrument ID: IC2

IC Column: AS14A-4mm

	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	3/2/2015	3/4/2015	3/5/2015
File #	WG514023-02	WG514341-02	WG514431-02
Time	23:15	18:47	17:41

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.33	3.33	3.32	0.017
Cl	4.75	4.78	4.76	0.043
NO2-N	5.54	5.59	5.56	0.082
Br	6.86	6.98	6.93	0.180
NO3-N	7.59	7.73	7.67	0.222
SO4	12.42	12.38	12.34	0.116

Instrument ID: IC3

IC Column: AG14A-SC/AS14A-SC

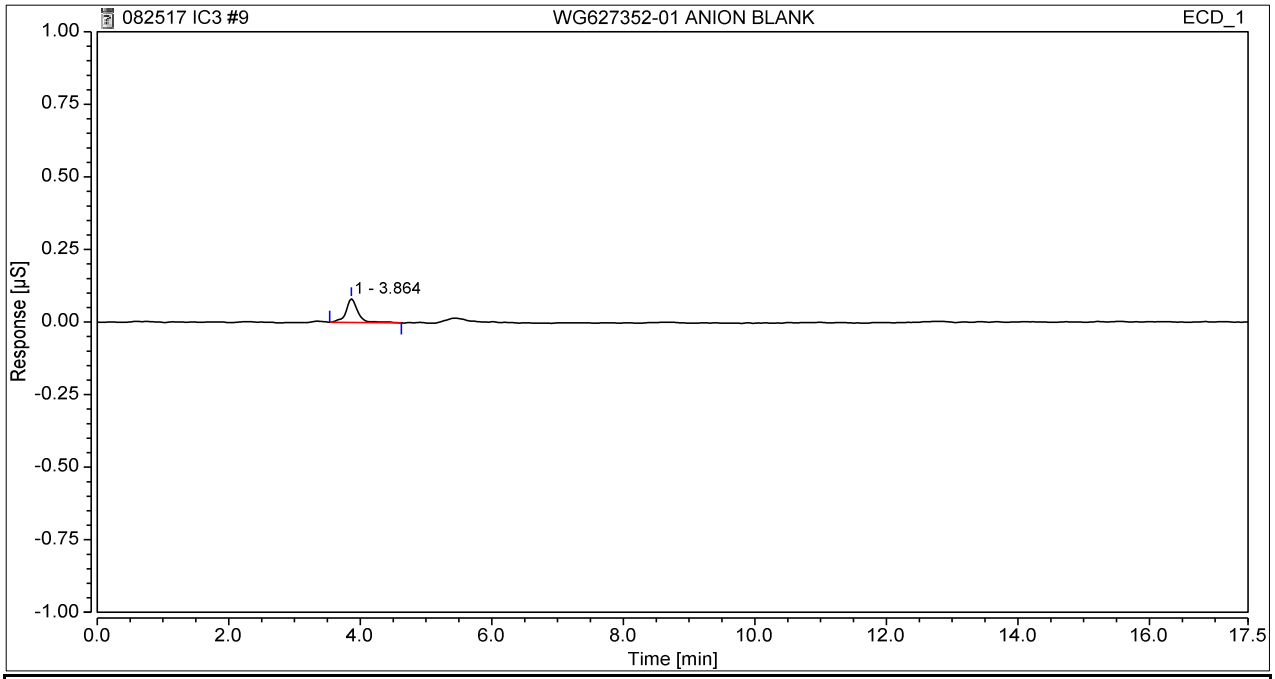
	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	5/20/2014	5/21/2014	5/21/2014
File #	WG476910-05	WG476934-01	WG476934-03
Time	12:41	9:54	13:59

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
F	3.41	3.41	3.41	0.000
Cl	5.11	5.09	5.07	0.050
NO2-N	6.14	6.11	6.07	0.101
Br	7.90	7.84	7.75	0.220
NO3-N	8.94	8.86	8.76	0.271
SO4	13.35	13.39	13.42	0.101

2.4.1.5 Raw QC Data

9 WG627352-01 ANION BLANK
1,1 CAS

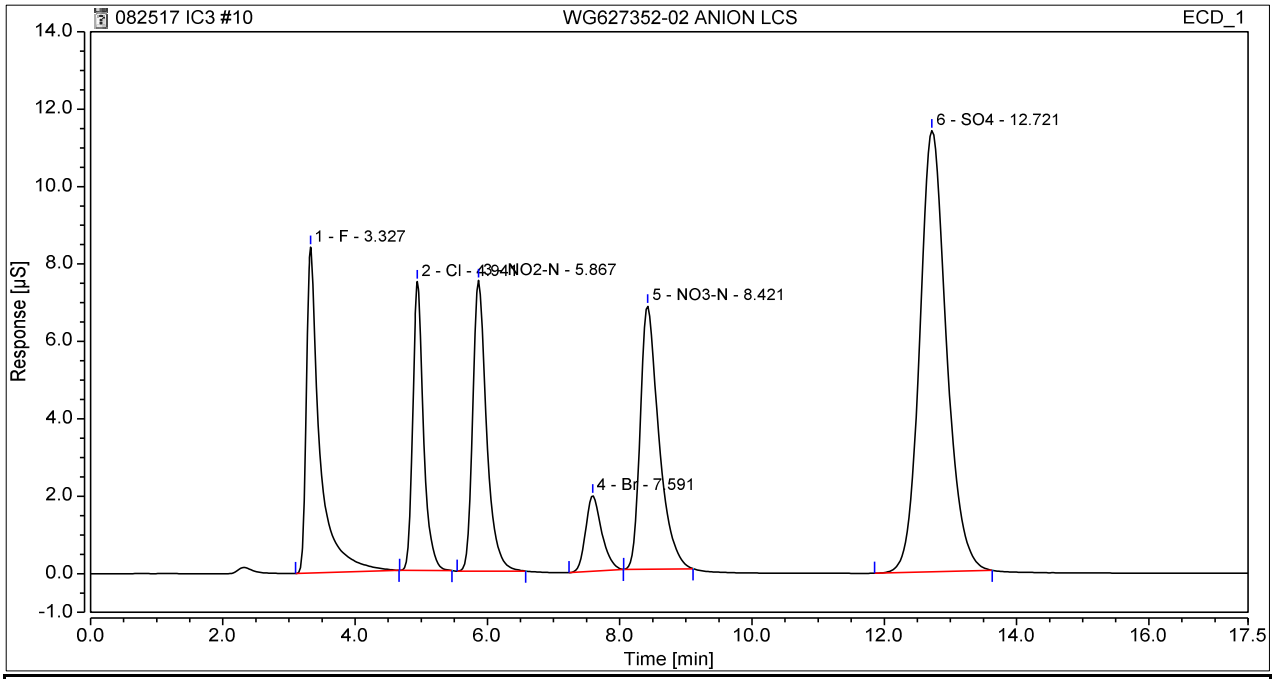
Sample Name:	**WG627352-01 ANION BLANK**	*Injection Volume:*	**5000.0**
Vial Number:	**9**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 19:52**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
Total:			**0.00**	**0.00**	**0**	**0.00**	

10 WG627352-02 ANION LCS
1,1 CAS STD81396

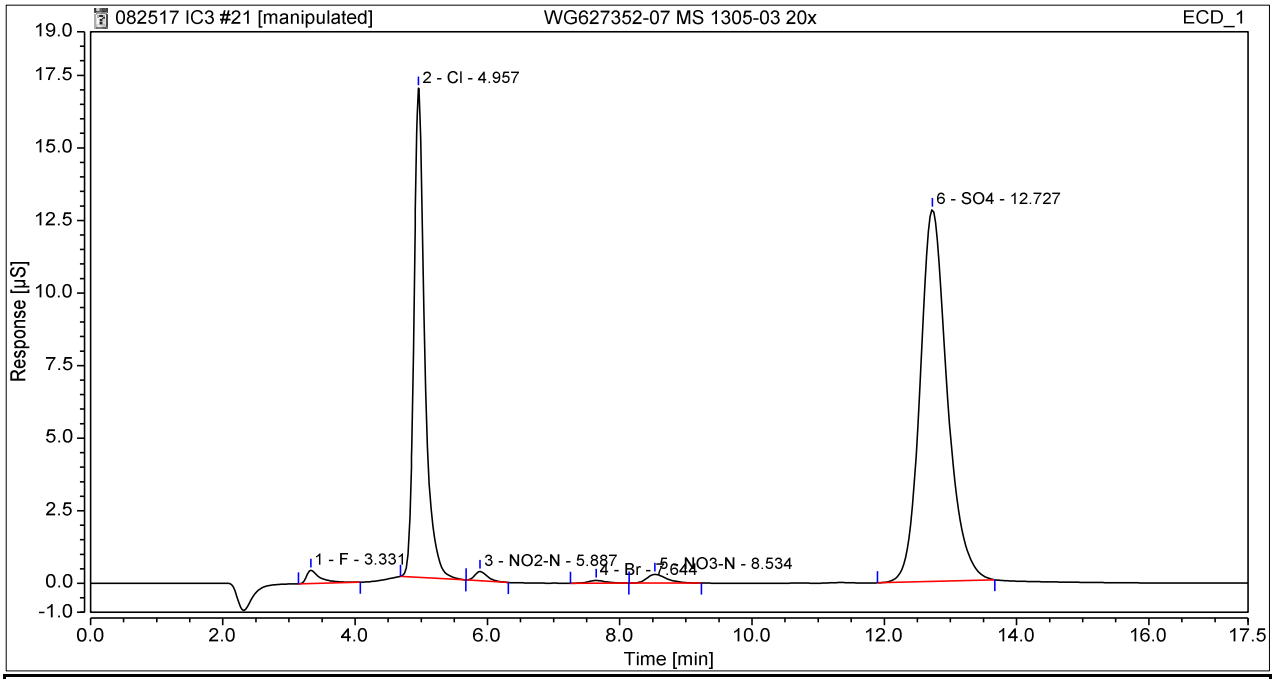
Sample Name:	**WG627352-02 ANION LCS**	*Injection Volume:*	**5000.0**
Vial Number:	**10**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 20:12**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	8.4235	1.9713	14.8	7.899	M
2	4.94	Cl	7.4652	1.3969	10.5	8.178	M
3	5.87	NO2-N	7.5146	1.8187	13.7	5.058	M
4	7.59	Br	1.9509	0.5482	4.1	7.980	M
5	8.42	NO3-N	6.8088	2.2338	16.8	5.537	M
6	12.72	SO4	11.4020	5.3417	40.1	41.478	M
Total:			**43.57**	**13.31**	**100**	**76.13**	

21 WG627352-07 MS 1305-03 20x
1,20 CAS L17081305-03 MS

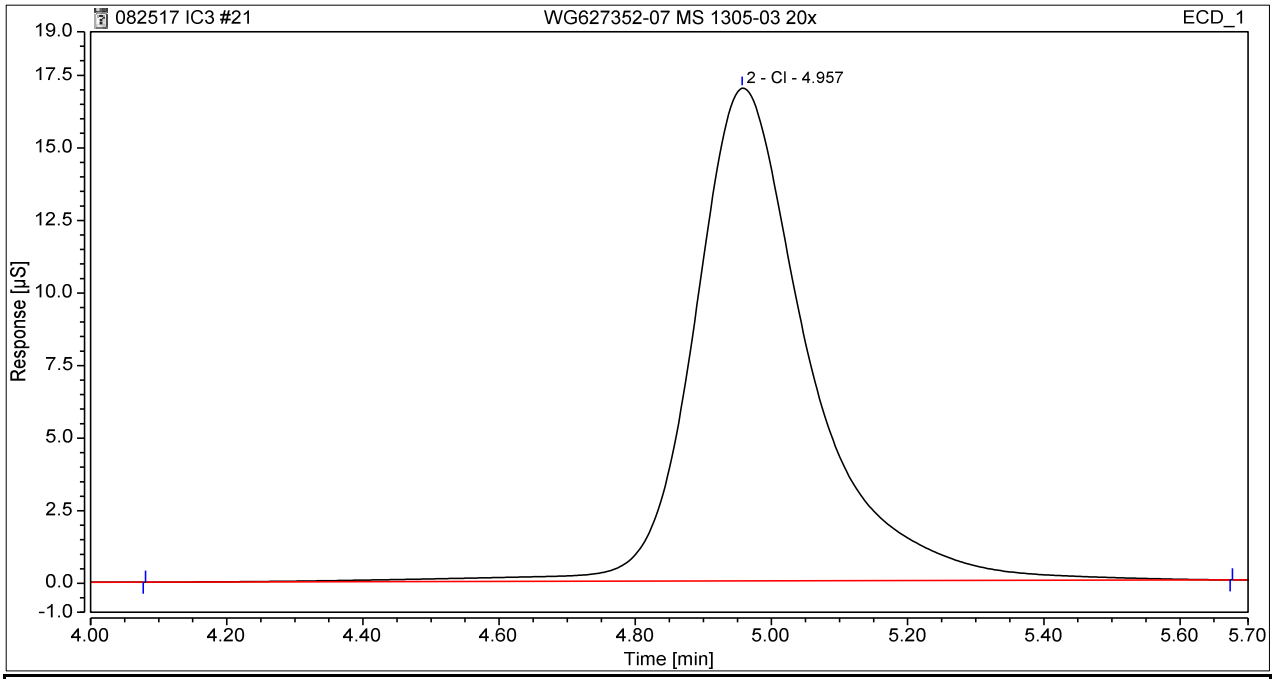
Sample Name:	**WG627352-07 MS 1305-03 20x**	*Injection Volume:*	**5000.0**
Vial Number:	**21**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 23:56**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.4568	0.1077	1.1	0.420	M
2	4.96	Cl	16.8465	3.2050	33.3	17.483	BM *
3	5.89	NO2-N	0.3173	0.0704	0.7	0.171	M
4	7.64	Br	0.0942	0.0282	0.3	0.416	M
5	8.53	NO3-N	0.3001	0.1069	1.1	0.286	M
6	12.73	SO4	12.8096	6.1011	63.4	46.897	M
Total:			**30.82**	**9.62**	**100**	**65.67**	

21 WG627352-07 MS 1305-03 20x
1,20 CAS L17081305-03 MS

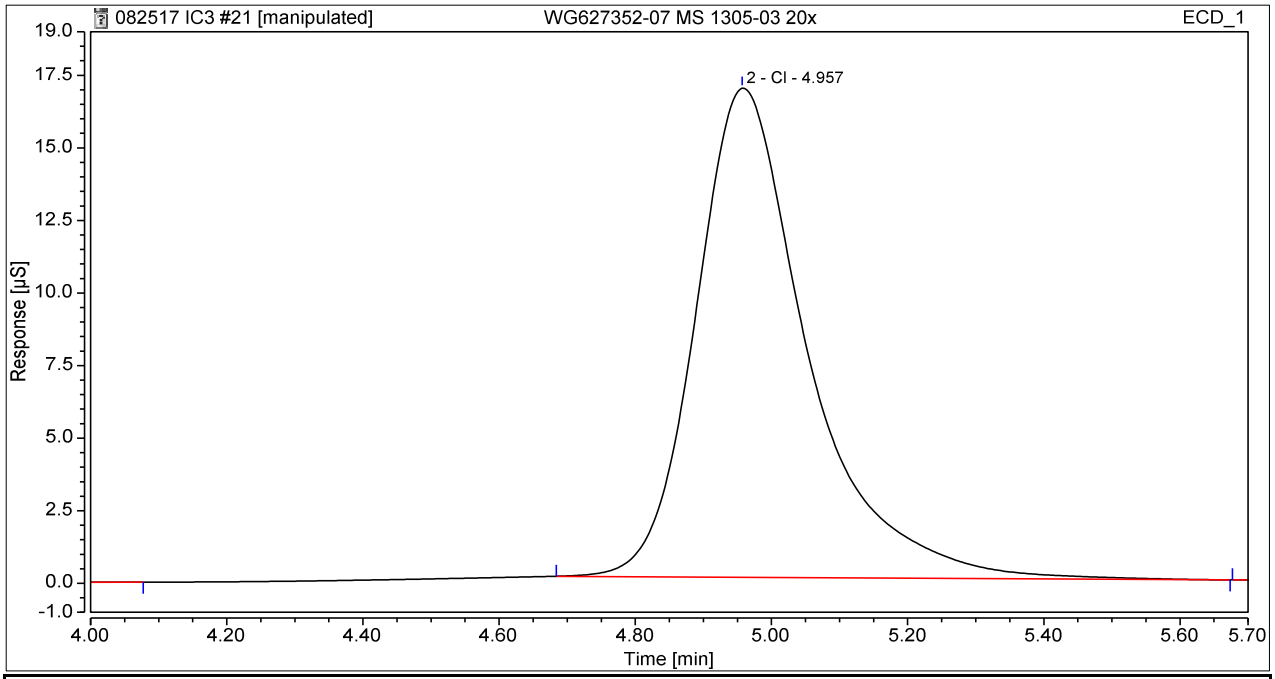
Sample Name:	**WG627352-07 MS 1305-03 20x**	*Injection Volume:*	**5000.0**
Vial Number:	**21**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 23:56**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.4568	0.1077	1.1	0.420	M
2	4.96	Cl	16.9730	3.3283	34.2	18.076	M
3	5.89	NO2-N	0.3173	0.0704	0.7	0.171	M
4	7.64	Br	0.0942	0.0282	0.3	0.416	M
5	8.53	NO3-N	0.3001	0.1069	1.1	0.286	M
6	12.73	SO4	12.8096	6.1011	62.6	46.897	M
Total:			**30.95**	**9.74**	**100**	**66.27**	

21 WG627352-07 MS 1305-03 20x
1,20 CAS L17081305-03 MS

Sample Name:	**WG627352-07 MS 1305-03 20x**	*Injection Volume:*	**5000.0**
Vial Number:	**21**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/25/2017 23:56**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.4568	0.1077	1.1	0.420	M
2	4.96	Cl	16.8465	3.2050	33.3	17.483	BM *
3	5.89	NO2-N	0.3173	0.0704	0.7	0.171	M
4	7.64	Br	0.0942	0.0282	0.3	0.416	M
5	8.53	NO3-N	0.3001	0.1069	1.1	0.286	M
6	12.73	SO4	12.8096	6.1011	63.4	46.897	M
Total:			**30.82**	**9.62**	**100**	**65.67**	

9056Rept/Integration

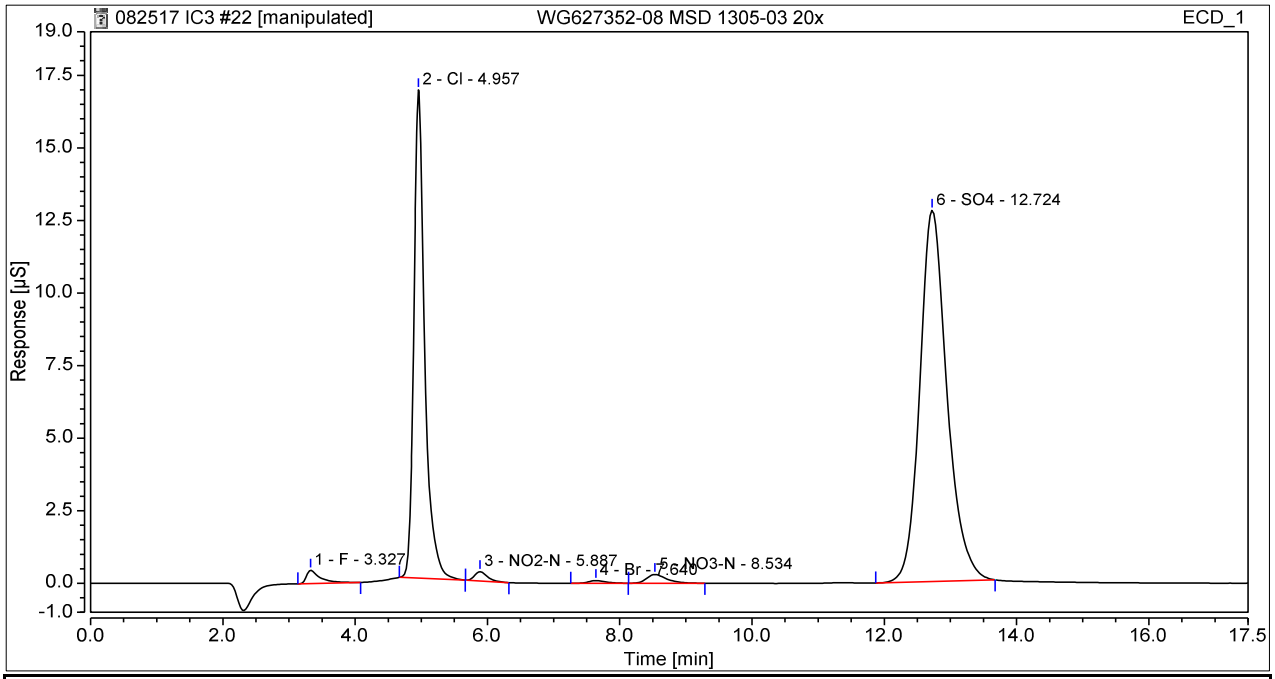
Analyst: 08/28/2017 11:38 Supervisor: 08/28/2017 12:15

#4 - System establishes incorrect baseline

Chromeleon (c) Dionex
Version 7.2.0.3765

22 WG627352-08 MSD 1305-03 20x
1,20 CAS L17081305-03 MSD

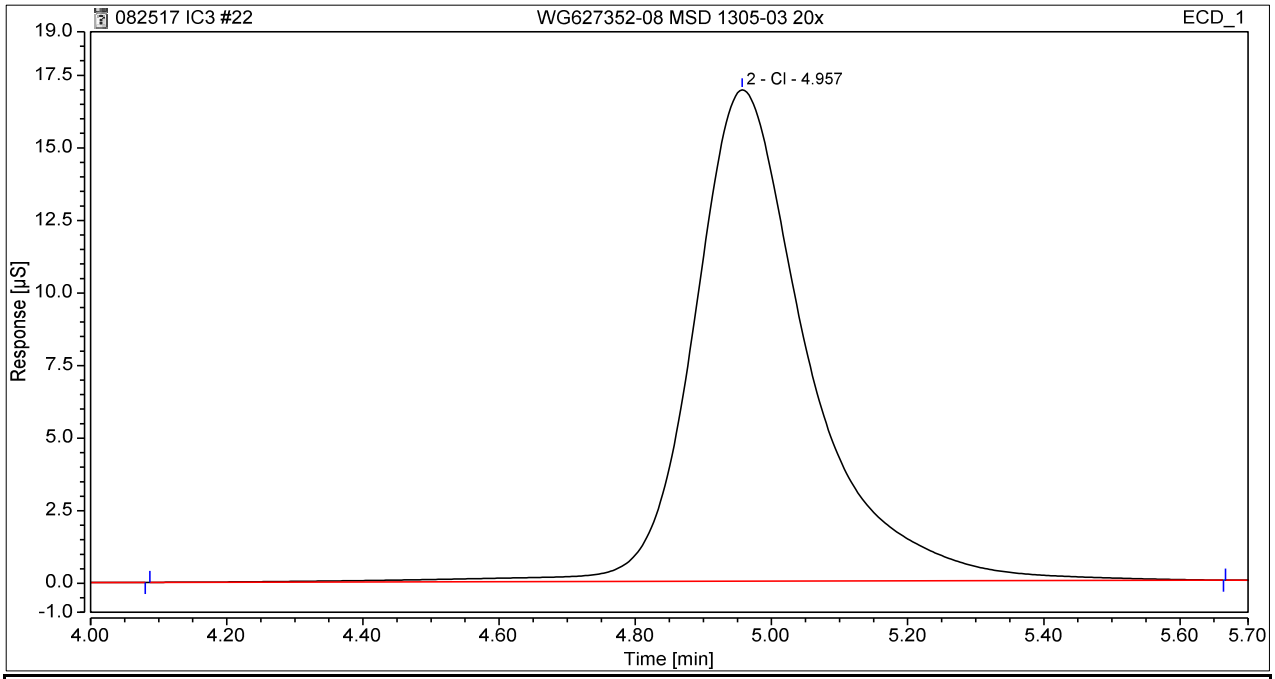
Sample Name:	**WG627352-08 MSD 1305-03 20x**	*Injection Volume:*	**5000.0**
Vial Number:	**22**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:16**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.4557	0.1086	1.1	0.424	M
2	4.96	Cl	16.8171	3.2018	33.3	17.467	BM *
3	5.89	NO2-N	0.3208	0.0713	0.7	0.174	M
4	7.64	Br	0.0929	0.0274	0.3	0.405	M
5	8.53	NO3-N	0.2989	0.1065	1.1	0.285	M
6	12.72	SO4	12.7867	6.0943	63.4	46.849	M
Total:			**30.77**	**9.61**	**100**	**65.60**	

22 WG627352-08 MSD 1305-03 20x
1,20 CAS L17081305-03 MSD

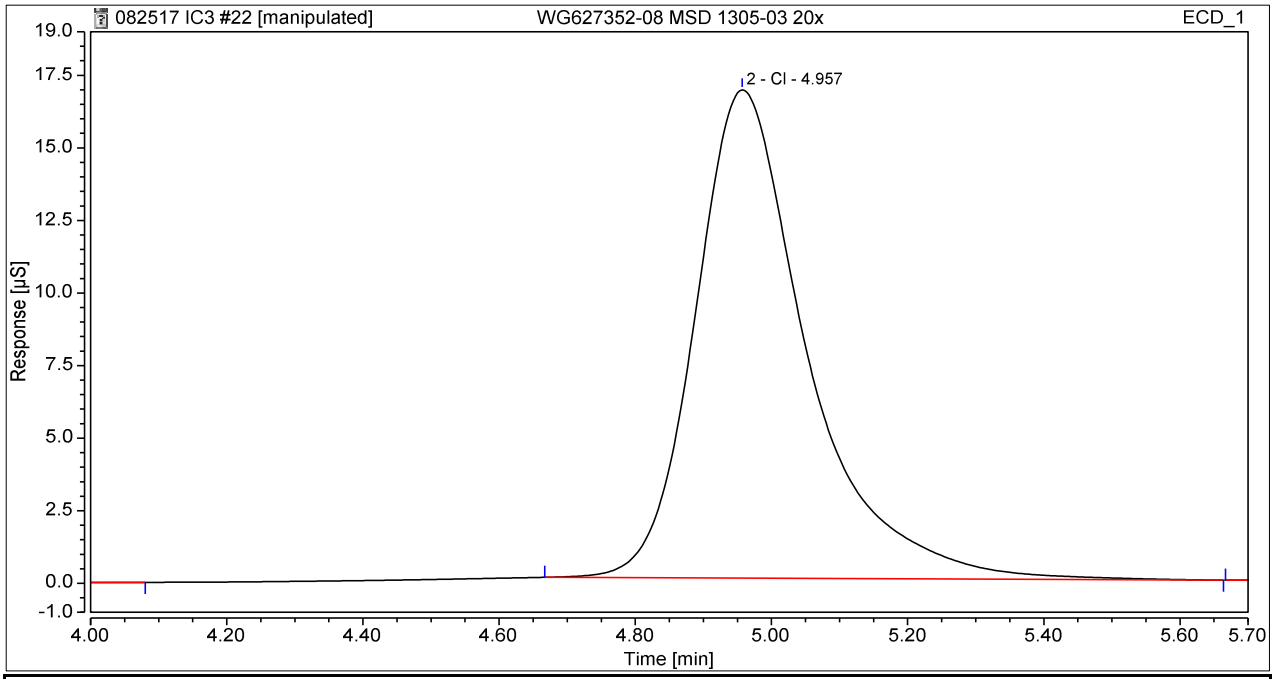
Sample Name:	**WG627352-08 MSD 1305-03 20x**	*Injection Volume:*	**5000.0**
Vial Number:	**22**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:16**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.4557	0.1086	1.1	0.424	M
2	4.96	Cl	16.9202	3.3038	34.0	17.958	M
3	5.89	NO2-N	0.3208	0.0713	0.7	0.174	M
4	7.64	Br	0.0929	0.0274	0.3	0.405	M
5	8.53	NO3-N	0.2989	0.1065	1.1	0.285	M
6	12.72	SO4	12.7867	6.0943	62.8	46.849	M
Total:			**30.88**	**9.71**	**100**	**66.10**	

22 WG627352-08 MSD 1305-03 20x
1,20 CAS L17081305-03 MSD

Sample Name:	**WG627352-08 MSD 1305-03 20x**	*Injection Volume:*	**5000.0**
Vial Number:	**22**	*Channel:*	**ECD_1**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**9056**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC3_062616_9056QNT**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/26/2017 0:16**	*Sample Weight:*	**1.0000**
Run Time:	**17.5**	*Sample Amount:*	**1.0000**



No.	Ret. Time	Peak Name	Height	Area	Rel. Area	Amount	Type
	min		µS	µS*min	%	mg/L	
1	3.33	F	0.4557	0.1086	1.1	0.424	M
2	4.96	Cl	16.8171	3.2018	33.3	17.467	BM *
3	5.89	NO2-N	0.3208	0.0713	0.7	0.174	M
4	7.64	Br	0.0929	0.0274	0.3	0.405	M
5	8.53	NO3-N	0.2989	0.1065	1.1	0.285	M
6	12.72	SO4	12.7867	6.0943	63.4	46.849	M
Total:			**30.77**	**9.61**	**100**	**65.60**	

9056Rept/Integration

Analyst: 08/28/2017 11:38 Supervisor: 08/28/2017 12:15

#4 - System establishes incorrect baseline

Chromeleon (c) Dionex
Version 7.2.0.3765

2.4.2 Alkalinity Data

2.4.2.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: Todd Boyle

METHOD

Analysis EPA 310.2 (Alkalinity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128891
Approved By: Deanna Hesson

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:30
Collect Date: 08/23/2017 09:42 **Dilution:** 2 **File ID:** S2170828002.018
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	362		40.0	20.0

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ04-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:30
Collect Date: 08/23/2017 10:58 **Dilution:** 10 **File ID:** S2170828002.019
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	1270		200	100

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW31-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:31
Collect Date: 08/23/2017 10:35 **Dilution:** 50 **File ID:** S2170828002.020
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	4630		1000	500

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW30-082317 **Prep Method:** 310.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 310.2 **Cal Date:** 08/28/2017 12:24
Workgroup #: WG627619 **Analyst:** TB **Run Date:** 08/28/2017 12:33
Collect Date: 08/23/2017 12:40 **Dilution:** 5 **File ID:** S2170828002.023
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	617		100	50.0

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW11S-082317	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	08/28/2017 12:24
Workgroup #:	WG627619	**Analyst:**	TB	**Run Date:**	08/28/2017 12:34
Collect Date:	08/23/2017 13:55	**Dilution:**	2	**File ID:**	S2170828002.024
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Alkalinity, Total (as CaCO3)	11-43-8	367		40.0	20.0

2.4.2.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

Microbac Laboratories Inc.

Data Checklist

Date: 28-AUG-2017
Analyst: TB
Analyst: NA
Method: ALK
Instrument: SC2
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627619 WG627416

Calibration/Linearity	08/28/2017
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	TB
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
29-AUG-2017

Secondary Reviewer:
29-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-29-2017 11:15:53

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 310.2 **AAB#:** WG627619

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/28/2017	5.1	14		08/28/17	5.1	14	
PZ04-082317	03	08/23/17					08/28/2017	5.1	14		08/28/17	5.1	14	
MW31-082317	08	08/23/17					08/28/2017	5.1	14		08/28/17	5.1	14	
MW30-082317	10	08/23/17					08/28/2017	5	14		08/28/17	5	14	
MW11S-082317	12	08/23/17					08/28/2017	4.9	14		08/28/17	4.9	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5452973
Report generated 08/29/2017 10:50

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627619
Blank File ID: S2170828002.012
Blank Sample ID: WG627619-01
Prep Date: 08/28/17 12:26
Instrument ID: SMARTCHEM2
Analyzed Date: 08/28/17 12:26
Method: 310.2
Analyst: TB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627619-02	S2170828002.013	08/28/17 12:27	01
LCS2	WG627619-03	S2170828002.014	08/28/17 12:28	01
PZ06-082317	L17081305-01	S2170828002.018	08/28/17 12:30	DL01
PZ04-082317	L17081305-03	S2170828002.019	08/28/17 12:30	DL01
MW31-082317	L17081305-08	S2170828002.020	08/28/17 12:31	DL01
MW30-082317	L17081305-10	S2170828002.023	08/28/17 12:33	DL01
MW11S-082317	L17081305-12	S2170828002.024	08/28/17 12:34	DL01
DUP	WG627619-05	S2170828002.031	08/28/17 12:38	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 5452974
Report generated 08/29/2017 10:50

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/28/17 12:26 Sample ID: WG627619-01
Instrument ID: SMARTCHEM2 Run Date: 08/28/17 12:26 Prep Method: 310.2
File ID: S2170828002.012 Analyst: TB Method: 310.2
Workgroup (AAB#): WG627619 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-28-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Alkalinity, Total (as CaCO3)	10.0	20.0	10.0	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5452975
29-AUG-2017 10:50

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** TB **Prep Method:** 310.2
Instrument ID: SMARTCHEM2 **Matrix:** Water **Method:** 310.2
Workgroup (AAB#): WG627619 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83579

Sample ID: WG627619-02 LCS **File ID:** S2170828002.013 **Run Date:** 08/28/2017 12:27
Sample ID: WG627619-03 LCS2 **File ID:** S2170828002.014 **Run Date:** 08/28/2017 12:28

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Alkalinity, Total (as CaCO3)	200	196	98.0	200	197	98.6	0.528	85 - 115	25	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5452976
Report generated: 08/29/2017 10:50

2.4.2.3 Raw Data

WORKGROUP: WG627416

619

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9

Syringe filter lot # _____

pH paper Lot #: _____

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____
Plan # _____

2) **Workgroup** _____
Plan # _____

3) **Workgroup** _____
Plan # _____

Instrument: SC1 ☐ SC2 ☒

	Analyte	1	2	3
		Alk		
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV			
1-2	Blk			
1-3	LLS			
1-4	LLSDup			
1-5	8-119-02	1/4		color
1-6	03	1/4		↓
1-7	05	1/4		
1-8	06	1/4		
1-9	1200-07	1/5	—	
1-10	1212-02		1/2	
1-11	08	1/50		color
1-12	11	1/2		
1-13	17	1/2		
1-14	1305-01	1/2		
1-15	03	1/10		
1-16	08	1/50		color
1-17	10	1/2		
1-18	12	1/2		
1-19	1352-02	1/4		color
1-20	03	1/4		↓
1-21	05	1/4		
1-22	06	1/4		
2-1	08	1/4		
2-2	09	1/4		↓
2-3	Dup 119-02	1/4		

TB 8/28/17

Position	Analyte	1	2	3
2-4 1	ICV			
2-5 2	Blk			
2-6 3	LLS			
2-7 4	LLSDup			
2-8 5	8-1212-08	1/100		
2-9 6	11	1/2		
2-10 7	17	1/2		
2-11 8	1305-01	1/2		
2-12 9	03	1/10		
2-13 10	08	1/50		
2-14 11	10	1/5		
2-15 12	12	1/2		
2-16 13	1352-02	1/4		
2-17 14	03	1/4		
2-18 15	05	1/4		
2-19 16	06	1/4		
2-20 17	08	1/4		
2-21 18	09	1/4		
2-22 19	Dup ↓			
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#127914

WORKGROUP: WG627416

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Position	Analyte	1	2	3
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

Position	Analyte	1	2	3
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-Cl E-2000
	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
	Phos	EPA 365.4

Analyte	Alk		Reagents
SOP & Revision	L3102 R17		
Curve Stock (SC made)	Std 81960		41115
NO2 STD			
ICV	83578		
CCV	83186		
LCS	83579		
MS	~~81112~~ 9. Dilution		

Comments: _____

Analyst: Tom Boyle Date: 8/28/17

DCN#127914

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.0	0.6285	0.00		11:07:32 AM
DIL-1	RBL	0.0	0.6346	0.00		11:07:50 AM
DIL-1	RBL	0.0	0.6196	0.00		11:08:44 AM
DIL-1	Std-1	0.0	-0.0031	0.00		11:09:02 AM
SR5-1	Std-2	10.0	-0.0150	0.00		11:09:56 AM
SR5-2	Std-3	20.0	-0.0185	0.00		11:10:14 AM
SR5-3	Std-4	50.0	-0.0587	0.00		11:11:08 AM
SR5-4	Std-5	100.0	-0.1043	0.00		11:11:26 AM
SR5-5	Std-6	200.0	-0.2347	0.00		11:12:20 AM
SR5-6	Std-7	250.0	-0.2979	0.00		11:12:38 AM
SR5-7	Std-8	300.0	-0.3606	0.00		11:13:32 AM
ST-3	1CCV (150 mg/L)	151.6	-0.1718	101.08		11:13:50 AM
ST-2	2CCB (0 mg/L)	15.6	-0.0180	0.00		11:14:44 AM
1	ICV	245.1	-0.2890	0.00		11:15:02 AM
2	WG627416-01 BLK	16.3	-0.0188	0.00		11:15:56 AM
3	WG627416-02 LCS	196.1	-0.2262	0.00		11:16:14 AM
4	WG627416-03 LCSDUP	200.8	-0.2321	0.00		11:17:08 AM
5	L17081191-02 (4)	236.3	-0.2774	0.00		11:17:26 AM
6	L17081191-03 (4)	144.6	-0.1634	0.00		11:18:20 AM
7	L17081191-05 (4)	225.1	-0.2629	0.00		11:18:38 AM
8	L17081191-06 (4)	140.3	-0.1583	0.00		11:19:32 AM
9	L17081200-07 (5)	195.8	-0.2258	0.00		11:19:50 AM
10	L17081212-02 (2)	241.2	-0.2839	0.00		11:20:44 AM
ST-3	1CCV (150 mg/L)	158.5	-0.1800	105.64		11:21:02 AM
ST-2	2CCB (0 mg/L)	19.5	-0.0222	0.00		11:21:56 AM
11	L17081212-08 (50)	305.6	-0.3714	0.00	><,LH	11:22:14 AM
12	L17081212-11 (2)	180.4	-0.2067	0.00		11:23:08 AM
13	L17081212-17 (2)	192.4	-0.2215	0.00		11:23:26 AM
14	L17081305-01 (2)	192.0	-0.2210	0.00		11:24:20 AM
15	L17081305-03 (10)	143.0	-0.1615	0.00		11:24:38 AM
16	L17081305-08 (50)	110.8	-0.1238	0.00		11:25:33 AM
17	L17081305-10 (2)	307.5	-0.3741	0.00	><,LH	11:25:50 AM

TB 8/28/17

Report Date :08/28/2017 **Run Date :8/28/2017** **Operator : SMARTCHEM2** **Plan # :20170828001**

Plan Description : ALK-A2-TB/08/28/2017

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
18	L17081305-12 (2)	195.6	-0.2256	0.00		11:26:44 AM
19	L17081352-02 (4)	239.8	-0.2820	0.00		11:27:03 AM
20	L17081352-03 (4)	113.1	-0.1265	0.00		11:27:56 AM
ST-3	1CCV (150 mg/L)	171.2	-0.1954	114.11		11:28:14 AM
ST-2	2CCB (0 mg/L)	45.5	-0.0504	0.00		11:29:08 AM
21	L17081352-05 (4)	226.2	-0.2643	0.00		11:29:26 AM
22	L17081352-06 (4)	104.0	-0.1160	0.00		11:30:20 AM
23	L17081352-08 (4)	230.4	-0.2698	0.00		11:30:38 AM
24	L17081352-09 (4)	115.0	-0.1287	0.00		11:31:32 AM
25	WG627416-05 (4) DUP	243.8	-0.2872	0.00		11:31:50 AM
ST-3	1CCV (150 mg/L)	175.3	-0.2004	116.84		11:32:44 AM
ST-2	2CCB (0 mg/L)	42.3	-0.0469	0.00		11:33:02 AM
10-[1/2]	L17081212-02	332.0	-0.1891	0.00	LH	11:40:42 AM
11-[1/2]	L17081212-08 (50)	381.7	-0.2196	0.00	LH	11:41:54 AM
17-[1/2]	L17081305-10 (2)	385.0	-0.2217	0.00	LH	11:43:06 AM
ST-3	1CCV (150 mg/L)	186.1	-0.2138	124.10		11:43:06 AM
ST-2	2CCB (0 mg/L)	55.3	-0.0612	0.00		11:44:00 AM

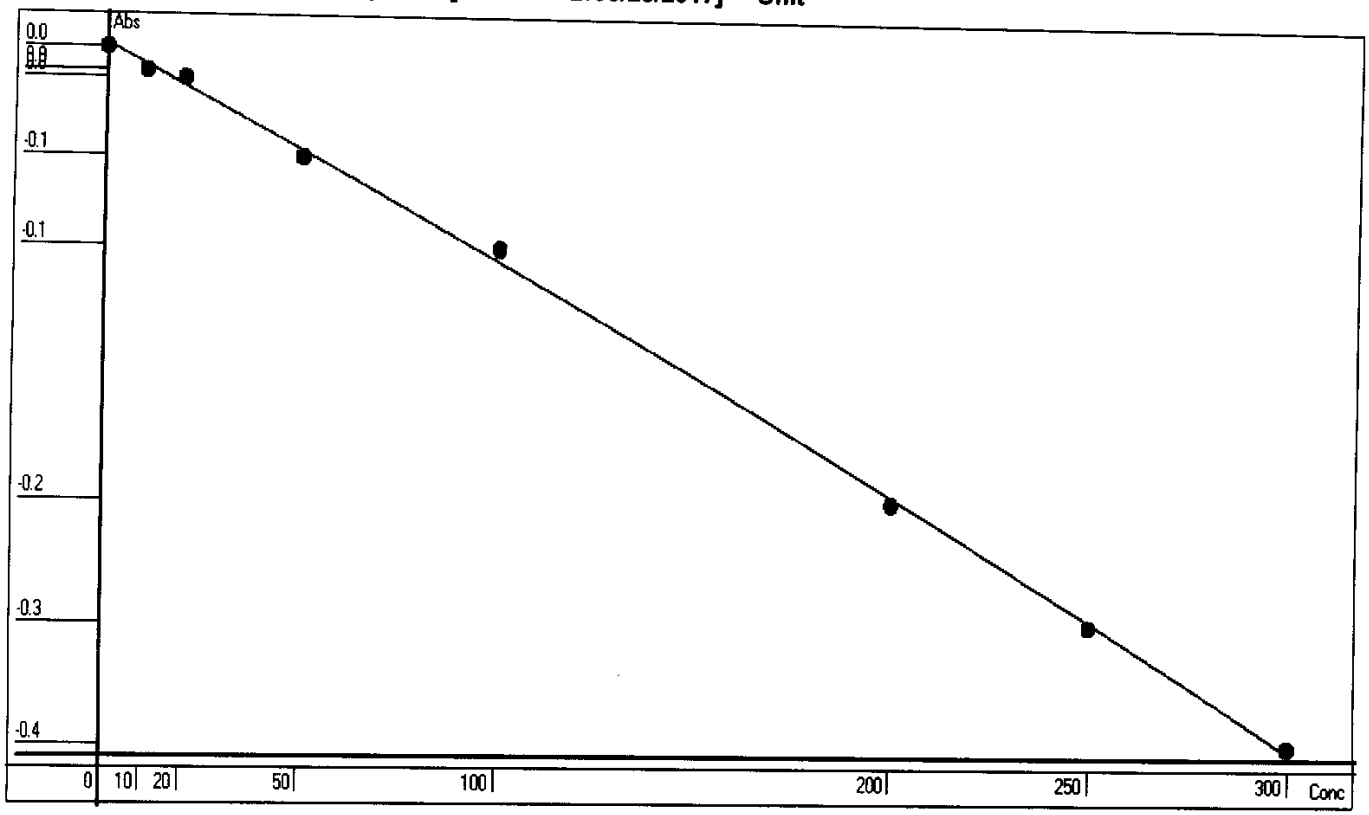
Report Date :08/28/2017 **Run Date :8/28/2017** **Operator : SMARTCHEM2** **Plan # :20170828001**

Plan Description : ALK-A2-TB/08/28/2017

Calibrant Report - WALK -

Calib Lot #:010104 Exp Date:6/21/2020 User:MICROBAC

Plan # : 20170828001 Description : [ALK-A2-TB/08/28/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	-0.0031	0	1.6255	162.55
2	-0.0150	10	12.8069	28.07
3	-0.0185	20	16.0783	-19.61
4	-0.0587	50	53.0899	6.18
5	-0.1042	100	93.7324	-6.27
6	-0.2347	200	202.9448	1.47
7	-0.2979	250	251.9148	0.77
8	-0.3605	300	297.8980	-0.70
				RBL 0.6316 0

Conc= -320.2549*Abso^2 -945.4108*Abso -1.3022 R^2=0.9991

Report Date 8/28/2017 Run Date 8/28/2017

MICROBAC (OVD)

SMARTCHEM200 INST2 (VER3.1.14)

NH3, TKN, NO3NO2 (MG/L N)

ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.0	0.5217	0.00		12:18:34 PM
DIL-1	RBL	0.0	0.5225	0.00		12:18:52 PM
DIL-1	RBL	0.0	0.5102	0.00		12:19:46 PM
DIL-1	Std-1	0.0	-0.0086	0.00		12:20:04 PM
SR5-1	Std-2	10.0	-0.0246	0.00		12:20:58 PM
SR5-2	Std-3	20.0	-0.0261	0.00		12:21:16 PM
SR5-3	Std-4	50.0	-0.0568	0.00		12:22:10 PM
SR5-4	Std-5	100.0	-0.0978	0.00		12:22:28 PM
SR5-5	Std-6	200.0	-0.2067	0.00		12:23:22 PM
SR5-6	Std-7	250.0	-0.2579	0.00		12:23:40 PM
SR5-7	Std-8	300.0	-0.3158	0.00		12:24:34 PM
ST-3	1CCV (150 mg/L)	150.9	-0.1526	100.61		12:24:52 PM
ST-2	2CCB (0 mg/L)	6.8	-0.0165	0.00		12:25:46 PM
1	ICV	247.9	-0.2559	0.00		12:26:04 PM
2	WG627416-01 BLK	5.2	-0.0151	0.00		12:26:58 PM
3	619- WG627416-02 LCS	196.1	-0.1993	0.00		12:27:16 PM
4	WG627416-03 LCSDUP	197.1	-0.2004	0.00		12:28:10 PM
5	13 L17081212-08 (100)	144.2	-0.1458	0.00		12:28:28 PM
6	8/29/17 L17081212-11 (2)	171.5	-0.1736	0.00		12:29:22 PM
7	L17081212-17 (2)	188.0	-0.1908	0.00		12:29:40 PM
8	L17081305-01 (2)	181.2	-0.1836	0.00		12:30:34 PM
9	L17081305-03 (10)	126.8	-0.1285	0.00		12:30:52 PM
10	L17081305-08 (50)	92.6	-0.0954	0.00		12:31:46 PM
ST-3	1CCV (150 mg/L)	151.6	-0.1533	101.07		12:32:04 PM
ST-2	2CCB (0 mg/L)	5.5	-0.0153	0.00		12:32:58 PM
11	L17081305-10 (5)	123.4	-0.1252	0.00		12:33:16 PM
12	L17081305-12 (2)	183.4	-0.1859	0.00		12:34:10 PM
13	L17081352-02 (4)	227.2	-0.2328	0.00		12:34:28 PM
14	L17081352-03 (4)	91.9	-0.0947	0.00		12:35:22 PM
15	L17081352-05 (4)	212.0	-0.2163	0.00		12:35:40 PM
16	L17081352-06 (4)	79.9	-0.0833	0.00		12:36:34 PM
17	L17081352-08 (4)	221.1	-0.2262	0.00		12:36:52 PM

Report Date :08/28/2017 **Run Date :8/28/2017** **Operator : SMARTCHEM2** **Plan # :20170828002**

Plan Description : ALK-B2-TB/08/28/2017

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WALK -Unit [mg/L] - ALKALINITY EPA 310.2

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
18	L17081352-09 (4)	93.0	-0.0958	0.00		12:37:46 PM
19	WG627416-05 (4) DUP	93.3	-0.0961	0.00		12:38:04 PM
20	ID 20	12.6	-0.0216	0.00		12:38:58 PM
ST-3	1CCV (150 mg/L)	162.4	-0.1643	108.29		12:39:16 PM
ST-2	2CCB (0 mg/L)	17.6	-0.0261	0.00		12:40:10 PM

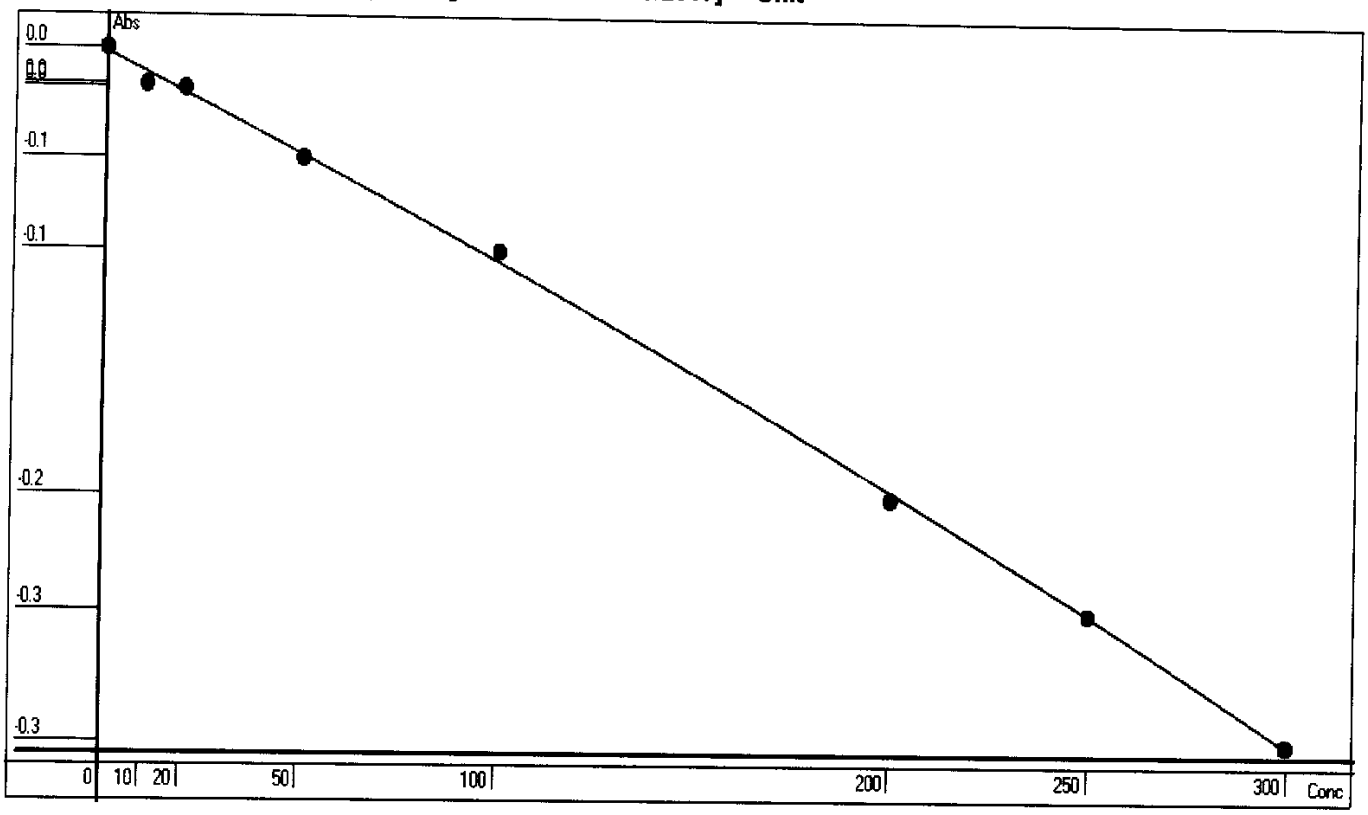
Report Date :08/28/2017 **Run Date :8/28/2017** **Operator : SMARTCHEM2** **Plan # :20170828002**

Plan Description : ALK-B2-TB/08/28/2017

Calibrant Report - WALK -

Calib Lot #:010104 Exp Date:6/21/2020 User:MICROBAC

Plan # : 20170828002 Description : [ALK-B2-TB/08/28/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	-0.0086	0	-2.1083	-210.83
2	-0.0246	10	15.9180	59.18
3	-0.0261	20	17.5949	-12.03
4	-0.0568	50	51.4204	2.84
5	-0.0978	100	95.1256	-4.87
6	-0.2067	200	203.0536	1.53
7	-0.2579	250	249.7006	-0.12
8	-0.3158	300	299.2952	-0.23

Conc= -499.6979*Abso^2 -1143.233*Abso -11.9031 R^2=0.9992

RBL
0.5221
0

Report Date 8/28/2017 Run Date 8/28/2017

2.4.3 Ammonia Data

2.4.3.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 350.1/SM4500-NH3 B(NH3)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

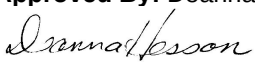
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128892
Approved By: Deanna Hesson



Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 10:52
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:12
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** S2170830002.025
Sample Tag: 02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	0.978		0.100	0.0500

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ04-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 11:27
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:14
Collect Date: 08/23/2017 10:58 **Dilution:** 2 **File ID:** S2170830002.026
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	5.87		0.200	0.100

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW31-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 11:01
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:14
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** S2170830002.027
Sample Tag: DL02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	7.45		1.00	0.500

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW30-082317 **Prep Method:** 350.1 **Prep Date:** 08/29/2017 10:54
Matrix: Water **Analytical Method:** 350.1 **Cal Date:** 08/30/2017 09:56
Workgroup #: WG627554 **Analyst:** TMM **Run Date:** 08/30/2017 10:16
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** S2170830002.028
Sample Tag: 02 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	0.797		0.100	0.0500

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW11S-082317	**Prep Method:**	350.1	**Prep Date:**	08/29/2017 10:55
Matrix:	Water	**Analytical Method:**	350.1	**Cal Date:**	08/30/2017 09:56
Workgroup #:	WG627554	**Analyst:**	TMM	**Run Date:**	08/30/2017 10:16
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	S2170830002.029
Sample Tag:	02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Ammonia	7664-41-7	0.478		0.100	0.0500

2.4.3.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 350.1 **AAB#:** WG627554

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/29/2017	6	28		08/30/17	7	28	
PZ04-082317	03	08/23/17					08/29/2017	6	28		08/30/17	7	28	
MW31-082317	08	08/23/17					08/29/2017	6	28		08/30/17	7	28	
MW30-082317	10	08/23/17					08/29/2017	5.9	28		08/30/17	6.9	28	
MW11S-082317	12	08/23/17					08/29/2017	5.9	28		08/30/17	6.8	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5455195
Report generated 08/30/2017 13:25

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number:	L17081305	Work Group:	WG627554
Blank File ID:	S2170830002.011	Blank Sample ID:	WG627554-01
Prep Date:	08/29/17 10:39	Instrument ID:	SMARTCHEM2
Analyzed Date:	08/30/17 10:00	Method:	350.1
Analyst:	TMM		

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627554-02	S2170830002.012	08/30/17 10:01	02
PZ06-082317	L17081305-01	S2170830002.025	08/30/17 10:12	02
PZ04-082317	L17081305-03	S2170830002.026	08/30/17 10:14	DL02
MW31-082317	L17081305-08	S2170830002.027	08/30/17 10:14	DL02
MW30-082317	L17081305-10	S2170830002.028	08/30/17 10:16	02
MW11S-082317	L17081305-12	S2170830002.029	08/30/17 10:16	02
DUP	WG627554-04	S2170830002.030	08/30/17 10:17	02

Report Name: BLANK_SUMMARY
PDF File ID: 5455196
Report generated 08/30/2017 13:25

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/29/17 10:39 Sample ID: WG627554-01
Instrument ID: SMARTCHEM2 Run Date: 08/30/17 10:00 Prep Method: 350.1
File ID: S2170830002.011 Analyst: TMM Method: 350.1
Workgroup (AAB#): WG627554 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-30-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Nitrogen, Ammonia	0.0500	0.100	0.0660	1	J

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5455197
30-AUG-2017 13:25

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Run Date:** 08/30/2017 **Sample ID:** WG627554-02
Instrument ID: SMARTCHEM2 **Run Time:** 10:01 **Prep Method:** 350.1
File ID: S2170830002.012 **Analyst:** TMM **Method:** 350.1
Workgroup (AAB#): WG627554 **Matrix:** Water **Units:** mg/L
QC Key: WATERLOO **Lot#:** STD83234 **Cal ID:** SMARTC-30-AUG-17

Analytes	Expected	Found	% Rec	LCS Limits	Q
Nitrogen, Ammonia	2.00	2.00	100	90 - 110	

LCS - Modified 03/06/2008
PDF File ID: 5455198
Report generated: 08/30/2017 13:25

2.4.3.3 Raw Data

WORKGROUP: WG627552

WG627554 Tmm 8/29/17

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9

Syringe filter lot # _____

pH paper Lot #: _____

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____
Plan # 20170829001

2) **Workgroup** _____
Plan # _____

3) **Workgroup** _____
Plan # _____

Instrument: SC1 [ ] SC2 [x]

	Analyte	1	2	3
		NH3		
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV			
1-2	BK AA			
1-3	LCS			
1-4	LCS2			
1-5	8-1307-01			
1-6	04 Dup			
1-7	05 MS			
1-8	06 MSD			
1-9	13			
1-10	16			
1-11	19			
1-12	22			
1-13	25			
1-14	8-1408-01			23ml
1-15	02			12ml
1-16	03			14ml
1-17	04			19ml
1-18	05			16ml
1-19	06			23ml
1-20	Dup 8-1307-22			
1-21	BK			
1-22	LCS			
2-1	08-1277-01			
2-2	02			
2-3	03			

set 2

Position	Analyte	1	2	3
2-4	08-1343-01			
2-5	08-1346-02			
2-6	08-1295-01			
2-7	02			
2-8	03			
2-9	04			
2-10	08-1329-01			
2-11	08-1305-01			
2-12	03			
2-13	08	1/10 x 1/4		
2-14	10			
2-15	12			
2-16	Dup 8-1295-2			
2-17	MS ↓			
2-18	MS 8-1295-04			
2-19	LCS			
2-20	8-1305-08	1/10		
2-21	8-1343-01	1/100		
2-22	LCS			
2-23	8-1329-01	1/10		
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#127935

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

	Analyte	1	2	3
Position				
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

	Analyte	1	2	3
Position				
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-CI E-2000
	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
	Phos	EPA 365.4

Analyte	NH3	NH3AA2	Reagents
SOP & Revision	K3501 Rev24		41015
Curve Stock (SC made)	ST83175 →		41069
NO2 STD			39749
ICV	83242 →		
CCV	83196 →		
LCS		83243	
MS	See Digest Page Dilution	0.1(1000)/10=1 ST83234	

Comments: _____

Analyst: Tammy Morris Date: 8/29/17

DCN#127935

AMMONIA DISTILLATION LOG

SOP K3501 Revision # 24

LCS: Std 83234 SPIKE: 83234

WATER (mg/L)

SOIL (mg/Kg)

DAILY DIL. 5(100)/250=2.0 DAILY DIL. 0.4(100)/40=1.0

*** All Distillate are at a Final Volume of 40 mL.**

RGT 402527

RGT 41081

SAMPLE	VOLUME DISTILLED (mL or g)	CHLORINE PRESENT? No ✓ Yes ✓	pH ADJUSTED 9.5 ± 0.2	COMMENTS
BLANK	40	✓	✓	
LCS(2.0)	40	✓	✓	
~~LCS DUP(2.0)~~	~~40~~	✓	✓	AM 8/28/17
8-1277-01	40	✓	✓	
02	40	✓	✓	
03	40	✓	✓	
8-1343-01	40	✓	✓	
08-1346-02	40	✓	✓	
08-1295-01	40	✓	✓	
02	40	✓	✓	
03	40	✓	✓	
04	40	✓	✓	
08-1329-01	40	✓	✓	
08-1305-01	40	✓	✓	
03	40	✓	✓	
08	4ml	✓	✓	
10	40	✓	✓	
12	40	✓	✓	
DUP #11 1295-02	40	✓	✓	
MS(1.0)	40	✓	✓	
MS(1.0)1295-4	40	✓	✓	

Analyst: Jammy Mans Date/Time: 8/28/2017

*MS required on 10% of samples (EPA 350.1)

*MS/MS required on each set of 20 samples (SM4500)

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNH3 -Unit [mg/L] - EPA 350.1/SM4500-NH3 AMMONIA

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0892	0.00		10:07:15 AM
DIL-1	RBL	0.000	0.0931	0.00		10:07:33 AM
DIL-1	RBL	0.000	0.0926	0.00		10:09:03 AM
DIL-1	Std-1	0.000	0.0018	0.00		10:09:21 AM
SR5-1	Std-2	0.030	0.0094	0.00		10:10:51 AM
SR5-2	Std-3	0.094	0.0297	0.00		10:11:09 AM
SR5-3	Std-4	0.600	0.1704	0.00		10:12:39 AM
SR5-4	Std-5	1.050	0.3033	0.00		10:12:57 AM
SR5-5	Std-6	2.100	0.6052	0.00		10:14:27 AM
ST-1	Std-7	3.000	0.8703	0.00		10:14:45 AM
ST-3	1CCV (1.5 mg/L)	1.564	0.4527	104.28		10:16:15 AM
ST-2	2CCB (0 mg/L)	0.008	0.0027	0.00		10:16:33 AM
1	ICV	1.426	0.4127	0.00		10:18:03 AM
2	WG627552-01 BLK	0.001	0.0005	0.00	><	10:18:21 AM
3	WG627552-02 LCS	2.017	0.5835	0.00		10:19:51 AM
4	WG627552-03 LCS2	1.993	0.5765	0.00		10:20:09 AM
5	L17081307-01	0.022	0.0068	0.00		10:21:39 AM
6	L17081307-04 REF	0.046	0.0135	0.00		10:21:57 AM
7	L17081307-05 MS	0.949	0.2748	0.00		10:23:27 AM
8	L17081307-06 MSD	0.948	0.2744	0.00		10:23:45 AM
9	L17081307-13	0.016	0.0048	0.00		10:25:15 AM
10	L17081307-16	0.023	0.0071	0.00		10:25:33 AM
ST-3	1CCV (1.5 mg/L)	1.590	0.4602	106.01		10:27:03 AM
ST-2	2CCB (0 mg/L)	0.013	0.0041	0.00		10:27:21 AM
11	L17081307-19	0.030	0.0090	0.00		10:28:51 AM
12	L17081307-22	0.011	0.0036	0.00		10:29:09 AM
13	L17081307-25	0.023	0.0070	0.00		10:30:39 AM
14	L17081408-01 23ml	0.067	0.0197	0.00		10:30:57 AM
15	L17081408-02 12ml	0.253	0.0735	0.00		10:32:27 AM
16	L17081408-03 14ml	0.167	0.0486	0.00		10:32:45 AM
17	L17081408-04 19ml	0.160	0.0467	0.00		10:34:15 AM
18	L17081408-05 14mL	1.071	0.3101	0.00		10:34:33 AM

Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM2** **Plan # :20170829001**

Plan Description : NH3-A2/TMM/08/29/2017

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNH3 -Unit [mg/L] - EPA 350.1/SM4500-NH3 AMMONIA

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
19	L17081408-06 23m\	0.641	0.1858	0.00		10:36:03 AM
20	WG627552-08 DUP	0.017	0.0052	0.00		10:36:21 AM
ST-3	1CCV (1.5 mg/L)	1.565	0.4529	104.33		10:37:51 AM
ST-2	2CCB (0 mg/L)	0.014	0.0043	0.00		10:38:09 AM
21	WG627554-01 BLK	0.102	0.0299	0.00		10:39:40 AM
22	WG627554-02 LCS	2.512	0.7266	0.00		10:39:57 AM
23	L17081277-01	1.084	0.3138	0.00		10:41:28 AM
24	L17081277-02	0.243	0.0706	0.00		10:41:46 AM
25	L17081277-03	0.348	0.1009	0.00		10:43:15 AM
26	L17081343-01	16.186	4.6804	0.00	><,LH	10:43:33 AM
27	L17081346-02	2.374	0.6869	0.00		10:45:04 AM
28	L17081295-01	0.192	0.0558	0.00		10:45:22 AM
29	L17081295-02	0.174	0.0506	0.00		10:46:52 AM
30	L17081295-03	0.216	0.0629	0.00		10:47:10 AM
ST-3	1CCV (1.5 mg/L)	1.588	0.4596	105.87		10:48:40 AM
ST-2	2CCB (0 mg/L)	0.018	0.0054	0.00		10:48:58 AM
31	L17081295-04	0.237	0.0688	0.00		10:50:28 AM
32	L17081329-01	16.206	4.6864	0.00	><,LH	10:50:46 AM
33	L17081305-01	0.979	0.2835	0.00		10:52:16 AM
34	L17081305-03	5.998	1.7347	0.00	EPL,><,LH	10:52:34 AM
35	L17081305-08 (10)(4)	0.187	0.0544	0.00		10:54:04 AM
36	L17081305-10	0.810	0.2345	0.00		10:54:22 AM
37	L17081305-12	0.480	0.1391	0.00		10:55:52 AM
38	WG627554-04 DUP	0.193	0.0563	0.00		10:56:10 AM
39	WG627554-05 MS	1.181	0.3420	0.00		10:57:40 AM
40	WG627554-07 MS	1.196	0.3463	0.00		10:57:58 AM
ST-3	1CCV (1.5 mg/L)	1.606	0.4649	107.09		10:59:28 AM
ST-2	2CCB (0 mg/L)	0.022	0.0066	0.00		10:59:46 AM
41	ID 41 WG627554-02LCS	1.999	0.5785	0.00		11:01:16 AM
42	ID 42 L1708 1305-08(10)	0.724	0.2098	0.00		11:01:34 AM
ST-3	1CCV (1.5 mg/L)	1.581	0.4575	105.39		11:03:04 AM
ST-2	2CCB (0 mg/L)	0.025	0.0075	0.00		11:03:22 AM

Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM2** **Plan # :20170829001**

Plan Description : NH3-A2/TMM/08/29/2017

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNH3 -Unit [mg/L] - EPA 350.1/SM4500-NH3 AMMONIA

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
49	ID 49 L17081343-01 (100)	1.898	0.5491	0.00		11:04:52 AM
ST-3	1CCV (1.5 mg/L)	1.595	0.4615	106.31		11:05:10 AM
ST-2	2CCB (0 mg/L)	0.019	0.0057	0.00		11:06:40 AM
50	ID 50 LCS	2.500	0.7234	0.00		11:06:58 AM
ST-3	1CCV (1.5 mg/L)	1.580	0.4572	105.32		11:08:28 AM
ST-2	2CCB (0 mg/L)	0.018	0.0054	0.00		11:08:46 AM
51	ID 51 L17081329-01 (10)	2.048	0.5926	0.00		11:10:16 AM
ST-3	1CCV (1.5 mg/L)	1.609	0.4655	107.23		11:10:34 AM
ST-2	2CCB (0 mg/L)	0.027	0.0081	0.00		11:12:04 AM
26-[1/2]	L17081343-01 DL	0.042	0.0064	0.00		11:24:14 AM
32-[1/2]	L17081329-01 DL	0.023	0.0036	0.00		11:26:02 AM
34-[1/2]	L17081305-03 OK 8/29/17	5.738	0.8299	0.00	LH	11:27:50 AM
ST-3	1CCV (1.5 mg/L)	1.603	0.4640	106.88		11:27:50 AM
ST-2	2CCB (0 mg/L)	0.026	0.0078	0.00		11:29:20 AM

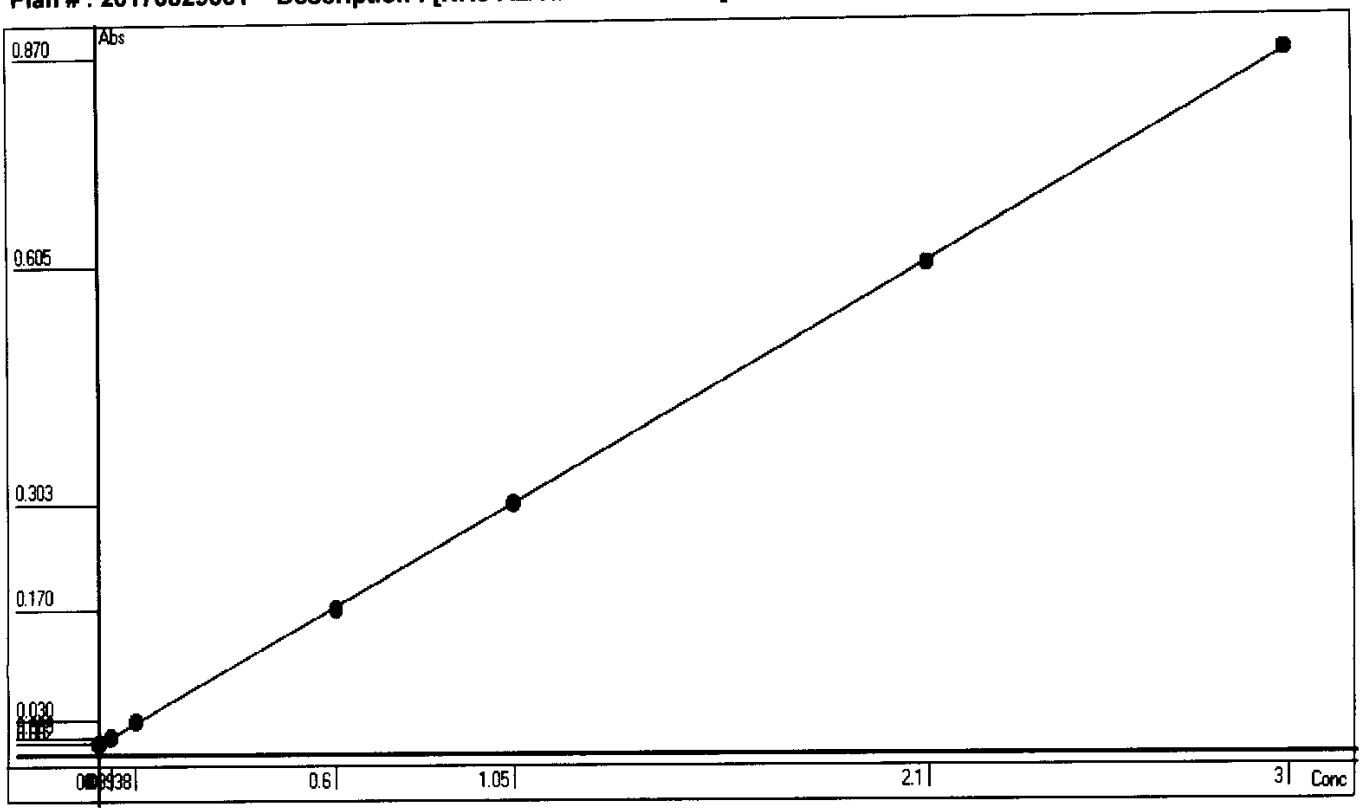
Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM2** **Plan # :20170829001**

Plan Description : NH3-A2/TMM/08/29/2017

Calibrant Report - WNH3 -

Calib Lot #:010104 Exp Date:6/17/2020 User:Westco Scientific

Plan # : 20170829001 Description : [NH3-A2/TMM/08/29/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0018	0	0.0049	0.49
2	0.0094	0.03	0.0312	4.00
3	0.0297	0.0938	0.1014	8.10
4	0.1704	0.6	0.5880	-2.00
5	0.3033	1.05	1.0477	-0.22
6	0.6051	2.1	2.0914	-0.41
7	0.8703	3	3.0086	0.29

Conc= +3.4585*Abso -0.0013 R^2=1.0000

RBL
0.0929
0

Report Date 8/29/2017 Run Date 8/29/2017

WORKGROUP: WG627554

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9

Syringe filter lot # _____

pH paper Lot #: _____

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____
Plan # 20170830002

2) **Workgroup** _____
Plan # _____

3) **Workgroup** _____
Plan # _____

Instrument: SC1 [ ] SC2 [x]

	Analyte	1 NH3	2	3
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV			
1-2	BK			
1-3	LCS			
1-4	8-1277-01			
1-5	02			
1-6	03			
1-7	08-1343-01	1/100		
1-8	08-1346-02			
1-9	8-1295-01			
1-10	02			
1-11	03			
1-12	04			
1-13	8-1329-01	1/10		
1-14	8-1305-01			
1-15	03	1/2		
1-16	08	1/10		
1-17	10			
1-18	12			
1-19	Dup 8-1295-02			
1-20	MS ↓			
1-21	MS 8-1295-04			
1-22	BK			
2-1	BK			
2-2				
2-3				

	Analyte	1	2	3
Position				
2-4				
2-5				
2-6				
2-7				
2-8				
2-9				
2-10				
2-11				
2-12				
2-13				
2-14				
2-15				
2-16				
2-17				
2-18				
2-19				
2-20				
2-21				
2-22				
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#127937

WORKGROUP: WG627554

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Position	Analyte	1	2	3
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

Position	Analyte	1	2	3
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-Cl E-2000
	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
	Phos	EPA 365.4

Analyte	NH3		Reagents
SOP & Revision	K3501 Rev24		41015
Curve Stock (SC made)	83175		41069
NO2 STD			39749
ICV	83242		
CCV	83176		
LCS			
MS	See Digest Log Dilution		

Comments: _____

Analyst: Jammy Morris Date: 8/30/17

DCN#127937

AMMONIA DISTILLATION LOG

SOP K3501 Revision # 24

LCS: Std 83234 SPIKE: 83234

WATER (mg/L)

DAILY DIL. 5(100)/250 = 2.0 DAILY DIL. 0.4(100)/40 = 1.0

SOIL (mg/Kg)

*** All Distillate are at a Final Volume of 40 mL.**

RGT 40252

RGT 41081

SAMPLE	VOLUME DISTILLED (mL or g)	CHLORINE PRESENT? No ✓ Yes ✓	pH ADJUSTED 9.5 ± 0.2	COMMENTS
BLANK	40	✓	✓	
LCS(2.0)	40	✓	✓	
~~LCS DUP(2.0)~~	~~40~~	~~✓~~	~~✓~~	~~AM 8/28/17~~
8-1277-01	40	✓	✓	
02	40	✓	✓	
03	40	✓	✓	
8-1343-01	40	✓	✓	
08-1346-02	40	✓	✓	
08-1295-01	40	✓	✓	
02	40	✓	✓	
03	40	✓	✓	
04	40	✓	✓	
08-1329-01	40	✓	✓	
08-1305-01	40	✓	✓	
03	40	✓	✓	
08	4ml	✓	✓	
10	40	✓	✓	
12	40	✓	✓	
DUP 1295-02	40	✓	✓	
MS(1.0)	40	✓	✓	
MS(1.0)1295-4	40	✓	✓	

Analyst: Jammy Mans Date/Time: 8/28/2017

*MS required on 10% of samples (EPA 350.1)

*MS/MS required on each set of 20 samples (SM4500)

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNH3 -Unit [mg/L] - EPA 350.1/SM4500-NH3 AMMONIA

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0969	0.00		9:49:10 AM
DIL-1	RBL	0.000	0.0991	0.00		9:49:28 AM
DIL-1	RBL	0.000	0.0960	0.00		9:50:58 AM
DIL-1	Std-1	0.000	0.0015	0.00		9:51:16 AM
SR5-1	Std-2	0.030	0.0076	0.00		9:52:46 AM
SR5-2	Std-3	0.094	0.0273	0.00		9:53:04 AM
SR5-3	Std-4	0.600	0.1693	0.00		9:54:34 AM
SR5-4	Std-5	1.050	0.2998	0.00		9:54:52 AM
SR5-5	Std-6	2.100	0.6080	0.00		9:56:22 AM
ST-1	Std-7	3.000	0.8761	0.00		9:56:40 AM
ST-3	1CCV (1.5 mg/L)	1.546	0.4485	103.03		9:58:10 AM
ST-2	2CCB (0 mg/L)	0.037	0.0086	0.00		9:58:28 AM
1	ICV	1.431	0.4151	0.00		9:59:58 AM
2	WG627554-01 BLK	0.066	0.0172	0.00		10:00:16 AM
3	WG627554-02 LCS	2.000	0.5809	0.00		10:01:46 AM
4	L17081277-01	1.081	0.3131	0.00		10:02:04 AM
5	L17081277-02	0.255	0.0722	0.00		10:03:34 AM
6	L17081277-03	0.339	0.0968	0.00		10:03:52 AM
7	L17081343-01 (100)	1.787	0.5188	0.00		10:05:22 AM
8	L17081346-02	2.320	0.6743	0.00		10:05:40 AM
9	L17081295-01	0.192	0.0537	0.00		10:07:10 AM
10	L17081295-02	0.181	0.0507	0.00		10:07:28 AM
ST-3	1CCV (1.5 mg/L)	1.578	0.4580	105.20		10:08:58 AM
ST-2	2CCB (0 mg/L)	0.044	0.0107	0.00		10:09:16 AM
11	L17081295-03	0.228	0.0642	0.00		10:10:46 AM
12	L17081295-04	0.248	0.0702	0.00		10:11:04 AM
13	L17081329-01 (10)	2.087	0.6065	0.00		10:12:34 AM
14	L17081305-01	0.978	0.2830	0.00		10:12:52 AM
15	L17081305-03 (2)	2.937	0.8542	0.00		10:14:22 AM
16	L17081305-08 (10)	0.745	0.2152	0.00		10:14:40 AM
17	L17081305-10	0.797	0.2304	0.00		10:16:10 AM
18	L17081305-12	0.478	0.1373	0.00		10:16:28 AM

Report Date :08/30/2017 **Run Date :8/30/2017** **Operator : SMARTCHEM2** **Plan # :20170830002**

Plan Description : NH3-B2-TMM/08/30/2017

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNH3 -Unit [mg/L] - EPA 350.1/SM4500-NH3 AMMONIA

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
19	WG627554-04 DUP	0.190	0.0533	0.00		10:17:58 AM
20	WG627554-05 MS	1.103	0.3196	0.00		10:18:16 AM
ST-3	1CCV (1.5 mg/L)	1.587	0.4605	105.78		10:19:46 AM
ST-2	2CCB (0 mg/L)	0.042	0.0103	0.00		10:20:04 AM
21	WG627554-07 MS	1.122	0.3250	0.00		10:21:34 AM
22	ID 22 BK	0.056	0.0144	0.00		10:21:52 AM
23	ID 23 BK	0.132	0.0363	0.00		10:23:22 AM
ST-3	1CCV (1.5 mg/L)	1.566	0.4544	104.38		10:23:40 AM
ST-2	2CCB (0 mg/L)	0.045	0.0110	0.00		10:25:10 AM

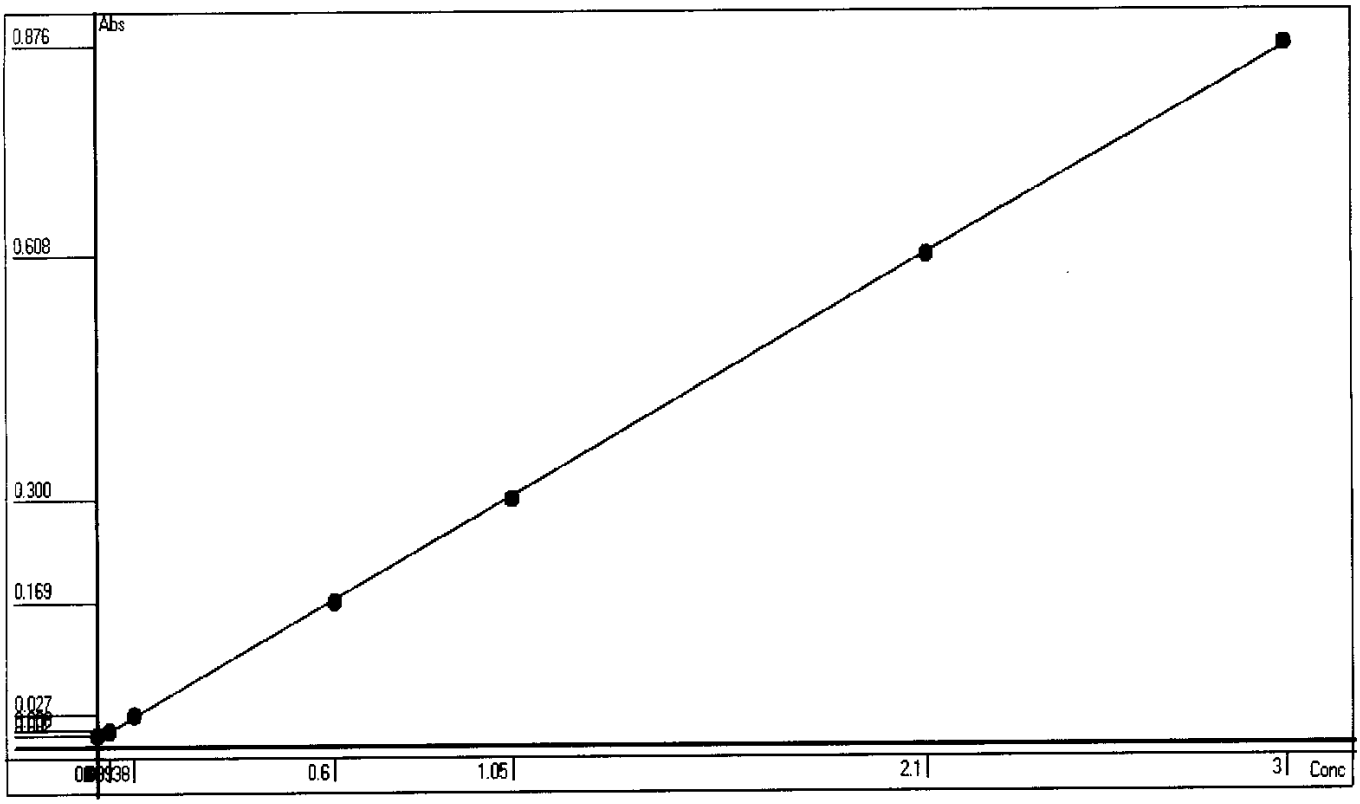
Report Date :08/30/2017 **Run Date :8/30/2017** **Operator : SMARTCHEM2** **Plan # :20170830002**

Plan Description : NH3-B2-TMM/08/30/2017

Calibrant Report - WNH3 -

Calib Lot #:010104 Exp Date:6/17/2020 User:Westco Scientific

Plan # : 20170830002 Description : [NH3-B2-TMM/08/30/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0015	0	0.0123	1.23
2	0.0076	0.03	0.0333	11.00
3	0.0272	0.0938	0.1005	7.14
4	0.1692	0.6	0.5876	-2.07
5	0.2998	1.05	1.0356	-1.37
6	0.6079	2.1	2.0925	-0.36
7	0.8760	3	3.0121	0.40

Conc= +3.4303*Abso +0.0072 R^2=0.9999

RBL
0.0965
0

Report Date 8/30/2017 Run Date 8/30/2017

2.4.4 Nitrate Data

2.4.4.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: The instrument used for the analysis of nitrate only analyzes for nitrate-nitrite (NO3NO2) which is the amount of total nitrate (NO3) and nitrite (NO2) combined. The NO3 concentration is determined by analyzing for NO3NO2 and NO2 and calculating NO3 by the difference. An unpreserved bottle only has a 48 hour hold time for NO3 and NO2 separately. However if the bottle is preserved with sulfuric acid, the hold time for NO3NO2 is 28 days. The NO2 was analyzed within 48 hours. The NO3NO2 was analyzed from a preserved container within 28 days..

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: The samples were diluted to reduce matrix interference. The reporting limits are elevated accordingly.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128819
Approved By: Deanna Hesson

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 09:42 **Dilution:** 5 **File ID:** S217082916555701
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8	0.270		0.250	0.125

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ06-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 09:42 **Dilution:** 5 **File ID:** S217082916560401
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)		0.300		0.250	0.125

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ04-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 10:58 **Dilution:** 25 **File ID:** S217082916561301
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	1.25	0.625

U	Not detected at or above adjusted sample detection limit.

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: PZ04-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 10:58 **Dilution:** 25 **File ID:** S217082916560801
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	1.25	0.625

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW31-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 10:35	**Dilution:**	100	**File ID:**	S217082916562201
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW31-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 10:35	**Dilution:**	100	**File ID:**	S217082916561801
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW30-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 12:40	**Dilution:**	100	**File ID:**	S217082916563001
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	5.00	2.50

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM2
Client ID:	MW30-082317	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	08/25/2017 09:29
Workgroup #:	WG627180	**Analyst:**	TMM	**Run Date:**	08/25/2017 11:33
Collect Date:	08/23/2017 12:40	**Dilution:**	100	**File ID:**	S217082916562701
Sample Tag:		**Units:**	mg/L		

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	5.00	2.50
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW11S-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 13:55 **Dilution:** 4 **File ID:** S217082916564301
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate-Nitrite (as N)			U	0.200	0.100
U	Not detected at or above adjusted sample detection limit.				

Sample #: L17081305-12 **PrePrep Method:** N/A **Instrument:** SMARTCHEM2
Client ID: MW11S-082317 **Prep Method:** 353.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 353.2 **Cal Date:** 08/25/2017 09:29
Workgroup #: WG627180 **Analyst:** TMM **Run Date:** 08/25/2017 11:33
Collect Date: 08/23/2017 13:55 **Dilution:** 4 **File ID:** S217082916563801
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrate (as N)	14797-55-8		U	0.200	0.100
U	Not detected at or above adjusted sample detection limit.				

2.4.4.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

Microbac Laboratories Inc.

Data Checklist

Date: 25-AUG-2017
Analyst: TMM
Analyst: NA
Method: NO3
Instrument: SC2
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627180

Calibration/Linearity	8/25/17
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	TMM
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
29-AUG-2017

Secondary Reviewer:
30-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-30-2017 13:48:45

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 353.2 **AAB#:** WG627180

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/25/2017	2.1	2	*	08/25/17	2.1	2	*
PZ04-082317	03	08/23/17					08/25/2017	2	2		08/25/17	2	2	
MW31-082317	08	08/23/17					08/25/2017	2	2		08/25/17	2	2	
MW30-082317	10	08/23/17					08/25/2017	2	2		08/25/17	2	2	
MW11S-082317	12	08/23/17					08/25/2017	1.9	2		08/25/17	1.9	2	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5454139
Report generated 08/30/2017 09:03

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 353.2 **AAB#:** WG627180

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/25/2017	2.1	28		08/25/17	2.1	28	
PZ04-082317	03	08/23/17					08/25/2017	2	28		08/25/17	2	28	
MW31-082317	08	08/23/17					08/25/2017	2	28		08/25/17	2	28	
MW30-082317	10	08/23/17					08/25/2017	2	28		08/25/17	2	28	
MW11S-082317	12	08/23/17					08/25/2017	1.9	28		08/25/17	1.9	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5454135
Report generated 08/30/2017 09:03

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627180
Blank File ID: S217082916535901
Blank Sample ID: WG627180-01
Prep Date: 08/25/17 11:33
Instrument ID: SMARTCHEM2
Analyzed Date: 08/25/17 11:33
Method: 353.2
Analyst: TMM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
PZ04-082317	L17081305-03	S217082916561301	08/25/17 11:33	
MW31-082317	L17081305-08	S217082916562201	08/25/17 11:33	
MW30-082317	L17081305-10	S217082916562701	08/25/17 11:33	
MW11S-082317	L17081305-12	S217082916563801	08/25/17 11:33	
MW11S-082317	L17081305-12	S217082916564301	08/25/17 11:33	
LCS2	WG627180-03	S217082916541201	08/25/17 11:33	
PZ06-082317	L17081305-01	S217082916560401	08/25/17 11:33	
PZ06-082317	L17081305-01	S217082916555701	08/25/17 11:33	
MW31-082317	L17081305-08	S217082916561801	08/25/17 11:33	
LCS	WG627180-02	S217082916540601	08/25/17 11:33	
MW30-082317	L17081305-10	S217082916563001	08/25/17 11:33	
DUP	WG627180-05	S217082916542201	08/25/17 11:33	
PZ04-082317	L17081305-03	S217082916560801	08/25/17 11:33	

Report Name: BLANK_SUMMARY
PDF File ID: 5454140
Report generated 08/30/2017 09:03

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627180
Blank File ID: S217082916535901
Blank Sample ID: WG627180-01
Prep Date: 08/25/17 11:33
Instrument ID: SMARTCHEM2
Analyzed Date: 08/25/17 11:33
Method: 353.2
Analyst: TMM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
PZ04-082317	L17081305-03	S217082916561301	08/25/17 11:33	
MW31-082317	L17081305-08	S217082916562201	08/25/17 11:33	
MW30-082317	L17081305-10	S217082916562701	08/25/17 11:33	
MW11S-082317	L17081305-12	S217082916563801	08/25/17 11:33	
MW11S-082317	L17081305-12	S217082916564301	08/25/17 11:33	
LCS2	WG627180-03	S217082916541201	08/25/17 11:33	
PZ06-082317	L17081305-01	S217082916560401	08/25/17 11:33	
PZ06-082317	L17081305-01	S217082916555701	08/25/17 11:33	
MW31-082317	L17081305-08	S217082916561801	08/25/17 11:33	
LCS	WG627180-02	S217082916540601	08/25/17 11:33	
MW30-082317	L17081305-10	S217082916563001	08/25/17 11:33	
DUP	WG627180-05	S217082916542201	08/25/17 11:33	
PZ04-082317	L17081305-03	S217082916560801	08/25/17 11:33	

Report Name: BLANK_SUMMARY
PDF File ID: 5454136
Report generated 08/30/2017 09:03

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/25/17 11:33 Sample ID: WG627180-01
Instrument ID: SMARTCHEM2 Run Date: 08/25/17 11:33 Prep Method: 353.2
File ID: S217082916535901 Analyst: TMM Method: 353.2
Workgroup (AAB#): WG627180 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-25-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Nitrate (as N)	0.0250	0.0500	0.0250	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5454141
30-AUG-2017 09:03

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/25/17 11:33 Sample ID: WG627180-01
Instrument ID: SMARTCHEM2 Run Date: 08/25/17 11:33 Prep Method: 353.2
File ID: S217082916535901 Analyst: TMM Method: 353.2
Workgroup (AAB#): WG627180 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-25-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Nitrate-Nitrite (as N)	0.0250	0.0500	0.0250	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5454137
30-AUG-2017 09:03

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** TMM **Prep Method:** 353.2
Instrument ID: SMARTCHEM2 **Matrix:** Water **Method:** 353.2
Workgroup (AAB#): WG627180 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83524

Sample ID: WG627180-02 LCS **File ID:** S217082916540601 **Run Date:** 08/25/2017 11:33
Sample ID: WG627180-03 LCS2 **File ID:** S217082916541201 **Run Date:** 08/25/2017 11:33

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Nitrate (as N)	1.00	1.00	100	1.00	1.04	104	3.73	90 - 110	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5454142
Report generated: 08/30/2017 09:03

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** TMM **Prep Method:** 353.2
Instrument ID: SMARTCHEM2 **Matrix:** Water **Method:** 353.2
Workgroup (AAB#): WG627180 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83524

Sample ID: WG627180-02 LCS **File ID:** S217082916540601 **Run Date:** 08/25/2017 11:33
Sample ID: WG627180-03 LCS2 **File ID:** S217082916541201 **Run Date:** 08/25/2017 11:33

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Nitrate-Nitrite (as N)	1.00	1.00	100	1.00	1.04	104	3.73	90 - 110	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5454138
Report generated: 08/30/2017 09:03

2.4.4.3 Raw Data

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [x] NO3 Reagent bottle connected / purged
- [x] NO3 pH adj to pH 5-9

Syringe filter lot # 09222462
pH paper Lot #: HC693124

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____
Plan # 20170825002
2) **Workgroup** _____
Plan # _____
3) **Workgroup** _____
Plan # _____
Instrument: SC1 ☐ SC2 ☑

	Analyte	1	2	3
		NO3		
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV			
1-2	BK			
1-3	LCS			
1-4	LCS2			
1-5	NO2ck			
1-6	8-1277-01			
1-7	02	1/5		
1-8	03			
1-9	8-1295-C1			
1-10	02			
1-11	03	1/5		
1-12	04	1/5		
1-13	8-1212-C2	1/50		
1-14	08	1/100		
1-15	11	1/4		
1-16	17	1/4		
1-17	8-1305-01	1/5		
1-18	03	1/25		
1-19	08	1/100		
1-20	10	1/100		
1-21	12	1/4		
1-22	DUP 08-1311-01			
2-1	MS 08-1311-01			
2-2	08-1311-01			
2-3				

Position	Analyte	1	2	3
2-4				
2-5				
2-6				
2-7				
2-8				
2-9				
2-10				
2-11				
2-12				
2-13				
2-14				
2-15				
2-16				
2-17				
2-18				
2-19				
2-20				
2-21				
2-22				
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

* Samples diluted for Matrix interference Kills Your Column.

DCN#127875

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Position	Analyte	1	2	3
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

Position	Analyte	1	2	3
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-Cl E-2000
	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
	Phos	EPA 365.4

Analyte	NO3		Reagents
SOP & Revision			40827
Curve Stock (SC made)	83567		40195
NO2 STD Std83569	~~Std82988~~ 4mM	8/25/17	
ICV	Std83523		
CCV	Std83568		
LCS	Std83524		
MS	Std82988 0.1(20)/5 Dilution		

Comments: _____

Analyst: Tammy Morris Date: 8/25/17

DCN#127875

MICROBAC (OVD)

SMARTCHEM200 INST2 (VER3.1.14)

NH3, TKN, NO3NO2 (MG/L N)

ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 -Unit [mg/L] - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.1576	0.00	R	11:33:28 AM
DIL-1	RBL	0.000	0.0953	0.00		11:34:40 AM
DIL-1	RBL	0.000	0.0993	0.00		11:35:52 AM
DIL-1	RBL	0.000	0.0983	0.00		11:37:04 AM
DIL-1	Std-1	0.000	-0.0018	0.00	INV	11:38:17 AM
SR5-1	Std-2	0.040	0.0091	0.00		11:39:28 AM
SR5-2	Std-3	0.100	0.0326	0.00		11:40:41 AM
SR5-3	Std-4	0.500	0.1795	0.00		11:41:52 AM
SR5-4	Std-5	1.000	0.3588	0.00		11:43:05 AM
ST-1	Std-6	2.000	0.7241	0.00		11:44:17 AM
ST-3	1CCV (1 mg/L)	1.039	0.3743	103.91		11:45:29 AM
ST-2	2CCB (0 mg/L)	0.003	-0.0024	0.00	INV,><	11:46:41 AM
1	ICV	1.572	0.5682	0.00		11:47:53 AM
2	WG627180-01 BLK	-0.005	-0.0055	0.00	INV,><,LL	11:49:05 AM
3	WG627180-02 LCS	1.000	0.3601	0.00		11:50:17 AM
4	WG627180-03 LCS2	1.038	0.3738	0.00		11:51:29 AM
5	NO2 CK	1.104	0.3979	0.00		11:52:41 AM
6	L17081277-01	0.056	0.0167	0.00		11:53:53 AM
7	L17081277-02 (5)	X 0.002	-0.0027	0.00	INV,><	11:55:05 AM
8	L17081277-03	0.051	0.0150	0.00		11:56:17 AM
9	L17081295-01	0.470	0.1675	0.00		11:57:29 AM
10	L17081295-02	0.356	0.1260	0.00		11:58:41 AM
ST-3	1CCV (1 mg/L)	1.007	0.3625	100.66		11:59:53 AM
ST-2	2CCB (0 mg/L)	0.002	-0.0027	0.00	INV,><	12:01:05 PM
11	L17081295-03 (5)	0.018	0.0031	0.00		12:02:17 PM
12	L17081295-04 (5)	0.015	0.0017	0.00		12:03:29 PM
13	L17081212-03 (50) 8/25/17	-0.005	-0.0054	0.00 K 0.0179	INV,><,LL	12:04:41 PM
14	L17081212-08 (100)	0.014	0.0015	0.00 0		12:05:53 PM
15	L17081212-11 (4)	0.065	0.0199	0.00 0		12:07:05 PM
16	L17081212-17 (4)	0.041	0.0114	0.00 0		12:08:17 PM
17	L17081305-01 (5)	0.060	0.0181	0.00 0.031		12:09:29 PM
18	L17081305-03 (25)	-0.008	-0.0063	0.00 0.021	INV,><,LL	12:10:41 PM

Report Date :08/25/2017 **Run Date :8/25/2017** **Operator : SMARTCHEM2** **Plan # :20170825002**

Plan Description : NO3-A2/TMM/018/25/2017

MICROBAC (OVD)
SMARTCHEM200 INST2 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 -Unit [mg/L] - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
19	L17081305-08 (100)	-0.001	-0.0039	0.00	INV,><,LL	12:11:53 PM
20	L17081305-10 (100)	-0.007	-0.0061	0.00	INV,><,LL	12:13:05 PM
ST-3	1CCV (1 mg/L)	0.983	0.3540	98.33		12:14:17 PM
ST-2	2CCB (0 mg/L)	-0.019	-0.0106	0.00	INV,><,LL	12:15:29 PM
21	L17081305-12 (4)	0.020	0.0036	0.00		12:16:41 PM
22	WG627180-05 DUP	0.011	0.0004	0.00		12:17:53 PM
23	WG627180-06 MS	0.499	0.1779	0.00		12:19:05 PM
24	L17081311-01	0.092	0.0298	0.00		12:20:17 PM
25	ID 25	1.014	0.3652	0.00		12:21:29 PM
ST-3	1CCV (1 mg/L)	0.943	0.3392	94.26		12:22:41 PM
ST-2	2CCB (0 mg/L)	-0.005	-0.0053	0.00	INV,><,LL	12:23:53 PM

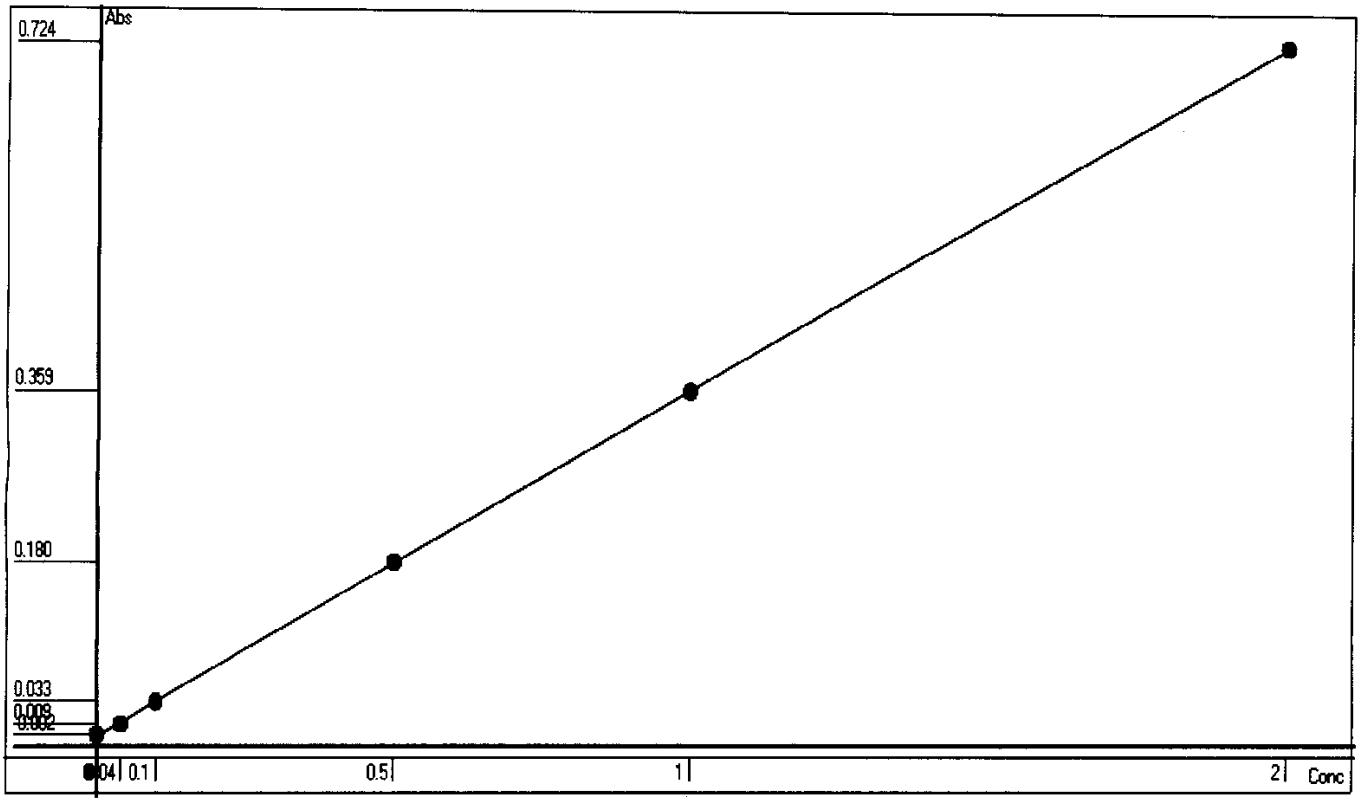
Report Date :08/25/2017 **Run Date :8/25/2017** **Operator : SMARTCHEM2** **Plan # :20170825002**

Plan Description : NO3-A2/TMM/018/25/2017

Calibrant Report - WNO3 -

Calib Lot #:010104 Exp Date:6/17/2020 User:MICROBAC

Plan # : 20170825002 Description : [NO3-A2/TMM/018/25/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	-0.0018	0	0.0049	0.49
2	0.0091	0.04	0.0348	-13.00
3	0.0326	0.1	0.0994	-0.60
4	0.1795	0.5	0.5034	0.68
5	0.3588	1	0.9965	-0.35
6	0.7241	2	2.0010	0.05

Conc= +2.7499*Abso +0.0098 **R^2=1.0000**

RBL
0.0988
0

Report Date 8/25/2017 **Run Date 8/25/2017**

2.4.5 Phosphorus Data

2.4.5.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 365.4 (Phosphorus)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

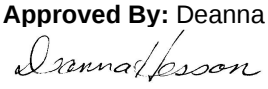
Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128893
Approved By: Deanna Hesson



Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ06-082317 **Prep Method:** 365.4 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 365.4 **Cal Date:** 08/29/2017 13:50
Workgroup #: WG627646 **Analyst:** TMM **Run Date:** 08/29/2017 13:57
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** SC170829002.017
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	0.195	J	0.200	0.100

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ04-082317 **Prep Method:** 365.4 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 365.4 **Cal Date:** 08/29/2017 13:50
Workgroup #: WG627646 **Analyst:** TMM **Run Date:** 08/29/2017 13:57
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** SC170829002.018
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	0.296		0.200	0.100

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: MW31-082317 **Prep Method:** 365.4 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 365.4 **Cal Date:** 08/29/2017 13:50
Workgroup #: WG627646 **Analyst:** TMM **Run Date:** 08/29/2017 13:59
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** SC170829002.021
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	6.78		2.00	1.00

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: MW30-082317 **Prep Method:** 365.4 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 365.4 **Cal Date:** 08/29/2017 13:50
Workgroup #: WG627646 **Analyst:** TMM **Run Date:** 08/29/2017 14:00
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** SC170829002.022
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0	0.139	J	0.200	0.100

J	The analyte was positively identified, but the quantitation was below the RL.

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW11S-082317	**Prep Method:**	365.4	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	365.4	**Cal Date:**	08/29/2017 13:50
Workgroup #:	WG627646	**Analyst:**	TMM	**Run Date:**	08/29/2017 14:00
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	SC170829002.023
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Phosphorus, Total	7723-14-0		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

2.4.5.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

Microbac Laboratories Inc.

Data Checklist

Date: 29-AUG-2017
Analyst: TMM
Analyst: NA
Method: PHOS
Instrument: SC1
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627646

Calibration/Linearity	8/29/17
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	XX
Check the information for the report narrative	X
Primary Reviewer	TMM
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
29-AUG-2017

Secondary Reviewer:
30-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-30-2017 13:56:05

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 365.4 **AAB#:** WG627646

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/29/2017	6.2	28		08/29/17	6.2	28	
PZ04-082317	03	08/23/17					08/29/2017	6.1	28		08/29/17	6.1	28	
MW31-082317	08	08/23/17					08/29/2017	6.1	28		08/29/17	6.1	28	
MW30-082317	10	08/23/17					08/29/2017	6.1	28		08/29/17	6.1	28	
MW11S-082317	12	08/23/17					08/29/2017	6	28		08/29/17	6	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5453654
Report generated 08/29/2017 15:45

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Blank File ID: SC170829002.010
Prep Date: 08/29/17 13:53
Analyzed Date: 08/29/17 13:53
Analyst: TMM

Work Group: WG627646
Blank Sample ID: WG627646-01
Instrument ID: SMARTCHEM
Method: 365.4

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627646-02	SC170829002.011	08/29/17 13:53	01
LCS2	WG627646-03	SC170829002.012	08/29/17 13:54	01
PZ06-082317	L17081305-01	SC170829002.017	08/29/17 13:57	01
PZ04-082317	L17081305-03	SC170829002.018	08/29/17 13:57	01
MW31-082317	L17081305-08	SC170829002.021	08/29/17 13:59	DL01
MW30-082317	L17081305-10	SC170829002.022	08/29/17 14:00	01
MW11S-082317	L17081305-12	SC170829002.023	08/29/17 14:00	01
DUP	WG627646-05	SC170829002.036	08/29/17 14:08	01

Report Name: BLANK_SUMMARY
PDF File ID: 5453655
Report generated 08/29/2017 15:45

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/29/17 13:53 Sample ID: WG627646-01
Instrument ID: SMARTCHEM Run Date: 08/29/17 13:53 Prep Method: 365.4
File ID: SC170829002.010 Analyst: TMM Method: 365.4
Workgroup (AAB#): WG627646 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-29-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Phosphorus, Total	0.100	0.200	0.100	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5453656
29-AUG-2017 15:45

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** TMM **Prep Method:** 365.4
Instrument ID: SMARTCHEM **Matrix:** Water **Method:** 365.4
Workgroup (AAB#): WG627646 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83438

Sample ID: WG627646-02 LCS **File ID:** SC170829002.011 **Run Date:** 08/29/2017 13:53
Sample ID: WG627646-03 LCS2 **File ID:** SC170829002.012 **Run Date:** 08/29/2017 13:54

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Phosphorus, Total	1.00	0.865	86.5	1.00	0.834	83.4	3.57	70 - 130	25	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5453657
Report generated: 08/29/2017 15:45

2.4.5.3 Raw Data

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9

Syringe filter lot # _____

pH paper Lot #: _____

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____
Plan # _____
2) **Workgroup** _____
Plan # _____
3) **Workgroup** _____
Plan # _____

Instrument: SC1 [x] SC2 [ ]

	Analyte	1	2	3
		PHOS		
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV			
1-2	BK			
1-3	LCS			
1-4	LCS2			
1-5	8-1295-01			
1-6	02			
1-7	03			
1-8	04			
1-9	8-1305-01			
1-10	03			
1-11	08	1/10		
1-12	10			
1-13	12			
1-14	8-1316-01			
1-15	02			
1-16	03			
1-17	8-1318-01			
1-18	8-1299-01			
1-19	02	Auto ½		
1-20	03			
1-21	08-1315-01			
1-22	08-1320-01			
2-1	08-1344-01	1/5 Auto ½		
2-2	Dup 8-1295-01			
2-3	MS ↓			

Position	Analyte	1	2	3
2-4	MS08 1295-02			
2-5				
2-6				
2-7				
2-8				
2-9				
2-10				
2-11				
2-12				
2-13				
2-14				
2-15				
2-16				
2-17				
2-18				
2-19				
2-20				
2-21				
2-22				
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#127954

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

WORKGROUP: WG627646

Position	Analyte	1	2	3
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

Position	Analyte	1	2	3
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-CI E-2000
	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
✓	Phos	EPA 365.4

Analyte	Phos		Reagents
SOP & Revision	K3654 RevA		41011
Curve Stock (SC made)			40937
NO2 STD			40796
ICV			
CCV			
LCS			
MS	Dilution		

Comments: _____

Analyst: Tammy Mauss Date: 8/29/17

DCN#127954

TKN/Phosphorus Digestion Log

TKN WG:
TKN Std: 83575
TKN CCV: 1/2
TKN ICV: 83446
TKN LCS: 83447

Phos WG:
Phos Std: 83575
Phos CCV: 1/2
Phos ICV: 83437
Phos LCS: 83438

MS/MSD: 82628
Daily Dilution: 1(25)25=1

Block Digester Temperature: 380 °C
Digest Reagent: 40925

	Sample	Volume	TKN Dilution	Phos Dilution		Sample	Volume	TKN Dilution	Phos Dilution
1	Std T-Ph		✓	✓	26	08-13150 1			✓
2	Std T-Ph		✓	✓	27	08-1320-01			✓
3	ICV T		✓		28	08-1344-01 1/5 1/5			✓
4	Lcs T		✓		29	Dup 8-1295-01		✓	✓
5	ICV Ph			✓	30	MS ↓		✓	✓
6	Lcs Ph			✓	31	MS 8-1295-02		✓	✓
7	08-1352-02	1/50	✓		32	BK		✓	✓
8	05	1/50	✓		33	Lcs 2		✓	
9	08	1/50	✓		34	Lcs 2			✓
10	08-1295-01		✓	✓	35				
11	02		✓	✓	36				
12	03		✓	✓	37				
13	04		✓	✓	38				
14	08-1305-01		✓	✓	39				
15	03		✓	✓	40				
16	08	1/10	✓	✓ Color	41				
17	10		✓	✓	42				
18	12		✓	✓	43				
19	08-1316-01			✓	44				
20	02			✓	45				
21	03			✓	46				
22	08-13180 1			✓	47				
23	08-1299-01			✓	48				
24	02			✓	49				
25	03			✓	50				

Analyst: Tommy Morris Date: 8/28/2017

MICROBAC (OVD)
SMARTCHEM200 INST1 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTPH -Unit [mg/L] - EPA 365.4 TOTAL PHOSPHORUS

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0819	0.00	R	1:45:57 PM
DIL-1	RBL	0.000	0.0775	0.00	R	1:46:14 PM
DIL-1	RBL	0.000	0.1064	0.00	R	1:47:09 PM
SR5-1	Std-1	0.010	0.0020	0.00		1:47:26 PM
SR5-2	Std-2	0.200	0.0321	0.00		1:48:21 PM
SR5-3	Std-3	0.500	0.0748	0.00		1:48:38 PM
SR5-4	Std-4	1.000	0.1486	0.00		1:49:34 PM
SR5-5	Std-5	1.500	0.2213	0.00		1:49:50 PM
ST-1	Std-6	2.000	0.2996	0.00	EPL	1:50:45 PM
ST-3	1CCV (1 mg/L)	1.059	0.1581	105.94		1:51:02 PM
ST-2	2CCB (0 mg/L)	0.041	0.0069	0.00		1:51:57 PM
1	ICV	1.421	0.2117	0.00		1:52:14 PM
2	WG627646-01 BLK	0.038	0.0064	0.00		1:53:09 PM
3	WG627646-02 LCS	0.865	0.1292	0.00		1:53:26 PM
4	WG627646-03 LCS2	0.834	0.1247	0.00		1:54:21 PM
5	L17081295-01	0.001	0.0010	0.00	EPL,><	1:54:38 PM
6	L17081295-02	-0.015	-0.0014	0.00	INV,><,LL	1:55:33 PM
7	L17081295-03	0.042	0.0070	0.00		1:55:51 PM
8	L17081295-04	0.122	0.0189	0.00	EPL	1:56:45 PM
9	L17081305-01	0.195	0.0298	0.00	EPL	1:57:02 PM
10	L17081305-03	0.296	0.0447	0.00		1:57:57 PM
ST-3	1CCV (1 mg/L)	0.972	0.1451	97.18		1:58:15 PM
ST-2	2CCB (0 mg/L)	-0.043	-0.0055	0.00	INV,><,LL	1:59:09 PM
11	L17081305-08 (10)	0.678	0.1014	0.00		1:59:27 PM
12	L17081305-10	0.139	0.0214	0.00	EPL	2:00:21 PM
13	L17081305-12	0.086	0.0136	0.00		2:00:39 PM
14	L17081316-01	0.046	0.0077	0.00		2:01:33 PM
15	L17081316-02	-0.016	-0.0015	0.00	INV,><,LL	2:01:51 PM
16	L17081316-03	-0.133	-0.0189	0.00	INV,EPL,><	2:02:45 PM
17	L17081318-01	1.049	0.1566	0.00	EPL	2:03:03 PM
18	L17081299-01	3.046	0.4530	0.00	><,LH	2:03:57 PM
19	L17081299-02	6.959	1.0339	0.00	EPL,><,LH	2:04:15 PM

Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM1** **Plan # :20170829002**

Plan Description : PHOS-A1/TMM/08/29/2017

MICROBAC (OVD)
SMARTCHEM200 INST1 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTPH -Unit [mg/L] - EPA 365.4 TOTAL PHOSPHORUS

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
20	L17081299-03	0.030	0.0053	0.00		2:05:09 PM
ST-3	1CCV (1 mg/L)	1.003	0.1497	100.28	EPL	2:05:27 PM
ST-2	2CCB (0 mg/L)	-0.049	-0.0065	0.00	INV,><,LL	2:06:21 PM
21	L17081315-01	1.657	0.2468	0.00		2:06:39 PM
22	L17081320-01	1.575	0.2347	0.00		2:07:33 PM
23	L17081344-01 (5)	6.039	0.8974	0.00	EPL,><,LH	2:07:51 PM
24	WG627646-05 DUP	-0.045	-0.0059	0.00	INV,EPL,><	2:08:45 PM
25	WG627646-06 MS	0.942	0.1407	0.00		2:09:03 PM
26	WG627646-08 MS	0.906	0.1353	0.00		2:09:57 PM
27	ID 27 BK	-0.235	-0.0341	0.00	INV,EPL,><	2:10:15 PM
28	ID 28 LCS	0.824	0.1231	0.00		2:11:09 PM
ST-3	1CCV (1 mg/L)	0.954	0.1424	95.37		2:11:27 PM
ST-2	2CCB (0 mg/L)	-0.014	-0.0013	0.00	INV,><,LL	2:12:21 PM
18-[1/2]	L17081299-01	2.751	0.2050	0.00	EPL,LH	2:20:01 PM
19-[1/2]	L17081299-02 (2)	5.159	0.3838	0.00	EPL,><,LH	2:21:13 PM
ST-3	1CCV (1 mg/L)	0.948	0.1416	94.83		2:21:13 PM
ST-2	2CCB (0 mg/L)	-0.043	-0.0056	0.00	INV,EPL,><	2:22:07 PM
23-[1/2]	L17081344-01 (5) (2)	3.880	0.2888	0.00	LH	2:23:37 PM
ST-3	1CCV (1 mg/L)	0.954	0.1424	95.37	EPL	2:23:37 PM
ST-2	2CCB (0 mg/L)	-0.056	-0.0075	0.00	INV,><,LL	2:24:31 PM
19-[1/5]	L17081299-02 (2)	4.873	0.1455	0.00	LH	2:32:11 PM
ST-3	1CCV (1 mg/L)	0.962	0.1437	96.24		2:32:11 PM
ST-2	2CCB (0 mg/L)	-0.054	-0.0072	0.00	INV,><,LL	2:33:05 PM

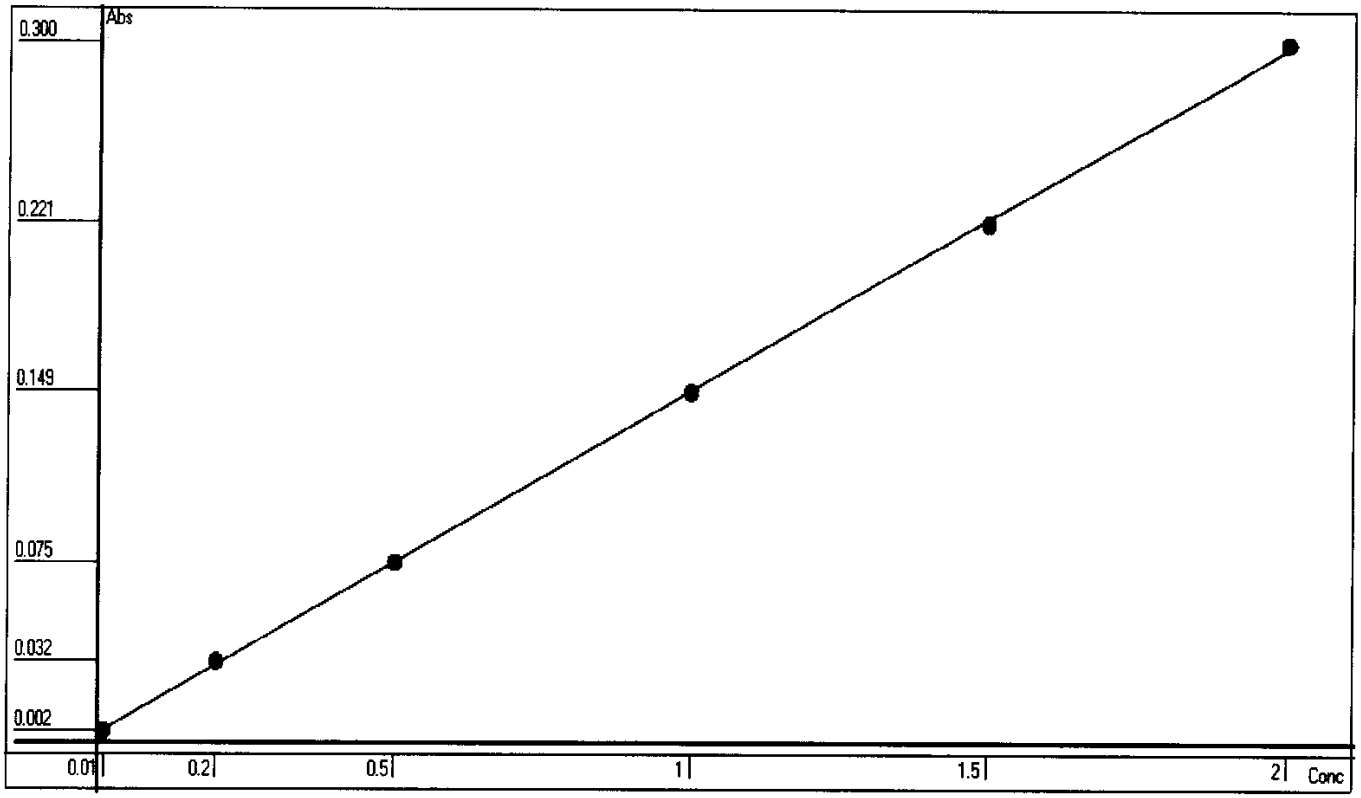
Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM1** **Plan # :20170829002**

Plan Description : PHOS-A1/TMM/08/29/2017

Calibrant Report - WTPH -

Calib Lot #:010104 Exp Date:6/18/2020 User:MICROBAC

Plan # : 20170829002 Description : [PHOS-A1/TMM/08/29/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0020	0.01	0.0080	-20.00
2	0.0321	0.2	0.2107	5.35
3	0.0748	0.5	0.4984	-0.32
4	0.1486	1	0.9955	-0.45
5	0.2213	1.5	1.4852	-0.99
6	0.2996	2	2.0126	0.63

Conc= +6.736*Abso -0.0055 R^2=0.9998

RBL
0.0797
0

Report Date 8/29/2017 Run Date 8/29/2017

2.4.6 Orthophosphate Data

2.4.6.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: April Greene

METHOD

Analysis EPA 365.2/SM4500-P E (Orthophosphate)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: The samples were diluted to reduce matrix interference. The reporting limits are elevated accordingly.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128872
Approved By: Deanna Hesson

Certificate of Analysis

Sample #:	L17081305-01	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	PZ06-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 09:42	**Dilution:**	1	**File ID:**	00.1708241530-06
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	0.0439	J	0.0500	0.0250

J	The analyte was positively identified, but the quantitation was below the RL.

Sample #:	L17081305-03	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	PZ04-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 10:58	**Dilution:**	50	**File ID:**	00.1708241530-08
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2		U	2.50	1.25

U	Not detected at or above adjusted sample detection limit.

Sample #:	L17081305-08	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	MW31-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 10:35	**Dilution:**	50	**File ID:**	00.1708241530-07
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	6.84		2.50	1.25

Sample #:	L17081305-10	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	MW30-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 12:40	**Dilution:**	1	**File ID:**	00.1708241530-09
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	0.185		0.0500	0.0250

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	UV-2600
Client ID:	MW11S-082317	**Prep Method:**	SM4500-P-E-1999	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-1999	**Cal Date:**	06/07/2017 15:40
Workgroup #:	WG627241	**Analyst:**	ADG	**Run Date:**	08/24/2017 15:30
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	00.1708241530-10
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Orthophosphate	14265-44-2	0.249		0.0500	0.0250

2.4.6.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

Microbac Laboratories Inc.

Data Checklist

Date: 24-AUG-2017
Analyst: ADG
Analyst: NA
Method: PO4
Instrument: UV-2600
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627241

Calibration/Linearity	06/07/17
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	
Primary Reviewer	ADG
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
31-AUG-2017

April Greene

Secondary Reviewer:
31-AUG-2017

Dianna Hesson

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-31-2017 14:28:08

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: SM4500-P-E-1999 AAB#: WG627241

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/24/2017	1.2	2		08/24/17	1.2	2	
PZ04-082317	03	08/23/17					08/24/2017	1.2	2		08/24/17	1.2	2	
MW31-082317	08	08/23/17					08/24/2017	1.2	2		08/24/17	1.2	2	
MW30-082317	10	08/23/17					08/24/2017	1.1	2		08/24/17	1.1	2	
MW11S-082317	12	08/23/17					08/24/2017	1.1	2		08/24/17	1.1	2	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5456966
Report generated 08/31/2017 12:33

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Blank File ID: 00.1708241530-03
Prep Date: 08/24/17 15:30
Analyzed Date: 08/24/17 15:30
Analyst: ADG

Work Group: WG627241
Blank Sample ID: WG627241-01
Instrument ID: UV-2600
Method: SM4500-P-E-1999

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627241-02	00.1708241530-04	08/24/17 15:30	
LCS2	WG627241-03	00.1708241530-05	08/24/17 15:30	
PZ06-082317	L17081305-01	00.1708241530-06	08/24/17 15:30	
MW31-082317	L17081305-08	00.1708241530-07	08/24/17 15:30	
PZ04-082317	L17081305-03	00.1708241530-08	08/24/17 15:30	
MW30-082317	L17081305-10	00.1708241530-09	08/24/17 15:30	
MW11S-082317	L17081305-12	00.1708241530-10	08/24/17 15:30	
DUP	WG627241-05	00.1708241530-11	08/24/17 15:30	

Report Name: BLANK_SUMMARY
PDF File ID: 5456967
Report generated 08/31/2017 12:33

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/24/17 15:30 Sample ID: WG627241-01
Instrument ID: UV-2600 Run Date: 08/24/17 15:30 Prep Method: SM4500-P-E-1999
File ID: 00.1708241530-03 Analyst: ADG Method: SM4500-P-E-1999
Workgroup (AAB#): WG627241 Matrix: Water Units: mg/L
Contract #: Cal ID: UV-260-23-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Orthophosphate	0.0250	0.0500	0.0250	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5456968
31-AUG-2017 12:33

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** ADG **Prep Method:** SM4500-P-E-1999
Instrument ID: UV-2600 **Matrix:** Water **Method:** SM4500-P-E-1999
Workgroup (AAB#): WG627241 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83556

Sample ID: WG627241-02 LCS **File ID:** 00.1708241530-04 **Run Date:** 08/24/2017 15:30
Sample ID: WG627241-03 LCS2 **File ID:** 00.1708241530-05 **Run Date:** 08/24/2017 15:30

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Orthophosphate	1.00	1.02	102	1.00	1.02	102	0.00	90 - 110	20	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5456969
Report generated: 08/31/2017 12:33

2.4.6.3 Raw Data

WG616995

Curves

Parameter: PO4

Spectrophotometer: UV-2600

Calibration (Curve) standard stock: STD79640

Concentration: 1000 mg/L

Recipe for preparation of curve standards found in:
SOP: 3653 Revision: 17 Page: 09

Second Source Stock: STD82182 (concentration: 10)

Daily Preparation: 10(100)/100

concentration = =1.0

Calibration Standards (mg/L)	Volume (mL)	Cell Size (cm)	Wavelength (nm)	Absorbance
1.0	50	1cm	880	0.623
0.7	↓	↓	↓	0.442
0.5				0.311
0.2				0.127
0.1				0.063
0.05				0.031
0				0
2nd Source (1.0)	50	1cm	880	0.630

Analyst: Jammy Morris

Date/Time: 6/7/17 @ 1540

DCN#126309

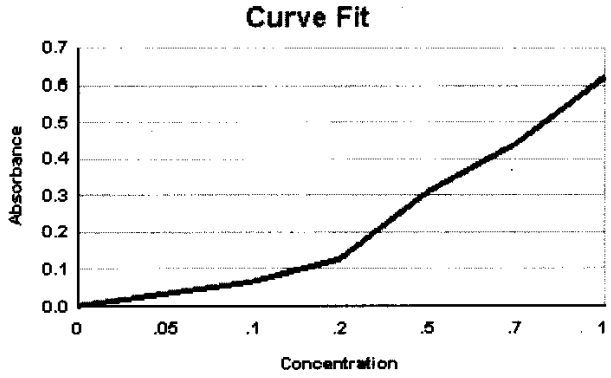
Microbac Laboratories Inc.
INITIAL CALIBRATION

Workgroup:WG616995
Analytical Method:300
Instrument ID:UV-2600

Analyst:TMM
Initial Calibration Date:06/07/2017

Analyte: ORTHOPHOSPHATE
Number of Points: 7
Slope: 0.624599
Y-Intercept: 0.000610422
Coef. Of Correlation (R^2): 0.999913
Coef. Of Correlation (R): 0.999957

Concentration X	Absorbance Y	X^2	X * Y	Y-Fitted (mX^2+B)
0.00	0.00	0.00	0.00	0.000610422
0.0500	0.0310	0.00250	0.00155	0.0318404
0.100	0.0630	0.0100	0.00630	0.0630703
0.200	0.127	0.0400	0.0254	0.125530
0.500	0.311	0.250	0.156	0.312910
0.700	0.442	0.490	0.309	0.437830
1.00	0.623	1.00	0.623	0.625209



WG_ICAL_CAL_WET - Modified 03/06/2008
Report generated 06/07/2017 16:24

[redacted]

Microbac Laboratories Inc.
ALTERNATE SOURCE REPORT

Workgroup #: WG616995
File ID: 00.1706071540-08
CCV ID: WG616995-08
Units: mg/L
Analyte: ORTHOPHOSPHATE

Instrument ID: UV-2600
Run Date: 06/07/2017
Run Time: 15:40
Analyst: TMM
Cal ID: UV-260 - 07-JUN-17 15:40:07

Analyte	Expected	Found	RF	%D	Q
Orthophosphate	1	1.01	0.630	1.0	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_SSCV - Modified 03/06/2008
Report generated 06/07/2017 16:25

[redacted]

WG 627241

Orthophosphate

(orthophosphate1)

EPA 365.2 / SM4500-P E
SOP K3653 Rev 17
Color Reagent Chemicals
40722
40466
41073
18278

CCV: 83555 Daily Dilution: 5(5)/50 Daily Dilution: 20.5
LCS: 83566 Daily Dilution: 10(10)/100 Daily Dilution: 2.1.6
Spike: 83566 Daily Dilution: 2(10)/50 Daily Dilution: 20.4
Spectrophotometer: UV-2600 Curve ID: 10-7-17

SAMPLE	VOLUME	PH < 8.2	DILUTION	ABSORBANCE @ 880 nm
CCV: mg/L	50	✓		0.321
BLK/CCB:	50	✓		-0.001
LCS: ppm	50	✓		0.640
LCSD: ppm	50	✓		0.640
942 1305-01	50	✓		0.028
1035 1305-08	50	✓	8/24/17 ~~1/50~~ 1/50	0.086 *
1058 1305-03	50	✓	~~1/50~~ 1/2	0.112 *
1240 1305-10	50	✓		0.116
1355 1305-12	50	✓		0.156
1058 1305-03	50	✓	1/100	0.005
1058 1305-03	50	✓	1/50	0.009 *
1058 1305-03	50	✓	1/10	0.059
1035 1305-08	50	✓	1/10	0.584
	50			
CCV:	50			
CCB:	50			
	50			
	50			
	50			
	50			
	50			
	50			
	50			
	50			
	50			
	50			
1305-01	50	✓		
0958 DUP: ~~1305-01~~ 8/25/17	50	✓		0.025
1355 MS: ( )1305-12	50	✓		0.388
MSD: ( )	50			
CCV: ( )	50	✓		0.320
CCB:	50	✓		0.001

Analyst: April Greene Date / Time: 8/24/17 / 1530

* Diluted due to color
* = Sample reacted to color added by turning brown

DCN#127867

Microbac Laboratories Inc.
SAMPLE REPORT

Workgroup: WG627241 **Analyst:** ADG
Analyte: ORTHOPHOSPHATE **Date:** 08/24/2017

Sample ID	I Vol	F Vol	Response	Slope	Y Intercept	Anal. Conc.	Rep. Conc.	Dil	Units
WG627241-01	50	50	-0.00100	0.6246	0.0006104	-0.0025783	-0.0025783	1	mg/L
WG627241-02	50	50	0.640	0.6246	0.0006104	1.0237	1.0237	1	mg/L
WG627241-03	50	50	0.640	0.6246	0.0006104	1.0237	1.0237	1	mg/L
L17081305-01	50	50	0.0280	0.6246	0.0006104	0.043851	0.043851 F	1	mg/L
WG627241-04	50	50	0.0280	0.6246	0.0006104	0.043851	0.043851	1	mg/L
L17081305-08	50	50	0.0860	0.6246	0.0006104	0.13671	6.8356	50	mg/L
L17081305-03	50	50	0.00900	0.6246	0.0006104	0.013432	ND	50	mg/L
L17081305-10	50	50	0.116	0.6246	0.0006104	0.18474	0.18474	1	mg/L
L17081305-12	50	50	0.156	0.6246	0.0006104	0.24878	0.24878	1	mg/L
WG627241-06	50	50	0.156	0.6246	0.0006104	0.24878	0.24878	1	mg/L
WG627241-05	50	50	0.0250	0.6246	0.0006104	0.039048	0.039048	1	mg/L
WG627241-07	50	50	0.388	0.6246	0.0006104	0.62022	0.62022	1	mg/L

UV_SAMPLE_REPORT - Modified 03/06/2008

Report generated 08/30/2017 07:41

Microbac Laboratories Inc.
CONTINUING CALIBRATION REPORT

Workgroup #: WG627313
File ID: 00.1708241530-01
CCV ID: WG627313-01
Units: mg/L
Analyte: ORTHOPHOSPHATE

Instrument ID: UV-2600
Run Date: 08/24/2017
Run Time: 15:30
Analyst: ADG
Cal ID: UV-260 - 23-AUG-17

Analyte	Expected	Found	RF	%D	Q
Orthophosphate	.5	0.513	0.642	2.6	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_CCV - Modified 03/06/2008

Report generated 08/29/2017 15:48

Microbac Laboratories Inc.
CONTINUING CALIBRATION REPORT

Workgroup #: WG627313
File ID: 00.1708241530-13
CCV ID: WG627313-03
Units: mg/L
Analyte: ORTHOPHOSPHATE

Instrument ID: UV-2600
Run Date: 08/24/2017
Run Time: 15:30
Analyst: ADG
Cal ID: UV-260 - 23-AUG-17

Analyte	Expected	Found	RF	%D	Q
Orthophosphate	.5	0.511	0.640	2.2	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_CCV - Modified 03/06/2008

Report generated 08/29/2017 15:48

2.4.7 Sulfide Data

2.4.7.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: Todd Boyle

METHOD

Analysis SW-846 9030/EPA 376.1/SM4500-S(-2) F (Sulfide)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

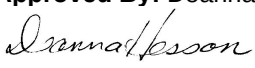
Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128896
Approved By: Deanna Hesson



Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** BURET
Client ID: PZ06-082317 **Prep Method:** SM4500-S-(-2)-F-2000 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-S-(-2)-F-2000 **Cal Date:**
Workgroup #: WG627453 **Analyst:** TB **Run Date:** 08/28/2017 14:00
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** ET.1708281400-04
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	7.43		1.40	0.700

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** BURET
Client ID: PZ04-082317 **Prep Method:** SM4500-S-(-2)-F-2000 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-S-(-2)-F-2000 **Cal Date:**
Workgroup #: WG627453 **Analyst:** TB **Run Date:** 08/28/2017 14:00
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** ET.1708281400-05
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	169		1.00	0.500

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** BURET
Client ID: MW31-082317 **Prep Method:** SM4500-S-(-2)-F-2000 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-S-(-2)-F-2000 **Cal Date:**
Workgroup #: WG627453 **Analyst:** TB **Run Date:** 08/28/2017 14:00
Collect Date: 08/23/2017 10:35 **Dilution:** 1 **File ID:** ET.1708281400-06
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	14.6		1.00	0.500

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** BURET
Client ID: MW30-082317 **Prep Method:** SM4500-S-(-2)-F-2000 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM4500-S-(-2)-F-2000 **Cal Date:**
Workgroup #: WG627453 **Analyst:** TB **Run Date:** 08/28/2017 14:00
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** ET.1708281400-07
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	1.55		1.00	0.500

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	MW11S-082317	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG627453	**Analyst:**	TB	**Run Date:**	08/28/2017 14:00
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	ET.1708281400-08
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8	0.755	J	1.00	0.500

J	The analyte was positively identified, but the quantitation was below the RL.

2.4.7.2 QC Summary Data

Example Total Sulfide(Liquid) Calculations

[mL Iodine * N Iodide) - (mL titrant * N titrant)] * 16000/(volume * dilution) = mg/L Sulfide

where:

mL Iodine = mL of Iodine used
N Iodine = normality of Iodine
mL titrant = mL of titrant used
N titrant = normality of titrant
16000 = factor: 1mL of 0.025 N iodine reacts with 0.4mg sulfide
volume = mL filtered of mL titrated(if not filtered)
dilution = dilution in decimal form (1/5 = 0.2)

Example Total Sulfide(Soil) Calculations

[(mL Iodine * N Iodine) - (mL titrant * N titrant)] * 16.03/weight = mg/kg sulfide

where:

mL Iodine = mL of Iodine used
N Iodine = normality of Iodine
mL titrant = normality of titrant
16.03 = 32.06 grams per 2 equivalents
weight = kg of sample used

Microbac Laboratories Inc.

Data Checklist

Date: 28-AUG-2017
Analyst: TB
Analyst: NA
Method: S
Instrument: BURET
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627453

Calibration/Linearity	08/28/2017
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	TB
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
29-AUG-2017

Secondary Reviewer:
30-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-30-2017 13:51:46

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: SM4500-S-(-2)-F- AAB#: WG627453

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/28/2017	5.2	7		08/28/17	5.2	7	
PZ04-082317	03	08/23/17					08/28/2017	5.1	7		08/28/17	5.1	7	
MW31-082317	08	08/23/17					08/28/2017	5.1	7		08/28/17	5.1	7	
MW30-082317	10	08/23/17					08/28/2017	5.1	7		08/28/17	5.1	7	
MW11S-082317	12	08/23/17					08/28/2017	5	7		08/28/17	5	7	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5453689
Report generated 08/29/2017 15:54

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Blank File ID: ET.1708281400-01
Prep Date: 08/28/17 14:00
Analyzed Date: 08/28/17 14:00
Analyst: TB

Work Group: WG627453
Blank Sample ID: WG627453-01
Instrument ID: BURET
Method: SM4500-S-(-2)-F-

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627453-02	ET.1708281400-02	08/28/17 14:00	
LCS2	WG627453-03	ET.1708281400-03	08/28/17 14:00	
PZ06-082317	L17081305-01	ET.1708281400-04	08/28/17 14:00	
PZ04-082317	L17081305-03	ET.1708281400-05	08/28/17 14:00	
MW31-082317	L17081305-08	ET.1708281400-06	08/28/17 14:00	
MW30-082317	L17081305-10	ET.1708281400-07	08/28/17 14:00	
MW11S-082317	L17081305-12	ET.1708281400-08	08/28/17 14:00	

Report Name: BLANK_SUMMARY
PDF File ID: 5453690
Report generated 08/29/2017 15:54

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/28/17 14:00 Sample ID: WG627453-01
Instrument ID: BURET Run Date: 08/28/17 14:00 Prep Method: SM4500-S-(-2)-F
File ID: ET.1708281400-01 Analyst: TB Method: SM4500-S-(-2)-F
Workgroup (AAB#): WG627453 Matrix: Water Units: mg/L
Contract #: Cal ID: BURET-

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Sulfide	0.500	1.00	0.500	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5453691
29-AUG-2017 15:54

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** TB **Prep Method:** SM4500-S-(-2)-F
Instrument ID: BURET **Matrix:** Water **Method:** SM4500-S-(-2)-F
Workgroup (AAB#): WG627453 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83585

Sample ID: WG627453-02 LCS **File ID:** ET.1708281400-02 **Run Date:** 08/28/2017 14:00
Sample ID: WG627453-03 LCS2 **File ID:** ET.1708281400-03 **Run Date:** 08/28/2017 14:00

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Sulfide	19.5	20.0	103	19.5	20.0	103	0.00	85 - 115	10	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5453692
Report generated: 08/29/2017 15:54

2.4.7.3 Raw Data

SULFIDE
(sulfide1)

WORKGROUP: WG627453

Water:
EPA 376.1 / SM4500-S(-2)-F
SOP K3761 Revision #: 17

Soil:
SM846 9030B/9034
SOP K9030 Revision #: _____

Instrument: Buret

LCS: SLI 83585

Iodine standardization (0.025N) COA: 19756
mL 0.025N titrant: 10.0
Volume I: 10.0 mL
Normality I: 0.025

(0.1 N I) COA: 19933
mL 0.025 N titrant: 8.0
Volume I: 2.0 mL
Normality I: 0.10

Stock standardization (in duplicate) 6.0 mL stock
mL I 1) 10.0 2) 10.0
N I 1) 0.10 2) 0.10
mL 0.025 titrant 1) 20.5 2) 20.5
LCS daily dilution: 3(1300)/200 = 19.5 mg/L

pH paper lot #: 15A1563

1300 = stock conc (mg/L)

Titrant: T- 1977-11-05

SAMPLE	Volume Filtered mL	mL Iodine	N Iodine	0.025 N Sodium Thiosulfate (mL)
BLANK	200	15.0	0.025	15.0
LCS (mL)	200	15.0	0.025	5.0
LCSDUP (mL)	200	15.0	0.025	5.0
8-1305-01	350	20.0	0.025	13.5
03	510	60.0	0.10	25.0
08	520	30.0	0.025	11.0
10	490	15.0	0.025	~~13.1~~ 13.1
12	530	15.0	0.025 8/25/17	14.0
1411-03	520	15.0	0.025	15.0
1412-03	520	15.0	0.025	14.1
1413-03	530	15.0	0.025	13.9

Analyst: [signature] Date/Time: 8/28/17 1400

DCN#127920

Microbac Laboratories Inc.
TITRAMETRIC REPORT

Workgroup (AAB#): WG627453
Product: EPA 376.1\9034
Analyte: Sulfide

Analyst: TB
Run Date: 08/28/2017 14:00

SAMPLE NUMBER	Volume	Vol I	Nor I	Vol T	Nor T	Dil	Analytical	Reported	Units
WG627453-01	200.0	15	.025	15	.025	1	0	0	mg/L
WG627453-02	200.0	15	.025	5	.025	1	20.0	20.00	mg/L
WG627453-03	200.0	15	.025	5	.025	1	20.0	20.00	mg/L
L17081305-01	350.0	20	.025	13.5	.025	1	7.43	7.429	mg/L
L17081305-03	510.0	60	.1	25	.025	1	169	168.6	mg/L
L17081305-08	520.0	30	.025	11	.025	1	14.6	14.62	mg/L
L17081305-10	490.0	15	.025	13.1	.025	1	1.55	1.551	mg/L
L17081305-12	530.0	15	.025	14	.025	1	0.755	0.7547 F	mg/L
L17081411-03	520.0	15	.025	15	.025	1	0	ND	mg/L
L17081412-03	520.0	15	.025	14.1	.025	1	0.692	0.6923 F	mg/L
L17081413-03	530.0	15	.025	13.9	.025	1	0.830	0.8302 F	mg/L

SULFIDE_REPORT - Modified 03/06/2008

Report generated 08/29/2017 10:28

[redacted]

2.4.8 Total Dissolved Solids Data

2.4.8.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: April Greene

METHOD

Analysis EPA 160.1/SM2540 C(Total Dissolved Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128897
Approved By: Deanna Hesson

Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** OVEN
Client ID: PZ06-082317 **Prep Method:** 160.1/SM2540C **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM2540-C-1997 **Cal Date:**
Workgroup #: WG627272 **Analyst:** AWE **Run Date:** 08/25/2017 12:36
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** EN.1708251236-12
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		792		20.0	10.0

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** OVEN
Client ID: PZ04-082317 **Prep Method:** 160.1/SM2540C **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM2540-C-1997 **Cal Date:**
Workgroup #: WG627272 **Analyst:** AWE **Run Date:** 08/25/2017 12:36
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** EN.1708251236-13
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		3400		20.0	10.0

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** OVEN
Client ID: MW31-082317 **Prep Method:** 160.1/SM2540C **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM2540-C-1997 **Cal Date:**
Workgroup #: WG627483 **Analyst:** ADG **Run Date:** 08/28/2017 14:05
Collect Date: 08/23/2017 10:35 **Dilution:** 1 **File ID:** EN.1708281405-05
Sample Tag: 1 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		6300		50.0	25.0

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** OVEN
Client ID: MW30-082317 **Prep Method:** 160.1/SM2540C **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM2540-C-1997 **Cal Date:**
Workgroup #: WG627272 **Analyst:** AWE **Run Date:** 08/25/2017 12:36
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** EN.1708251236-15
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		1650		20.0	10.0

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	OVEN
Client ID:	MW11S-082317	**Prep Method:**	160.1/SM2540C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM2540-C-1997	**Cal Date:**	
Workgroup #:	WG627272	**Analyst:**	AWE	**Run Date:**	08/25/2017 12:36
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	EN.1708251236-16
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		1780		20.0	10.0

2.4.8.2 QC Summary Data

Example Total Dissolved Solids Calculations

[(WT2 - WT1) * 1000000]/volume = mg/L

where:

WT1 = weight (grams) of empty container.
WT2 = weight (grams) of dried sample and container.
1000000 = factor to get to mg/L.
volume = mL of sample used.

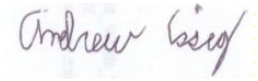
Microbac Laboratories Inc.

Data Checklist

Date: 25-AUG-2017
Analyst: AWE
Analyst: NA
Method: TDS
Instrument: OVEN
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627272

Calibration/Linearity	08/25/17
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	X
LCS/LCS Dup	X
MS/MSD	
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	AWE
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
28-AUG-2017



Secondary Reviewer:
28-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-28-2017 15:53:27

Microbac Laboratories Inc.

Data Checklist

Date: 28-AUG-2017
Analyst: ADG
Analyst: NA
Method: TDS
Instrument: OVEN
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627483

Calibration/Linearity	08/28/17
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	X
LCS/LCS Dup	X
MS/MSD	
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	
Primary Reviewer	ADG
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
31-AUG-2017

April Greene

Secondary Reviewer:
31-AUG-2017

Dianna Hesson

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-31-2017 14:20:26

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: SM2540-C-1997 AAB#: WG627272

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/25/2017	2.1	7		08/25/17	2.1	7	
PZ04-082317	03	08/23/17					08/25/2017	2.1	7		08/25/17	2.1	7	
MW30-082317	10	08/23/17					08/25/2017	2	7		08/25/17	2	7	
MW11S-082317	12	08/23/17					08/25/2017	1.9	7		08/25/17	1.9	7	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5451721
Report generated 08/31/2017 12:45

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: SM2540-C-1997 AAB#: WG627483

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
MW31-082317	08	08/23/17					08/28/2017	5.1	7		08/28/17	5.1	7	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5451721
Report generated 08/31/2017 12:45

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627272
Blank File ID: EN.1708251236-01
Blank Sample ID: WG627272-01
Prep Date: 08/25/17 12:36
Instrument ID: OVEN
Analyzed Date: 08/25/17 12:36
Method: SM2540-C-1997
Analyst: AWE

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627272-02	EN.1708251236-02	08/25/17 12:36	
LCS2	WG627272-03	EN.1708251236-03	08/25/17 12:36	
PZ06-082317	L17081305-01	EN.1708251236-12	08/25/17 12:36	
PZ04-082317	L17081305-03	EN.1708251236-13	08/25/17 12:36	
MW30-082317	L17081305-10	EN.1708251236-15	08/25/17 12:36	
MW11S-082317	L17081305-12	EN.1708251236-16	08/25/17 12:36	
DUP	WG627272-05	EN.1708251236-24	08/25/17 12:36	
DUP	WG627272-07	EN.1708251236-25	08/25/17 12:36	

Report Name: BLANK_SUMMARY
PDF File ID: 5451722
Report generated 08/31/2017 12:45

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627483
Blank File ID: EN.1708281405-01
Blank Sample ID: WG627483-01
Prep Date: 08/28/17 14:05
Instrument ID: OVEN
Analyzed Date: 08/28/17 14:05
Method: SM2540-C-1997
Analyst: ADG

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627483-02	EN.1708281405-02	08/28/17 14:05	
LCS2	WG627483-03	EN.1708281405-03	08/28/17 14:05	
MW31-082317	L17081305-08	EN.1708281405-05	08/28/17 14:05	1
DUP	WG627483-05	EN.1708281405-14	08/28/17 14:05	

Report Name: BLANK_SUMMARY
PDF File ID: 5451722
Report generated 08/31/2017 12:45

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/25/17 12:36 Sample ID: WG627272-01
Instrument ID: OVEN Run Date: 08/25/17 12:36 Prep Method: 160.1/SM2540C
File ID: EN.1708251236-01 Analyst: AWE Method: SM2540-C-1997
Workgroup (AAB#): WG627272 Matrix: Water Units: mg/L
Contract #: Cal ID: OVEN-

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Total Dissolved Solids	5.00	10.0	5.00	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5451723
31-AUG-2017 12:45

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/28/17 14:05 Sample ID: WG627483-01
Instrument ID: OVEN Run Date: 08/28/17 14:05 Prep Method: 160.1/SM2540C
File ID: EN.1708281405-01 Analyst: ADG Method: SM2540-C-1997
Workgroup (AAB#): WG627483 Matrix: Water Units: mg/L
Contract #: Cal ID: OVEN-

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Total Dissolved Solids	5.00	10.0	5.00	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5451723
31-AUG-2017 12:45

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** AWE **Prep Method:** 160.1/SM2540C
Instrument ID: OVEN **Matrix:** Water **Method:** SM2540-C-1997
Workgroup (AAB#): WG627272 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83110

Sample ID: WG627272-02 LCS **File ID:** EN.1708251236-02 **Run Date:** 08/25/2017 12:36
Sample ID: WG627272-03 LCS2 **File ID:** EN.1708251236-03 **Run Date:** 08/25/2017 12:36

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Dissolved Solids	500	512	102	500	484	96.8	5.62	80 - 120	25	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5451724
Report generated: 08/31/2017 12:45

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** ADG **Prep Method:** 160.1/SM2540C
Instrument ID: OVEN **Matrix:** Water **Method:** SM2540-C-1997
Workgroup (AAB#): WG627483 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83110

Sample ID: WG627483-02 LCS **File ID:** EN.1708281405-02 **Run Date:** 08/28/2017 14:05
Sample ID: WG627483-03 LCS2 **File ID:** EN.1708281405-03 **Run Date:** 08/28/2017 14:05

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Dissolved Solids	500	532	106	500	528	106	0.755	80 - 120	25	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5451724
Report generated: 08/31/2017 12:45

2.4.8.3 Raw Data

WORKGROUP: WG627272

TOTAL DISSOLVED SOLIDS

(tds1)

Oven: TDS MICS1
☐ EPA 160.1 / SM2540C
LCS: 83110
Daily Dilution: 5(5000)/50=500

Balance: AND GR-202 / Other
Matrix Spike: _____
Daily Dilution: _____
Filter Lot #: 9816842

			On Temp/Time:	104 /1236	180 /0930	178 0917	/
SAMPLE	#	VOLUME (mL)	INITIAL WEIGHT WT1 (g)	DRY WEIGHT WT2A (g)	DRY WEIGHT WT2B (g)	DRY WEIGHT WT2C (g)	
BLANK	BLK 9	100					
LCS: mg/L	LCS1	50					
LCSDUP: mg/L	LCS2	50					
~~0813~~081284-36	1	50					
-39	2	50					
-42	3	50					
-44	4	50					
081288-01	5	50					
-02	6	50					
-03	7	50					
-04	8	50					
081305-01	9	50					
-03	10	50					
-08	11	50					
-10	12	50					
-12	13	50					
081317-02	14	50					
081319-01	15	50					
081322-01	16	50					
-02	17	50					
-03	18	50					
-04	19	50					
-05	20	50					
DUP: 081284-36	Dup1	50					
DUP: 081322-05	Dup2	50					
			Off Temp/Time:	104 0930	180 0727	178 /1018	/

ANALYST: Andrew Gunning

* Duplicate required on 10% of samples

DATE/TIME: (on) 8-25-17 1236
DATE/TIME: (off) 8-28-17
DATE/TIME: (off) 8-28-17
DATE/TIME: (off)

DCN#127891

4/

WORKGROUP: WG627483

TOTAL DISSOLVED SOLIDS

(tds1)

Oven: TDS MICS1
☐ EPA 160.1 / SM2540C 14
LCS: 83110
Daily Dilution: 5(2000)150-300

Balance: AND GR-202 / Other
Matrix Spike:
Daily Dilution:
Filter Lot #: 9816842

			On Temp/Time:	104/1515	180/0805	180/0957	/
SAMPLE	#	VOLUME (mL)	INITIAL WEIGHT WT1 (g)	DRY WEIGHT WT2A (g)	DRY WEIGHT WT2B (g)	DRY WEIGHT WT2C (g)	
BLANK	BLK	100					
LCS: mg/L	LCS1	50					
LCSDUP: mg/L	LCS2	50					
08 1288-04	1	1					
08 1305-08	2	20					
08 1319-01	3	25					
08 1386-01	4	50					
08 1390-01	5	50					
02	6	50					
03	7	50					
04	8	50					
05	9	50					
06	10	50					
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
DUP: 1390-06	Dup1	50					
DUP:	Dup2						
			Off Temp/Time:	104 1655	180 0820	180 1110	/

ANALYST: Jamil Irene

* Duplicate required on 10% of samples

DATE/TIME: (on) 8/28/17 1405
DATE/TIME: (off) 8/29/17
DATE/TIME: (off)
DATE/TIME: (off)

DCN#127922

Microbac Laboratories Inc.
GRAVIMETRIC REPORT

Workgroup (AAB#): WG627272 Method: 160.1/SM2540C
Analyst: AWE SOP: Revison
Analyte: TOTAL DISSOLVED SOLIDS Spike Solution: STD83110
Balance: BAL018 Daily Dilution:
Instrument#: OVEN

SAMPLE NUMBER		INITIAL VOL	INITIAL WT	DRY WT A	DRY WT B	DRY WT C	Anal. Conc	Rep. Conc.	Units
WG627272-01	B	100	85.1361	85.1365	85.1362		1.000	1.000	mg/L
WG627272-02	L	50	60.2982	60.324	60.3238		512.0	512.0	mg/L
WG627272-03	L2	50	58.2545	58.2789	58.2787		484.0	484.0	mg/L
L17081284-36	1	50	68.7747	68.807	68.8069		644.0	644.0	mg/L
WG627272-04	1	50	68.7747	68.807	68.8069		644.0	644.0	mg/L
L17081284-39	2	50	64.5469	64.6319	64.6314		1690	1690	mg/L
L17081284-42	3	50	56.5536	56.5785	56.578		488.0	488.0	mg/L
L17081284-44	4	50	63.0722	63.1624	63.1622		1800	1800	mg/L
L17081288-01	5	50	67.2237	67.2508	67.2503		532.0	532.0	mg/L
L17081288-02	6	50	58.9039	58.9218	58.9215		352.0	352.0	mg/L
L17081288-03	7	50	64.8	64.8162	64.8157		314.0	314.0	mg/L
L17081288-04	8	50	56.7896	58.2303	58.2301		28810	28810	mg/L
L17081305-01	9	50	62.91	62.9496	62.9496		792.0	792.0	mg/L
L17081305-03	10	50	63.0265	63.1962	63.1965		3400	3400	mg/L
L17081305-08	11	50	60.976	61.2896	61.2891		6262	6262	mg/L
L17081305-10	12	50	55.1789	55.2617	55.2616		1654	1654	mg/L
L17081305-12	13	50	60.1828	60.2721	60.2719		1782	1782	mg/L
L17081317-02	14	50	69.7209	69.865	69.8648		2878	2878	mg/L
L17081319-01	15	50	66.046	66.341	66.3408		5896	5896	mg/L
L17081322-01	16	50	62.4644	62.4821	62.4818		348.0	348.0	mg/L
L17081322-02	17	50	63.8222	63.8387	63.8382		320.0	320.0	mg/L
L17081322-03	18	50	62.6111	62.632	62.6315		408.0	408.0	mg/L
L17081322-04	19	50	61.6003	61.6121	61.6116		226.0	226.0	mg/L
L17081322-05	20	50	64.0234	64.0402	64.0397		326.0	326.0	mg/L
WG627272-06	20	50	64.0234	64.0402	64.0397		326.0	326.0	mg/L
WG627272-05	D	50	57.6599	57.6926	57.6929		660.0	660.0	mg/L
WG627272-07	D2	50	61.9649	61.9801	61.9804		310.0	310.0	mg/L

L17081288-04	Rerun at 1ml.
L17081305-08	Rerun at 20ml.
L17081319-01	Rerun at 25ml.

Analyst: Andrew Cseg

*Duplicate required on 10% of samples

Date/Time (on) : 08/25/2017 12:36
Date/Time (off): 08/28/2017 07:27
Date/Time (off): 08/28/2017 10:18
Date/Time (off):

CONT_GRAV_REPORT - Modified 02/18/2011
PDF ID: 5449146
Report generated: 08/28/2017 12:01

Microbac Laboratories Inc.
GRAVIMETRIC REPORT

Workgroup (AAB#): WG627483
Method: 160.1/SM2540C
Analyst: ADG
SOP: Revison
Analyte: TOTAL DISSOLVED SOLIDS
Spike Solution: STD83110
Balance: BAL018
Daily Dilution:
Instrument#: OVEN

SAMPLE NUMBER		INITIAL VOL	INITIAL WT	DRY WT A	DRY WT B	DRY WT C	Anal. Conc	Rep. Conc.	Units
WG627483-01	B	100	75.9553	75.956	75.9556		3.000	3.000	mg/L
WG627483-02	L	50	72.8534	72.8797	72.88		532.0	532.0	mg/L
WG627483-03	L2	50	62.6166	62.6429	62.643		528.0	528.0	mg/L
L17081288-04	1	1	63.9115	63.9471	63.9475		36000	36000	mg/L
L17081305-08	2	20	61.9348	62.0607	62.0608		6300	6300	mg/L
L17081319-01	3	25	61.6134	61.7636	61.7637		6012	6012	mg/L
L17081386-01	4	50	64.571	64.6061	64.6062		704.0	704.0	mg/L
L17081390-01	5	50	56.6103	56.6335	56.6335		464.0	464.0	mg/L
L17081390-02	6	50	60.9517	60.9905	60.991		786.0	786.0	mg/L
L17081390-03	7	50	62.761	62.7702	62.7698		176.0	176.0	mg/L
L17081390-04	8	50	60.1438	60.1594	60.1597		318.0	318.0	mg/L
L17081390-05	9	50	58.2663	58.2773	58.2775		224.0	224.0	mg/L
L17081390-06	10	50	53.9929	54.0272	54.0276		694.0	694.0	mg/L
WG627483-04	10	50	53.9929	54.0272	54.0276		694.0	694.0	mg/L
WG627483-05	D	50	64.8887	64.9242	64.9239		704.0	704.0	mg/L

Analyst: April Greene

*Duplicate required on 10% of samples

Date/Time (on) : 08/28/2017 14:05
Date/Time (off): 08/29/2017 09:53
Date/Time (off): 08/29/2017 13:21
Date/Time (off):

CONT_GRAV_REPORT - Modified 02/18/2011
PDF ID: 5451465
Report generated: 08/29/2017 13:29

2.4.9 TKN Data

2.4.9.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: Tammy Morris

METHOD

Analysis EPA 351.2(TKN)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

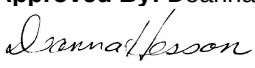
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128894
Approved By: Deanna Hesson



Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ06-082317 **Prep Method:** 351.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 351.2 **Cal Date:** 08/29/2017 10:28
Workgroup #: WG627533 **Analyst:** TMM **Run Date:** 08/29/2017 10:42
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** SC170829001.023
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9	0.390		0.200	0.100

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: PZ04-082317 **Prep Method:** 351.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 351.2 **Cal Date:** 08/29/2017 10:28
Workgroup #: WG627533 **Analyst:** TMM **Run Date:** 08/29/2017 10:43
Collect Date: 08/23/2017 10:58 **Dilution:** 1 **File ID:** SC170829001.024
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9	2.85		0.200	0.100

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: MW31-082317 **Prep Method:** 351.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 351.2 **Cal Date:** 08/29/2017 10:28
Workgroup #: WG627533 **Analyst:** TMM **Run Date:** 08/29/2017 10:44
Collect Date: 08/23/2017 10:35 **Dilution:** 10 **File ID:** SC170829001.025
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9	11.7		2.00	1.00

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** SMARTCHEM
Client ID: MW30-082317 **Prep Method:** 351.2 **Prep Date:** N/A
Matrix: Water **Analytical Method:** 351.2 **Cal Date:** 08/29/2017 10:28
Workgroup #: WG627533 **Analyst:** TMM **Run Date:** 08/29/2017 10:45
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** SC170829001.026
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MW11S-082317	**Prep Method:**	351.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	351.2	**Cal Date:**	08/29/2017 10:28
Workgroup #:	WG627533	**Analyst:**	TMM	**Run Date:**	08/29/2017 10:46
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	SC170829001.027
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Nitrogen, Total Kjeldahl	7727-37-9		U	0.200	0.100

U	Not detected at or above adjusted sample detection limit.

2.4.9.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

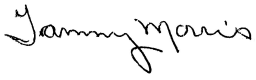
Microbac Laboratories Inc.

Data Checklist

Date: 29-AUG-2017
Analyst: TMM
Analyst: NA
Method: TKN
Instrument: SC1
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627533

Calibration/Linearity	8/29/17
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	TMM
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
29-AUG-2017



Secondary Reviewer:
30-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-30-2017 13:56:09

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 351.2 **AAB#:** WG627533

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/29/2017	6	28		08/29/17	6	28	
PZ04-082317	03	08/23/17					08/29/2017	6	28		08/29/17	6	28	
MW31-082317	08	08/23/17					08/29/2017	6	28		08/29/17	6	28	
MW30-082317	10	08/23/17					08/29/2017	5.9	28		08/29/17	5.9	28	
MW11S-082317	12	08/23/17					08/29/2017	5.9	28		08/29/17	5.9	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5453536
Report generated 08/29/2017 15:16

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627533
Blank File ID: SC170829001.011
Blank Sample ID: WG627533-01
Prep Date: 08/29/17 10:31
Instrument ID: SMARTCHEM
Analyzed Date: 08/29/17 10:31
Method: 351.2
Analyst: TMM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
PZ06-082317	L17081305-01	SC170829001.023	08/29/17 10:42	01
PZ04-082317	L17081305-03	SC170829001.024	08/29/17 10:43	01
MW31-082317	L17081305-08	SC170829001.025	08/29/17 10:44	DL01
MW30-082317	L17081305-10	SC170829001.026	08/29/17 10:45	01
MW11S-082317	L17081305-12	SC170829001.027	08/29/17 10:46	01
DUP	WG627533-05	SC170829001.028	08/29/17 10:47	01
LCS	WG627533-02	SC170829001.034	08/29/17 10:52	01
LCS2	WG627533-03	SC170829001.037	08/29/17 10:55	01

Report Name: BLANK_SUMMARY
PDF File ID: 5453537
Report generated 08/29/2017 15:16

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/29/17 10:31 Sample ID: WG627533-01
Instrument ID: SMARTCHEM Run Date: 08/29/17 10:31 Prep Method: 351.2
File ID: SC170829001.011 Analyst: TMM Method: 351.2
Workgroup (AAB#): WG627533 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-29-AUG-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Nitrogen, Total Kjeldahl	0.100	0.200	0.100	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5453538
29-AUG-2017 15:16

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 **Analyst:** TMM **Prep Method:** 351.2
Instrument ID: SMARTCHEM **Matrix:** Water **Method:** 351.2
Workgroup (AAB#): WG627533 **Units:** mg/L
QC Key: WATERLOO **Lot #:** STD83447

Sample ID: WG627533-02 LCS **File ID:** SC170829001.034 **Run Date:** 08/29/2017 10:52
Sample ID: WG627533-03 LCS2 **File ID:** SC170829001.037 **Run Date:** 08/29/2017 10:55

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Nitrogen, Total Kjeldahl	1.00	0.951	95.1	1.00	1.10	110	14.6	90 - 110	25	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5453539
Report generated: 08/29/2017 15:16

2.4.9.3 Raw Data

WORKGROUP: WG627533

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [ ] NO3 Reagent bottle connected / purged
- [ ] NO3 pH adj to pH 5-9

Syringe filter lot # _____

pH paper Lot #: _____

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____
Plan # _____
2) **Workgroup** _____
Plan # _____
3) **Workgroup** _____
Plan # _____
Instrument: SC1 [x] SC2 [ ]

	Analyte	1 TKN	2	3
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV			
1-2	Blk			
1-3	Lcs			
1-4	Lcs 2			
1-5	08-1352-02	1/50		
1-6	05	1/50		
1-7	08	1/50		
1-8	8-1295-01			
1-9	02			
1-10	03			
1-11	04			
1-12	08-1305-01			
1-13	03			
1-14	08	1/10		
1-15	10			
1-16	12			
1-17	Dup 8-1295-01			
1-18	MS ↓			
1-19	ms 8-1295-02			
1-20	LCS			
1-21	LCS			
1-22	LCS			
2-1				
2-2				
2-3				

Position	Analyte	1	2	3
2-4				
2-5				
2-6				
2-7				
2-8				
2-9				
2-10				
2-11				
2-12				
2-13				
2-14				
2-15				
2-16				
2-17				
2-18				
2-19				
2-20				
2-21				
2-22				
2-23				
2-24				
2-25				
2-26				
3-1				
3-2				

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#127930

WORKGROUP: WG627533

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

Position	Analyte	1	2	3
3-3				
3-4				
3-5				
3-6				
3-7				
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

Position	Analyte	1	2	3
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-CI E-2000
	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
	Phos	EPA 365.4

Analyte	TKN		Reagents
SOP & Revision	K3512 R20		41091
Curve Stock (SC made)			41081
NO2 STD			40620
ICV			
CCV			
LCS			
MS	See Digest Log Dilution		

Comments: _____

Analyst: Jammy Morris Date: 8/29/17 C

DCN#127930

TKN/Phosphorus Digestion Log

TKN WG:
TKN Std: 83575
TKN CCV: 1/2 ↓
TKN ICV: 83446
TKN LCS: 83447

Phos WG:
Phos Std: 83575
Phos CCV: 1/2 ↓
Phos ICV: 83437
Phos LCS: 83438

MS/MSD: 82628
Daily Dilution: 1(25)/25 = 1

Block Digester Temperature: 380 °C
Digest Reagent: 40925

	Sample	Volume	TKN Dilution	Phos Dilution		Sample	Volume	TKN Dilution	Phos Dilution
1	Std T-Ph		✓	✓	26	08-13150 1			✓
2	Std T-Ph		✓	✓	27	08-13200 1			✓
3	ICV T		✓		28	08-1344-01 1/25 1/5			✓
4	Lcs T		✓		29	Dup 8-1295-01		✓	✓
5	ICV Ph			✓	30	MS ↓		✓	✓
6	Lcs Ph			✓	31	MS 8-1295-02		✓	✓
7	08-1352-02	1/50	✓		32	BK		✓	✓
8	05	1/50	✓		33	Lcs 2		✓	
9	08	1/50	✓		34	Lcs 2			✓
10	08-1295-01		✓	✓	35				
11	02		✓	✓	36				
12	03		✓	✓	37				
13	04		✓	✓	38				
14	08-1305-01		✓	✓	39				
15	03		✓	✓ 8/28/17	40				
16	08	1/10	✓	✓ ~~Cofac~~	41				
17	10		✓	✓	42				
18	12		✓	✓	43				
19	08-1316-01			✓	44				
20	02			✓	45				
21	03			✓	46				
22	08-13801			✓	47				
23	08-1299-01			✓	48				
24	02			✓	49				
25	03			✓	50				

Analyst: Tammy Morris Date: 8/28/2017

MICROBAC (OVD)
SMARTCHEM200 INST1 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTKN -Unit [mg/L] - EPA 351.2 TKN

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.3762	0.00		10:20:32 AM
DIL-1	RBL	0.000	0.3726	0.00		10:20:50 AM
DIL-1	RBL	0.000	0.3804	0.00		10:22:20 AM
DIL-1	Std-1	0.000	-0.0021	0.00	INV	10:22:38 AM
SR5-1	Std-2	0.100	0.0131	0.00	EPL	10:24:08 AM
SR5-2	Std-3	0.250	0.0282	0.00		10:24:26 AM
SR5-3	Std-4	0.500	0.0561	0.00		10:25:56 AM
SR5-4	Std-5	1.000	0.1061	0.00		10:26:17 AM
SR5-5	Std-6	2.500	0.2822	0.00		10:27:46 AM
ST-1	Std-7	5.000	0.5645	0.00		10:28:03 AM
ST-3	1CCV (2.5 mg/L)	2.534	0.2852	101.35		10:29:32 AM
ST-2	2CCB (0 mg/L)	-0.025	-0.0041	0.00	INV,EPL,><	10:29:50 AM
1	ICV	2.126	0.2391	0.00		10:31:20 AM
2	WG627533-01 BLK	-0.022	-0.0038	0.00	INV,EPL,><	10:31:38 AM
3	WG627533-02 LCS	X0.816	0.0909	0.00		10:33:08 AM
4	WG627533-03 LCS2	X0.898	0.1002	0.00		10:33:26 AM
5	L17081352-02 (50)	1.465	0.1643	0.00	EPL	10:34:56 AM
6	L17081352-05 (50)	0.796	0.0887	0.00	EPL	10:35:14 AM
7	L17081352-08 (50)	1.029	0.1150	0.00		10:36:44 AM
8	L17081295-01	0.034	0.0025	0.00	EPL	10:37:03 AM
9	L17081295-02	0.273	0.0296	0.00		10:38:32 AM
10	L17081295-03	0.390	0.0428	0.00	EPL	10:38:51 AM
ST-3	1CCV (2.5 mg/L)	2.496	0.2809	99.83		10:40:21 AM
ST-2	2CCB (0 mg/L)	-0.034	-0.0052	0.00	INV,EPL,><	10:40:39 AM
11	L17081295-04	0.514	0.0568	0.00		10:42:09 AM
12	L17081305-01	0.390	0.0428	0.00		10:42:27 AM
13	L17081305-03	2.853	0.3213	0.00		10:43:57 AM
14	L17081305-08 (10)	1.170	0.1310	0.00		10:44:15 AM
15	L17081305-10	-0.004	-0.0018	0.00	INV,LL	10:45:45 AM
16	L17081305-12	-0.037	-0.0055	0.00	INV,><,LL	10:46:02 AM
17	WG627533-05 DUP	0.196	0.0209	0.00	EPL	10:47:32 AM
18	WG627533-06 MS	0.569	0.0630	0.00		10:47:50 AM

Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM1** **Plan # :20170829001**

Plan Description : TKN-A1/TMM/08/29/2017

MICROBAC (OVD)
SMARTCHEM200 INST1 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WTKN -Unit [mg/L] - EPA 351.2 TKN

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
19	WG627533-08 MS	0.722	0.0803	0.00		10:49:20 AM
20	ID 20 LCS	✗ 0.869	0.0969	0.00		10:49:38 AM
ST-3	1CCV (2.5 mg/L)	2.525	0.2842	101.00		10:51:08 AM
ST-2	2CCB (0 mg/L)	0.002	-0.0011	0.00	INV	10:51:26 AM
21	ID 21 WG627533-02 LCS	0.951	0.1062	0.00		10:52:56 AM
ST-3	1CCV (2.5 mg/L)	2.489	0.2801	99.55		10:53:14 AM
ST-2	2CCB (0 mg/L)	-0.004	-0.0018	0.00	INV,LL	10:54:45 AM
23	ID 23 WG627533-03 LCS2	1.101	0.1232	0.00		10:55:02 AM
ST-3	1CCV (2.5 mg/L)	2.505	0.2819	100.18		10:56:33 AM
ST-2	2CCB (0 mg/L)	0.011	-0.0001	0.00	INV	10:56:51 AM

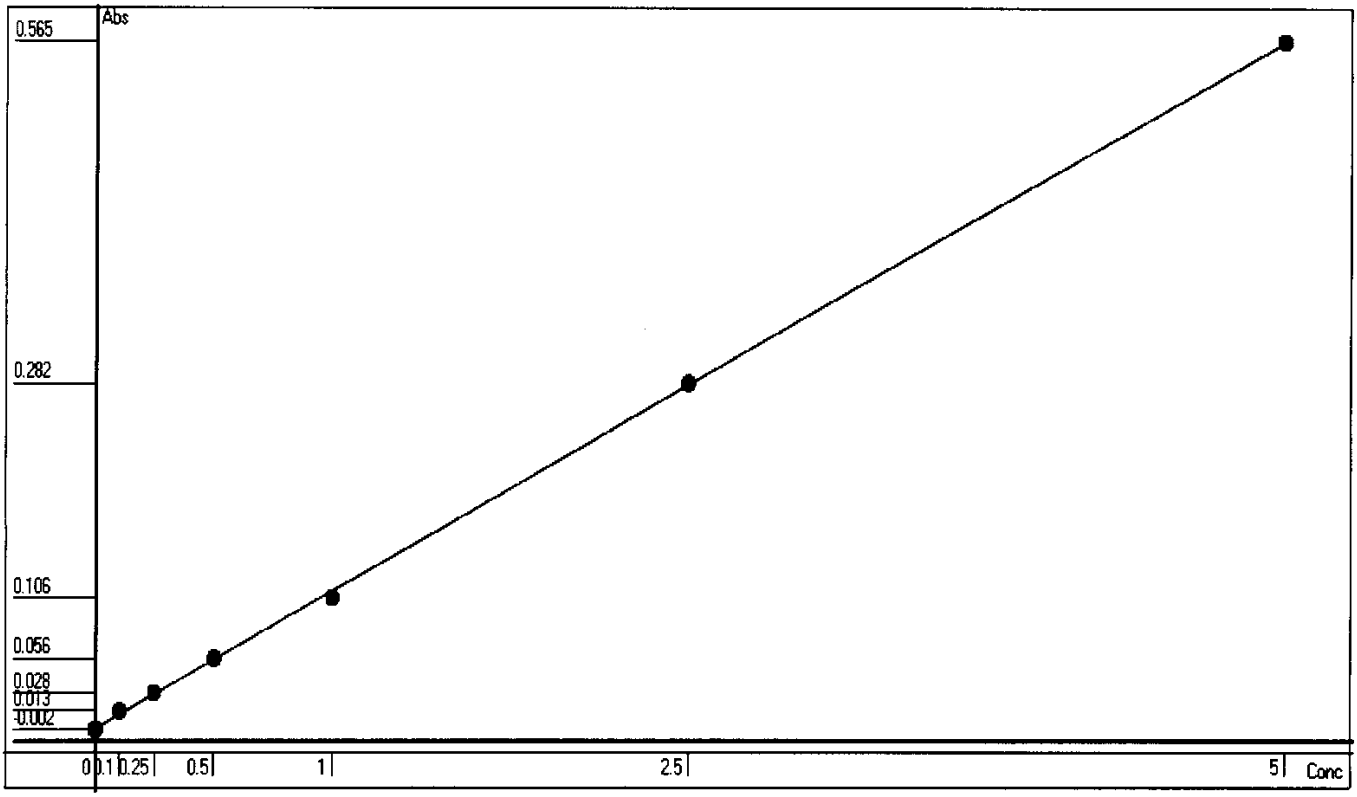
Report Date :08/29/2017 **Run Date :8/29/2017** **Operator : SMARTCHEM1** **Plan # :20170829001**

Plan Description : TKN-A1/TMM/08/29/2017

Calibrant Report - WTKN -

Calib Lot #:010104 Exp Date:6/18/2020 User:MICROBAC

Plan # : 20170829001 Description : [TKN-A1/TMM/08/29/2017] Unit



Point	OD	Conc	Recalc Conc	% Error
1	-0.0021	0	-0.0070	-0.70
2	0.0131	0.1	0.1275	27.50
3	0.0282	0.25	0.2610	4.40
4	0.0561	0.5	0.5077	1.54
5	0.1061	1	0.9499	-5.01
6	0.2822	2.5	2.5073	0.29
7	0.5645	5	5.0039	0.08

Conc= +8.8437*Abso +0.0116 R²=0.9998

RBL
0.3744
0

Report Date 8/29/2017 Run Date 8/29/2017

2.4.10 Total Organic Carbon Data

2.4.10.1 Summary Data

Login Number: L17081305
Department: Conventionals
Analyst: April Greene

METHOD

Analysis Water: EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)
Soil: Lloyd-Khan Methodology

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

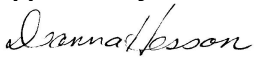
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 128895
Approved By: Deanna Hesson



Certificate of Analysis

Sample #: L17081305-01 **PrePrep Method:** N/A **Instrument:** TOC-VWP
Client ID: PZ06-082317 **Prep Method:** SM5310-C-2011 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM5310-C-2011 **Cal Date:** 02/10/2017 10:25
Workgroup #: WG627555 **Analyst:** ADG **Run Date:** 08/29/2017 11:24
Collect Date: 08/23/2017 09:42 **Dilution:** 1 **File ID:** TC08292017.008
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	8.52		1.00	0.500

Sample #: L17081305-03 **PrePrep Method:** N/A **Instrument:** TOC-VWP
Client ID: PZ04-082317 **Prep Method:** SM5310-C-2011 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM5310-C-2011 **Cal Date:** 02/10/2017 10:25
Workgroup #: WG627555 **Analyst:** ADG **Run Date:** 08/29/2017 11:46
Collect Date: 08/23/2017 10:58 **Dilution:** 3 **File ID:** TC08292017.009
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	22.9		3.00	1.50

Sample #: L17081305-08 **PrePrep Method:** N/A **Instrument:** TOC-VWP
Client ID: MW31-082317 **Prep Method:** SM5310-C-2011 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM5310-C-2011 **Cal Date:** 02/10/2017 10:25
Workgroup #: WG627555 **Analyst:** ADG **Run Date:** 08/29/2017 12:09
Collect Date: 08/23/2017 10:35 **Dilution:** 25 **File ID:** TC08292017.010
Sample Tag: DL01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	277		25.0	12.5

Sample #: L17081305-10 **PrePrep Method:** N/A **Instrument:** TOC-VWP
Client ID: MW30-082317 **Prep Method:** SM5310-C-2011 **Prep Date:** N/A
Matrix: Water **Analytical Method:** SM5310-C-2011 **Cal Date:** 02/10/2017 10:25
Workgroup #: WG627555 **Analyst:** ADG **Run Date:** 08/29/2017 12:32
Collect Date: 08/23/2017 12:40 **Dilution:** 1 **File ID:** TC08292017.011
Sample Tag: 01 **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	7.51		1.00	0.500

Certificate of Analysis

Sample #:	L17081305-12	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	MW11S-082317	**Prep Method:**	SM5310-C-2011	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM5310-C-2011	**Cal Date:**	02/10/2017 10:25
Workgroup #:	WG627555	**Analyst:**	ADG	**Run Date:**	08/29/2017 12:58
Collect Date:	08/23/2017 13:55	**Dilution:**	1	**File ID:**	TC08292017.012
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	3.03		1.00	0.500

2.4.10.2 QC Summary Data

Total Organic Carbon Example Calculations
(Direct Readout Parameter)

(Readout)/(dilution) = mg/L

where:

Readout = direct readout from the instrument
dilution = dilution in decimal form (ex. 1/5 dilution = 0.2)

Microbac Laboratories Inc.

Data Checklist

Date: 29-AUG-2017
Analyst: ADG
Analyst: NA
Method: TOC
Instrument: TOCVWP
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG627555

Calibration/Linearity	02/10/17
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	ADG
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
30-AUG-2017

Secondary Reviewer:
30-AUG-2017

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-30-2017 13:56:08

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: SM5310-C-2011 AAB#: WG627555

Login Number: L17081305

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PZ06-082317	01	08/23/17					08/29/2017	6.1	28		08/29/17	6.1	28	
PZ04-082317	03	08/23/17					08/29/2017	6	28		08/29/17	6	28	
MW31-082317	08	08/23/17					08/29/2017	6.1	28		08/29/17	6.1	28	
MW30-082317	10	08/23/17					08/29/2017	6	28		08/29/17	6	28	
MW11S-082317	12	08/23/17					08/29/2017	6	28		08/29/17	6	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 5455005
Report generated 08/30/2017 11:31

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L17081305
Work Group: WG627555
Blank File ID: TC08292017.004
Blank Sample ID: WG627555-01
Prep Date: 08/29/17 10:04
Instrument ID: TOC-VWP
Analyzed Date: 08/29/17 10:04
Method: SM5310-C-2011
Analyst: ADG

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG627555-02	TC08292017.005	08/29/17 10:24	01
LCS2	WG627555-03	TC08292017.006	08/29/17 10:44	01
PZ06-082317	L17081305-01	TC08292017.008	08/29/17 11:24	01
PZ04-082317	L17081305-03	TC08292017.009	08/29/17 11:46	DL01
MW31-082317	L17081305-08	TC08292017.010	08/29/17 12:09	DL01
MW30-082317	L17081305-10	TC08292017.011	08/29/17 12:32	01
MW11S-082317	L17081305-12	TC08292017.012	08/29/17 12:58	01
DUP	WG627555-05	TC08292017.021	08/29/17 15:57	01

Report Name: BLANK_SUMMARY
PDF File ID: 5455006
Report generated 08/30/2017 11:31

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L17081305 Prep Date: 08/29/17 10:04 Sample ID: WG627555-01
Instrument ID: TOC-VWP Run Date: 08/29/17 10:04 Prep Method: SM5310-C-2011
File ID: TC08292017.004 Analyst: ADG Method: SM5310-C-2011
Workgroup (AAB#): WG627555 Matrix: Water Units: mg/L
Contract #: Cal ID: TOC-VW-10-FEB-17

Analytes	MDL	RL	Concentration	Dilution	Qualifier
Total Organic Carbon	0.500	1.00	0.500	1	U

MDL Method Detection Limit
RL Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > RL

Report Name:BLANK
PDF ID: 5455007
30-AUG-2017 11:31

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L17081305 Analyst: ADG Prep Method: SM5310-C-2011
Instrument ID: TOC-VWP Matrix: Water Method: SM5310-C-2011
Workgroup (AAB#): WG627555 Units: mg/L
QC Key: WATERLOO Lot #: STD80787

Sample ID: WG627555-02 LCS File ID: TC08292017.005 Run Date: 08/29/2017 10:24
Sample ID: WG627555-03 LCS2 File ID: TC08292017.006 Run Date: 08/29/2017 10:44

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Total Organic Carbon	25.0	25.5	102	25.0	25.9	103	1.48	85 - 115	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 5455008
Report generated: 08/30/2017 11:31

2.4.10.3 Raw Data

Curve

~~WG602411~~
~~WG602476~~ dm 1/13/17
WG602481

Total Organic Carbon

MAKE DAILY

CCV (TOC): _____ (5/200)(1000) = 25mg/L

LCS (TOC): _____ (5/200)(1000) = 25mg/L

CCV (TIC): _____ (5/200)(1000) = 25mg/L

MS (TOC): _____

Calibration Curve Date: _____

Reagent: RGT 38944
RGT 37673

☑ SM5310-C : Matrix 2 WG_____

☐ EPA 415.1/9060A(mod): Matrix 1 WG_____ SOP: K 4151 Rev. ~~17~~ 18 dm 1/13/17

WG_____ Instrument: Shimadza TOC-VWP/ASI

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☐ dilution water bottle full

☑ 3rd bottle full
☑ sufficient gas
☐ sufficient persulfate

☑ sufficient acid
☐ waste container

Position	Sample ID	Dilution
1	TC Curve	
2	TC ICV	
3	TIC Curve	
4	TIC ICV	
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19	all points analyzed in duplicate	
20		
21		
22		
23		
24		
25		

Position	Sample ID	Dilution
26	TC Curve	
27	Std 79318	
28		
29	TIC Curve	
30	Std 80415	
31		
32		
33	TOC (TC)	
34	ICV	
35	Std 77870	
36		
37	TIC ICV	
38	Std 80416	
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

Position	Sample ID	Dilution
51		
52	See SOP	
53	for point	
54	Preparation	
55		
56		
57		
58		
59		
60	5/200 (100) = 25	
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		

Analyst: David Merkle Date/Time: 2/10/17

DCN#123915

	Analysis	Sample Name	Result	Status	Date / Time	Vial
1	TC	TCCURVE		Complete	2/10/2017 10:29:51 A	0, 1, 2, 3, 4, 5
2	TC	TOC ICV	TC:23.90mg/L	Complete	2/10/2017 10:47:48 A	6
3	IC	TICCURVE		Complete	2/10/2017 3:55:41 PM	0, 1, 2, 3, 4, 5
4	IC	TIC CURVE	IC:24.27mg/L	Complete	2/10/2017 4:12:07 PM	6
5	TC		TC:0.000mg/L	Complete	2/10/2017 4:31:41 PM	7
6	IC	TOC/TIC	IC:8.571mg/L	Complete	2/10/2017 4:42:05 PM	7
7	TC	TOC/TIC	TC:32.10mg/L	Complete	2/10/2017 5:01:02 PM	7

Instr.Information

System TOCVW ASI
Detector Wet Chemical

Cal. Curve

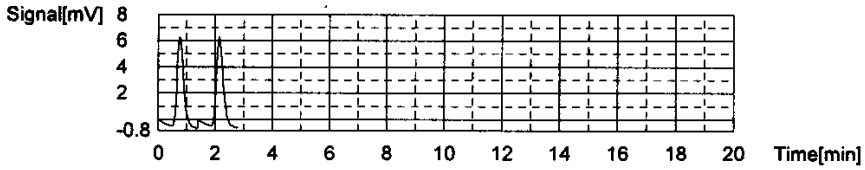
Sample Name: TCCURVE
Sample ID: Untitled
Cal. Curve: TCCURVE-02-10-2017.2017_02_10_09_32_59.cal
Status Completed

Type	Anal.
Standard	TC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	10.83	500uL	1	*******		2/10/2017 9:36:31 AM
2	10.82	500uL	1	*******		2/10/2017 9:40:05 AM

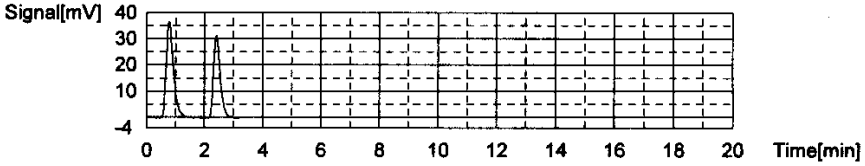
Acid Add. 0.000%
Mean Area 10.82



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	64.31	500uL	1	*******		2/10/2017 9:45:28 AM
2	51.52	500uL	1	*******		2/10/2017 9:49:19 AM

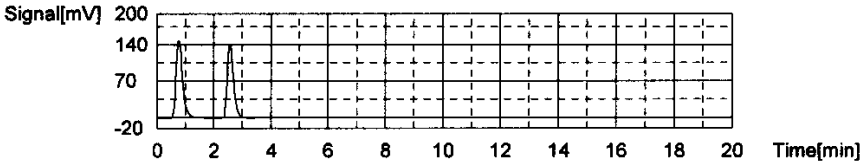
Acid Add. 0.000%
Mean Area 57.92



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	238.4	500uL	1	*******		2/10/2017 9:55:04 AM
2	216.3	500uL	1	*******		2/10/2017 9:58:58 AM

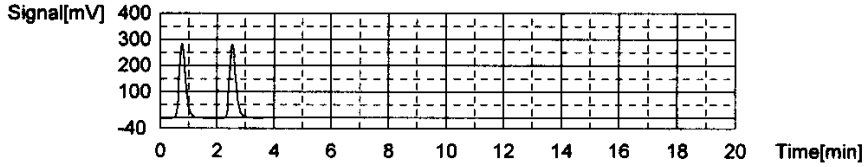
Acid Add. 0.000%
Mean Area 227.4



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	442.5	500uL	1	********		2/10/2017 10:04:41 AM
2	437.9	500uL	1	********		2/10/2017 10:08:48 AM

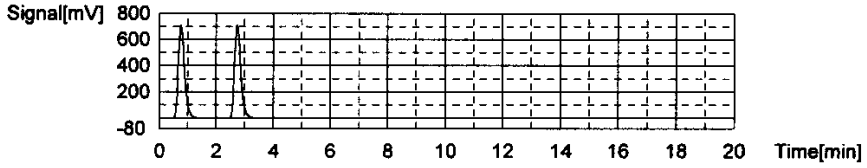
Acid Add. 0.000%
Mean Area 440.2



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1091	500uL	1	********		2/10/2017 10:14:47 AM
2	1092	500uL	1	********		2/10/2017 10:19:05 AM

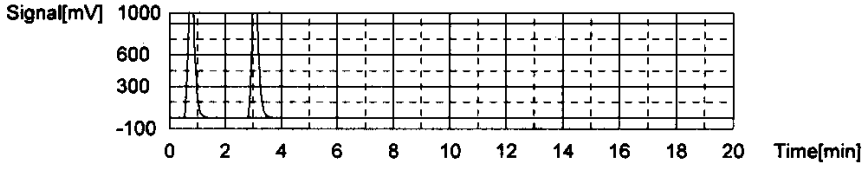
Acid Add. 0.000%
Mean Area 1092



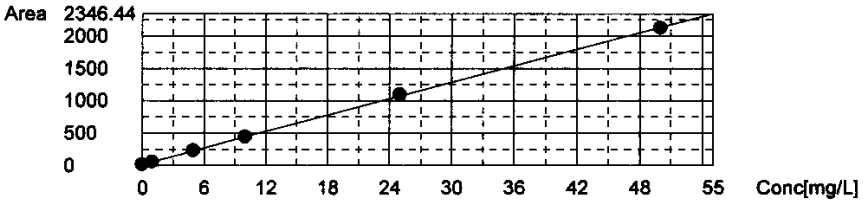
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2132	500uL	1	*H*****		2/10/2017 10:25:19 AM
2	2118	500uL	1	*H*****		2/10/2017 10:29:51 AM

Acid Add. 0.000%
Mean Area 2125



Slope: 42.33
Intercept 16.87
r^2 0.999887
Zero Shift No



Sample

Sample Name: TOC ICV
Sample ID: Untitled
Origin: TCCURVE-02-10-2017.2017_02_10_09_32_59.cal
Status Completed
Chk. Result

Type	Anal.	Dil.	Result
Unknown	TC	1.000	TC:23.90mg/L

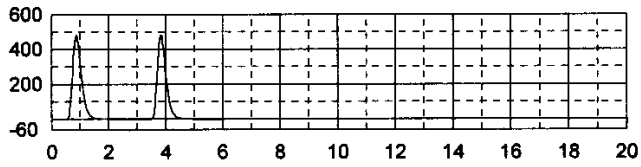
1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1029	23.91mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_52	2/10/2017 10:42:11 AM
2	1028	23.89mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_52	2/10/2017 10:47:48 AM

95.6%

Mean Area 1029
Mean Conc. 23.90mg/L



Cal. Curve

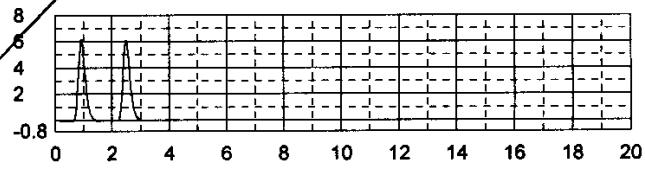
Sample Name: TICCURVE
Sample ID: Untitled
Cal. Curve: TICCURVE-02-10-2017.2017_02_10_14_45_10.cal
Status Completed

Type	Anal.
Standard	IC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	10.59	500uL	1	********		2/10/2017 2:49:09 PM
2	10.43	500uL	1	********		2/10/2017 2:53:06 PM

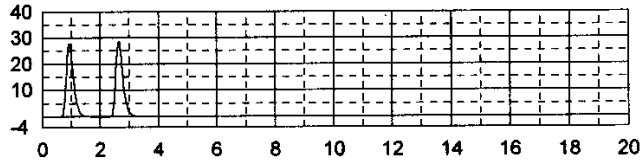
Acid Add. 3.000%
Mean Area 10.51



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	48.13	500uL	1	********		2/10/2017 3:00:24 PM
2	49.13	500uL	1	********		2/10/2017 3:04:41 PM

Acid Add. 3.000%
Mean Area 48.63

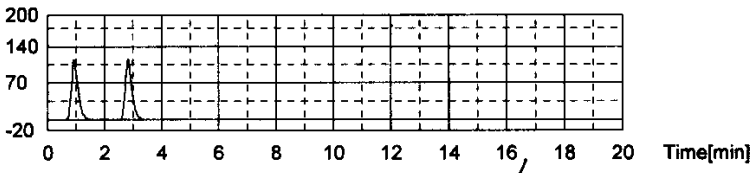


Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	189.0	500uL	1	********		2/10/2017 3:12:24 PM
2	190.1	500uL	1	********		2/10/2017 3:16:55 PM

dcm
3/23/17

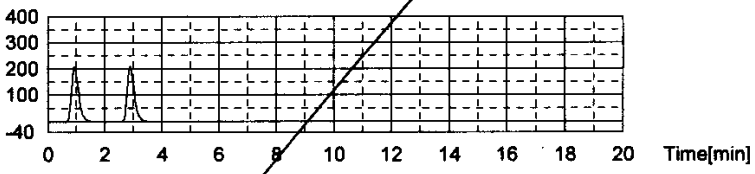
Acid Add. 3.000%
Mean Area 189.6



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	360.6	500uL	1	********		2/10/2017 3:24:47 PM
2	362.2	500uL	1	********		2/10/2017 3:29:24 PM

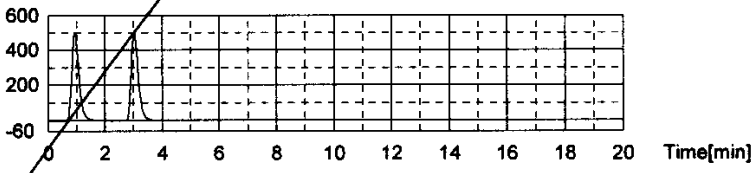
Acid Add. 3.000%
Mean Area 361.4



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	859.3	500uL	1	********		2/10/2017 3:37:23 PM
2	856.9	500uL	1	********		2/10/2017 3:42:16 PM

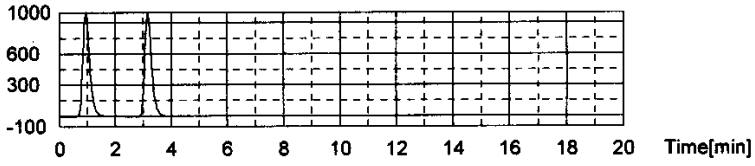
Acid Add. 3.000%
Mean Area 858.1



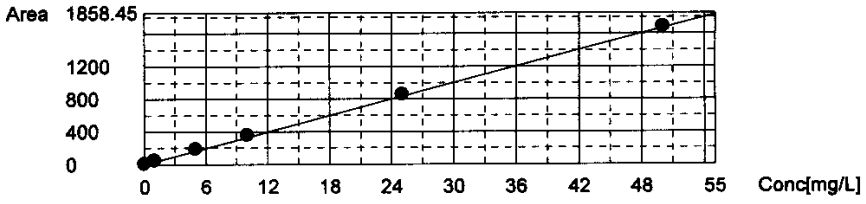
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1690	500uL	1	********		2/10/2017 3:50:31 PM
2	1689	500uL	1	********		2/10/2017 3:55:41 PM

Acid Add. 3.000%
Mean Area 1690



Slope: 33.49
Intercept 0.000
r^2 0.999919
Zero Shift Yes



Sample dcm

See following pages for curve, slope, intercept and zero shift unchecked

TOC-V Cal Curve Information
TICCURVE-02-10-2017.2017_02_10_14_45_10.cal

Date of Creation	2:10:17 PM 2/10/2017
User	
System	TOCVW ASI

Cal. Curve

Sample Name:	TICCURVE
Sample ID:	Untitled
Cal. Curve:	TICCURVE-02-10-2017.2017_02_10_14_45_10.cal
Status	Completed
Comment:	

Type	Anal.
Standard	IC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	10.59	500uL	1	*******		2/10/2017 2:49:09 PM
2	10.43	500uL	1	*******		2/10/2017 2:53:06 PM

Acid Add.	3.000%
Mean Area	10.51
SD Area	0.1131
CV Area	1.08%
Vial	0

Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	48.13	500uL	1	*******		2/10/2017 3:00:24 PM
2	49.13	500uL	1	*******		2/10/2017 3:04:41 PM

Acid Add.	3.000%
Mean Area	48.63
SD Area	0.7071
CV Area	1.45%
Vial	1

Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	189.0	500uL	1	*******		2/10/2017 3:12:24 PM
2	190.1	500uL	1	*******		2/10/2017 3:16:55 PM

Acid Add.	3.000%
Mean Area	189.6
SD Area	0.7778
CV Area	0.41%
Vial	2

Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	360.6	500uL	1	*******		2/10/2017 3:24:47 PM
2	362.2	500uL	1	*******		2/10/2017 3:29:24 PM

Acid Add.	3.000%
Mean Area	361.4
SD Area	1.131
CV Area	0.31%
Vial	3

Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	859.3	500uL	1	*******		2/10/2017 3:37:23 PM
2	856.9	500uL	1	*******		2/10/2017 3:42:16 PM

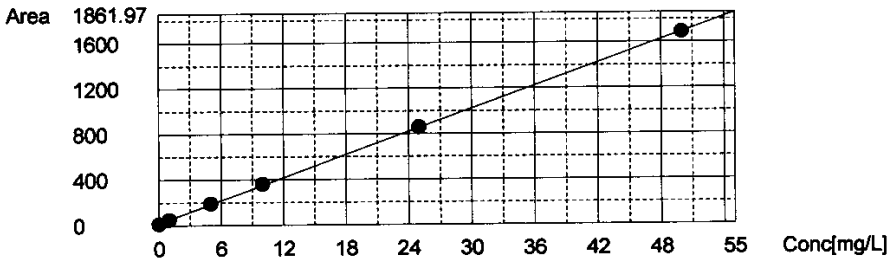
Acid Add.	3.000%
Mean Area	858.1
SD Area	1.697
CV Area	0.20%
Vial	4

Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	1690	500uL	1	*******		2/10/2017 3:50:31 PM
2	1689	500uL	1	*******		2/10/2017 3:55:41 PM

Acid Add.	3.000%
Mean Area	1690
SD Area	0.7071
CV Area	0.04%
Vial	5

Slope:	33.49
Intercept	18.41
r^2	0.999919
Zero Shift	No



Sample Name: TIC CURVE
Sample ID: Untitled
Origin: TICCURVE-02-10-2017.2017_02_10_14_45_10.cal
Status Completed
Chk. Result

Type	Anal.	Dil.	Result
Unknown	IC	1.000	IC:24.27mg/L

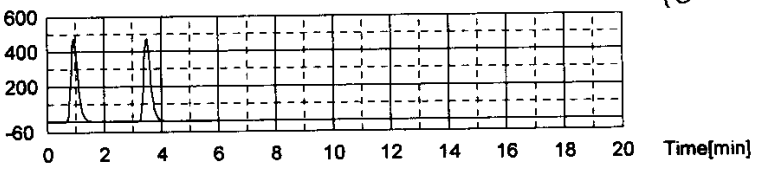
1. Det

Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	810.5	24.20mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	2/10/2017 4:06:15 PM
2	814.6	24.33mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	2/10/2017 4:12:07 PM

96.9%

Mean Area 812.5
Mean Conc. 24.27mg/L



Sample

Sample Name:
Sample ID: Untitled
Origin: TCCURVE-02-10-2017.2017_02_10_14_14_25.cal
Status Completed
Chk. Result

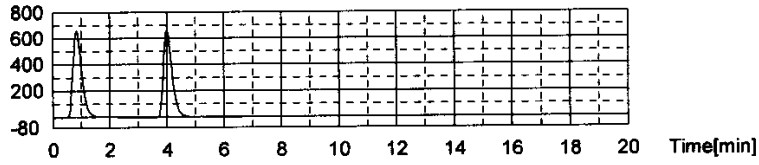
Type	Anal.	Dil.	Result
Unknown	TC	1.000	TC:0.000mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1406	0.000mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_14_14_2	2/10/2017 4:25:42 PM
2	1411	0.000mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_14_14_2	2/10/2017 4:31:41 PM

Mean Area 1409
Mean Conc. 0.000mg/L



Sample

Sample Name: TOC/TIC
Sample ID: Untitled
Origin: TICCURVE-02-10-2017.2017_02_10_14_45_10.cal
Status Completed
Chk. Result

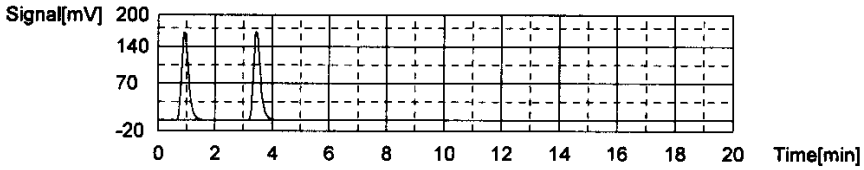
Type	Anal.	Dil.	Result
Unknown	IC	1.000	IC:8.571mg/L

1. Det

Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	286.8	8.565mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	2/10/2017 4:37:09 PM
2	287.2	8.577mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	2/10/2017 4:42:05 PM

Mean Area 287.0
Mean Conc. 8.571mg/L



Sample

Sample Name: TOC/TIC
Sample ID: Untitled
Origin: TCCURVE-02-10-2017.2017_02_10_09_32_59.cal
Status Completed
Chk. Result

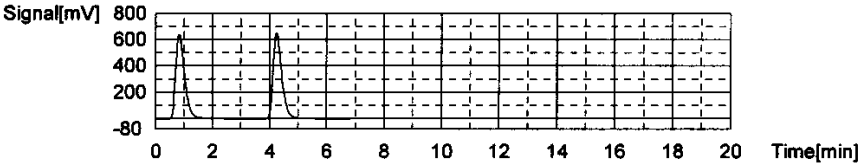
Type	Anal.	Dil.	Result
Unknown	TC	1.000	TC:32.10mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1378	32.16mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	2/10/2017 4:55:07 PM
2	1373	32.04mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	2/10/2017 5:01:02 PM

Mean Area 1376
Mean Conc. 32.10mg/L



WORKGROUP WG627555

Total Organic Carbon

MAKE DAILY

CCV (TOC): 79381 / (5/200)(1000) = 25mg/L

LCS (TOC): 80787 / (5/200)(1000) = 25mg/L

CCV (TIC): 83359 / (5/200)(1000) = 25mg/L

MS (TOC): 80787 / 0.4(1000)/90 = 14

Calibration Curve Date: 2/10/17

Reagent: 40983 / 41061

☑ SM5310-C : Matrix 2 WG 627555

☐ EPA 415.1/9060A(mod): Matrix 1 WG _____ SOP: K 1451 Rev. 18

☐ SW846 9060A (4 rep) WG _____ Instrument: Shimadza TOC-VWP/ASI

DAILY CHECK

☑ drain reservoir filled
☑ ASI water bottle full
☑ dilution water bottle full

☑ 3rd bottle full
☑ sufficient gas
☑ sufficient persulfate

☑ sufficient acid
☑ waste container

Position	Sample ID	Dilution
1	TIC	
2	TOC/TIC	
3	CCV	
4	BLK	
5	LCS	
6	LCSdup	
7	1300-01	
8	1305-01	
9	03	1/3
10	05	1/25
11	10	
12	12	
13	1329-01	1/5
14	CCV	
15	CCB	
16	1362-01	
17	1468-01	
18	03	
19	05	
20	07	
21	1300-01 Dup	
22	1300-01 MS	
23	~~CCV~~ 1484-01	
24	~~CCB~~ 02	
25	03	

Position	Sample ID	Dilution
26	CCV	
27	CCB	
28	1484-04	
29	1493-01	
30	CCV	
31	CCB	
32	CCV	
33	CCB	
34	1484-02	1/3
35	03	1/3
36	1493-01	1/3
37	CCV	
38	CCB	
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

Position	Sample ID	Dilution
51		
52		
53		
54		
55		
56		
57		
58		
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61		
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72		
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74		
75		

Analyst: April Greene Date/Time: 8/29/17 @ 0915

DCN#127936

	Analysis	Sample Name	Result	Status	Date / Time	Vial
1	TOC	TIC	TOC:1.316mg/L TC:26.04mg/L IC:24.72mg/L	Complete	8/29/2017 9:34:48 AM	1
2	TOC	TOC/TIC	TOC:25.68mg/L TC:34.10mg/L IC:8.421mg/L	Complete	8/29/2017 9:47:32 AM	2
3	TOC	CCV	!!Error!! TOC:25.23mg/L TC:24.93mg/L IC:-0.3047mg/L	Complete	8/29/2017 9:59:45 AM	3
4	TOC	WG627555-01 BLK	!!Error!! TOC:0.1534mg/L TC:-0.1260mg/L IC:-0.2793mg/L	Complete	8/29/2017 10:16:12 AM	0
5	TOC	WG627555-02 LCS	!!Error!! TOC:25.49mg/L TC:25.21mg/L IC:-0.2819mg/L	Complete	8/29/2017 10:37:05 AM	5
6	TOC	WG627555-03 LCSDUP	!!Error!! TOC:25.87mg/L TC:25.59mg/L IC:-0.2818mg/L	Complete	8/29/2017 10:58:03 AM	6
7	TOC	L17081300-01	!!Error!! TOC:0.1617mg/L TC:-0.02540mg/L IC:-0.1871mg/	Complete	8/29/2017 11:17:17 AM	7
8	TOC	L17081305-01	TOC:8.518mg/L TC:12.17mg/L IC:3.656mg/L	Complete	8/29/2017 11:38:39 AM	8
9	TOC	L17081305-03 (3)	TOC:7.647mg/L TC:30.23mg/L IC:22.59mg/L	Complete	8/29/2017 12:01:42 PM	9
10	TOC	L17081305-08 (25)	TOC:11.09mg/L TC:20.17mg/L IC:9.075mg/L	Complete	8/29/2017 12:23:56 PM	10
11	TOC	L17081305-10	TOC:7.505mg/L TC:45.39mg/L IC:37.88mg/L	Complete	8/29/2017 12:49:21 PM	11
12	TOC	L17081305-12	TOC:3.030mg/L TC:26.64mg/L IC:23.61mg/L	Complete	8/29/2017 1:13:59 PM	12
13	TOC	L17081329-01 (5)	TOC:14.97mg/L TC:27.85mg/L IC:12.88mg/L	Complete	8/29/2017 1:36:50 PM	13
14	TOC	CCV	!!Error!! TOC:24.24mg/L TC:24.01mg/L IC:-0.2289mg/L	Complete	8/29/2017 1:49:01 PM	14
15	TOC	CCB	!!Error!! TOC:0.1222mg/L TC:-0.1527mg/L IC:-0.2749mg/L	Complete	8/29/2017 1:58:03 PM	0
16	TOC	L17081362-01	!!Error!! TOC:0.4553mg/L TC:0.1467mg/L IC:-0.3086mg/L	Complete	8/29/2017 2:17:12 PM	16
17	TOC	L17081468-01	TOC:2.872mg/L TC:25.91mg/L IC:23.04mg/L	Complete	8/29/2017 2:40:06 PM	17
18	TOC	L17081468-03	TOC:3.061mg/L TC:28.06mg/L IC:25.00mg/L	Complete	8/29/2017 3:02:32 PM	18
19	TOC	L17081468-05	TOC:2.649mg/L TC:26.75mg/L IC:24.10mg/L	Complete	8/29/2017 3:24:33 PM	19
20	TOC	L17081468-07	TOC:3.490mg/L TC:22.15mg/L IC:18.66mg/L	Complete	8/29/2017 3:50:42 PM	20
21	TOC	WG627555-05 DUP	!!Error!! TOC:0.2049mg/L TC:0.03532mg/L IC:-0.1696mg/L	Complete	8/29/2017 4:10:00 PM	21
22	TOC	WG627555-06 MS	!!Error!! TOC:9.936mg/L TC:9.710mg/L IC:-0.2261mg/L	Complete	8/29/2017 4:30:25 PM	22
23	TOC	L17081484-01	TOC:5.088mg/L TC:18.03mg/L IC:12.95mg/L	Complete	8/29/2017 4:52:17 PM	23
24	TOC	<Untitled>	!!Error!! TOC:-0.8188mg/L TC:59.39mg/L IC:60.21mg/L	Complete	8/29/2017 5:18:39 PM	24
25	TOC	<Untitled>	TOC:10.42mg/L TC:50.29mg/L IC:39.87mg/L	Complete	8/29/2017 5:43:01 PM	25
26	TOC	CCV	!!Error!! TOC:25.01mg/L TC:24.95mg/L IC:-0.06195mg/L	Complete	8/29/2017 5:55:20 PM	26
27	TOC	CCB	!!Error!! TOC:0.06992mg/L TC:-0.1938mg/L IC:-0.2637mg/	Complete	8/29/2017 6:04:16 PM	0
28	TOC	L17081484-04	TOC:5.444mg/L TC:26.12mg/L IC:20.68mg/L	Complete	8/29/2017 6:26:44 PM	28
29	TOC	<Untitled>	!!Error!! TOC:-12.98mg/L TC:66.19mg/L IC:79.17mg/L	Complete	8/29/2017 6:51:46 PM	29
30	TOC	CCV	TOC:24.30mg/L TC:24.48mg/L IC:0.1758mg/L	Complete	8/29/2017 7:04:15 PM	30
31	TOC	CCB	!!Error!! TOC:0.1210mg/L TC:-0.09888mg/L IC:-0.2199mg/	Complete	8/29/2017 7:13:18 PM	0
32	TOC	CCV	!!Error!! TOC:24.87mg/L TC:24.67mg/L IC:-0.2047mg/L	Complete	8/30/2017 7:24:36 AM	32
33	TOC	CCB	!!Error!! TOC:0.09451mg/L TC:-0.1647mg/L IC:-0.2592mg/	Complete	8/30/2017 7:33:36 AM	0
34	TOC	L17081484-02 (3)	TOC:4.368mg/L TC:27.82mg/L IC:23.46mg/L	Complete	8/30/2017 7:55:36 AM	34
35	TOC	L17081484-03 (3)	TOC:4.246mg/L TC:21.21mg/L IC:16.96mg/L	Complete	8/30/2017 8:17:07 AM	35
36	TOC	L17081493-01 (3)	TOC:3.585mg/L TC:39.48mg/L IC:35.90mg/L	Complete	8/30/2017 8:39:41 AM	36
37	TOC	CCV	!!Error!! TOC:24.62mg/L TC:24.57mg/L IC:-0.04254mg/L	Complete	8/30/2017 8:51:59 AM	37
38	TOC	CCB	!!Error!! TOC:0.1669mg/L TC:-0.06911mg/L IC:-0.2361mg/	Complete	8/30/2017 9:01:05 AM	0

Instr.Information

System TOCVW ASI
Detector Wet Chemical

Sample

Sample Name: TIC
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

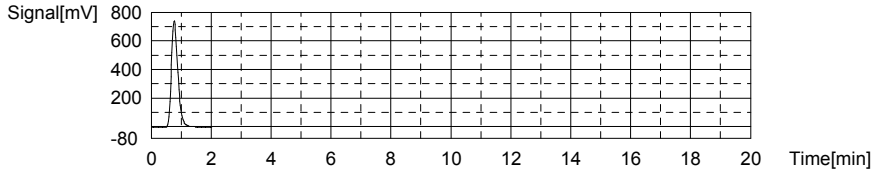
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:1.316mg/L TC:26.04mg/L IC:24.72mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1119	26.04mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 9:29:42 AM

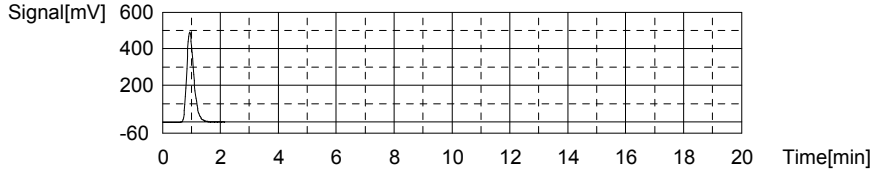
Mean Area 1119
Mean Conc. 26.04mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	846.3	24.72mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 9:34:48 AM

Mean Area 846.3
Mean Conc. 24.72mg/L



Sample

Sample Name: TOC/TIC
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

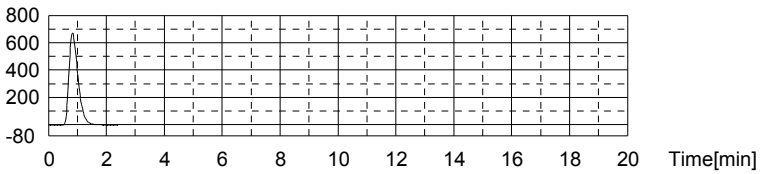
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:25.68mg/L TC:34.10mg/L IC:8.421mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1460	34.10mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 9:42:38 AM

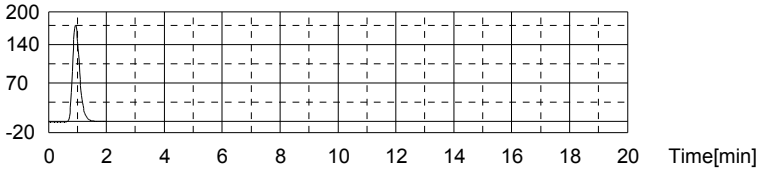
Mean Area 1460
Mean Conc. 34.10mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	300.4	8.421mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 9:47:32 AM

Mean Area 300.4
Mean Conc. 8.421mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

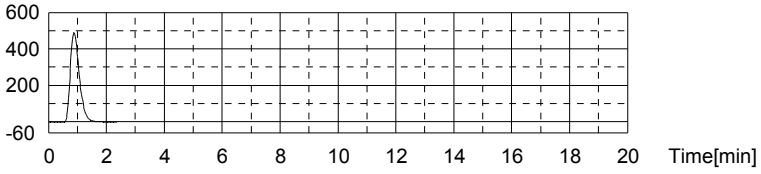
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:25.23mg/L TC:24.93mg/L IC:-0.3047mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1072	24.93mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 9:55:20 AM

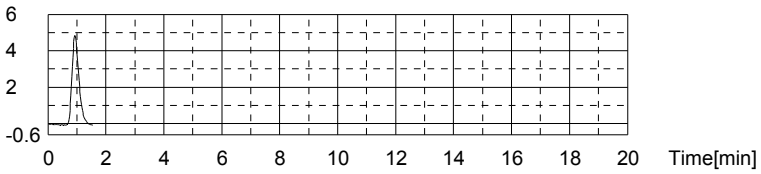
Mean Area 1072
Mean Conc. 24.93mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.213	-0.3047mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 9:59:45 AM

Mean Area 8.213
Mean Conc. -0.3047mg/L



Sample

Sample Name: WG627555-01 BLK
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

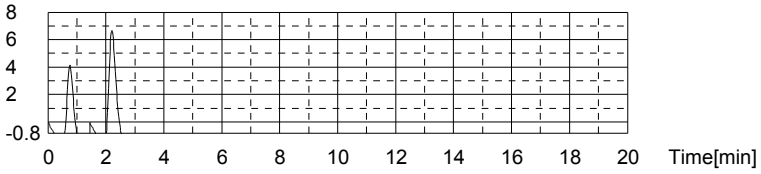
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.1534mg/L TC:-0.1260mg/L IC:-0.2793mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.927	-0.1876mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 10:04:50 AM
2	14.14	-0.06439mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 10:08:26 AM

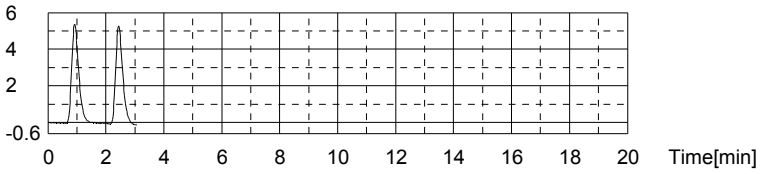
Mean Area 11.53
Mean Conc. -0.1260mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.108	-0.2779mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 10:12:18 AM
2	9.014	-0.2807mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 10:16:12 AM

Mean Area 9.061
Mean Conc. -0.2793mg/L



Sample

Sample Name: WG627555-02 LCS
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

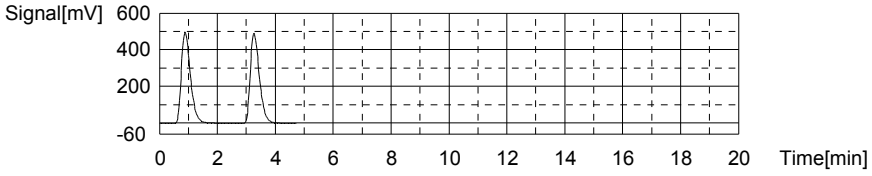
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:25.49mg/L TC:25.21mg/L IC:-0.2819mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1091	25.38mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 10:24:02 AM
2	1077	25.05mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 10:28:39 AM

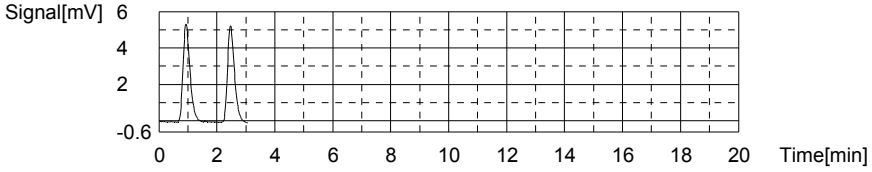
Mean Area 1084
Mean Conc. 25.21mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.086	-0.2786mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 10:33:00 AM
2	8.861	-0.2853mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 10:37:05 AM

Mean Area 8.974
Mean Conc. -0.2819mg/L



Sample

Sample Name: WG627555-03 LCSDUP
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

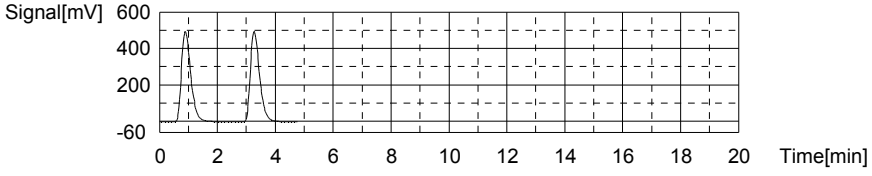
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:25.87mg/L TC:25.59mg/L IC:-0.2818mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1104	25.69mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 10:44:54 AM
2	1096	25.50mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 10:49:33 AM

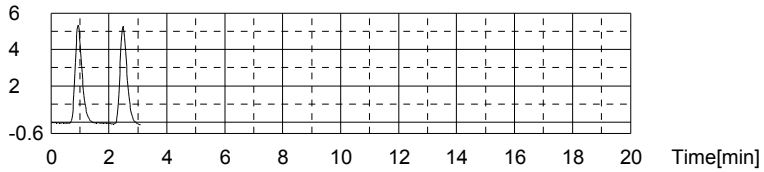
Mean Area 1100
Mean Conc. 25.59mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.931	-0.2832mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 10:53:54 AM
2	9.023	-0.2805mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 10:58:03 AM

Mean Area 8.977
Mean Conc. -0.2818mg/L



Sample

Sample Name: L17081300-01
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

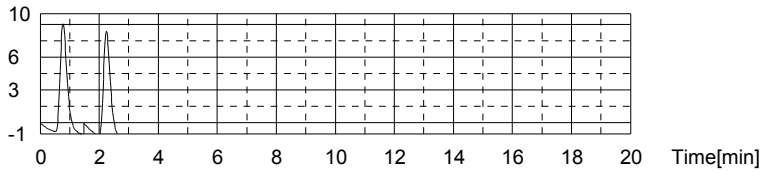
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.1617mg/L TC:-0.02540mg/L IC:-0.1871mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.11	-0.01784mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 11:04:58 AM
2	15.47	-0.03296mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 11:08:42 AM

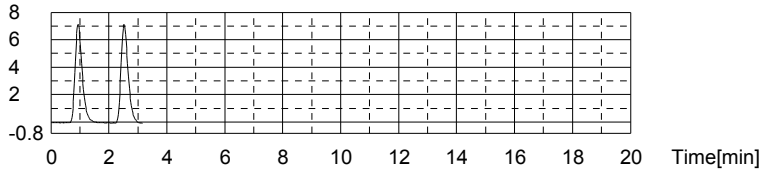
Mean Area 15.79
Mean Conc. -0.02540mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.14	-0.1874mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 11:13:08 AM
2	12.16	-0.1868mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 11:17:17 AM

Mean Area 12.15
Mean Conc. -0.1871mg/L



Sample

Sample Name: L17081305-01
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

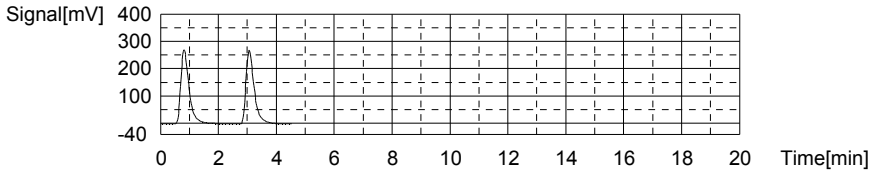
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:8.518mg/L TC:12.17mg/L IC:3.656mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	532.3	12.18mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 11:24:58 AM
2	532.0	12.17mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 11:29:30 AM

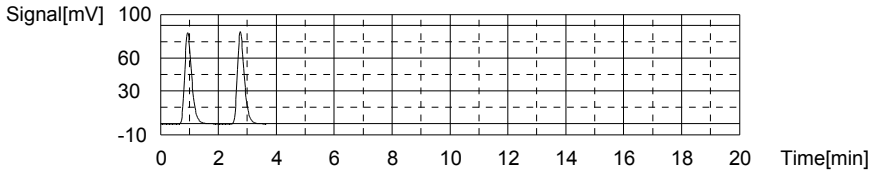
Mean Area 532.2
Mean Conc. 12.17mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	140.6	3.649mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 11:34:11 AM
2	141.1	3.664mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 11:38:39 AM

Mean Area 140.8
Mean Conc. 3.656mg/L



Sample

Sample Name: L17081305-03 (3)
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

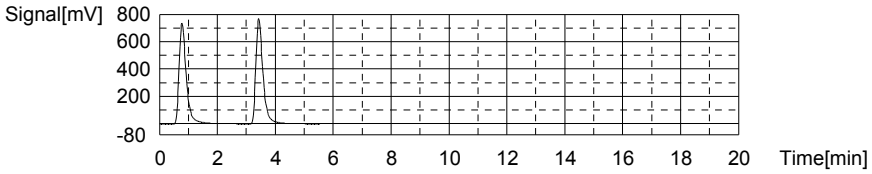
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:7.647mg/L TC:30.23mg/L IC:22.59mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1272	29.65mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 11:46:45 AM
2	1321	30.81mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 11:51:55 AM

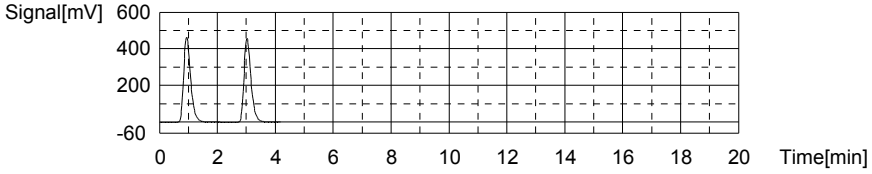
Mean Area 1297
Mean Conc. 30.23mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	781.3	22.78mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 11:56:54 AM
2	768.2	22.39mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 12:01:42 PM

Mean Area 774.8
Mean Conc. 22.59mg/L



Sample

Sample Name: L17081305-08 (25)
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

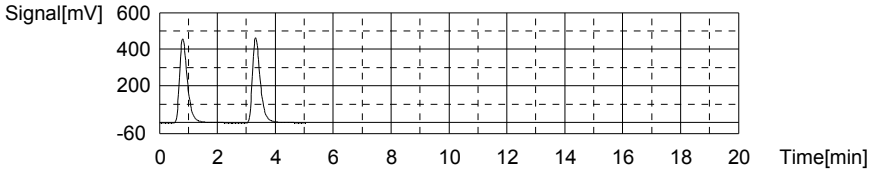
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:11.09mg/L TC:20.17mg/L IC:9.075mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	864.5	20.03mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 12:09:40 PM
2	876.5	20.31mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 12:14:29 PM

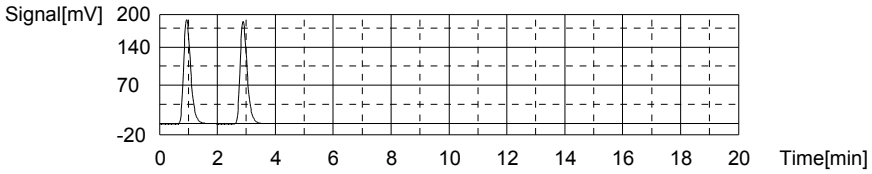
Mean Area 870.5
Mean Conc. 20.17mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	325.0	9.156mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 12:19:21 PM
2	319.6	8.994mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 12:23:56 PM

Mean Area 322.3
Mean Conc. 9.075mg/L



Sample

Sample Name: L17081305-10
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

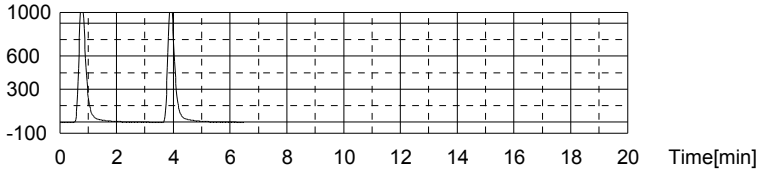
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:7.505mg/L TC:45.39mg/L IC:37.88mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1952	45.72mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 12:32:30 PM
2	1924	45.06mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 12:39:23 PM

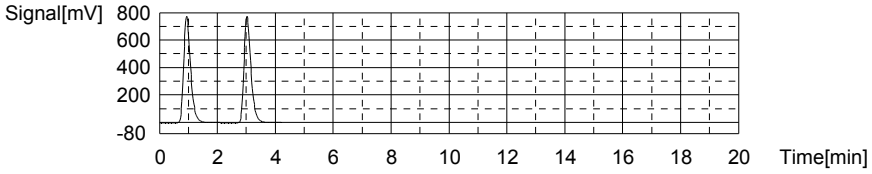
Mean Area 1938
Mean Conc. 45.39mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1285	37.82mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 12:44:26 PM
2	1289	37.94mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 12:49:21 PM

Mean Area 1287
Mean Conc. 37.88mg/L



Sample

Sample Name: L17081305-12
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

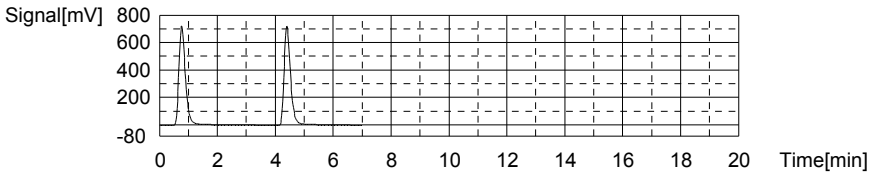
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.030mg/L TC:26.64mg/L IC:23.61mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1148	26.72mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 12:58:26 PM
2	1141	26.56mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 1:04:04 PM

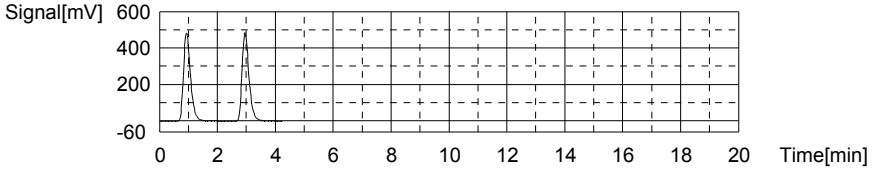
Mean Area 1145
Mean Conc. 26.64mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	809.5	23.62mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 1:09:04 PM
2	808.7	23.60mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 1:13:59 PM

Mean Area 809.1
Mean Conc. 23.61mg/L



Sample

Sample Name: L17081329-01 (5)
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

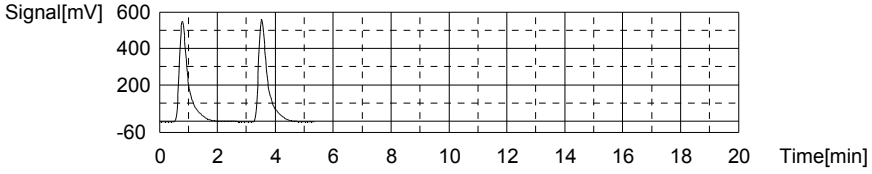
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:14.97mg/L TC:27.85mg/L IC:12.88mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1179	27.46mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 1:22:10 PM
2	1212	28.24mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 1:27:10 PM

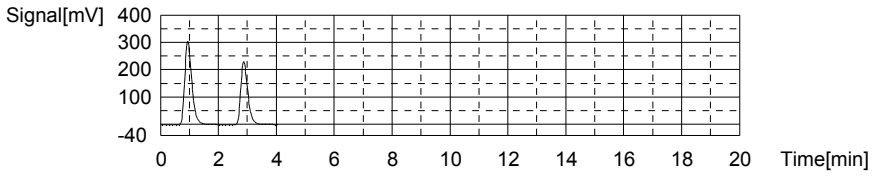
Mean Area 1196
Mean Conc. 27.85mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	512.4	14.75mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 1:32:01 PM
2	386.9	11.00mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 1:36:50 PM

Mean Area 449.6
Mean Conc. 12.88mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

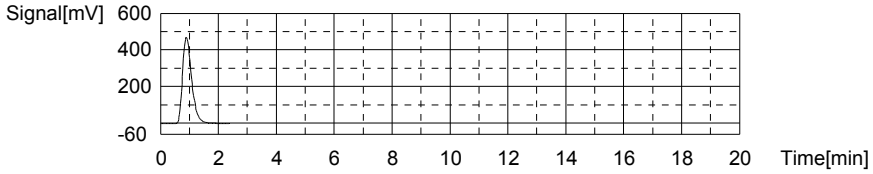
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:24.24mg/L TC:24.01mg/L IC:-0.2289mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1033	24.01mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_55	8/29/2017 1:44:39 PM

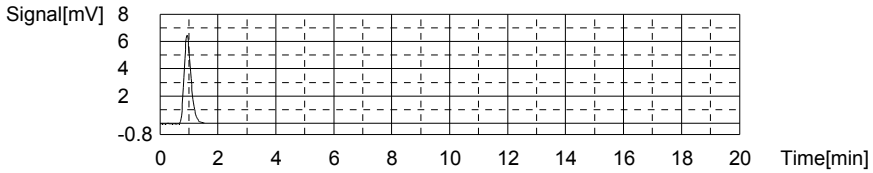
Mean Area 1033
Mean Conc. 24.01mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.75	-0.2289mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 1:49:01 PM

Mean Area 10.75
Mean Conc. -0.2289mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

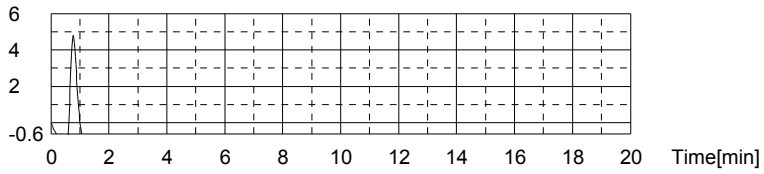
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.1222mg/L TC:-0.1527mg/L IC:-0.2749mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.40	-0.1527mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 1:54:09 PM

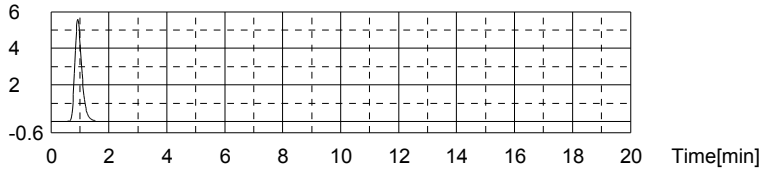
Mean Area 10.40
Mean Conc. -0.1527mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.209	-0.2749mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 1:58:03 PM

Mean Area 9.209
Mean Conc. -0.2749mg/L



Sample

Sample Name: L17081362-01
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

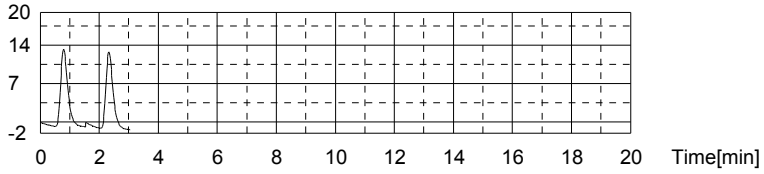
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.4553mg/L TC:0.1467mg/L IC:-0.3086mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	23.22	0.1501mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 2:05:02 PM
2	22.93	0.1433mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 2:08:49 PM

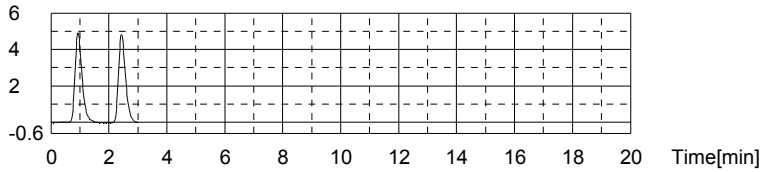
Mean Area 23.08
Mean Conc. 0.1467mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.101	-0.3080mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 2:13:07 PM
2	8.064	-0.3091mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 2:17:12 PM

Mean Area 8.082
Mean Conc. -0.3086mg/L



Sample

Sample Name: L17081468-01
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

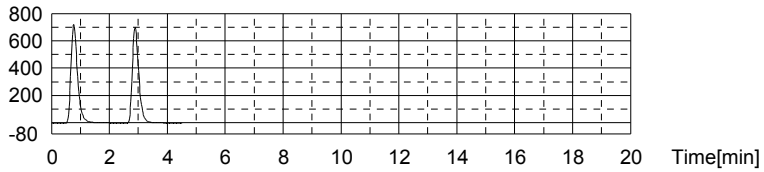
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.872mg/L TC:25.91mg/L IC:23.04mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1135	26.42mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 2:24:46 PM
2	1092	25.40mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 2:30:18 PM

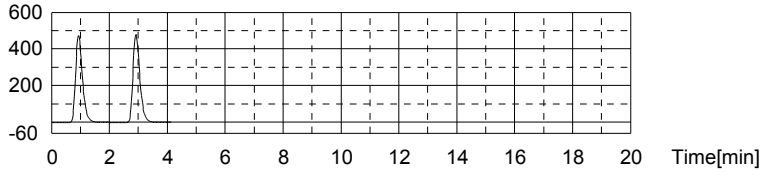
Mean Area 1114
Mean Conc. 25.91mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	781.7	22.79mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 2:35:15 PM
2	798.0	23.28mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 2:40:06 PM

Mean Area 789.9
Mean Conc. 23.04mg/L



Sample

Sample Name: L17081468-03
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

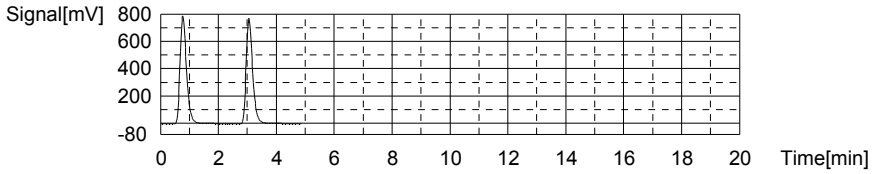
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.061mg/L TC:28.06mg/L IC:25.00mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1215	28.31mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 2:47:49 PM
2	1194	27.81mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 2:52:39 PM

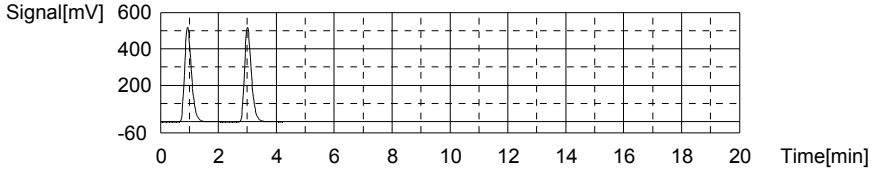
Mean Area 1205
Mean Conc. 28.06mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	854.6	24.97mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 2:57:41 PM
2	856.4	25.03mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 3:02:32 PM

Mean Area 855.5
Mean Conc. 25.00mg/L



Sample

Sample Name: L17081468-05
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

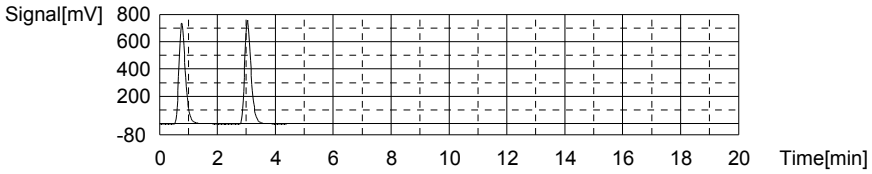
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:2.649mg/L TC:26.75mg/L IC:24.10mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1136	26.44mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 3:10:14 PM
2	1162	27.06mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 3:14:41 PM

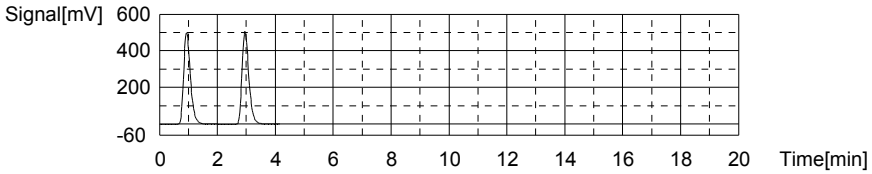
Mean Area 1149
Mean Conc. 26.75mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	814.9	23.79mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 3:19:39 PM
2	835.9	24.41mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 3:24:33 PM

Mean Area 825.4
Mean Conc. 24.10mg/L



Sample

Sample Name: L17081468-07
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

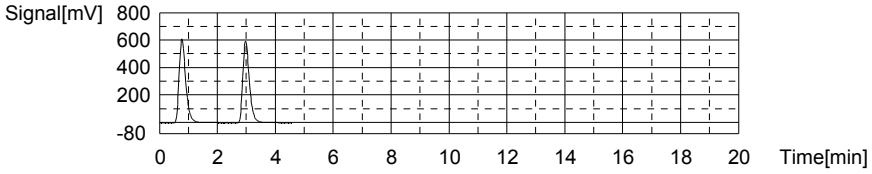
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.490mg/L TC:22.15mg/L IC:18.66mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	966.3	22.43mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 3:36:24 PM
2	942.4	21.87mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 3:41:03 PM

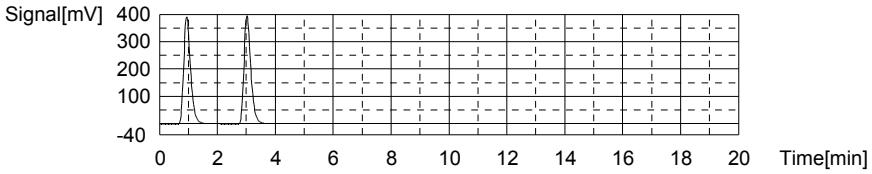
Mean Area 954.4
Mean Conc. 22.15mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	641.0	18.59mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 3:46:04 PM
2	645.5	18.73mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 3:50:42 PM

Mean Area 643.3
Mean Conc. 18.66mg/L



Sample

Sample Name: WG627555-05 DUP
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

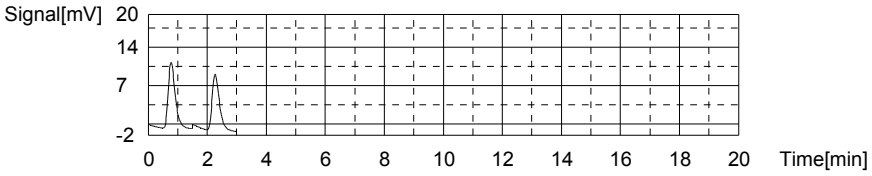
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.2049mg/L TC:0.03532mg/L IC:-0.1696mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	19.73	0.06769mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 3:57:38 PM
2	16.99	0.00295mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 4:01:25 PM

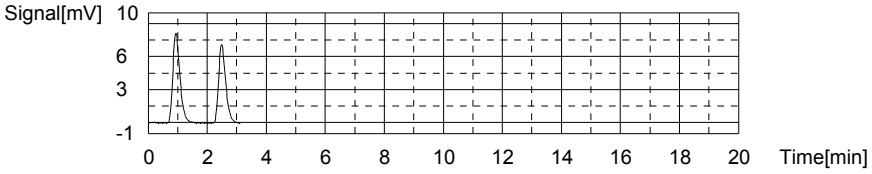
Mean Area 18.36
Mean Conc. 0.03532mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	13.52	-0.1462mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 4:05:49 PM
2	11.95	-0.1931mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 4:10:00 PM

Mean Area 12.74
Mean Conc. -0.1696mg/L



Sample

Sample Name: WG627555-06 MS
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

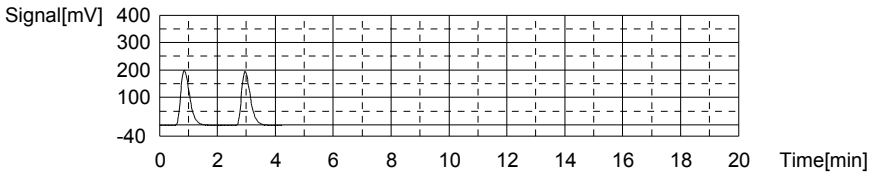
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:9.936mg/L TC:9.710mg/L IC:-0.2261mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	434.6	9.870mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 4:17:33 PM
2	421.1	9.551mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 4:21:57 PM

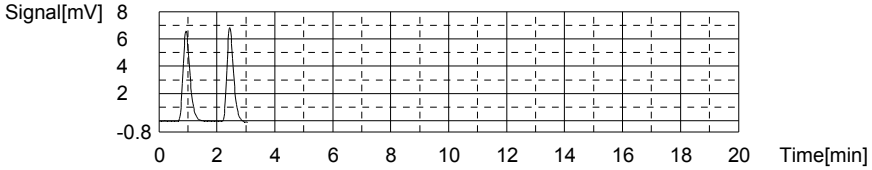
Mean Area 427.9
Mean Conc. 9.710mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.89	-0.2247mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 4:26:20 PM
2	10.80	-0.2274mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_18	8/29/2017 4:30:25 PM

Mean Area 10.85
Mean Conc. -0.2261mg/L



Sample

Sample Name: L17081484-01
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

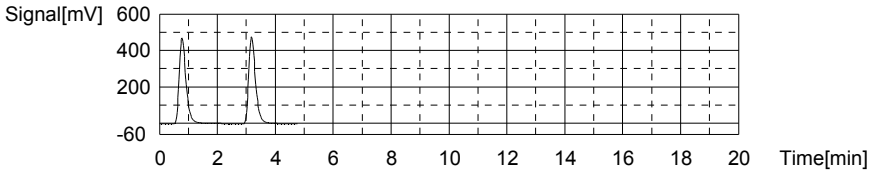
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:5.088mg/L TC:18.03mg/L IC:12.95mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	774.7	17.91mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 4:38:16 PM
2	785.6	18.16mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 4:42:54 PM

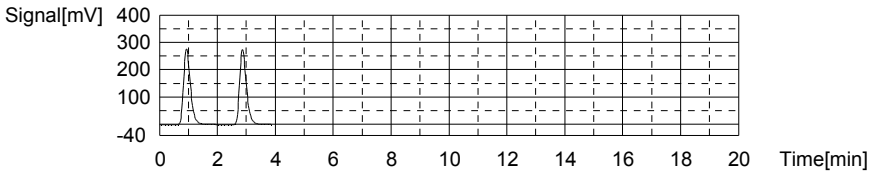
Mean Area 780.2
Mean Conc. 18.03mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	453.0	12.98mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 4:47:42 PM
2	450.8	12.91mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 4:52:17 PM

Mean Area 451.9
Mean Conc. 12.95mg/L



Sample

Sample Name: <Untitled>
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

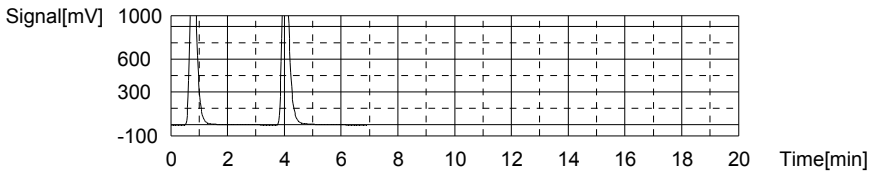
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-0.8188mg/L TC:59.39mg/L IC:60.21mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2480	58.20mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 5:00:59 PM
2	2581	60.58mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 5:07:41 PM

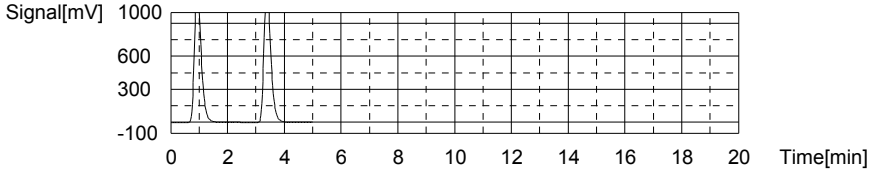
Mean Area 2531
Mean Conc. 59.39mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2022	59.83mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 5:13:14 PM
2	2047	60.58mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 5:18:39 PM

Mean Area 2035
Mean Conc. 60.21mg/L



Sample

Sample Name: <Untitled>
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

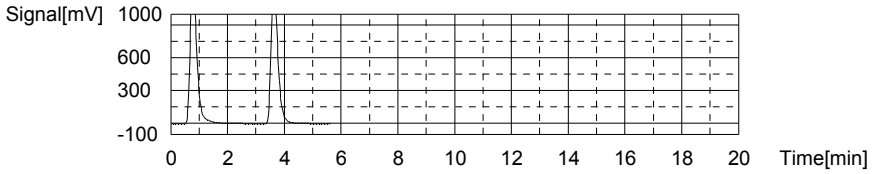
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:10.42mg/L TC:50.29mg/L IC:39.87mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2153	50.47mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 5:26:57 PM
2	2138	50.12mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 5:32:52 PM

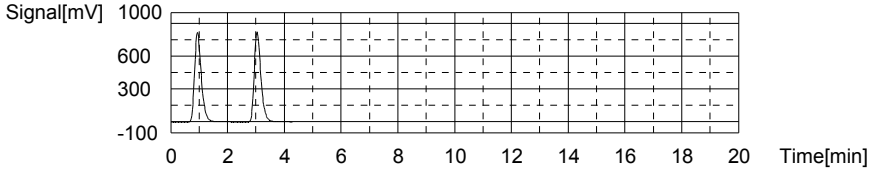
Mean Area 2146
Mean Conc. 50.29mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1353	39.86mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 5:38:03 PM
2	1354	39.89mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 5:43:01 PM

Mean Area 1354
Mean Conc. 39.87mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

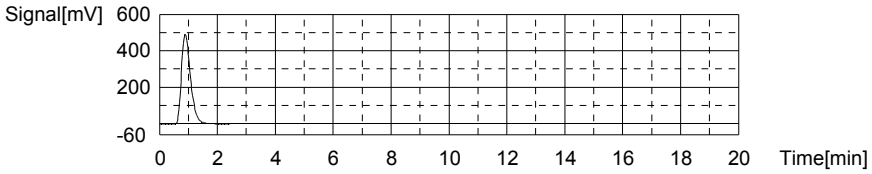
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:25.01mg/L TC:24.95mg/L IC:-0.06195mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1073	24.95mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_58	8/29/2017 5:50:53 PM

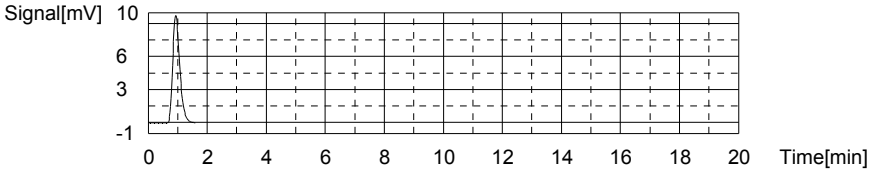
Mean Area 1073
Mean Conc. 24.95mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.34	-0.06195mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 5:55:20 PM

Mean Area 16.34
Mean Conc. -0.06195mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

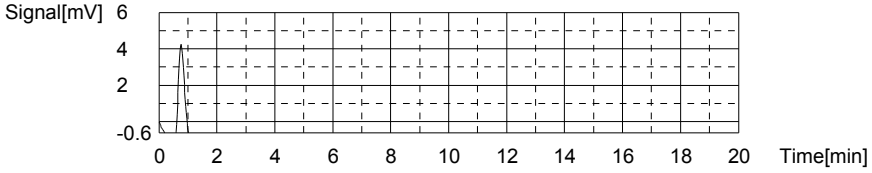
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.06992mg/L TC:-0.1938mg/L IC:-0.2637mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.664	-0.1938mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 6:00:22 PM

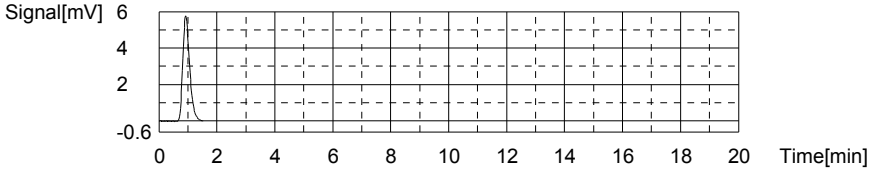
Mean Area 8.664
Mean Conc. -0.1938mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.585	-0.2637mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 6:04:16 PM

Mean Area 9.585
Mean Conc. -0.2637mg/L



Sample

Sample Name: L17081484-04
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

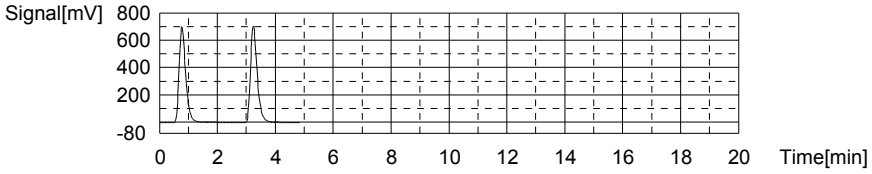
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:5.444mg/L TC:26.12mg/L IC:20.68mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1106	25.73mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 6:12:12 PM
2	1139	26.51mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 6:16:51 PM

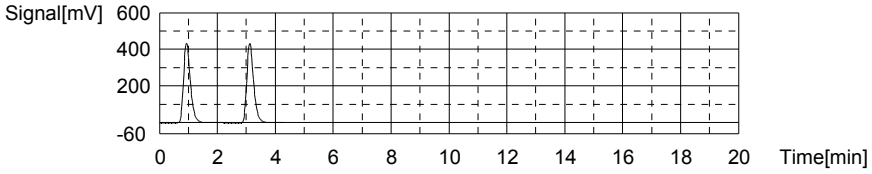
Mean Area 1123
Mean Conc. 26.12mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	712.8	20.74mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 6:21:56 PM
2	708.9	20.62mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 6:26:44 PM

Mean Area 710.9
Mean Conc. 20.68mg/L



Sample

Sample Name: <Untitled>
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

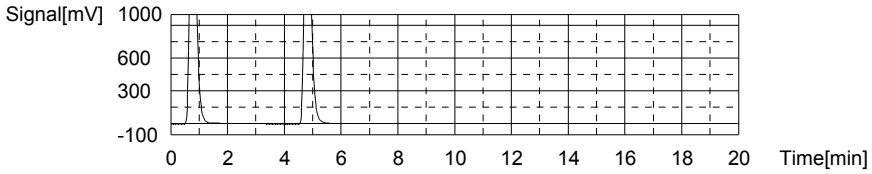
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:-12.98mg/L TC:66.19mg/L IC:79.17mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2811	66.02mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 6:36:13 PM
2	2826	66.37mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 6:40:56 PM

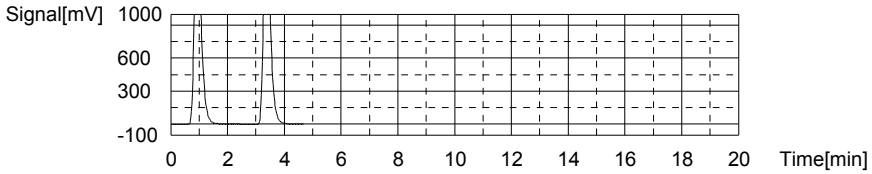
Mean Area 2819
Mean Conc. 66.19mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2675	79.33mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 6:46:32 PM
2	2664	79.01mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 6:51:46 PM

Mean Area 2670
Mean Conc. 79.17mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

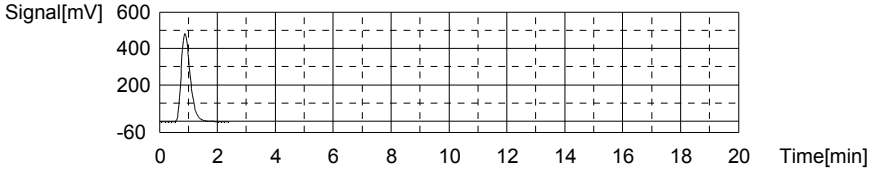
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:24.30mg/L TC:24.48mg/L IC:0.1758mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1053	24.48mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/29/2017 6:59:37 PM

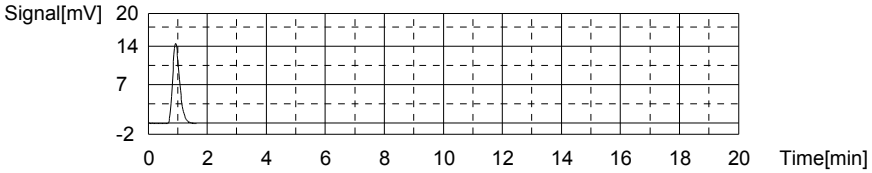
Mean Area 1053
Mean Conc. 24.48mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	24.30	0.1758mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 7:04:15 PM

Mean Area 24.30
Mean Conc. 0.1758mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

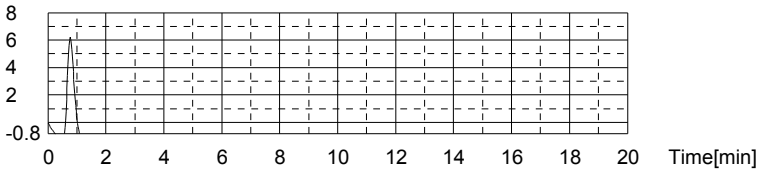
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.1210mg/L TC:-0.09888mg/L IC:-0.2199mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.68	-0.09888mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/29/2017 7:09:23 PM

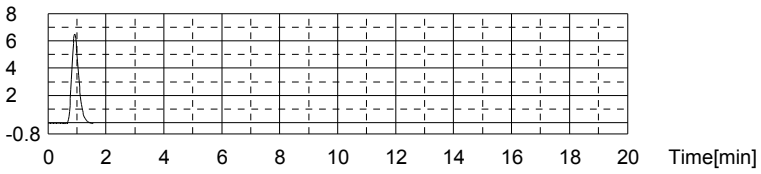
Mean Area 12.68
Mean Conc. -0.09888mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.05	-0.2199mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/29/2017 7:13:18 PM

Mean Area 11.05
Mean Conc. -0.2199mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

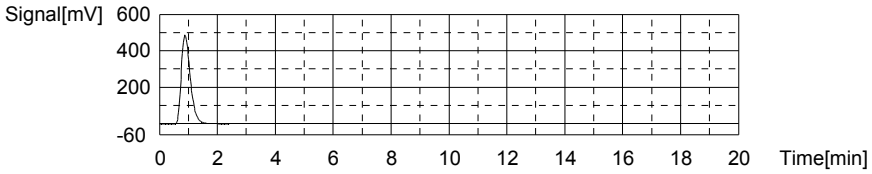
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:24.87mg/L TC:24.67mg/L IC:-0.2047mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1061	24.67mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/30/2017 7:20:12 AM

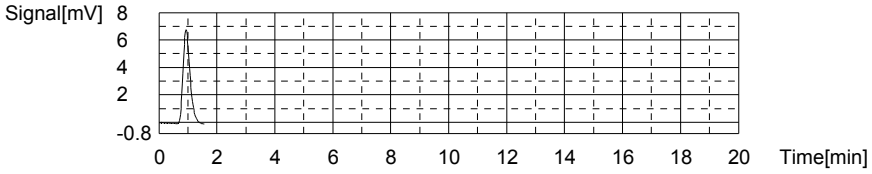
Mean Area 1061
Mean Conc. 24.67mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.56	-0.2047mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 7:24:36 AM

Mean Area 11.56
Mean Conc. -0.2047mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

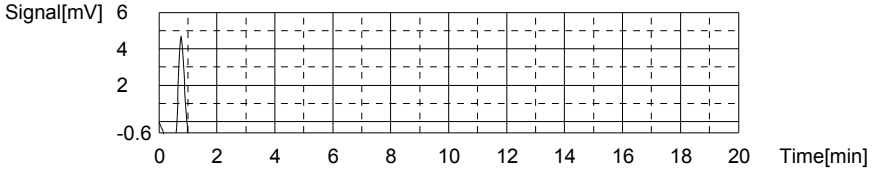
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.09451mg/L TC:-0.1647mg/L IC:-0.2592mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.896	-0.1647mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/30/2017 7:29:41 AM

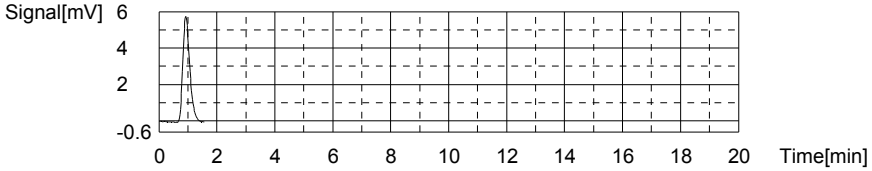
Mean Area 9.896
Mean Conc. -0.1647mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.736	-0.2592mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 7:33:36 AM

Mean Area 9.736
Mean Conc. -0.2592mg/L



Sample

Sample Name: L17081484-02 (3)
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

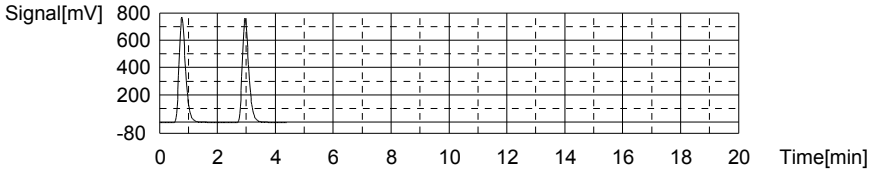
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.368mg/L TC:27.82mg/L IC:23.46mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1201	27.98mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/30/2017 7:41:16 AM
2	1188	27.67mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/30/2017 7:45:44 AM

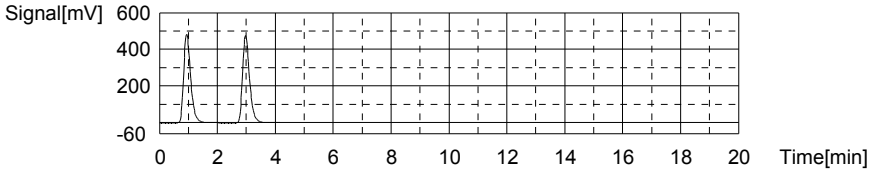
Mean Area 1195
Mean Conc. 27.82mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	808.5	23.59mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 7:50:42 AM
2	799.2	23.32mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 7:55:36 AM

Mean Area 803.9
Mean Conc. 23.46mg/L



Sample

Sample Name: L17081484-03 (3)
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

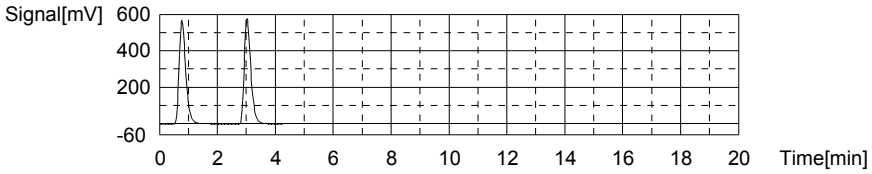
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:4.246mg/L TC:21.21mg/L IC:16.96mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	910.2	21.11mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/30/2017 8:03:19 AM
2	918.7	21.31mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_59	8/30/2017 8:07:35 AM

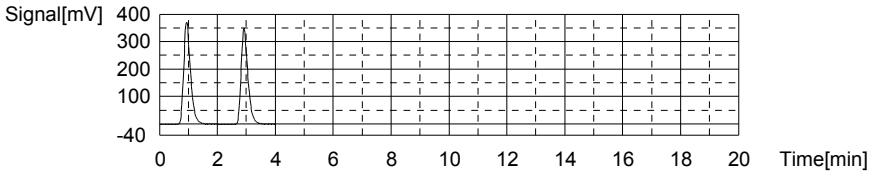
Mean Area 914.5
Mean Conc. 21.21mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	606.0	17.55mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 8:12:28 AM
2	566.7	16.37mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 8:17:07 AM

Mean Area 586.4
Mean Conc. 16.96mg/L



Sample

Sample Name: L17081493-01 (3)
Sample ID: <Untitled>
Origin: TOC-02-10-2017A.met
Status Completed
Chk. Result

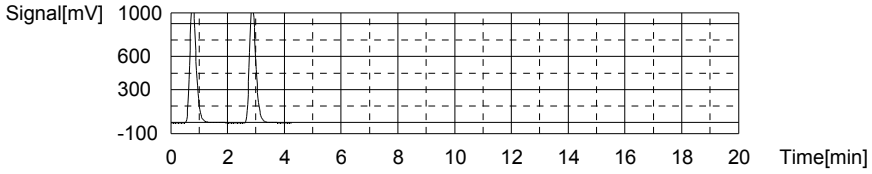
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	TOC:3.585mg/L TC:39.48mg/L IC:35.90mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1689	39.51mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/30/2017 8:24:42 AM
2	1687	39.46mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/30/2017 8:29:18 AM

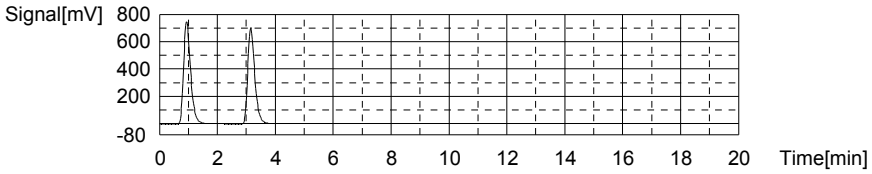
Mean Area 1688
Mean Conc. 39.48mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1256	36.96mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 8:34:31 AM
2	1185	34.84mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 8:39:41 AM

Mean Area 1221
Mean Conc. 35.90mg/L



Sample

Sample Name: CCV
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

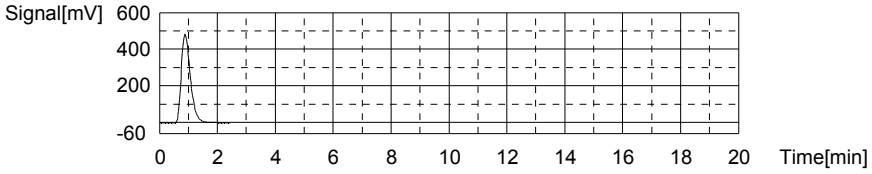
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:24.62mg/L TC:24.57mg/L IC:-0.04254mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1057	24.57mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/30/2017 8:47:35 AM

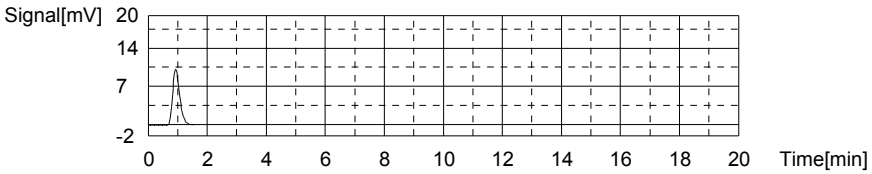
Mean Area 1057
Mean Conc. 24.57mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.99	-0.04254mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 8:51:59 AM

Mean Area 16.99
Mean Conc. -0.04254mg/L



Sample

Sample Name: CCB
Sample ID: <Untitled>
Origin: TOC-02-10-2017.met
Status Completed
Chk. Result

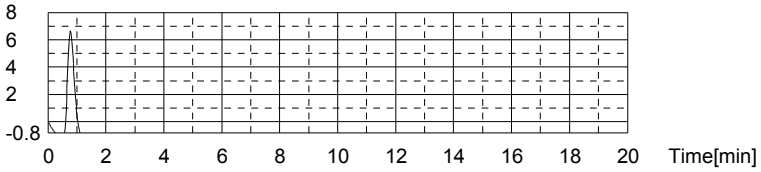
Type	Anal.	Dil.	Result
Unknown	TOC	1.000	!!Error!! TOC:0.1669mg/L TC:-0.06911mg/L IC:-0.2361mg/L

1. Det

Anal.: TC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	13.94	-0.06911mg/L	500uL	1		TCCURVE-02-10-2017.2017_02_10_09_32_5	8/30/2017 8:57:10 AM

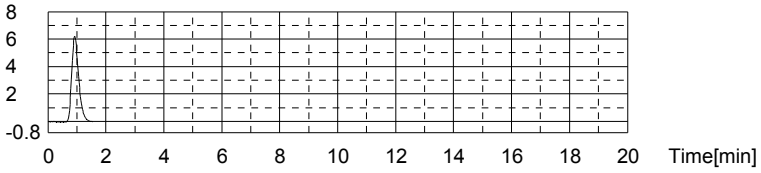
Mean Area 13.94
Mean Conc. -0.06911mg/L



Anal.: IC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.51	-0.2361mg/L	500uL	1		TICCURVE-02-10-2017.2017_02_10_14_45_1	8/30/2017 9:01:05 AM

Mean Area 10.51
Mean Conc. -0.2361mg/L



3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
September 11, 2017

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001 – BIO-CHEM TESTING WVDEP 220	002 – REIC Consultants, Inc. WVDEP 060
003 – Sturm Environmental	004 – MICROBAC PITTSBURGH
005 – ES LABORATORIES	006 – ALCOSAN LABORATORIES
007 – ALS LABORATORIES	008 – BENCHMARK LABORATORIES
010 – MICROBAC CHICAGOLAND	AC – AMBER R. CARMICHAEL
ADC – ANTHONY D. CANTER	ADG – APRIL D. GREENE
ALS – ADRIANE L. STEED	AWE – ANDREW W. ESSIG
AZH – AFTER HOURS	BJO – BRIAN J. OGDEN
BLG – BRENDA L. GREENWALT	BLR – BRANDON L. RICHARDS
BNB – Brandi N. Bentley	BRG – BRENDA R. GREGORY
CAS – Craig A. Smith	CEB – CHAD E. BARNES
CLC – CHRYS L. CRAWFORD	CLS – CARA L. STRICKLER
CPD – CHAD P. DAVIS	CSH – CHRIS S. HILL
CV – Carl Volkman	DAK – DEAN A. KETELSEN
DCM – DAVID C. MERCKLE	DEV – DAVID E. VANDENBERG
DIH – DEANNA I. HESSON	DLB – DAVID L. BUMGARNER
DLP – DOROTHY L. PAYNE	DSM – DAVID S. MOSSOR
DTG – DOMINIC T. GEHRET	ECL – ERIC C. LAWSON
EPT – ETHAN P. TIDD	ERP – ERIN R. PORTER
FJB – FRANCES J. BOLDEN	HRF – HEATHER R. FAIRCHILD
JDH – JUSTIN D. HESSON	JDS – JARED D. SMITH
JKP – JACQUELINE K. PARSONS	JLD – JESSICA L. DELONG
JST – JOSHUA S. TAYLOR	JTP – JOSHUA T. PEMBERTON
JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES
JYH – JI Y. HU	KAK – KATHY A. KIRBY
KDD – Katelyn D. Daley	KEB – KATIE E. BARNES
KHR – KIM H. RHODES	KKB – KERRI K. BUCK
KRA – KATHY R. ALBERTSON	KRP – KATHY R. PARSONS
LJH – Lacey J. Hendershot	LLS – LARRY L. STEPHENS
LSB – LESLIE S. BUCINA	LSJ – LAURA S. JONES
MAP – MARLA A. PORTER	MBK – MORGAN B. KNOWLTON
MES – MARY E. SCHILLING	MMB – MAREN M. BEERY
MRT – MICHELLE R. TAYLOR	OJE – OMOYEMWEN J. ENGLISH
PDM – PIERCE D. MORRIS	PIT – MICROBAC WARRENDALE
REK – BOB E. KYER	RLB – BOB BUCHANAN
RNP – RICK N. PETTY	SAV – SARAH A. VANDENBERG
SCA – SUEELLEN C. ADAMS	SCB – SARAH C. BOGOLIN
SCJ – SUE ELLEN C. JOHNSON	SDC – SHALYN D. CONLEY
TB – TODD BOYLE	TMB – TIFFANY M. BAILEY
TMM – TAMMY M. MORRIS	VC – VICKI COLLIER
WTD – WADE T. DELONG	XXX – UNAVAILABLE OR SUBCONTRACT
ZTB – ZACH T. BARNES	

Microbac Laboratories Inc.
List of Valid Qualifiers
September 11, 2017

Qualkey: WATERLOO

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
>,H1	Result is greater than the associated numerical value. Sample analysis performed past holding time.
A	See the report narrative
B	Analyte detected in the method blank
B,H1	Analyte present in method blank. Sample analysis performed past holding time.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to interference.
E	Semiquantitative result (out of calibration range)
E,CT1	Estimated results. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
H1,CT1	Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guidelines for reque
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration.
J	The analyte was positively identified, but the quantitation was below the RL.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	Analyte detected in both the method blank and sample above the MDL.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
ND, B	Not detected at or above the reporting limit (RL). Analyte present in method blank.
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,H1	Not detected; Sample analysis performed past holding time.
ND,H1,CT1	Not detected; Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guide
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
TNTC, B	Too numerous to count. Analyte present in method blank.
TNTC,CT1	Too numerous to count. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
TNTC,H1	Too numerous to count. Sample analysis performed past holding time.
U	Not detected at or above adjusted sample detection limit.

Microbac Laboratories Inc.
List of Valid Qualifiers
September 11, 2017

Qualkey: WATERLOO

UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

L17081305 / Revision: 0 / 2029 total pages

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Generated: 09/11/2017 14:37

ch2m:

Chain of Custody Record

CH2M COC (YYYYMMDD-##):

LABORATORY: Microbac, 158 Starlite Dr., Marietta, OH 45750, 740.373.4071

LABORATORY CONTACT: Michelle Taylor

PROJECT: Former Hampshire Chemical Corp., Waterloo, NY
PROJECT NUMBER: 691615.04.SA
EVENT: 2017 Annual Groundwater Sampling

PROJECT MANAGER & REPORT TO #1:
David Newman
119 Cherry Hill Rd., #300, Parsippany, NJ 07054
973.316.3538, david.newman@ch2m.com

PROJECT CONTACT & REPORT TO #2:
Shane Lowe
300 Hunter Ave, #305, St. Louis, MO 63154
314.335.3024, shane.lowe@ch2m.com

PURCHASE ORDER # B31159
TURNAROUND TIME: Standard
DATA PACKAGE: Level IV
PROGRAM: RCRA

SAMPLER(s): TAYLOR SARSBURY, AUDREY STAPLETON
SIGNATURE:

ANALYSES REQUESTED

PRESERVATIVE CODES (H=HCl, N=HNO_3, S=H_2SO_4, Zn=zinc acetate, B=NaOH, --=none)

SAMPLE IDENTIFICATION	GRAB/COMPOSITE	DATE	TIME	MATRIX	# CONTAINERS	VOCs + TICs (8260C)	Total Metals (6010C)(Al, As, Ca, Cr, Fe, K, Mg, Mn, Na)	Dissolved Metals (6010C)(Al, As, Cr, Fe, Mn) Field Filtered	Total Metals (6010C)(Al, As, Ca, Fe, K, Mg, Mn, Na)	Dissolved Metalsb (6010C) (Al, As, Fe, Mn) Field Filtered	Anions (300.0) (Cl^-, $SO4^{2-}$)	Nitrate (353.2)	Alkalinity (310.2)	Total Phosphorous (365.4)	TOC (SM5310)	Ammonia (350.1)	TKN (351.2)	Orthophosphate(SM4500PE) Field Filtered	TDS (SM2540)	Total Sulfide (SM 4500)	Silica (200.7)	SVOCs + TICs (8270C)	PAHs (8270D SIM)	Additional Requirements
						H	N	N	N	N	--	--		S				--	--	Z,B	N	--	--	
PZ06-082317	G	8/23/17	942	GW	12	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			MINIMUM VOLUME
PZ04-082317	G		1058	GW	12	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
DUP-GW-082317-1	G		900	GW	5	✓	✓	✓																
TB-082317	G		800	DI	2	✓																		
MW31-082317	G		1035	GW	9				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
MW30-082317	G		1240	GW	9				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
MW11S-082317	G		1355	GW	9				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
MW09R-082317	G		1440	GW	9	✓			✓	✓												✓	✓	
DUP-GW-082317-2	G		930	GW	9	✓			✓	✓												✓	✓	
FB-082317	G	↓	1500	DI	3	✓																		
MW19-082317	G	8/23/17	1535	GW	9	✓			✓	✓												✓	✓	

1. RELINQUISHED BY (Signature)	DATE	TIME	1. RECEIVED BY (Signature)	DATE	TIME
	8/23/17	1800	FEDEX	8/23/17	1800
2. RELINQUISHED BY (Signature)	DATE	TIME	2. RECEIVED BY (Signature)	DATE	TIME
3. RELINQUISHED BY (Signature)	DATE	TIME	3. RECEIVED BY (Signature)	DATE	TIME

ADDITIONAL REMARKS/INSTRUCTIONS:

PAGE 1 of 1

Microbac OVD
Received: 08/24/2017 11:16
By: MORGAN KNOWLTON
221000105057

MICROBAC®

COOLER TEMP >6° C LOG

Cooler ID 5051

SAMPLE ID	Bottle 1 °C	Bottle 2 °C	Bottle 3 °C	Bottle 4 °C	Bottle 5 °C	Bottle 6 °C

CWD 8/24/17

pH Exceptions

pH Lot # HC601354

SAMPLE ID	Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6

CWD 8/24/17

PRESERVATIVE EXCEPTIONS

✓ NONE

AS NOTED

CWD 8/24/17

Document Control # 1957
Last 10-07-2016

Issued to: Document Master File

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-01	954694	TSS 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Samplenum	Container ID	Products
L17081305-01	954695	HARD 300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	STORE	W1	A2	06-SEP-2017 10:47	BRG	CAS	

Samplenum	Container ID	Products
L17081305-01	954696	OG-HEM NO3

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	24-AUG-2017 17:34	CLS		
2	STORE	WET	A2	30-AUG-2017 10:29	CLS	TB	

Samplenum	Container ID	Products
L17081305-01	954697	AS BA CD CR FE HG K MG MN NA PB SE SR PO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	29-AUG-2017 08:32	BRG	ADG	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-01	954698	826-BETX TDS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	25-AUG-2017 11:44	AWE	CLS	
3	STORE	WET	A2	01-SEP-2017 13:25	BRG	AWE	

Samplenum	Container ID	Products
L17081305-01	954699	RSK175-SPE TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	05-SEP-2017 07:40	AZH	ADG	

Samplenum	Container ID	Products
L17081305-01	954700	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
Comments:Products cancelled.							
3	STORE	DIG	A2	25-AUG-2017 13:12	CLS	ERP	
Comments:Products cancelled.							

Samplenum	Container ID	Products
L17081305-01	954701	NO3 AL AS-MS CA CR-MS FE K MG MN NA SI SILICA-

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:48	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

Sample extract/digestate/leachate

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-01	954702	TSS S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	28-AUG-2017 09:22	TB	CLS	
3	STORE	WET	A2	30-AUG-2017 10:30	CLS	TB	

Samplenum	Container ID	Products
L17081305-02	954703	HARD AL-D AS-MSD CR-MS-D FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:48	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-03	954704	OG-HEM 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-03	954705	AS BA CD CR FE HG K MG MN NA PB SE SR 300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	STORE	W1	A2	06-SEP-2017 10:47	BRG	CAS	

Samplenum	Container ID	Products
L17081305-03	954706	826-BETX NO3

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	24-AUG-2017 17:34	CLS		
2	STORE	WET	A2	30-AUG-2017 10:29	CLS	TB	

Samplenum	Container ID	Products
L17081305-03	954707	RSK175-SPE PO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	29-AUG-2017 08:32	BRG	ADG	

Samplenum	Container ID	Products
L17081305-03	954708	ALK TDS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	25-AUG-2017 11:44	AWE	CLS	
3	STORE	WET	A2	01-SEP-2017 13:25	BRG	AWE	

Samplenum	Container ID	Products
L17081305-03	954709	NO3 TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	05-SEP-2017 07:40	AZH	ADG	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-03	954710	TSS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
Comments:Products cancelled.							
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
Comments:Products cancelled.							

Samplenum	Container ID	Products
L17081305-03	954711	HARD AL AS-MS CA CR-MS FE K MG MN NA SI SILICA

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	25-AUG-2017 13:12	CLS	ERP	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L17081305-03	954712	OG-HEM S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	28-AUG-2017 09:22	TB	CLS	
3	STORE	WET	A2	30-AUG-2017 10:30	CLS	TB	

Samplenum	Container ID	Products
L17081305-04	954713	AS BA CD CR FE HG K MG MN NA PB SE SR AL-D AS-

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

Sample extract/digestate/leachate

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-05	954714	826-BETX 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Samplenum	Container ID	Products
L17081305-05	954715	RSK175-SPE AL AS-MS CA CR-MS FE K MG MN NA

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-06	954716	ALK AL-D AS-MSD CR-MS-D FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

***Sample extract/digestate/leachate**

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-07	954717	NO3 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Samplenum	Container ID	Products
L17081305-08	954718	TSS 300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	STORE	W1	A2	06-SEP-2017 10:47	BRG	CAS	

Samplenum	Container ID	Products
L17081305-08	954719	HARD NO3

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	24-AUG-2017 17:34	CLS		
2	STORE	WET	A2	30-AUG-2017 10:30	CLS	TB	

Samplenum	Container ID	Products
L17081305-08	954720	OG-HEM PO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	29-AUG-2017 08:31	BRG	ADG	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-08	954721	AS BA CD CR FE HG K MG MN NA PB SE SR TDS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	25-AUG-2017 11:44	AWE	CLS	
3	ANALYZ	W1	A2	29-AUG-2017 08:32	BRG	ADG	

Samplenum	Container ID	Products
L17081305-08	954722	826-BETX TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	05-SEP-2017 07:40	AZH	ADG	

Samplenum	Container ID	Products
L17081305-08	954723	RSK175-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	

Comments:Products cancelled.

3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	

Comments:Products cancelled.

Samplenum	Container ID	Products
L17081305-08	954724	ALK AL AS-MS CA FE K MG MN NA SI SILICA-ICP

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

Sample extract/digestate/leachate

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-08	954725	NO3 S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	28-AUG-2017 09:22	TB	CLS	
3	STORE	WET	A2	30-AUG-2017 10:29	CLS	TB	

Samplenum	Container ID	Products
L17081305-09	954726	TSS AL-D AS-MSD FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L17081305-10	954727	HARD 300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	STORE	W1	A2	06-SEP-2017 10:47	BRG	CAS	

Samplenum	Container ID	Products
L17081305-10	954728	OG-HEM NO3

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	24-AUG-2017 17:34	CLS		
2	STORE	WET	A2	30-AUG-2017 10:30	CLS	TB	

Samplenum	Container ID	Products
L17081305-10	954729	AS BA CD CR FE HG K MG MN NA PB SE SR PO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	29-AUG-2017 08:32	BRG	ADG	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-10	954730	826-BETX TDS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	25-AUG-2017 11:44	AWE	CLS	
3	STORE	WET	A2	01-SEP-2017 13:25	BRG	AWE	

Samplenum	Container ID	Products
L17081305-10	954731	RSK175-SPE TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	05-SEP-2017 07:40	AZH	ADG	

Samplenum	Container ID	Products
L17081305-10	954732	ALK

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:48	VC	CLS	

Comments:Products cancelled.

3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	

Comments:Products cancelled.

Samplenum	Container ID	Products
L17081305-10	954733	NO3 AL AS-MS CA FE K MG MN NA SI SILICA-ICP

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	25-AUG-2017 13:12	CLS	ERP	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:15	JYH	VC	

Sample extract/digestate/leachate

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-10	954734	TSS S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	28-AUG-2017 09:22	TB	CLS	
3	STORE	WET	A2	30-AUG-2017 10:30	CLS	TB	

Samplenum	Container ID	Products
L17081305-11	954735	HARD AL-D AS-MSD FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L17081305-12	954736	OG-HEM 300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	STORE	W1	A2	06-SEP-2017 10:46	BRG	CAS	

Samplenum	Container ID	Products
L17081305-12	954737	AS BA CD CR FE HG K MG MN NA PB SE SR NO3

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	24-AUG-2017 17:34	CLS		
2	STORE	WET	A2	30-AUG-2017 10:29	CLS	TB	

Samplenum	Container ID	Products
L17081305-12	954738	826-BETX PO4

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	29-AUG-2017 08:31	BRG	ADG	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-12	954739	RSK175-SPE TDS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	25-AUG-2017 11:44	AWE	CLS	
3	STORE	WET	A2	01-SEP-2017 13:25	BRG	AWE	

Samplenum	Container ID	Products
L17081305-12	954740	ALK TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	A2	05-SEP-2017 07:40	AZH	ADG	

Samplenum	Container ID	Products
L17081305-12	954741	NO3

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:48	VC	CLS	

Comments:Products cancelled.

3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	

Comments:Products cancelled.

Samplenum	Container ID	Products
L17081305-12	954742	TSS AL AS-MS CA FE K MG MN NA SI SILICA-ICP

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	25-AUG-2017 13:12	CLS	ERP	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

Sample extract/digestate/leachate

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-12	954743	HARD S

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	WET	28-AUG-2017 09:22	TB	CLS	
3	STORE	WET	A2	30-AUG-2017 10:30	CLS	TB	

Samplenum	Container ID	Products
L17081305-13	954744	OG-HEM AL-D AS-MSD FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:48	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-14	954745	AS BA CD CR FE HG K MG MN NA PB SE SR 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-14	954746	9056-SPE 827-SPE-DIOX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	EXT	28-AUG-2017 11:24	JLD	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		24-AUG-2017 17:34	CLS		

Samplenum	Container ID	Products
L17081305-14	954747	ALK 827-PAHL

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	EXT	25-AUG-2017 09:55	CPD	CLS	
3	ANALYZ*	EXT	SEMI	28-AUG-2017 09:48	SCB	CPD	

***Sample extract/digestate/leachate**

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		24-AUG-2017 17:34	CLS		

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-14	954748	COR-PH AL AS-MS CA FE K MG MN NA

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:09	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

***Sample extract/digestate/leachate**

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-15	954749	TDS AL-D AS-MSD FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:48	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:08	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L17081305-16	954750	AL BA CA CD CU FE MG MN ZN 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Samplenum	Container ID	Products
L17081305-16	954751	827-SPE-DIOX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	EXT	28-AUG-2017 11:24	JLD	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		24-AUG-2017 17:34	CLS		

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-16	954752	826-SPE1 DRO-SPE GRO 827-PAHL

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	EXT	25-AUG-2017 09:55	CPD	CLS	
3	ANALYZ*	EXT	SEMI	28-AUG-2017 09:48	SCB	CPD	

***Sample extract/digestate/leachate**

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		24-AUG-2017 17:34	CLS		

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-16	954753	AL AS-MS CA FE K MG MN NA

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:08	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-17	954754	AL-D AS-MSD FE-D MN-D

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:08	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

***Sample extract/digestate/leachate**

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-18	954755	826-SPE DRO-SPE GRO 8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	ORG4	24-AUG-2017 17:34	CLS		
2	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	ORG4	24-AUG-2017 17:34	CLS		
2	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Samplenum	Container ID	Products
L17081305-19	954756	8260C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	24-AUG-2017 17:34	CLS		
2	ANALYZ	V1	ORG4	25-AUG-2017 07:19	AWE	CLS	
3	STORE	ORG4	A2	07-SEP-2017 07:24	CLS	AWE	

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Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-19	954757	827-SPE-DIOX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	ANALYZ	W1	EXT	28-AUG-2017 11:24	JLD	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		24-AUG-2017 17:34	CLS		

Samplenum	Container ID	Products
L17081305-19	954758	826-SPE DRO-SPE GRO 827-PAHL

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	EXT	25-AUG-2017 09:55	CPD	CLS	
3	ANALYZ*	EXT	SEMI	28-AUG-2017 09:48	SCB	CPD	

***Sample extract/digestate/leachate**

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER		24-AUG-2017 17:34	CLS		

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L17081305-19	954759	AL AS-MS CA FE K MG MN NA

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:08	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

***Sample extract/digestate/leachate**

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Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L17081305
Account: 2736
Project: 2736.061
Samples: 20
Due Date: 07-SEP-2017

Samplenum	Container ID	Products
L17081305-20	954760	FE-D MN-D AL-D AS-MSD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-AUG-2017 17:34	CLS		
2	PREP	W1	DIG	25-AUG-2017 07:47	VC	CLS	
3	STORE	DIG	A2	28-AUG-2017 10:08	CLS	VC	
4	ANALYZ*	DIG	METALS	28-AUG-2017 10:17	JYH	VC	

Sample extract/digestate/leachate

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NELAP Addendum - January 4, 2016

Non-NELAP LIMS Product and Description

The following is a list of those tests that are not included in the Microbac – OVD NELAP Scope of Accreditation:

Heat of Combustion (BTU)
Total Halide by Bomb Combustion (TX)
Particle Sizing - 200 Mesh (PS200)
Specific Gravity/Density (SPGRAV)
Total Residual Chlorine (CL-TRL)
Total Volatile Solids (all forms) (TVS)
Total Coliform Bacteria (all methods)
Fecal Coliform Bacteria (all methods)
Sulfite (SO3)
Propionaldehyde (HPLC-UV)

SOLID AND HAZARDOUS CHEMICALS
Nitrogen, Ammonia by Method 350.1
Chromium, Hexavalent, Leachable by SM3500 Cr-B 2009
Phenolics, Total by Method 420.1
ASTM D3987-06

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD HPLC02/HPLC-UV

Nitroglycerin
Acetic acid
Butyric acid
Lactic acid
Propionic acid
Pyruvic acid

OVD MSS01/GC-MS

1,4-Phenylenediamine
1-Methylnaphthalene
1,4-Dioxane
Atrazine
Benzaldehyde
Biphenyl
Caprolactam
Hexamethylphosphoramide (HMPA)
Pentachlorobenzene
Pentachloroethane

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD MSV01/GC-MS

1, 1, 2-Trichloro-1,2,2-trifluoroethane
1,3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
T-amylmethylether (TAME)
Tetrahydrofuran (THF)

OVD HPLC07/HPLC-MS-MS

Hexamethylphosphoramide (XMPA-LCMS)

OVD HPLC12/HPLC/UV

Acetate
Formate

OVD RSK01/GC-FID

Acetylene
Propane

OVD K9305/ISE

Fluoroborate

SOLID AND HAZARDOUS CHEMICALS

OVD MSS0I/GC-MS

1-Methylnaphthalene
Benzaldehyde
Biphenyl
Caprolactam
Pentachloroethane

NELAP Accreditation by Laboratory SOP

SOLID AND HAZARDOUS CHEMICALS

OVD MSV0I/GC-MS

1.3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
n-Hexane
T-amylmethylether (TAME)