N00174.AR.001958
NSWC INDIAN HEAD
5090.3a

VALIDATED DATA PACKAGE, 76567, NSWC INDIAN HEAD MD
7/14/2015
APPL LABS

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: CA00046
DoD-ELAP Certificate number: 74807

Summary Report

July 13, 2015

Tetra Tech
5700 Lake Wright Drive, Suite 309
Norfolk, Virginia 23502

Attn: Ed Corack

Title: Report of Data: Case 76567

Project: CTO JU11 112G02622 NSF Indian Head, MD

Contract #: Prime contract # for DoD: Navy CLEAN. N62470-08-D-1001
Subcontract: MSA # 1045497, Work Release # 08-JU11

Dear Mr. Corack:

Five water samples were received June 4, 2015, at 2.5°C. Written results for the requested analyses are provided on this July 13, 2015.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Cynthia Clark, cclark@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/rp
Enclosure
cc: File

Number of pages in this report: 12

Sample receipt information

ARF: 76567

Project: CTO JU11 112G02622 NSF Indian Head, MD

Sample Receipt Information:

The water samples were received on June 4, 2015, at 2.5°C. The samples were assigned Analytical Request Form (ARF) number 76567. The sample numbers and requested analyses were compared to the chain of custody. No exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
S67-GWC7-060315	AZ17043	WATER	06/03/15	06/04/15
S67-GWY3-060315	AZ17044	WATER	06/03/15	06/04/15
S67-GWY9-060315	AZ17045	WATER	06/03/15	06/04/15
S67-GWZ8-060315	AZ17046	WATER	06/03/15	06/04/15
S67-GWA8-060315	AZ17047	WATER	06/03/15	06/04/15

The samples and blank were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

Laboratory control limits generated in house do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control limits generated for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.

EPA Method 6850

Perchlorate by LC-Mass Spec

Sample Preparation and Analysis Information:

The water samples were prepared according to the method. The samples were analyzed according to EPA Method 6850 using an Agilent 6460 Triple Quad LC/MS. The samples were prepared and analyzed within acceptable hold time. For sample S67-GWZ8-060315 although the dilution factor is 1000 the reporting limit only raised by a factor of 500 so that the result would not have a J flag. This reporting limit is supported by the lowest calibration point in the curve.

Manual integrations were performed in accordance to APPL's SOP. Perchlorate was manually integrated in the calibration curve and in the samples. Chromatograms of before and after manual integration are enclosed.

Quality Control/Assurance

Calibrations:

Calibrations were performed according to the method. All calibration acceptance criteria were met. The second source met acceptance criteria.

Blanks:

Perchlorate was not detected at or above one-half the limit of quantitation (LOQ) in the method blank.

Spikes:

Laboratory Control Spike (LCS) and Interference Check Sample (ICS) were used for quality assurance. All LCS acceptance criteria were met.

The Interference Check Sample (I.C.S.) was prepared using a mixed anions solution. The ICS recovery met acceptance criteria.

No sample was designated by the client for MS/MSD analysis.

Internal Standards:

The area counts of the sample Internal Standards were compared to the average IS area counts of the initial calibration. All internal standards were within the 50%D acceptance criteria.

Summary:

All data were acceptable. No other analytical exception is noted.

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. 76567 2.5
QUOTE NO:
COC Number 085508

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr. Suite 309
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Ed Corack
PHONE: 757-466-4908 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NSF-Indian Head Site 67
PROJECT NO.: 112G02622 LOCATION: Site 67
PROJECT MANAGER: Ed Corack
e-mail: Ed.Corack@tetratech.com
PHONE: 757-466-4908 FAX:

CLIENT BILLING INFORMATION

BILL TO: See Contract PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☒ YES ☐ NO 24 hour
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☒ Other See Sow
☐ EDD FORMAT

ANALYSIS: Perchlorate

PRESERVATIVES: E

COMMENTS: ← Specify Preservatives A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	S67-GWC7-060315	GW		X	6-3-15	1114	1	1									24 HR TAT
2.	S67-GWY3-060315	GW		X	6-3-15	1140	1	1									
3.	S67-GWY9-060315	GW		X	6-3-15	0935	1	1									
4.	S67-GWZ8-060315	GW		X	6-3-15	1013	1	1									
5.	S67-GWA8-060315	GW		X	6-3-15	1055	1	1									
6.																	
7.																	
8.																	
9.																	
10.																	

JBB 6-3-15

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. Jacob Birkett	6-3-15 1800	1. FedEx
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 6/4/15 10:10	RECEIVED FOR LAB BY: 3. Yang Zn

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp.
Ice in Cooler?:

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWC7-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17043
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.22 J	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

J = Estimated value.

Quant Method:	QTLMFL2
Run #:	T604_012.D
Instrument:	AGIL_6460
Sequence:	TQ060415
Dilution Factor:	1
Initials:	MP

Printed: 07/13/15 3:10:18 PM
APPL-F1-SC-NoMC-REG MDLs

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWY3-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17044
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	24	6.00	4.000	2.000	ug/L	06/04/15	06/05/15

Quant Method: QTLMFL2
Run #: T604_063.d
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 10
Initials: MP

Printed: 07/13/15 3:10:18 PM
APPL-F1-SC-NoMC-REG MDLs

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWY9-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17045
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	1.7	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

Quant Method: QTLMFL2
Run #: T604_014.D
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 1
Initials: MP

Printed: 07/13/15 3:10:18 PM
APPL-F1-SC-NoMC-REG MDLs

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWZ8-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17046
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	550	400.00	400.000	200.000	ug/L	06/04/15	06/05/15

Quant Method:	QTLMFL2
Run #:	T604_065.D
Instrument:	AGIL_6460
Sequence:	TQ060415
Dilution Factor:	1000
Initials:	MP

Printed: 07/13/15 3:10:18 PM
APPL-F1-SC-NoMC-REG MDLs

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWA8-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17047
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	45	6.00	4.000	2.000	ug/L	06/04/15	06/05/15

Quant Method: QTLMFL2
Run #: T604_072.D
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 10
Initials: MP

Printed: 07/13/15 3:10:18 PM
APPL-F1-SC-NoMC-REG MDLs

Method Blank
Perchlorate

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **150604W-17043 - 197775**
Batch ID: #6850-150604A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

Quant Method: QTLMFL2
Run #: T604_011.D
Instrument: AGIL_6460
Sequence: TQ060415
Initials: MP

GC SC-Blank-REG MDLs
Printed: 07/13/15 3:10:16 PM

Laboratory Control Spike Recovery
Perchlorate

APPL ID: **150604W-17043 LCS - 197775**
Batch ID: #6850-150604A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
PERCHLORATE	0.600	0.618	103	80-120

Comments: _____

Primary	SPK
Quant Method :	QTLMFL2
Extraction Date :	06/04/15
Analysis Date :	06/04/15
Instrument :	AGIL_6460
Run :	T604_009.D
Initials :	MP

Printed: 07/13/15 3:10:16 PM
APPL Standard LCS

EPA 6850

Form 4

Blank Summary

Lab Name: APPL, Inc. SDG No: 76567

Case No: 76567 Date Analyzed: 06/04/15

Matrix: WATER Instrument: AGIL_6460

Blank ID: 150604A-BLK Time Analyzed: 1241

APPL ID.	Client Sample No.	File ID.	Date Analyzed
150604A-LCS	Lab Control Spike	T604_009.D	06/04/15 1204
150604A-BLK	Blank	T604_011.D	06/04/15 1241
AZ17043	S67-GWC7-060315	T604_012.D	06/04/15 1259
AZ17045	S67-GWY9-060315	T604_014.D	06/04/15 1337
AZ17044	S67-GWY3-060315	T604_063.d	06/05/15 1256
AZ17046	S67-GWZ8-060315	T604_065.D	06/05/15 1333
AZ17047	S67-GWA8-060315	T604_072.D	06/05/15 1658

Comments: Batch: #6850-150604A

Printed: 07/13/15 3:10:18 PM

Form 4, Blank Summary

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: CA00046
DoD-ELAP Certificate number: 74807

Data Validatable Report

July 13, 2015

Tetra Tech
5700 Lake Wright Drive, Suite 309
Norfolk, Virginia 23502

Attn: Ed Corack

Title: Report of Data: Case 76567

Project: CTO JU11 112G02622 NSF Indian Head, MD

Contract #: Prime contract # for DoD: Navy CLEAN. N62470-08-D-1001
Subcontract: MSA # 1045497, Work Release # 08-JU11

Dear Mr. Corack:

Five water samples were received June 4, 2015, at 2.5°C. Written results for the requested analyses are provided on this July 13, 2015.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Cynthia Clark, cclark@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/rp
Enclosure
cc: File

Number of pages in this report: 149

T:\Case Narratives\Tetra Tech\76567 new NSF Indian Head.doc

Data Validation Package

for

CTO JU11 112G02622 NSF Indian Head

ARF 76567

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SAMPLE RECEIPT INFORMATION

Sample receipt information

ARF: 76567

Project: CTO JU11 112G02622 NSF Indian Head, MD

Sample Receipt Information:

The water samples were received on June 4, 2015, at 2.5°C. The samples were assigned Analytical Request Form (ARF) number 76567. The sample numbers and requested analyses were compared to the chain of custody. No exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
S67-GWC7-060315	AZ17043	WATER	06/03/15	06/04/15
S67-GWY3-060315	AZ17044	WATER	06/03/15	06/04/15
S67-GWY9-060315	AZ17045	WATER	06/03/15	06/04/15
S67-GWZ8-060315	AZ17046	WATER	06/03/15	06/04/15
S67-GWA8-060315	AZ17047	WATER	06/03/15	06/04/15

The samples and blank were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

Laboratory control limits generated in house do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control limits generated for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.

CASE NARRATIVE

EPA Method 6850

Perchlorate by LC-Mass Spec

Sample Preparation and Analysis Information:

The water samples were prepared according to the method. The samples were analyzed according to EPA Method 6850 using an Agilent 6460 Triple Quad LC/MS. The samples were prepared and analyzed within acceptable hold time. For sample S67-GWZ8-060315 although the dilution factor is 1000 the reporting limit only raised by a factor of 500 so that the result would not have a J flag. This reporting limit is supported by the lowest calibration point in the curve.

Manual integrations were performed in accordance to APPL's SOP. Perchlorate was manually integrated in the calibration curve and in the samples. Chromatograms of before and after manual integration are enclosed.

Quality Control/Assurance

Calibrations:

Calibrations were performed according to the method. All calibration acceptance criteria were met. The second source met acceptance criteria.

Blanks:

Perchlorate was not detected at or above one-half the limit of quantitation (LOQ) in the method blank.

Spikes:

Laboratory Control Spike (LCS) and Interference Check Sample (ICS) were used for quality assurance. All LCS acceptance criteria were met.

The Interference Check Sample (I.C.S.) was prepared using a mixed anions solution. The ICS recovery met acceptance criteria.

No sample was designated by the client for MS/MSD analysis.

Internal Standards:

The area counts of the sample Internal Standards were compared to the average IS area counts of the initial calibration. All internal standards were within the 50%D acceptance criteria.

Summary:

All data were acceptable. No other analytical exception is noted.

APPL Inc.
Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer.
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other – (See case narrative)
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel
U	Not detected
Y	Percent difference between primary and confirmation column > 40%

CHAIN OF CUSTODY,
ARF, CRF, AND
CLIENT COMMUNICATION

APPL - Analysis Request Form

76567

Client: Tetra Tech
Address: 5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502
Attn: Ed Corack
Phone: 757-466-4908 Fax: 757-461-4148
Job: CTO JU11 112G02622 NSF Indian Head
PO #: MSA #1045497 Release #08-CTO JU11
Chain of Custody (Y/N): Y # 085508
RAD Screen (Y/N): Y pH (Y/N): N
Turn Around Type: 24 HOURS

Received by: YL
Date Received: 06/04/15 Time: 10:10
Delivered by: FED EX
Shuttle Custody Seals (Y/N): Y Time Zone: -4
Chest Temp(s): 2.5°C
Color: B-Red
Samples Chilled until Placed in Refrig/Freezer: Y
Project Manager: Cynthia Clark
QC Report Type: DVP4/LEDD/MD
Due Date: 06/05/15

Comments:
login to ed.corack@ & tobrena.sedlmyer@tetratech.com. Rush results to Ed
21 calendar day TAT for final report
1HC DVP4 and summary report & 2 BOOKMARKED CDs of report and
Summary report (sample & QC results with surrogate & blank summaries) to Amy Thomson (Pittsburgh)
Include original COC with report. NOTHING to Ed in VA office
EDD: TTEC LEDD to http://isg.applications.tetratech.com/LEDDChecker2010/
EDD: email confirm to ed.corack@ amy.thomson@ & tobrena.sedlmyer@tetratech.com
Guidance: DOD QSM v4.2: DOD Forms, LOD Database

Sample Distribution:
Extractions: 5-_HPL6850
LCMS: 5-$6850

Charges:

Invoice To:
ACCOUNTS PAYABLE
661 Andersen Dr, Foster Plaza 7
Pittsburgh, PA 15220-2745
invoice in triplicate per SOW

	Client ID	APPL ID	Sampled		Analyses Requested
1.	S67-GWC7-060315	AZ17043W	06/03/15	11:14	$6850
2.	S67-GWY3-060315	AZ17044W	06/03/15	11:40	$6850
3.	S67-GWY9-060315	AZ17045W	06/03/15	09:35	$6850
4.	S67-GWZ8-060315	AZ17046W	06/03/15	10:13	$6850
5.	S67-GWA8-060315	AZ17047W	06/03/15	10:55	$6850

Note: All times, excluding sample collection times, are Pacific Time Zone unless noted otherwise. Collection times are in: -4 UTC

APPL Sample Receipt Form

ARF# **76567**

Sample	Container Type	Count	pH
AZ17043	4 PL 125mL	1	NA
AZ17044	4 PL 125mL	1	NA
AZ17045	4 PL 125mL	1	NA
AZ17046	4 PL 125mL	1	NA
AZ17047	4 PL 125mL	1	NA

Sample	Container Type	Count	pH

Printed 06/04/15 10:44:08 AM

CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

76567

CHEMTECH PROJECT NO. 2.5
QUOTE NO:
COC Number 085508

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr. Suite 309
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Ed Corack
PHONE: 757-466-4908 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NSF-IndianHead Site 67
PROJECT NO.: 112G02622 LOCATION: Site 67
PROJECT MANAGER: Ed Corack
e-mail: Ed.Corack@tetratech.com
PHONE: 757-466-4908 FAX:

CLIENT BILLING INFORMATION

BILL TO: See Contract PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☒ YES ☐ NO 24 hour
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☒ Other See Sow
☐ EDD FORMAT _____

ANALYSIS

Perchlorate

PRESERVATIVES

	1	2	3	4	5	6	7	8	9
	E								

COMMENTS

— Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	S67-GWC7-060315	GW		X	6-3-15	1114	1	1									24 HR TAT
2.	S67-GWY3-060315	GW		X	6-3-15	1140	1	1									↓
3.	S67-GWY9-060315	GW		X	6-3-15	0935	1	1									↓
4.	S67-GWZ8-060315	GW		X	6-3-15	1013	1	1									↓
5.	S67-GWA8-060315	GW		X	6-3-15	1055	1	1									↓
6.																	
7.																	
8.																	
9.																	
10.																	

JBB 6-3-15

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. Jacob Birkett	6-3-15 1800	1. FedEx
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 6/4/15 10:10	RECEIVED FOR LAB BY: 3. Yang Jin

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. _____
Ice in Cooler?: _____

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

COOLER RECEIPT FORM **ARF: 76567**

1) Project: CTO JU11 112G02622 NSF Indian Head Date Received: 06/04/15

2) Coolers: Number of Coolers: 1

3) YES Were custody seals present and intact?
How many? 2 Name/Date on seal? See below

4) YES Was there a shipping slip? Carrier name: FED EX

5) Type of packing in cooler: __ bubble wrap __ popcorn __ foam X plastic bags
X wet ice __ dry ice __ no ice __ other

6) YES Were cooler temperatures acceptable?

7) Serial number of certified NIST thermometer use J5297

8) Cooler temp(s): In °C
1: 2.5 2: ____ 3: ____ 4: ____ 5: ____ 6: ____
7: ____ 8: ____ 9: ____ 10: ____ 11: ____ 12: ____

CUSTODY SEAL
DATE
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3960

Chain of custody:

9) YES Was a chain of custody received?

10) YES Were the custody papers complete/signed in the appropriate places?

Sample Labels:

11) YES Were all sample labels complete (sample ID, date/time of sampling, etc.)?

12) YES Did all container labels agree with custody papers?

Sample Containers:

13) YES Were all containers sealed in separate bags?

14) YES Did all containers arrive in good condition:(unbroken, no leakage, no cracked/broken lids)?

15) YES Were correct containers and preservatives used for the tests indicated?

16) YES Was a sufficient amount of sample sent for tests indicated?

17) No Were bubbles present in volatile samples?
~~If yes, the following were received with air bubbles:~~
Larger than a pea: ____
Smaller than a pea: ____

Preservation Hold time:

18) Yes Was a sufficient amount of holding time remaining to analyze the samples?

19) NA Was the pH taken of all non-VOA preserved samples and written on the sample container?

20) NA Was the pH of acid preserved non-VOA samples < 2?

21) NA Was the pH of sodium hydroxide preserved samples for Cyanide > 12 and Sulfide >9?

22) NO Were unpreserved VOA Vials received?

23) NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?
pH strip lot number: ____
Lab notified if pH was not adequate: ____

Notes/Deficiencies:

Personnel receiving samples: YL Second reviewer: AG
Personnel labeling samples: ____
Project manager notified: ____ Date/Time of notification ____
Name of client notified: ____ Date/Time of notification ____

EPA METHOD 6850
Perchlorate
LC/MS

APPL, INC.

EPA METHOD 6850
Perchlorate
LC/MS

QC Summary

APPL, INC.

Method Blank
Perchlorate

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **150604W-17043 - 197775**
Batch ID: #6850-150604A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

Quant Method: QTLMFL2
Run #: T604_011.D
Instrument: AGIL_6460
Sequence: TQ060415
Initials: MP

GC SC-Blank-REG MDLs
Printed: 06/05/15 1:09:28 PM

Laboratory Control Spike Recovery
Perchlorate

APPL ID: **150604W-17043 LCS - 197775**
Batch ID: #6850-150604A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
PERCHLORATE	0.600	0.618	103	80-120

Comments: _____

Primary	SPK
Quant Method :	QTLMFL2
Extraction Date :	06/04/15
Analysis Date :	06/04/15
Instrument :	AGIL_6460
Run :	T604_009.D
Initials :	MP

Printed: 06/05/15 1:09:22 PM
APPL Standard LCS

Interferrence Check Sample

Perchlorate EPA 6850 Water

APPL ID: 150604W-17043 ICS - 197775
Batch ID: #6850-150604A

APPL Inc.
908 N. Temperance Ave.
Clovis, CA 93711

Compound Name	Spike Level ug/L	Spk Result ug/L	SPK% Recovery	Recovery Limits
Perchlorate	0.600	0.615	103%	70-130

Comments:

Quant Method:	QTLMFL2
Extraction Date:	06/04/15
Analysis Date:	06/04/15
Instrument:	AGIL_6460
Run:	T604_010.D
Initials:	MP

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. **SDG No.**

Lab File ID (Standard): T312_003-_008.d

Instrument ID: Agilent 6460 Triple Quad LC/MS

	PER_IS			
	12_HOUR_STD AVERAGE	11032021		
	UPPER LIMIT RESPONSE	16548032		
	LOWER LIMIT RESPONSE	5516011		
Data File ID:	Sample ID:	Analysis Date and Time	IS AREA COUNT #	IS R.T. #
T312_003.d	PERCHLORATE 0.0002 ug/ml 11/11/14	3/12/15 17:52	8337058	13.732
T312_004.d	PERCHLORATE 0.0004 ug/ml 11/11/14	3/12/15 18:11	10671196	13.783
T312_005.d	PERCHLORATE 0.001 ug/ml 11/11/14	3/12/15 18:29	10651968	13.803
T312_006.d	PERCHLORATE 0.002 ug/ml 11/11/14	3/12/15 18:48	13529952	13.803
T312_007.d	PERCHLORATE 0.005 ug/ml 11/11/14	3/12/15 19:07	11028880	13.874
T312_008.d	PERCHLORATE 0.010 ug/ml 08/27/14	3/12/15 19:25	11973072	13.874
T312_010.d	PER_SS 0.0004 ug/ml 11/11/14	3/12/15 20:02	12977621	13.946
T312_011.d	PER_SS 0.002 ug/ml 11/11/14	3/12/15 20:21	13747369	13.976
T312_013.d	PER_CCV_1 0.0004 ug/ml 11/11/14	3/12/15 20:58	12323795	14.109
T312_014.d	PER_CCV_1 0.002 ug/ml 11/11/14	3/12/15 21:17	13576634	14.139

AREA UPPER LIMIT = +50% of internal standard average
AREA LOWER LIMIT = -50% of internal standard average
Column used to flag values outside QC limits
* Values outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: APPL Inc. **SDG No.** **Page 1 of 1**

Lab File ID (Standard):T604_003.d **Date Analyzed: 06/04/15 09:43 thru 06/05/15 17:56**

Instrument ID: Agilent 6460 Triple Quad LC/MS

	PER_IS			
	12_HOUR_STD AVERAGE	7150829		
	UPPER LIMIT RESPONSE	10726243		
	LOWER LIMIT RESPONSE	3575414		
Data File ID:	Sample ID:	Analysis Date and Time	IS AREA COUNT #	IS R.T. #
T604_002.d	PER_CCV 0.0004 ug/ml 05/29/15	06/04/15 9:43	5585900	13.375
T604_003.d	PER_CCV 0.002 ug/ml 05/29/15	06/04/15 10:02	7150829	13.467
T604_009.d	150604WA_LCS-1 1052.6 DF 06/04/15	06/04/15 12:04	5759331	13.691
T604_010.d	150604W_ICSA 1052.6 DF 06/04/15	06/04/15 12:22	4273155	12.794
T604_011.d	150604WBLKA 1052.6 DF 06/04/15	06/04/15 12:41	5637128	14.241
T604_012.d	AZ17043_W01 1052.6 DF 06/04/15	06/04/15 12:59	5322737	13.793
T604_014.d	AZ17045_W01 1052.6 DF 06/04/15	06/04/15 13:37	4941739	13.599
T604_016.d	PER_CCV 0.0004 ug/ml 05/29/15	06/04/15 14:14	5333219	13.681
T604_017.d	PER_CCV 0.002 ug/ml 05/29/15	06/04/15 14:33	6491116	14.109
T604_060.d	PER_CCV 0.0004 ug/ml 05/29/15	06/05/15 11:58	5058882	13.854
T604_061.d	PER_CCV 0.002 ug/ml 05/29/15	06/05/15 12:16	6235540	14.098
T604_063.d	AZ17044_W01 10526.3 DF 06/04/15_6/05	06/05/15 12:56	5912019	13.701
T604_065.d	AZ17046_W01 105263.2 DF 06/04/15_6/05	06/05/15 13:33	5627744	14.425
T604_069.d	PER_CCV 0.0004 ug/ml 05/29/15	06/05/15 14:48	4986885	14.007
T604_070.d	PER_CCV 0.002 ug/ml 05/29/15	06/05/15 15:06	6195014	14.445
T604_072.d	AZ17047_W01 10526.3 DF 06/04/15_6/05	06/05/15 16:58	6234715	14.465
T604_074.d	PER_CCV 0.0004 ug/ml 05/29/15	06/05/15 17:38	4996270	13.895
T604_075.d	PER_CCV 0.002 ug/ml 05/29/15	06/05/15 17:56	6429464	14.649

AREA UPPER LIMIT = +50% of internal standard average
AREA LOWER LIMIT = -50% of internal standard average
Column used to flag values outside QC limits
* Values outside of QC limits

Perchlorate LC/MS Ion Ratio Report

acceptable ratio is between 2.3 and 3.8 (DoD Perchlorate Handbook, 2006)

Data File Path : D:\masshunter\data\150312
Instrument Name : TQ (Agilent 6460 Triple Quad LC/MS)
Method File : 6460_ESI_PER_N_NEWER_K'_COLUMN.m
Operator : BA

Date Aquired: 03/12/15 17:52 Vial Number: NA
Sample Name: PERCHLORATE 0.0002 ug/ml 11/11/14 Data File ID: T312_003.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.789	446712	3.1
2)	Perchlorate_85	13.704	144754	

Date Aquired: 03/12/15 18:11 Vial Number: NA
Sample Name: PERCHLORATE 0.0004 ug/ml 11/11/14 Data File ID: T312_004.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.8	1023403	3.0
2)	Perchlorate_85	13.827	337305	

Date Aquired: 03/12/15 18:29 Vial Number: NA
Sample Name: PERCHLORATE 0.001 ug/ml 11/11/14 Data File ID: T312_005.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.82	2483393	3.2
2)	Perchlorate_85	13.827	781617	

Date Aquired: 03/12/15 18:48 Vial Number: NA
Sample Name: PERCHLORATE 0.002 ug/ml 11/11/14 Data File ID: T312_006.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.83	6351752	3.3
2)	Perchlorate_85	13.817	1920912	

Date Aquired: 03/12/15 19:07 Vial Number: NA
Sample Name: PERCHLORATE 0.005 ug/ml 11/11/14 Data File ID: T312_007.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.861	14499255	3.4
2)	Perchlorate_85	13.878	4209044	

Date Aquired: 03/12/15 19:25 Vial Number: NA
Sample Name: PERCHLORATE 0.010 ug/ml 08/27/14 Data File ID: T312_008.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.881	34223790	3.4
2)	Perchlorate_85	13.878	9985270	

Date Aquired: 03/12/15 20:02 Vial Number: NA
Sample Name: PER_SS 0.0004 ug/ml 11/11/14 Data File ID: T312_010.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.942	1472839	3.3
2)	Perchlorate_85	13.959	440675	

Date Aquired: 03/12/15 20:21 Vial Number: NA
Sample Name: PER_SS 0.002 ug/ml 11/11/14 Data File ID: T312_011.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.014	7468678	3.4
2)	Perchlorate_85	14	2222387	

Date Aquired: 03/12/15 20:58 Vial Number: NA
Sample Name: PER_CCV_1 0.0004 ug/ml 11/11/14 Data File ID: T312_013.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.105	1267031	3.1
2)	Perchlorate_85	14.143	410558	

Date Aquired: 03/12/15 21:17 Vial Number: NA
Sample Name: PER_CCV_1 0.002 ug/ml 11/11/14 Data File ID: T312_014.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.146	6907110	3.3
2)	Perchlorate_85	14.122	2093567	

Perchlorate LC/MS Ion Ratio Report

acceptable ratio is between 2.3 and 3.8 (DoD Perchlorate Handbook, 2006)

Data File Path : D:\masshunter\data\150312
Instrument Name : TQ (Agilent 6460 Triple Quad LC/MS)
Method File : 6460_ESI_PER_N_NEWER_K'_COLUMN.m
Operator : BA

Date Aquired: 03/12/15 17:15
Sample Name: PER_IS_50:50 0.005 ug/ml 11/11/14
Vial Number: NA
Data File ID: T312_001.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.014	113760	3.1
2)	Perchlorate_85	14.071	36914	

Date Aquired: 03/12/15 17:33
Sample Name: PERCHLORATE 0.0001 ug/ml 11/11/14
Vial Number: NA
Data File ID: T312_002.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.504	237168	3.1
2)	Perchlorate_85	13.541	77486	

Date Aquired: 03/12/15 17:52
Sample Name: PERCHLORATE 0.0002 ug/ml 11/11/14
Vial Number: NA
Data File ID: T312_003.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.789	446712	3.1
2)	Perchlorate_85	13.704	144754	

Date Aquired: 03/12/15 18:11
Sample Name: PERCHLORATE 0.0004 ug/ml 11/11/14
Vial Number: NA
Data File ID: T312_004.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.8	1023403	3.0
2)	Perchlorate_85	13.827	337305	

Date Aquired: 03/12/15 18:29
Sample Name: PERCHLORATE 0.001 ug/ml 11/11/14
Vial Number: NA
Data File ID: T312_005.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.82	2483393	3.2
2)	Perchlorate_85	13.827	781617	

Date Aquired: 03/12/15 18:48 Vial Number: NA
Sample Name: PERCHLORATE 0.002 ug/ml 11/11/14 Data File ID: T312_006.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.83	6351752	3.3
2)	Perchlorate_85	13.817	1920912	

Date Aquired: 03/12/15 19:07 Vial Number: NA
Sample Name: PERCHLORATE 0.005 ug/ml 11/11/14 Data File ID: T312_007.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.861	14499255	3.4
2)	Perchlorate_85	13.878	4209044	

Date Aquired: 03/12/15 19:25 Vial Number: NA
Sample Name: PERCHLORATE 0.010 ug/ml 08/27/14 Data File ID: T312_008.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.881	34223790	3.4
2)	Perchlorate_85	13.878	9985270	

Date Aquired: 03/12/15 19:44 Vial Number: NA
Sample Name: PER_IS_50:50 0.005 ug/ml 11/11/14 Data File ID: T312_009.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.912	249406	2.9
2)	Perchlorate_85	13.949	85978	

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Date Aquired: 03/12/15 20:02 Vial Number: NA
Sample Name: PER_SS 0.0004 ug/ml 11/11/14 Data File ID: T312_010.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.942	1472839	3.3
2)	Perchlorate_85	13.959	440675	

Date Aquired: 03/12/15 20:21 Vial Number: NA
Sample Name: PER_SS 0.002 ug/ml 11/11/14 Data File ID: T312_011.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.014	7468678	3.4
2)	Perchlorate_85	14	2222387	

Date Aquired: 03/12/15 20:40 Vial Number: NA
Sample Name: PER_IS_50:50 0.005 ug/ml 11/11/14 Data File ID: T312_012.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.657	10916	2.0
2)	Perchlorate_85	13.776	5521	

Date Aquired: 03/12/15 20:58 Vial Number: NA
Sample Name: PER_CCV_1 0.0004 ug/ml 11/11/14 Data File ID: T312_013.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.105	1267031	3.1
2)	Perchlorate_85	14.143	410558	

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Date Aquired: 03/12/15 21:17 Vial Number: NA
Sample Name: PER_CCV_1 0.002 ug/ml 11/11/14 Data File ID: T312_014.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.146	6907110	3.3
2)	Perchlorate_85	14.122	2093567	

Date Aquired: 03/12/15 21:36 Vial Number: NA
Sample Name: PER_IS_50:50 0.005 ug/ml 11/11/14 Data File ID: T312_015.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.36	64783	9.6
2)	Perchlorate_85	13.715	6730	

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Perchlorate LC/MS Ion Ratio Report

acceptable ratio is between 2.3 and 3.8 (DoD Perchlorate Handbook, 2006)

Data File Path : D:\masshunter\data\150604
Instrument Name : TQ (Agilent 6460 Triple Quad LC/MS)
Method File : 6460_ESI_PER_N_NEWER_K'_COLUMN.m
Operator : BA

Date Aquired: 06/04/15 9:43 Vial Number: NA
Sample Name: PER_CCV 0.0004 ug/ml 05/29/15 Data File ID: T604_002.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.372	595488	3.0
2)	Perchlorate_85	13.338	196477	

Date Aquired: 06/04/15 10:02 Vial Number: NA
Sample Name: PER_CCV 0.002 ug/ml 05/29/15 Data File ID: T604_003.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.484	3258101	3.3
2)	Perchlorate_85	13.491	982038	

Date Aquired: 06/04/15 12:04 Vial Number: NA
Sample Name: 150604WA_LCS-1 1052.6 DF 06/04/15 Data File ID: T604_009.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.718	858740	3.0
2)	Perchlorate_85	13.715	290599	

Date Aquired: 06/04/15 12:22 Vial Number: NA
Sample Name: 150604W_ICSA 1052.6 DF 06/04/15 Data File ID: T604_010.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	12.77	634625	2.6
2)	Perchlorate_85	12.747	243291	

Date Aquired: 06/04/15 12:41 Vial Number: NA
Sample Name: 150604WBLKA 1052.6 DF 06/04/15 Data File ID: T604_011.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.606	11541	5.3
2)	Perchlorate_85	13.44	2194	

Date Aquired: 06/04/15 12:59 Vial Number: NA
Sample Name: AZ17043_W01 1052.6 DF 06/04/15 Data File ID: T604_012.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.779	282593	2.6
2)	Perchlorate_85	13.837	108391	

Date Aquired: 06/04/15 13:37 Vial Number: NA
Sample Name: AZ17045_W01 1052.6 DF 06/04/15 Data File ID: T604_014.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.616	1975210	3.2
2)	Perchlorate_85	13.592	619731	

Date Aquired: 06/04/15 14:14 Vial Number: NA
Sample Name: PER_CCV 0.0004 ug/ml 05/29/15 Data File ID: T604_016.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.698	543026	3.0
2)	Perchlorate_85	13.735	179667	

Date Aquired: 06/04/15 14:33 Vial Number: NA
Sample Name: PER_CCV 0.002 ug/ml 05/29/15 Data File ID: T604_017.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.126	3024414	3.3
2)	Perchlorate_85	14.112	903659	

Date Aquired: 06/05/15 11:58 Vial Number: NA
Sample Name: PER_CCV 0.0004 ug/ml 05/29/15 Data File ID: T604_060.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.84	532331	3.0
2)	Perchlorate_85	13.908	179645	

Date Aquired: 06/05/15 12:16 Vial Number: NA
Sample Name: PER_CCV 0.002 ug/ml 05/29/15 Data File ID: T604_061.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.136	2945116	3.3
2)	Perchlorate_85	14.122	887582	

Date Aquired: 06/05/15 12:56 Vial Number: NA
Sample Name: AZ17044_W01 10526.3 DF 06/04/15_6/05 Data File ID: T604_063.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.677	3492071	3.2
2)	Perchlorate_85	13.684	1084353	

Date Aquired: 06/05/15 13:33 Vial Number: NA
Sample Name: AZ17046_W01 105263.2 DF 06/04/15_6/05 Data File ID: T604_065.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.442	7537678	3.5
2)	Perchlorate_85	14.458	2154935	

Date Aquired: 06/05/15 14:48 Vial Number: NA
Sample Name: PER_CCV 0.0004 ug/ml 05/29/15 Data File ID: T604_069.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.983	510210	2.9
2)	Perchlorate_85	13.99	175582	

Date Aquired: 06/05/15 15:06 Vial Number: NA
Sample Name: PER_CCV 0.002 ug/ml 05/29/15 Data File ID: T604_070.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.431	2876710	3.3
2)	Perchlorate_85	14.458	872063	

Date Aquired: 06/05/15 16:58 Vial Number: NA
Sample Name: AZ17047_W01 10526.3 DF 06/04/15_6/05 Data File ID: T604_072.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.472	6842935	3.4
2)	Perchlorate_85	14.458	1999243	

Date Aquired: 06/05/15 17:38 Vial Number: NA
Sample Name: PER_CCV 0.0004 ug/ml 05/29/15 Data File ID: T604_074.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.983	518534	3.0
2)	Perchlorate_85	13.857	174708	

Date Aquired: 06/05/15 17:56 Vial Number: NA
Sample Name: PER_CCV 0.002 ug/ml 05/29/15 Data File ID: T604_075.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.645	2940837	3.2
2)	Perchlorate_85	14.662	918366	

EPA 6850

Form 4

Blank Summary

Lab Name: APPL, Inc.
Case No: 76567
Matrix: WATER
Blank ID: 150604A-BLK

SDG No: 76567
Date Analyzed: 06/04/15
Instrument: AGIL_6460
Time Analyzed: 1241

APPL ID.	Client Sample No.	File ID.	Date Analyzed
150604A-LCS	Lab Control Spike	T604_009.D	06/04/15 1204
150604A-BLK	Blank	T604_011.D	06/04/15 1241
AZ17043	S67-GWC7-060315	T604_012.D	06/04/15 1259
AZ17045	S67-GWY9-060315	T604_014.D	06/04/15 1337
AZ17044	S67-GWY3-060315	T604_063.d	06/05/15 1256
AZ17046	S67-GWZ8-060315T604_065.D		06/05/15 1333
AZ17047	S67-GWA8-060315	T604_072.D	06/05/15 1658

Comments: Batch: #6850-150604A

EPA METHOD 6850
Perchlorate
LC/MS

Sample Data

APPL, INC.

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWC7-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17043
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.22 J	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

J = Estimated value.

Quant Method:	QTLMFL2
Run #:	T604_012.D
Instrument:	AGIL_6460
Sequence:	TQ060415
Dilution Factor:	1
Initials:	MP

Printed: 06/05/15 1:09:31 PM
APPL-F1-SC-NoMC-REG MDLs

Data File ID: T604_012.d

Date Injected : 06/04/15

Time Injected : 12:59

Sample ID : AZ17043_W01 1052.6 DF 06/04/15

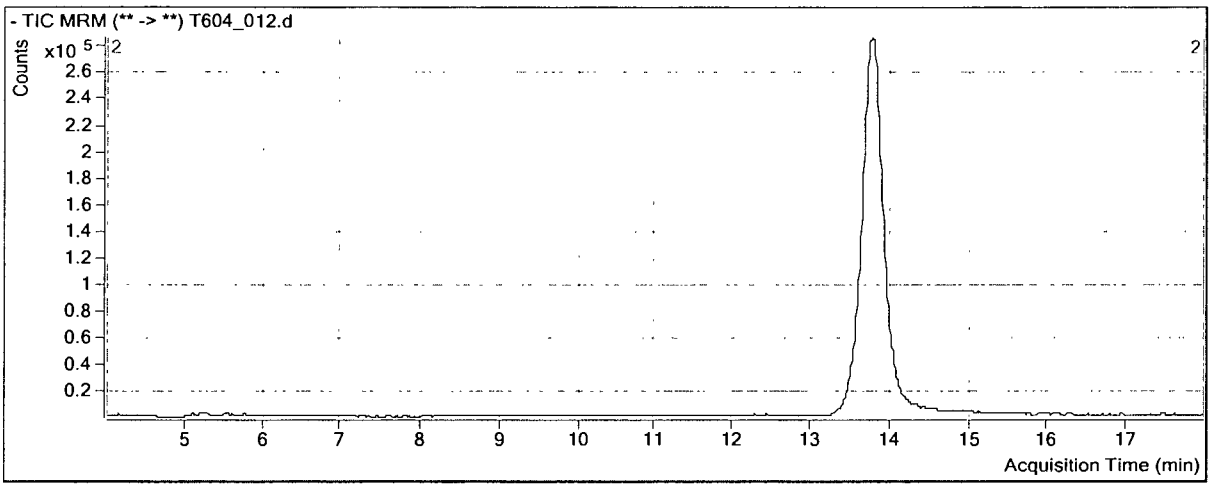
Client ID : S67-GWC7-060315

Retention Time		Area Count Response	Compound_ID Product Ion				
13.793		5322737	PER_IS_89				
13.779		282593	Perchlorate_83	(282593 * 0.0050) / (1.27 * 5322737.00) *	1052.60 =	0.219973	ppb
13.837	*	108391	Perchlorate_85	(108391 * 0.0050) / (0.39 * 5322737.00) *	1052.60 =	0.273680	ppb

* MANUAL INTEGRAION

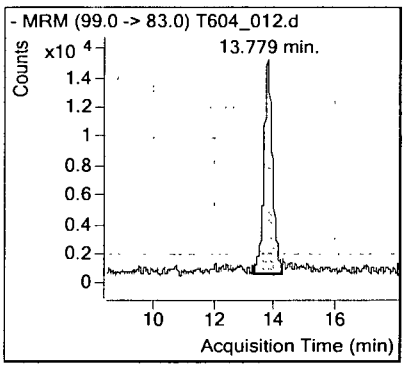
Quantitative Analysis Sample Report

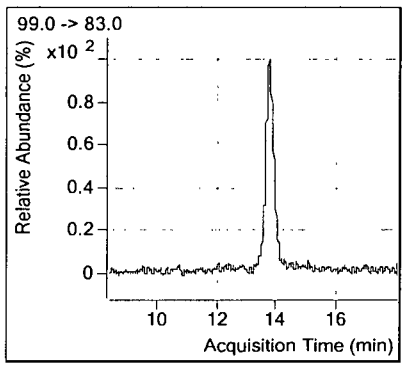
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_012.d	**Sample Name**	AZ17043_W01 1052.6 DF 06/04/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	12:59
ClientID	S67-GWC7-060315	**Inj Vol**	20

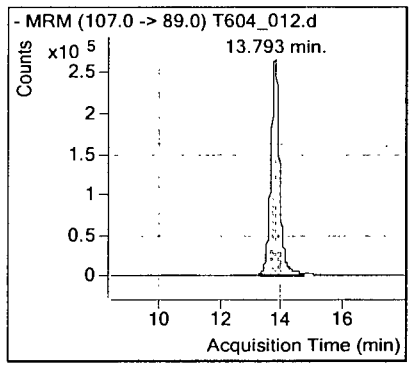


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108		13.779	282593	5322737	
Perchlorate_102	PER_IS_108	*	13.837	108391	5322737	* MANUAL INT

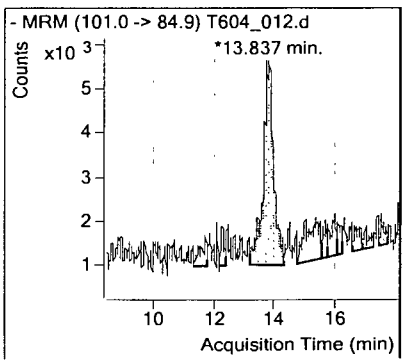
Perchlorate_100

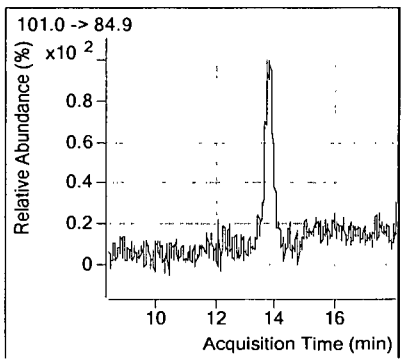


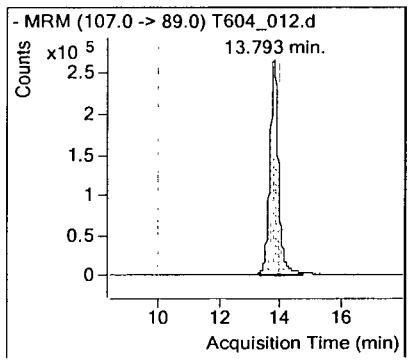


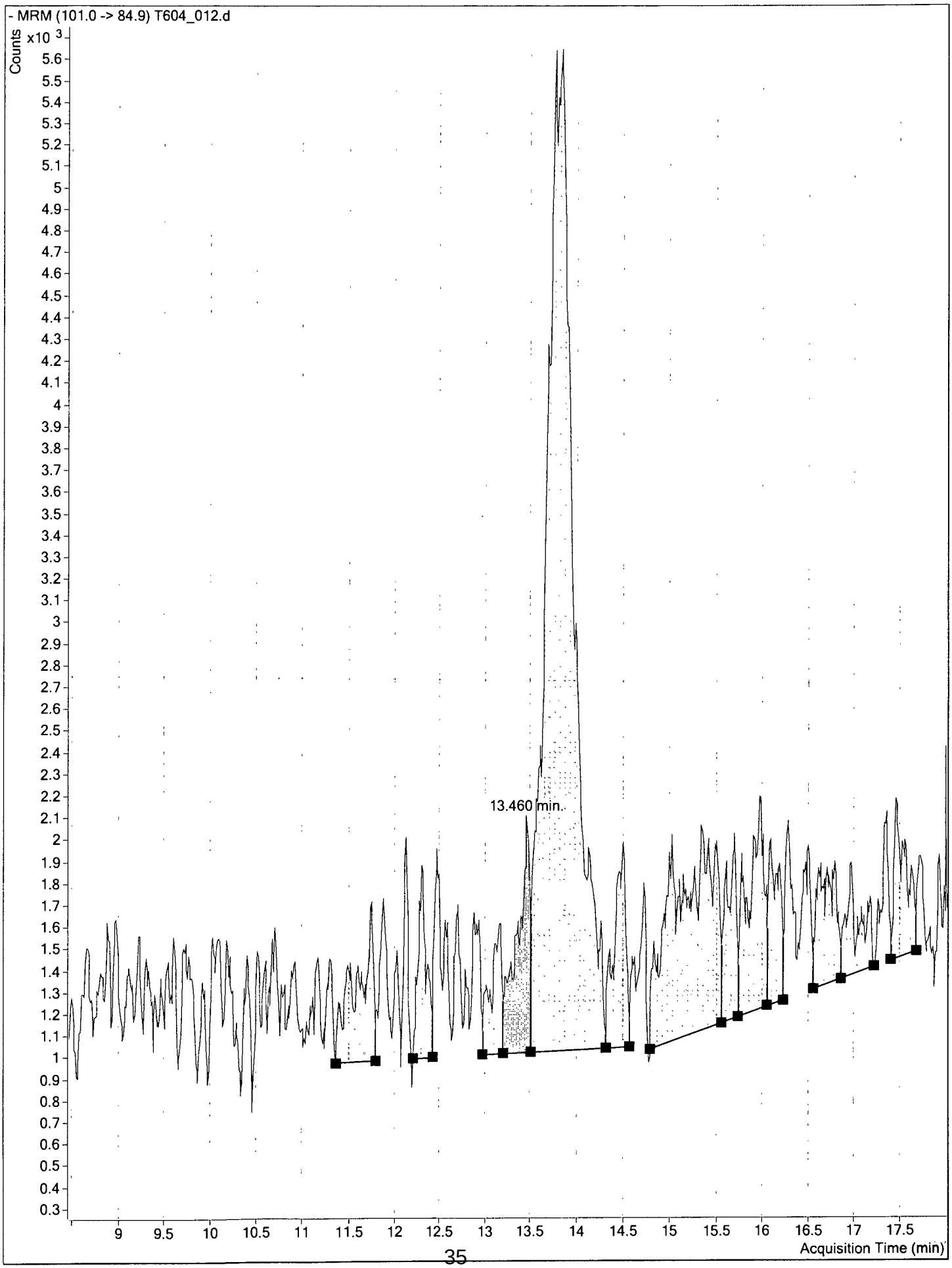


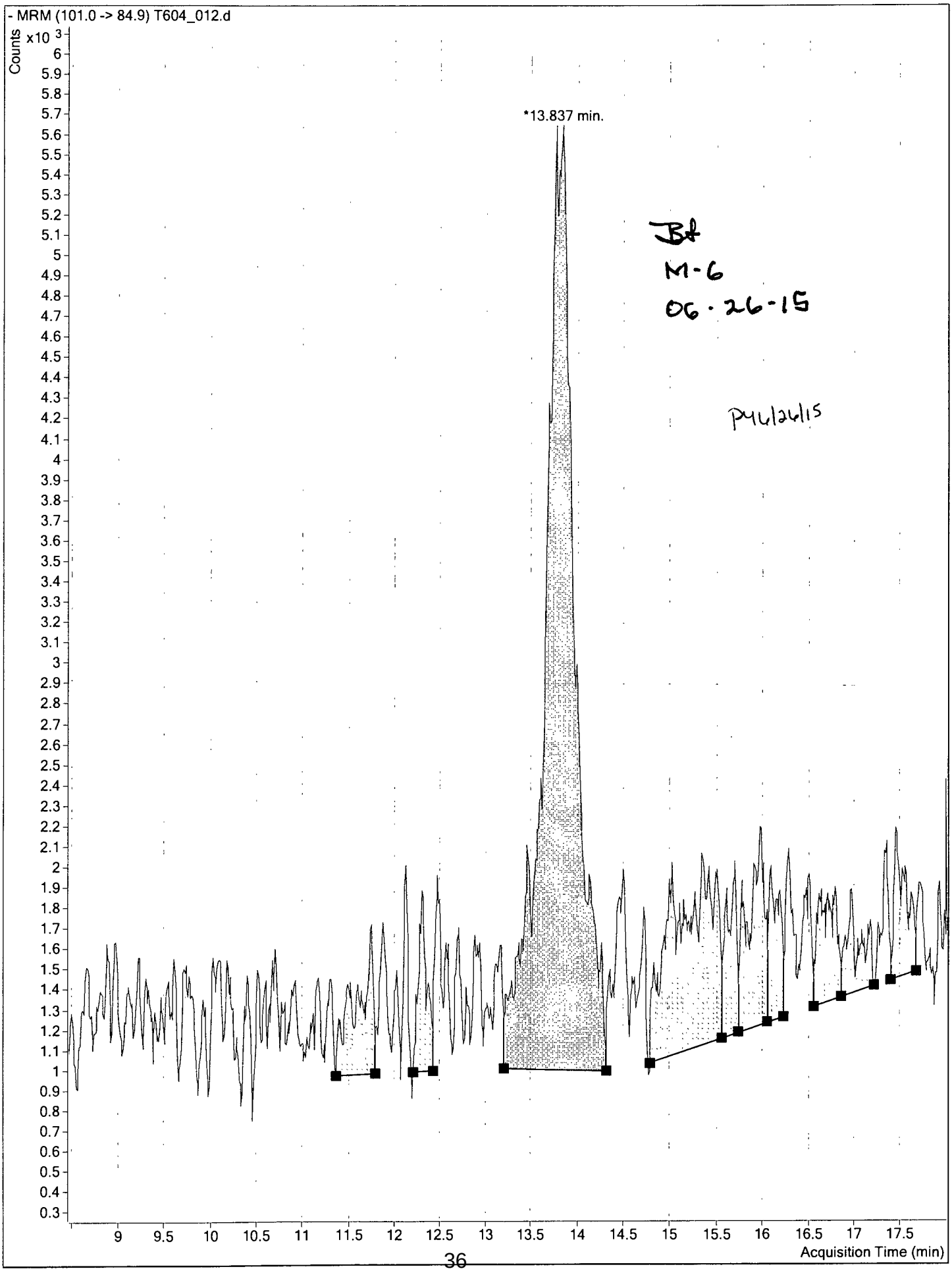
Perchlorate_102








- MRM (101.0 -> 84.9) T604_012.d
Counts
x10 3
13.460 min.
Acquisition Time (min)


- MRM (101.0 -> 84.9) T604_012.d
Counts
x10 3
*13.837 min.
Acquisition Time (min)
JBf
M-6
06-26-15
PM 6/26/15

Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWY3-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17044
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	24	6.00	4.000	2.000	ug/L	06/04/15	06/05/15

Quant Method: QTLMFL2
Run #: T604_063.d
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 10
Initials: MP

Printed: 07/13/15 1:01:35 PM
APPL-F1-SC-NoMC-REG MDLs

Data File ID: T604_063.d

Date Injected : 06/05/15

Time Injected : 12:56

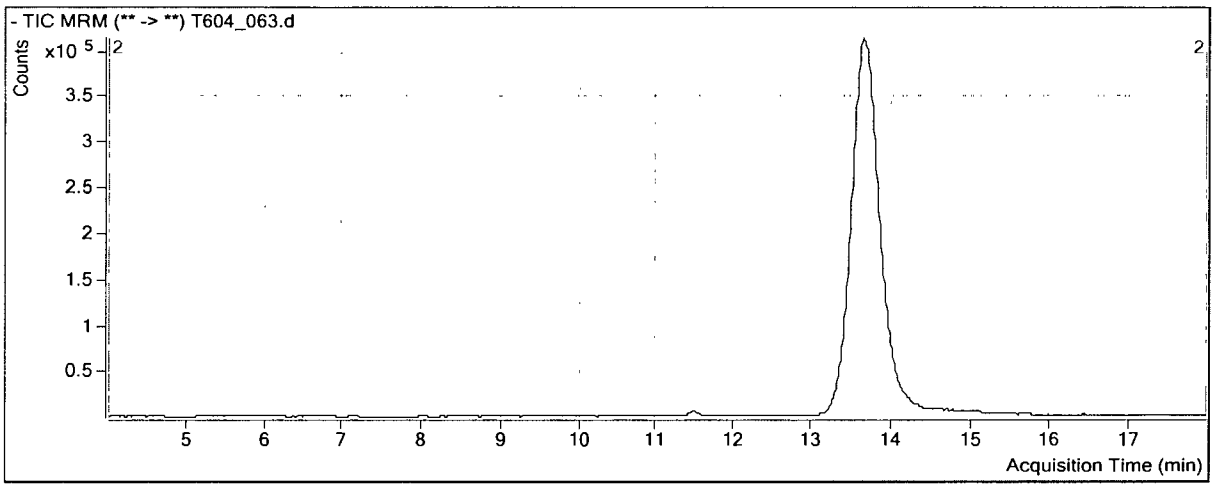
Sample ID : AZ17044_W01 10526.3 DF 06/04/15_6/05

Client ID : S67-GWY3-060315

Retention Time	Area Count Response	Compound_ID Product Ion	
13.701	5912019	PER_IS_89	
13.677	3492071	Perchlorate_83	(3492071 * 0.0050) / (1.27 * 5912019.00) * 10526.30 = 24.473832 ppb
13.684	1084353	Perchlorate_85	(1084353 * 0.0050) / (0.39 * 5912019.00) * 10526.30 = 24.650878 ppb

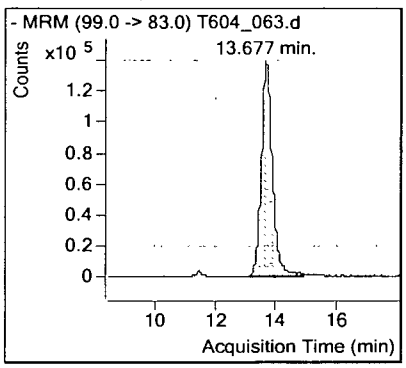
Quantitative Analysis Sample Report

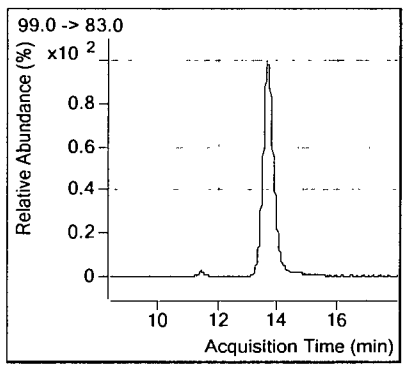
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_063.d	**Sample Name**	AZ17044_W01 10526.3 DF 06/04/15_6/05
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	12:56
ClientID	S67-GWY3-060315	**Inj Vol**	20

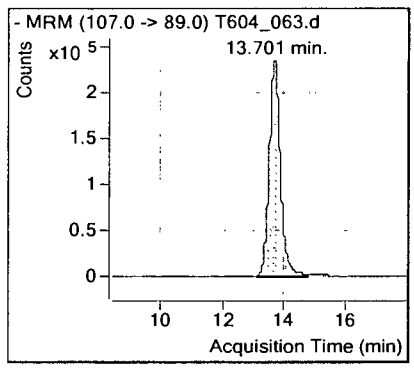


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.677	3492071	5912019
Perchlorate_102	PER_IS_108	13.684	1084353	5912019

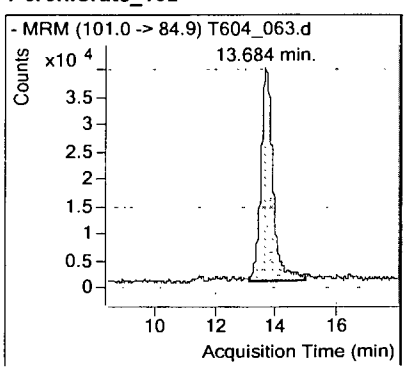
Perchlorate_100

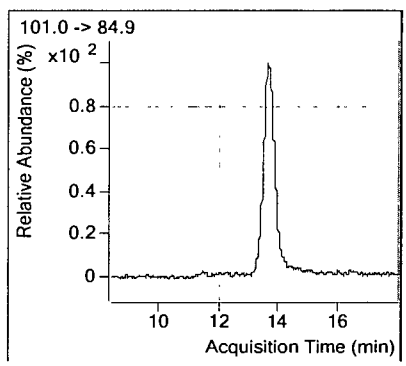


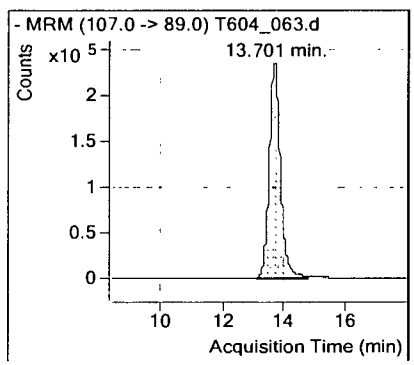




Perchlorate_102







Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWY9-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17045
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	1.7	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

Quant Method: QTLMFL2
Run #: T604_014.D
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 1
Initials: MP

Printed: 06/05/15 1:09:31 PM
APPL-F1-SC-NoMC-REG MDLs

Data File ID: T604_014.d

Date Injected : 06/04/15

Time Injected : 13:37

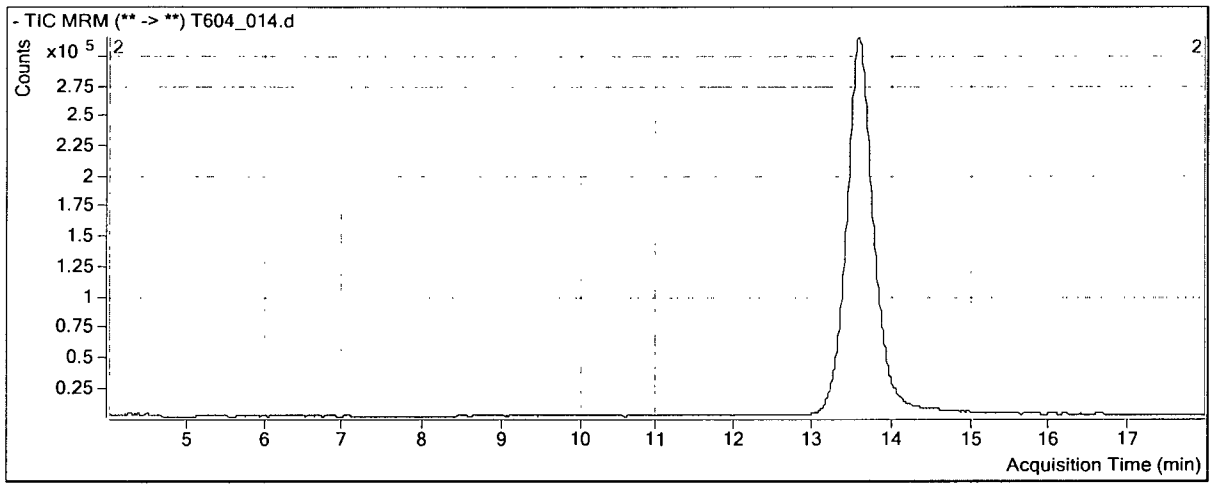
Sample ID : AZ17045_W01 1052.6 DF 06/04/15

Client ID : S67-GWY9-060315

Retention Time	Area Count Response	Compound_ID Product Ion				
13.599	4941739	PER_IS_89				
13.616	1975210	Perchlorate_83	(1975210 * 0.0050) / (1.27 * 4941739.00) *	1052.60 =	1.656059 ppb
13.592	619731	Perchlorate_85	(619731 * 0.0050) / (0.39 * 4941739.00) *	1052.60 =	1.685422 ppb

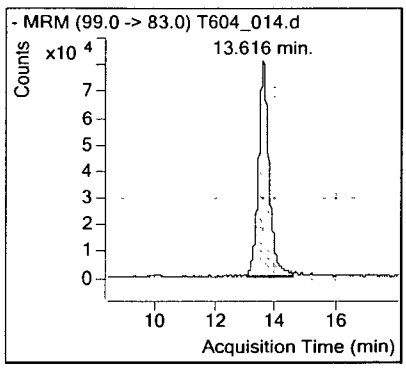
Quantitative Analysis Sample Report

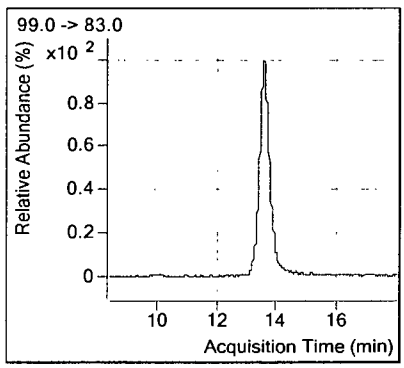
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_014.d	**Sample Name**	AZ17045_W01 1052.6 DF 06/04/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	13:37
ClientID	S67-GWY9-060315	**Inj Vol**	20

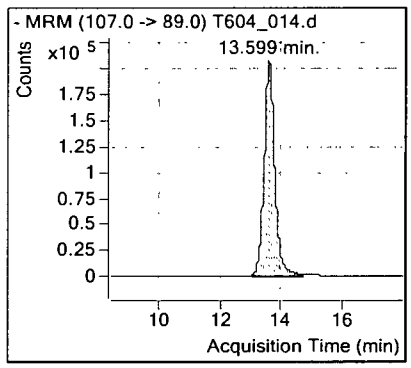


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.616	1975210	4941739
Perchlorate_102	PER_IS_108	13.592	619731	4941739

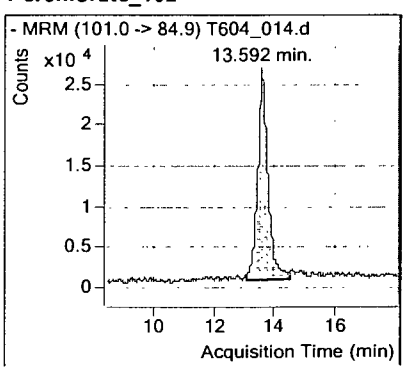
Perchlorate_100

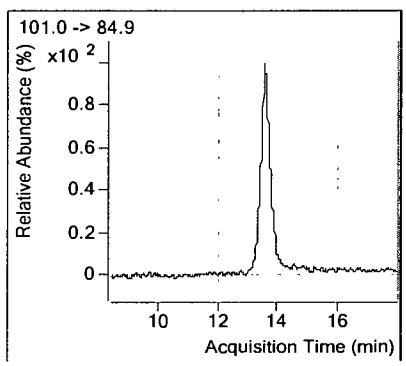


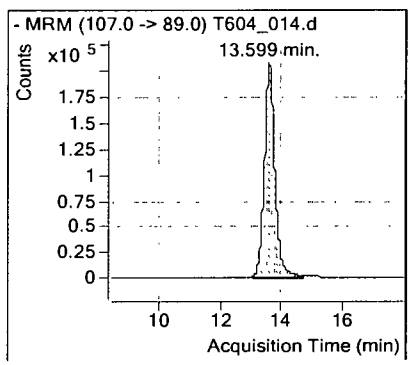




Perchlorate_102







Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWZ8-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17046
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	550	400.00	400.000	200.000	ug/L	06/04/15	06/05/15

Quant Method: QTLMFL2
Run #: T604_065.D
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 1000
Initials: MP

Printed: 07/13/15 1:08:56 PM
APPL-F1-SC-NoMC-REG MDLs

Data File ID: T604_065.d

Date Injected : 06/05/15

Time Injected : 13:33

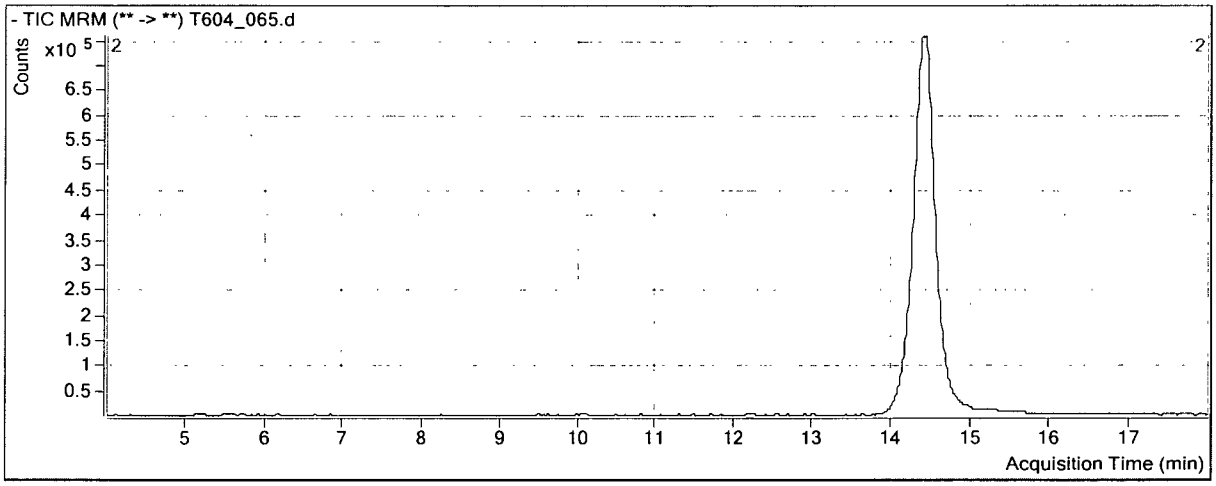
Sample ID : AZ17046_W01 105263.2 DF 06/04/15_6/05

Client ID : S67-GWZ8-060315

Retention Time	Area Count Response	Compound_ID Product Ion	
14.425	5627744	PER_IS_89	
14.442	7537678	Perchlorate_83	(7537678 * 0.0050) / (1.27 * 5627744.00) * 105263.20 = 554.956333 ppb
14.458	2154935	Perchlorate_85	(2154935 * 0.0050) / (0.39 * 5627744.00) * 105263.20 = 514.633657 ppb

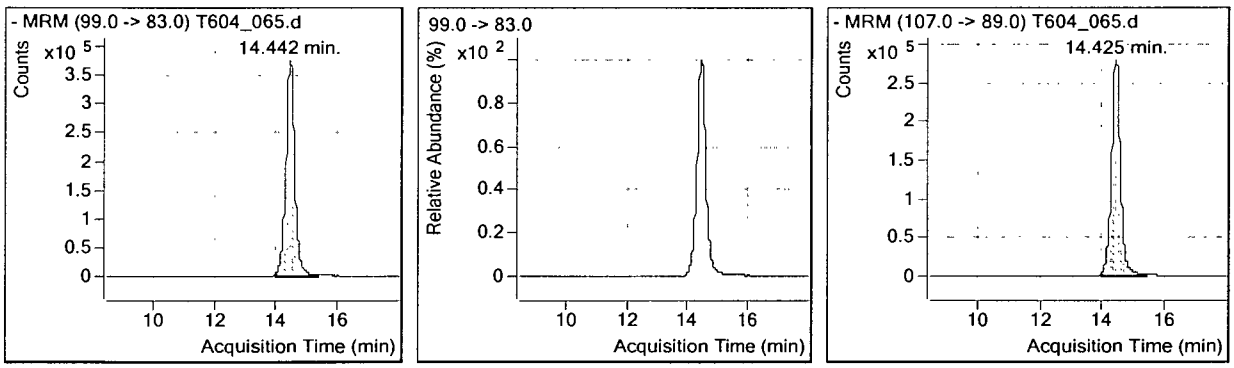
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_065.d	**Sample Name**	AZ17046_W01 105263.2 DF 06/04/15_6/05
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	13:33
ClientID	S67-GWZ8-060315	**Inj Vol**	20

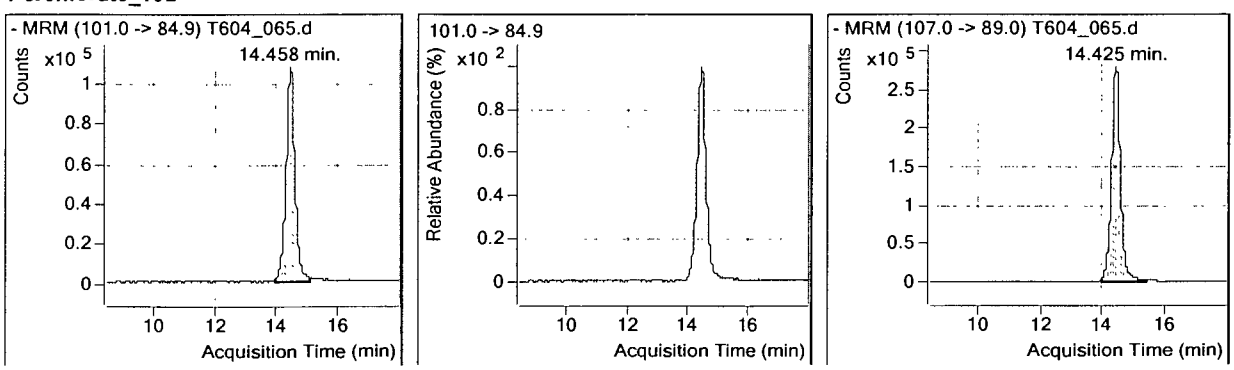


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.442	7537678	5627744
Perchlorate_102	PER_IS_108	14.458	2154935	5627744

Perchlorate_100



Perchlorate_102



Perchlorate

Tetra Tech
5700 Lake Wright Dr, Ste 309
Norfolk, VA 23502

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Ed Corack
Project: CTO JU11 112G02622 NSF Indian Head
Sample ID: S67-GWA8-060315
Sample Collection Date: 06/03/15

ARF: 76567
APPL ID: AZ17047
QCG: #6850-150604A-197775

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	45	6.00	4.000	2.000	ug/L	06/04/15	06/05/15

Quant Method: QTLMFL2
Run #: T604_072.D
Instrument: AGIL_6460
Sequence: TQ060415
Dilution Factor: 10
Initials: MP

Printed: 07/13/15 1:01:35 PM
APPL-F1-SC-NoMC-REG MDLs

Data File ID: T604_072.d

Date Injected : 06/05/15

Time Injected : 16:58

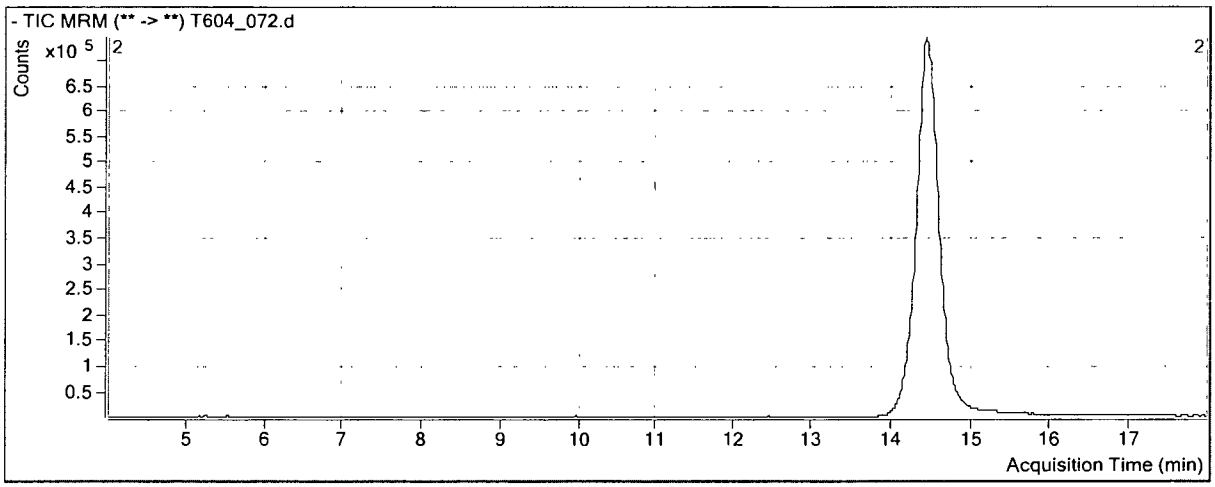
Sample ID : AZ17047_W01 10526.3 DF 06/04/15_6/05

Client ID : S67-GWA8-060315

Retention Time	Area Count Response	Compound_ID Product Ion	
14.465	6234715	PER_IS_89	
14.472	6842935	Perchlorate_83	(6842935 * 0.0050) / (1.27 * 6234715.00) * 10526.30 = 45.475821 ppb
14.458	1999243	Perchlorate_85	(1999243 * 0.0050) / (0.39 * 6234715.00) * 10526.30 = 43.096946 ppb

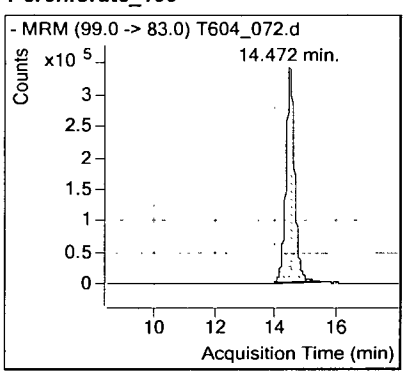
Quantitative Analysis Sample Report

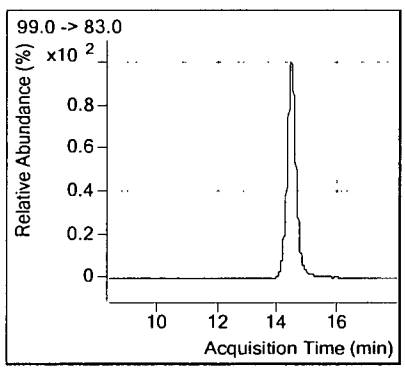
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_072.d	**Sample Name**	AZ17047_W01 10526.3 DF 06/04/15_6/05
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	16:58
ClientID	S67-GWA8-060315	**Inj Vol**	20

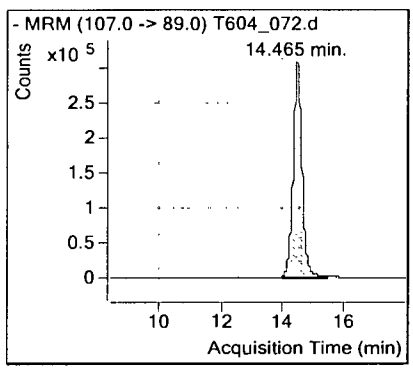


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.472	6842935	6234715
Perchlorate_102	PER_IS_108	14.458	1999243	6234715

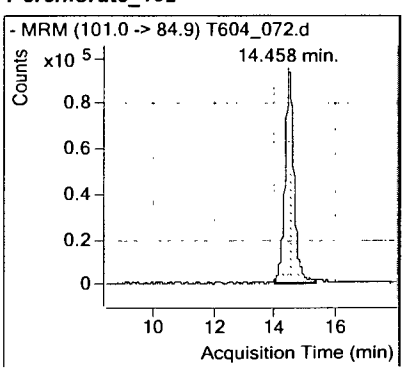
Perchlorate_100

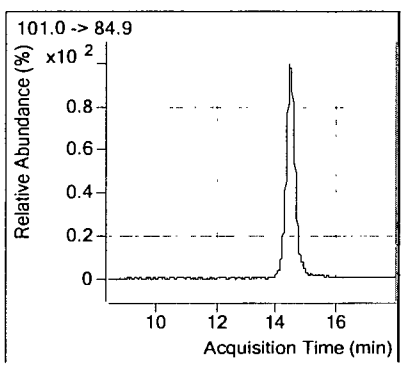


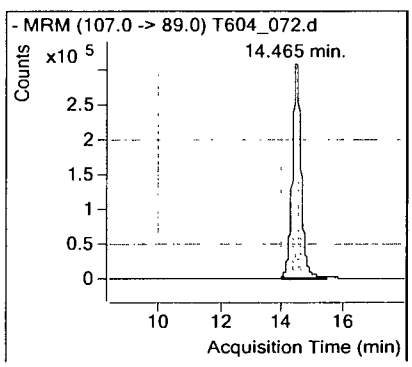




Perchlorate_102







EPA METHOD 6850
Perchlorate
LC/MS

Calibration Data

APPL, INC.

METHOD 6850 CALIBRATION SUMMARY

Lab Name: APPL Inc. **DETECTOR ID : Agilent 6460 Triple Quad LC/MS**

Average Relative Response Factor Summary

Analyte Id:	R.R.F.#1 PERCHLORATE 0.0002 PPM	R.R.F.#2 PERCHLORATE 0.0004 PPM	R.R.F.#3 PERCHLORATE 0.001 PPM	R.R.F.#4 PERCHLORATE 0.002 PPM	R.R.F.#5 PERCHLORATE 0.005 PPM	R.R.F.#6 PERCHLORATE 0.010 PPM	AVERAGE REL.RESP. FACTOR	%RSD RRF
Perchlorate_83	1.339537	1.198791	1.165697	1.173646	1.314663	1.429198	1.270255	8.44
Perchlorate_85	0.434068	0.395112	0.366889	0.354937	0.381638	0.416989	0.391605	7.67

FILE ID : TQ0312A.FRB

Perchlorate_83

RESPONSE FACTOR CALCULATIONS - AREA COUNTS

DATA FILES : T312_003.d - T312_008.d

The Data points that were Read Were

Standard Response	Standard Concentration µg/ml	Internal Standard Response	Internal Standard Concentration µg/ml	Response Factor	RPD	%RSD
446712.00	0.0002	8337058.00	0.0050	1.339537	5.45	8.44
1023403.00	0.0004	10671196.00	0.0050	1.198791	5.63	
2483393.00	0.0010	10651968.00	0.0050	1.165697	8.23	
6351752.00	0.0020	13529952.00	0.0050	1.173646	7.61	
14499255.00	0.0050	11028880.00	0.0050	1.314663	3.50	
34223790.00	0.0100	11973072.00	0.0050	1.429198	12.51	

The Average Response Factor = 1.270255

Perchlorate_85

RESPONSE FACTOR CALCULATIONS - AREA COUNTS

DATA FILES : T312_003.d - T312_008.d

The Data points that were Read Were

Standard Response	Standard Concentration µg/ml	Internal Standard Response	Internal Standard Concentration µg/ml	Response Factor	RPD	IRSD
144754.00	0.0002	8337058.00	0.0050	0.434068	10.84	7.67
337305.00	0.0004	10671196.00	0.0050	0.395112	0.90	
781617.00	0.0010	10651968.00	0.0050	0.366889	6.31	
1920912.00	0.0020	13529952.00	0.0050	0.354937	9.36	
4209044.00	0.0050	11028880.00	0.0050	0.381638	2.55	
9985270.00	0.0100	11973072.00	0.0050	0.416989	6.48	

The Average Response Factor = 0.391605

Data File ID: T312_003.d

Date Injected : 03/12/15

Time Injected : 17:52

Sample ID : PERCHLORATE 0.0002 ug/ml 11/11/14

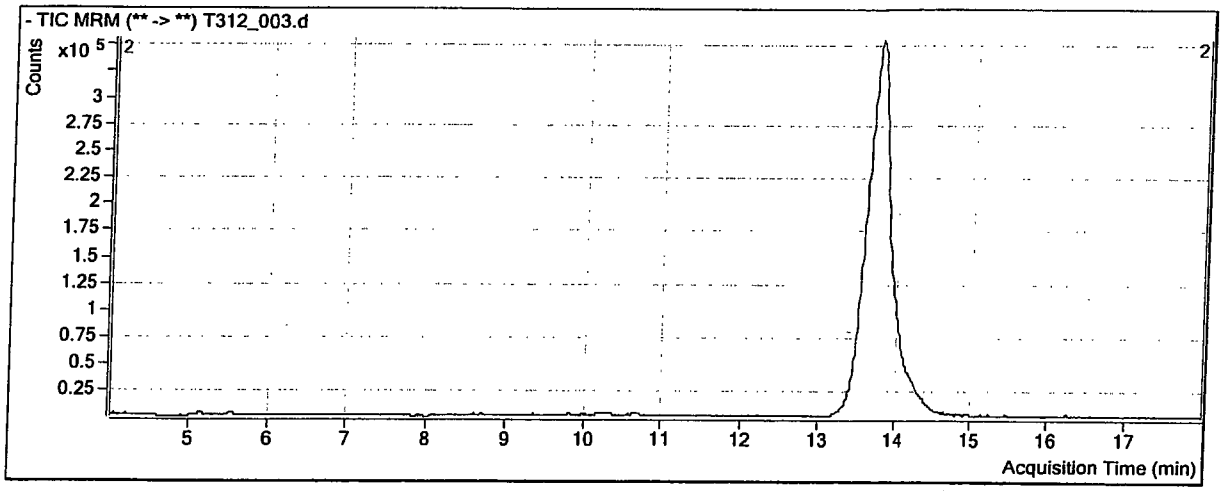
Client ID : NA

Retention Time		Area Count Response	Compound_ID Product Ion
13.732		8337058	PER_IS_89
13.789	*	446712	Perchlorate_83
13.704		144754	Perchlorate_85

* MANUAL INTEGRAION

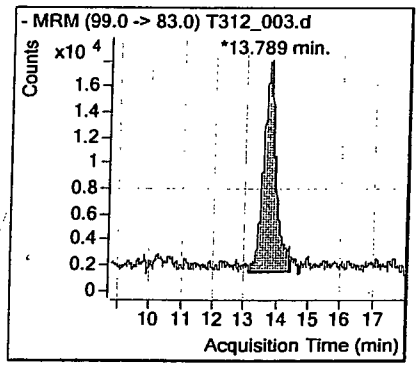
Quantitative Analysis Sample Report

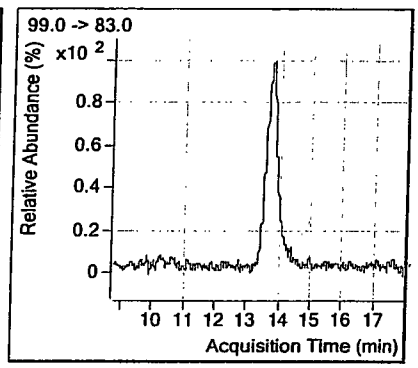
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_003.d	**Sample Name**	PERCHLORATE 0.0002 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	17:52
ClientID	NA	**Inj Vol**	20

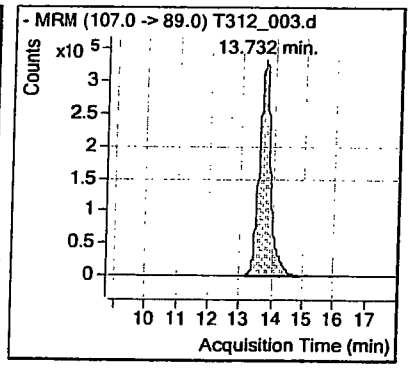


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108	*	13.789	446712	8337058	* MANUAL INT
Perchlorate_102	PER_IS_108		13.704	144754	8337058	

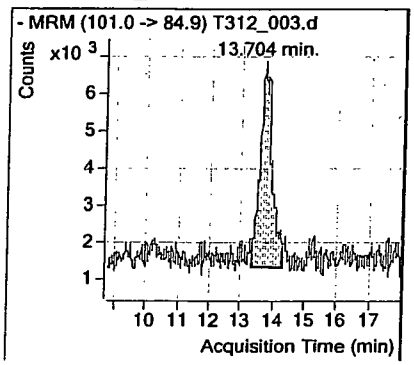
Perchlorate_100

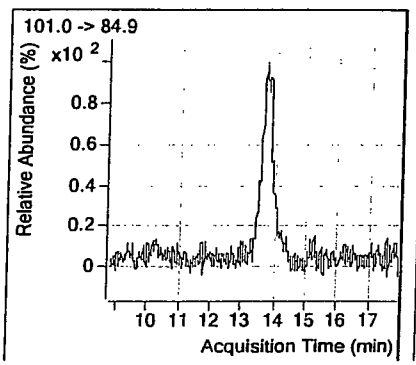


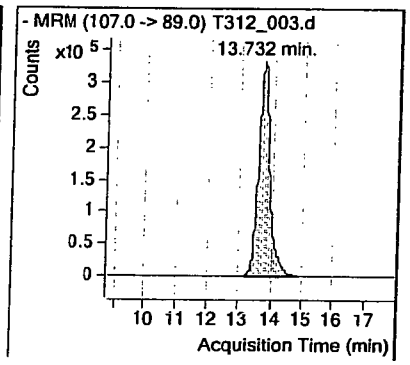


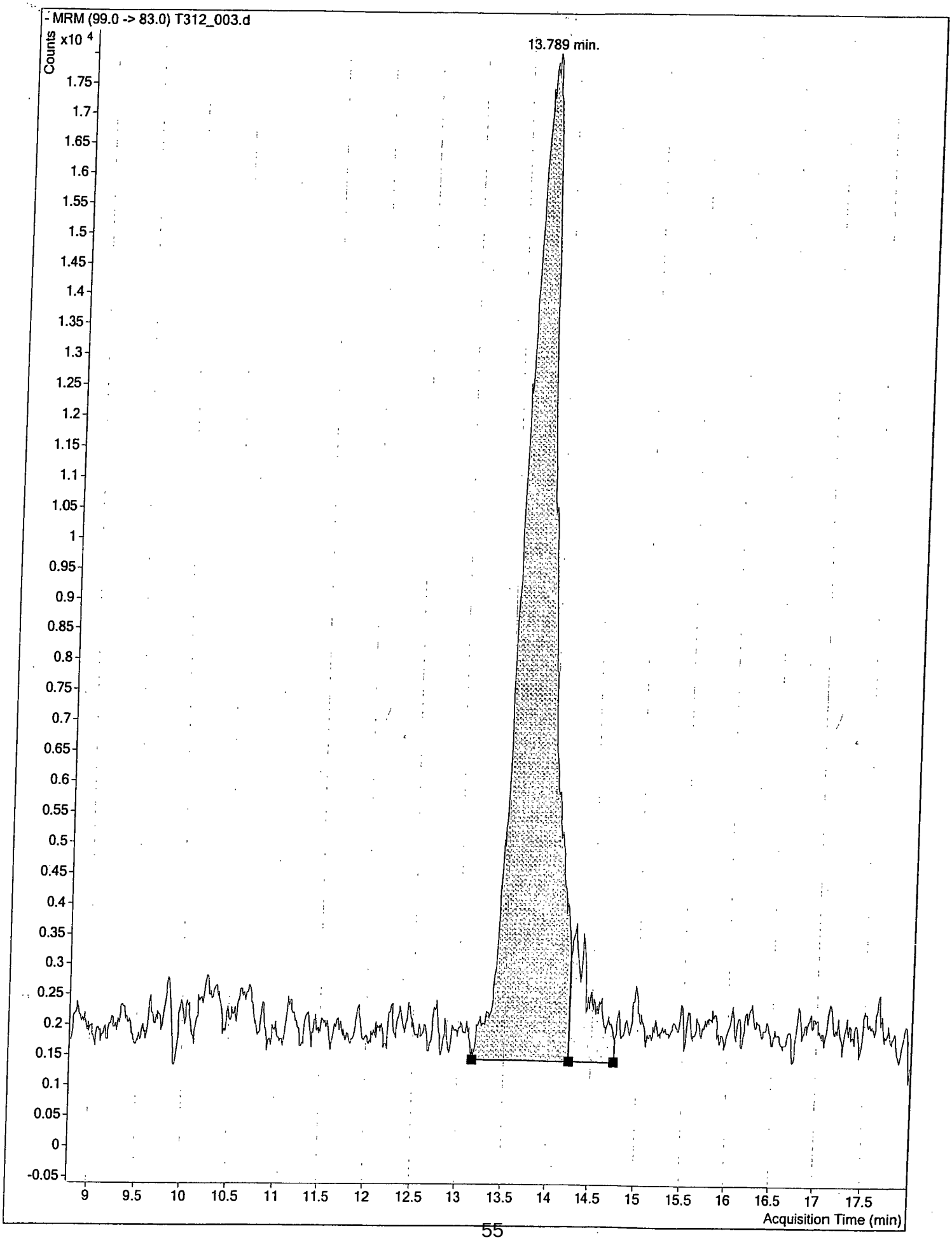


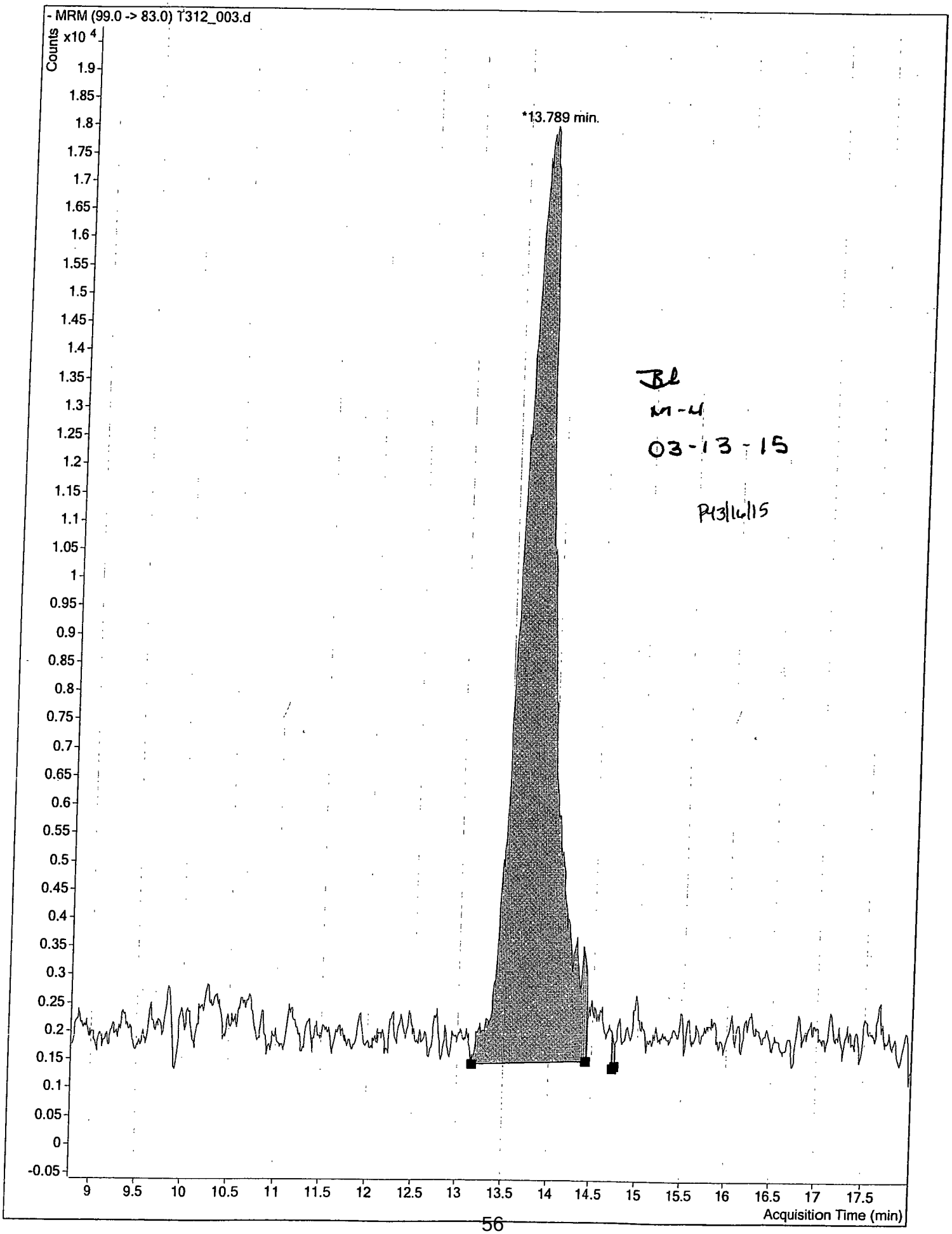
Perchlorate_102








- MRM (99.0 -> 83.0) T312_003.d
Counts x10 4
13.789 min.
Acquisition Time (min)


- MRM (99.0 -> 83.0) T312_003.d
Counts
x10 4
*13.789 min.
Acquisition Time (min)
JBl
M-4
03-13-15
P43|16|15

Data File ID: T312_004.d

Date Injected : 03/12/15

Time Injected : 18:11

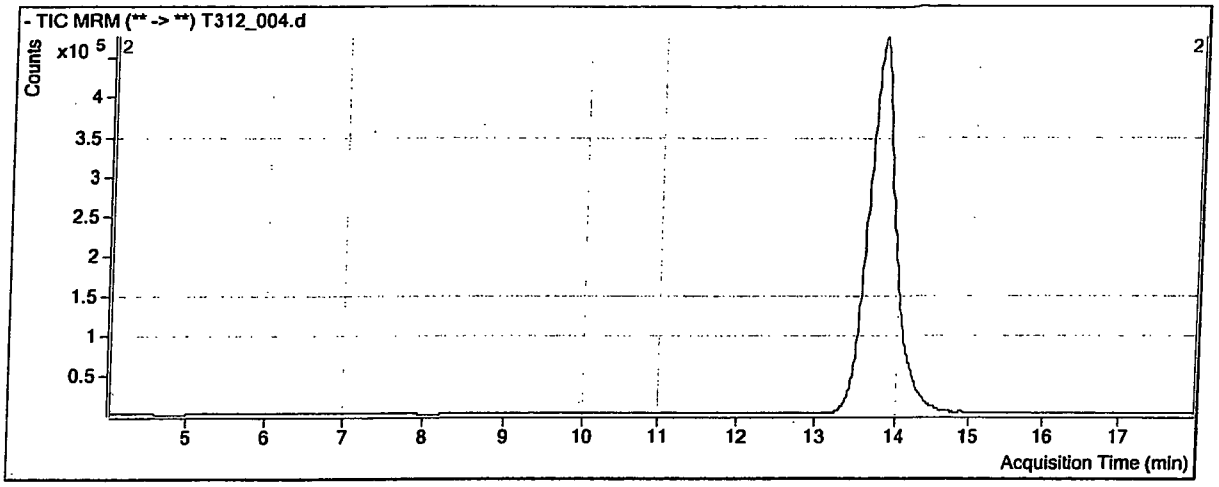
Sample ID : PERCHLORATE 0.0004 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.783	10671196	PER_IS_89
13.8	1023403	Perchlorate_83
13.827	337305	Perchlorate_85

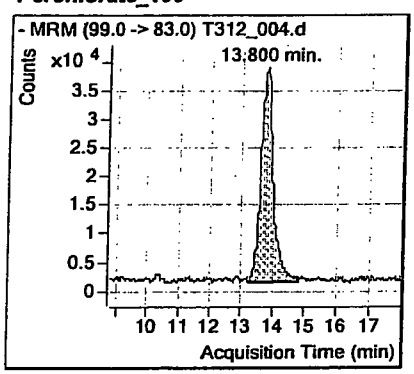
Quantitative Analysis Sample Report

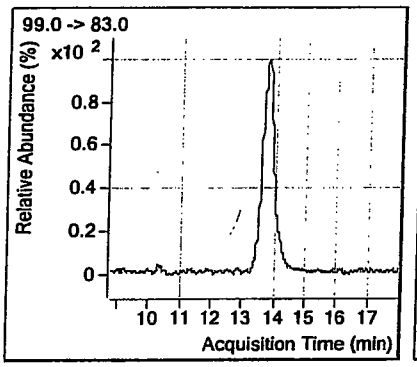
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_004.d	**Sample Name**	PERCHLORATE 0.0004 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	18:11
ClientID	NA	**Inj Vol**	20

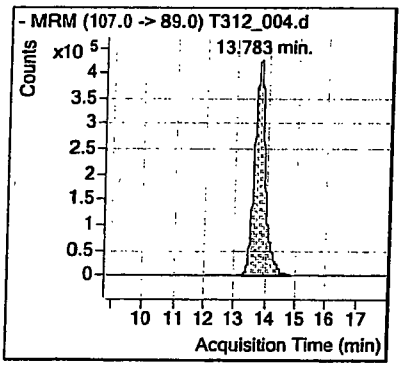


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.800	1023403	10671196
Perchlorate_102	PER_IS_108	13.827	337305	10671196

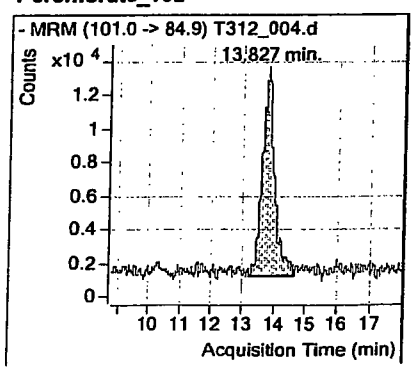
Perchlorate_100

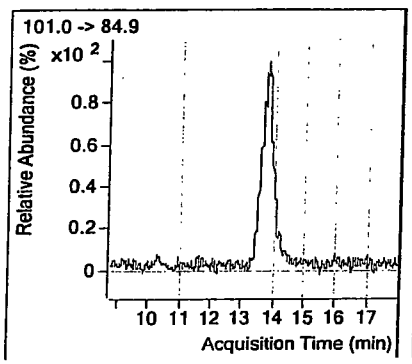


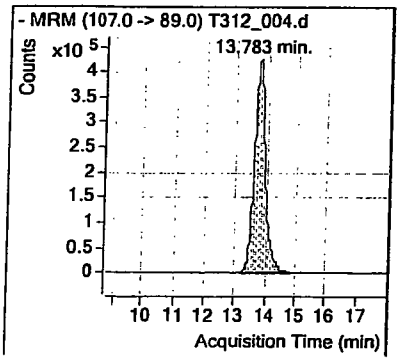




Perchlorate_102







Data File ID: T312_005.d

Date Injected : 03/12/15

Time Injected : 18:29

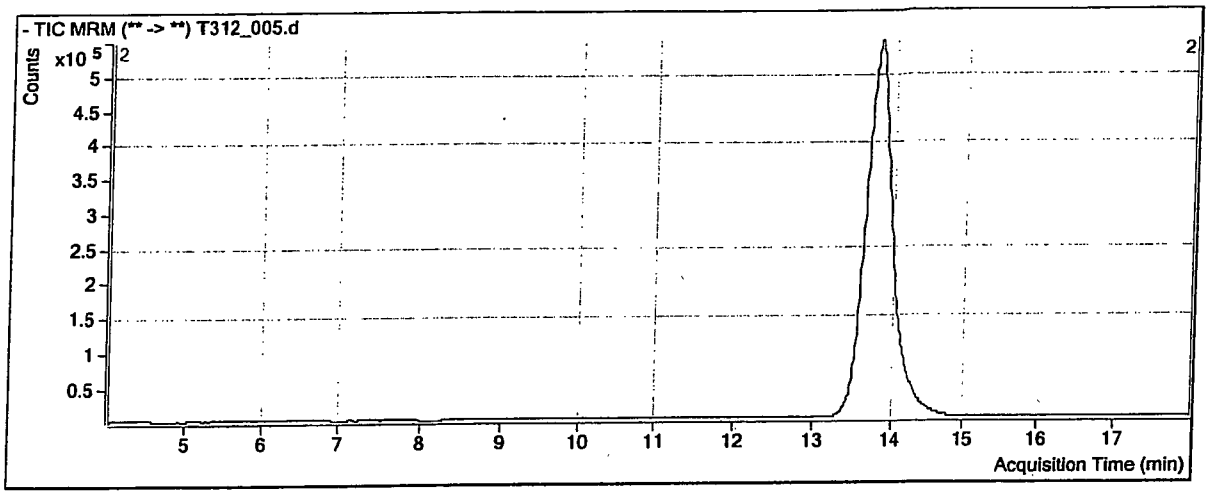
Sample ID : PERCHLORATE 0.001 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.803	10651968	PER_IS_89
13.82	2483393	Perchlorate_83
13.827	781617	Perchlorate_85

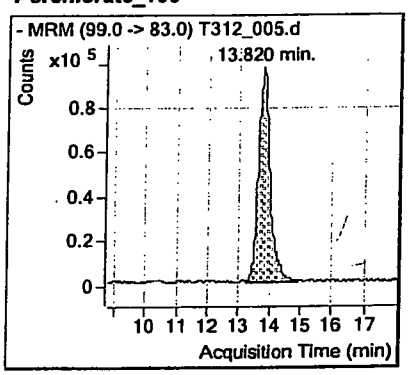
Quantitative Analysis Sample Report

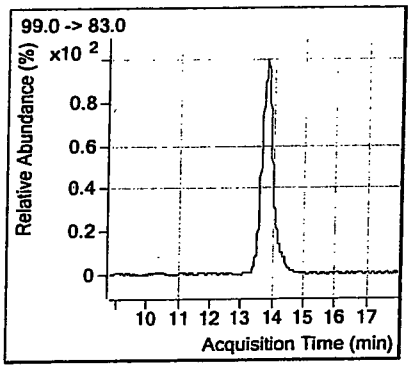
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_005.d	**Sample Name**	PERCHLORATE 0.001 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	18:29
ClientID	NA	**Inj Vol**	20

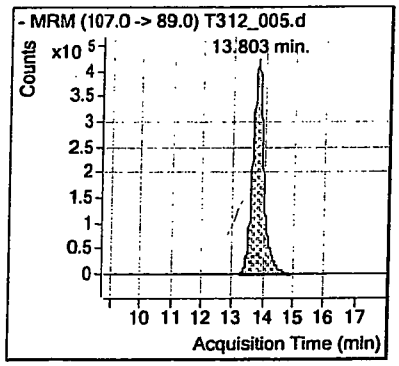


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.820	2483393	10651968
Perchlorate_102	PER_IS_108	13.827	781617	10651968

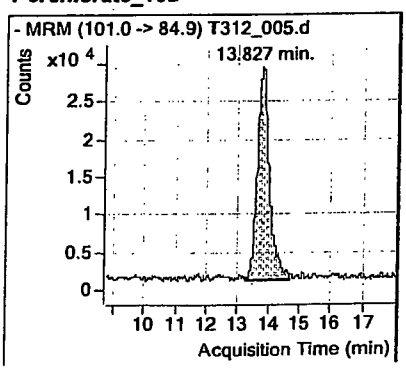
Perchlorate_100

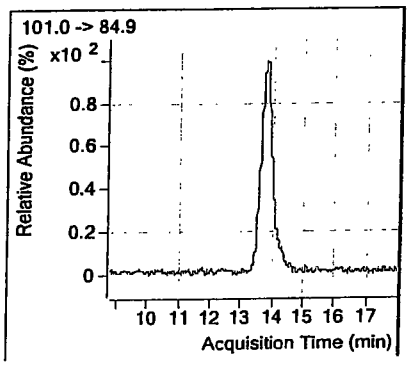


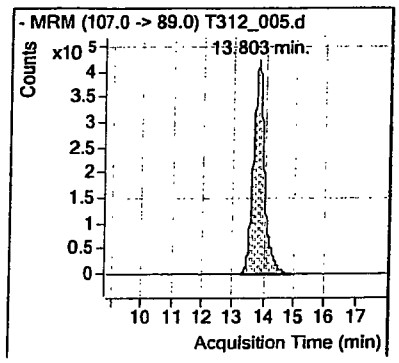




Perchlorate_102







Data File ID: T312_006.d

Date Injected : 03/12/15

Time Injected : 18:48

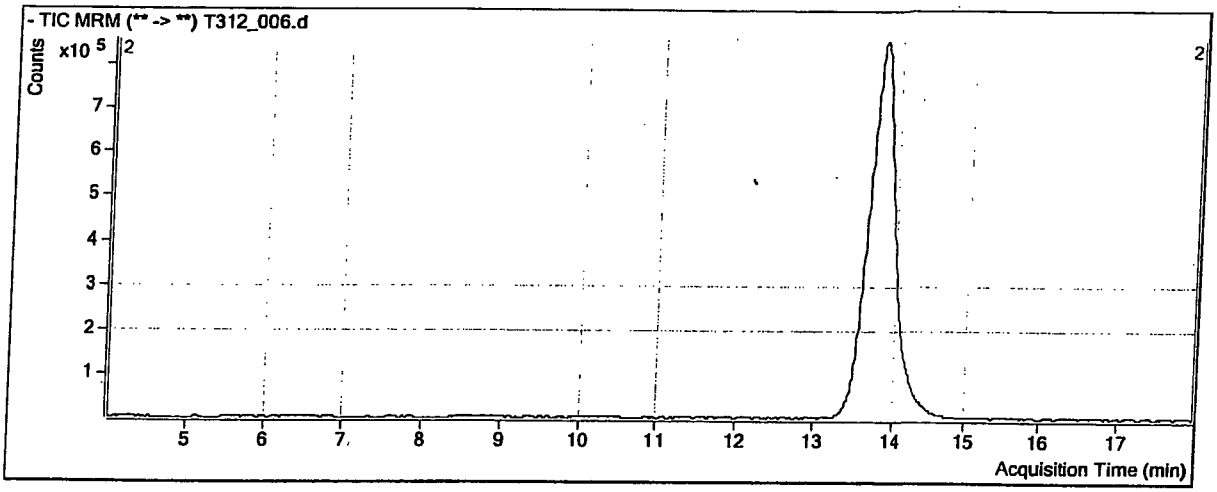
Sample ID : PERCHLORATE 0.002 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.803	13529952	PER_IS_89
13.83	6351752	Perchlorate_83
13.817	1920912	Perchlorate_85

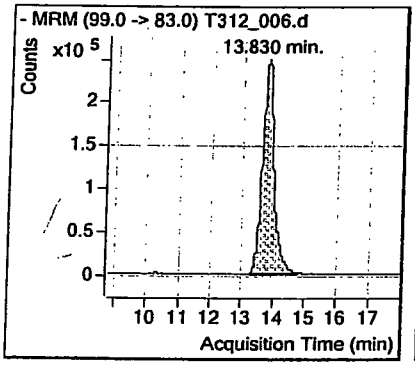
Quantitative Analysis Sample Report

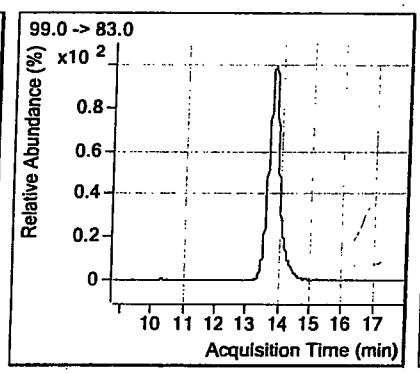
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_006.d	**Sample Name**	PERCHLORATE 0.002 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	18:48
ClientID	NA	**Inj Vol**	20

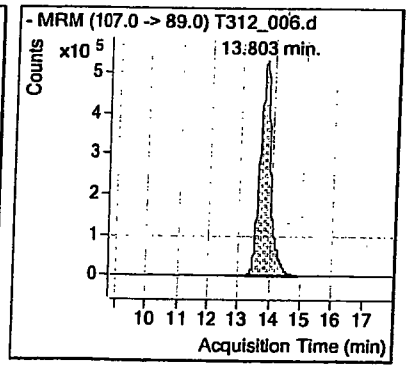


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.830	6351752	13529952
Perchlorate_102	PER_IS_108	13.817	1920912	13529952

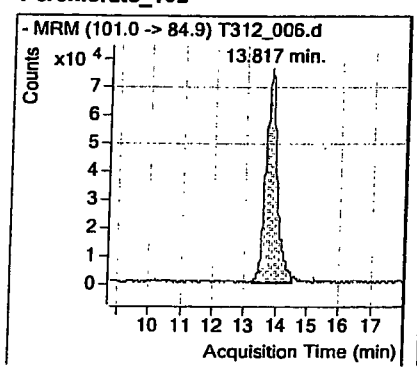
Perchlorate_100

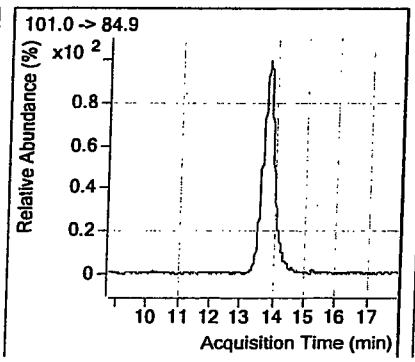


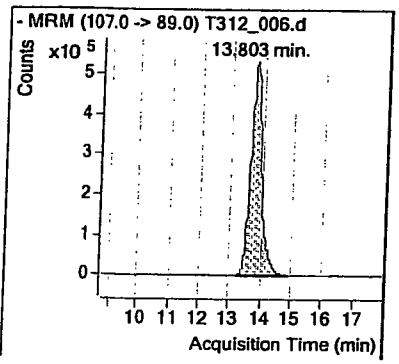




Perchlorate_102







Data File ID: T312_007.d

Date Injected : 03/12/15

Time Injected : 19:07

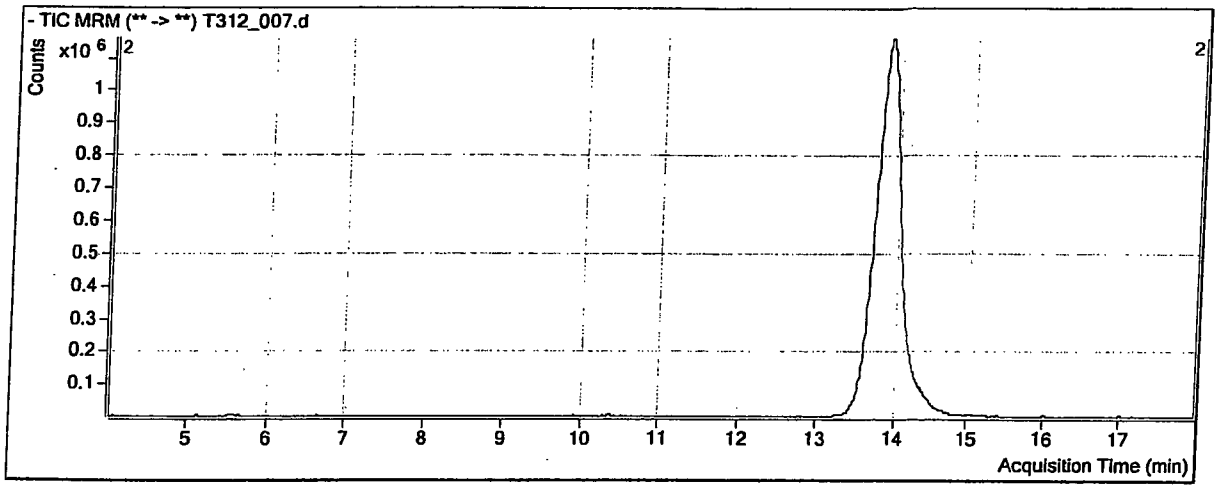
Sample ID : PERCHLORATE 0.005 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.874	11028880	PER_IS_89
13.861	14499255	Perchlorate_83
13.878	4209044	Perchlorate_85

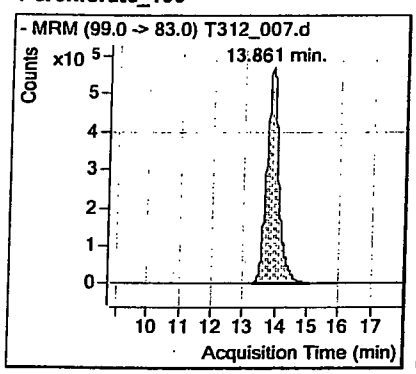
Quantitative Analysis Sample Report

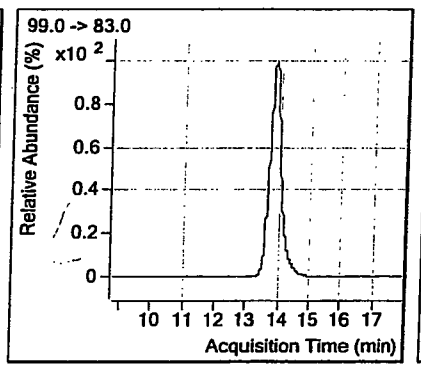
Batch-Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_007.d	**Sample Name**	PERCHLORATE 0.005 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	19:07
ClientID	NA	**Inj Vol**	20

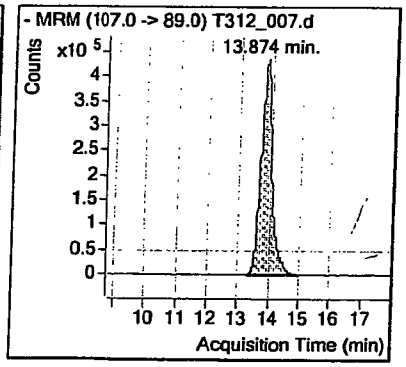


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.861	14499255	11028880
Perchlorate_102	PER_IS_108	13.878	4209044	11028880

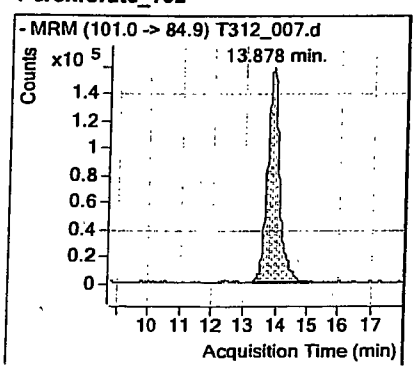
Perchlorate_100

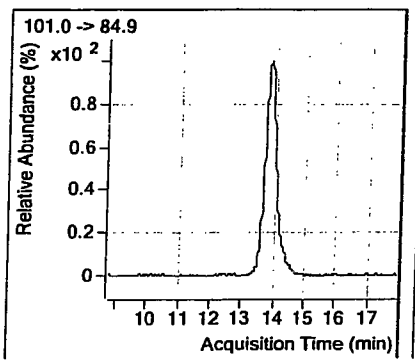


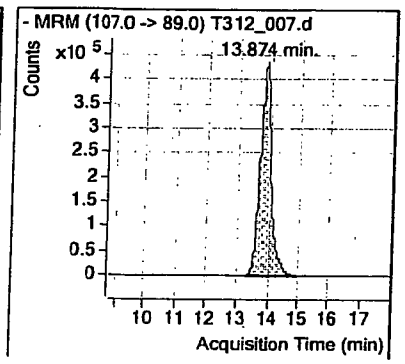




Perchlorate_102







Data File ID: T312_008.d

Date Injected : 03/12/15

Time Injected : 19:25

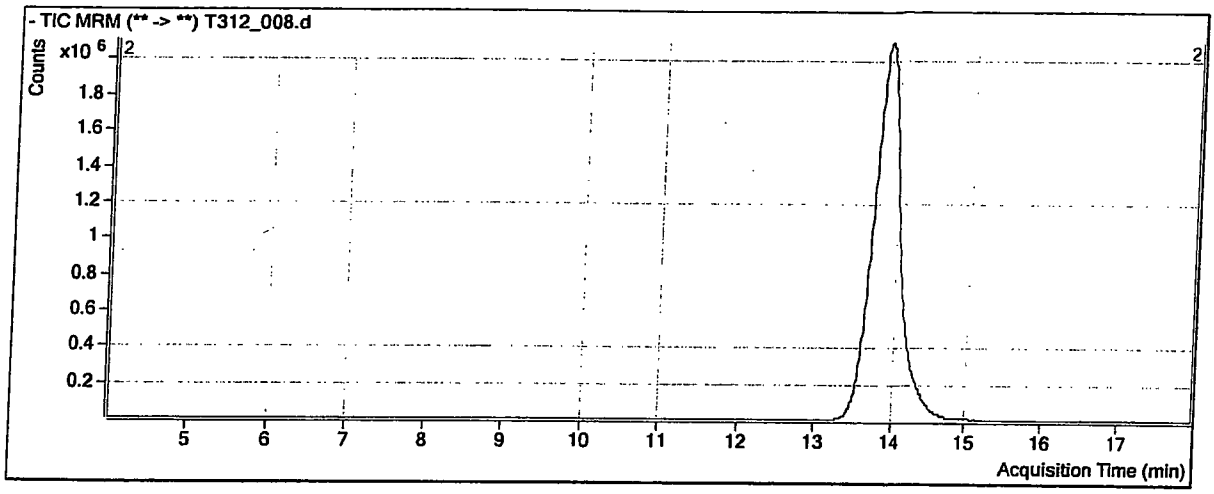
Sample ID : PERCHLORATE 0.010 ug/ml 08/27/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.874	11973072	PER_IS_89
13.881	34223790	Perchlorate_83
13.878	9985270	Perchlorate_85

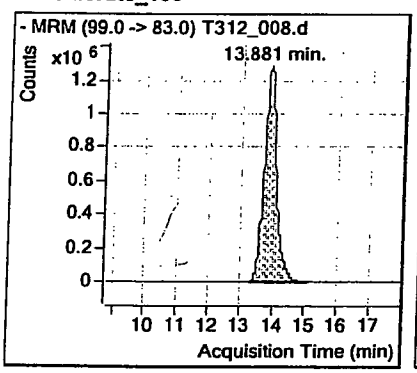
Quantitative Analysis Sample Report

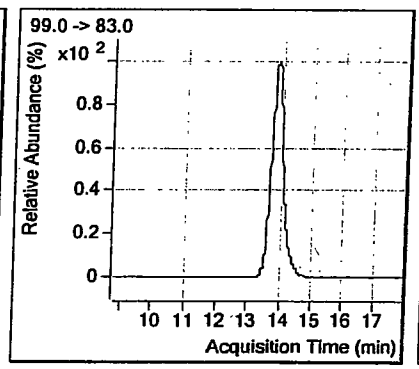
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_008.d	**Sample Name**	PERCHLORATE 0.010 ug/ml 08/27/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	19:25
ClientID	NA	**Inj Vol**	20

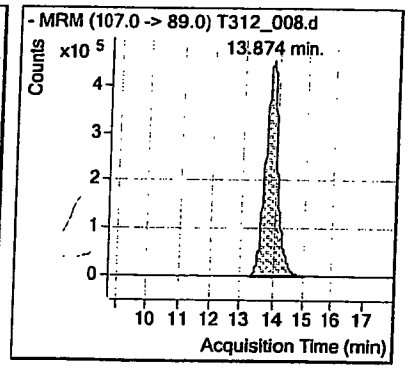


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.881	34223790	11973072
Perchlorate_102	PER_IS_108	13.878	9985270	11973072

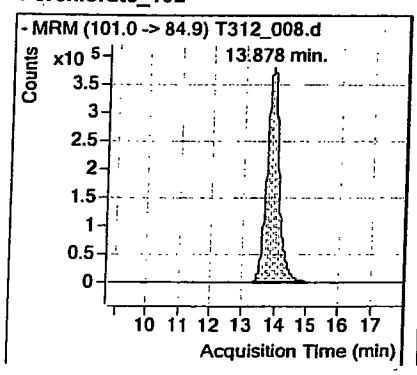
Perchlorate_100

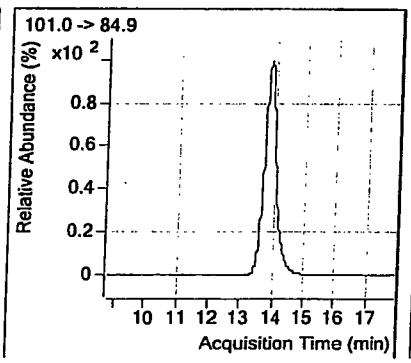


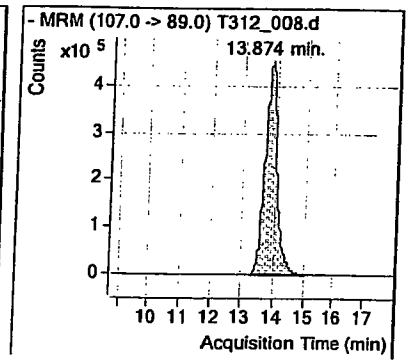




Perchlorate_102







SECOND SOURCE CALIBRATION VERIFICATION SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T312_010.d

	Date (s) of Analysis From:03/12/15 To:03/12/15 Time (s) of Analysis From:17:33 To:19:44				Date of Analysis: 03/12/15 Time of Analysis: 20:02 Standard Id: PER_SS (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	13.94	1.418633	N	11.7
Perchlorate_85	13.54	13.44	13.64	0.391605	13.96	0.424457	N	8.4

ILE ID : TQCK1210.RFB

Data File ID: T312_010.d

Date Injected : 03/12/15

Time Injected : 20:02

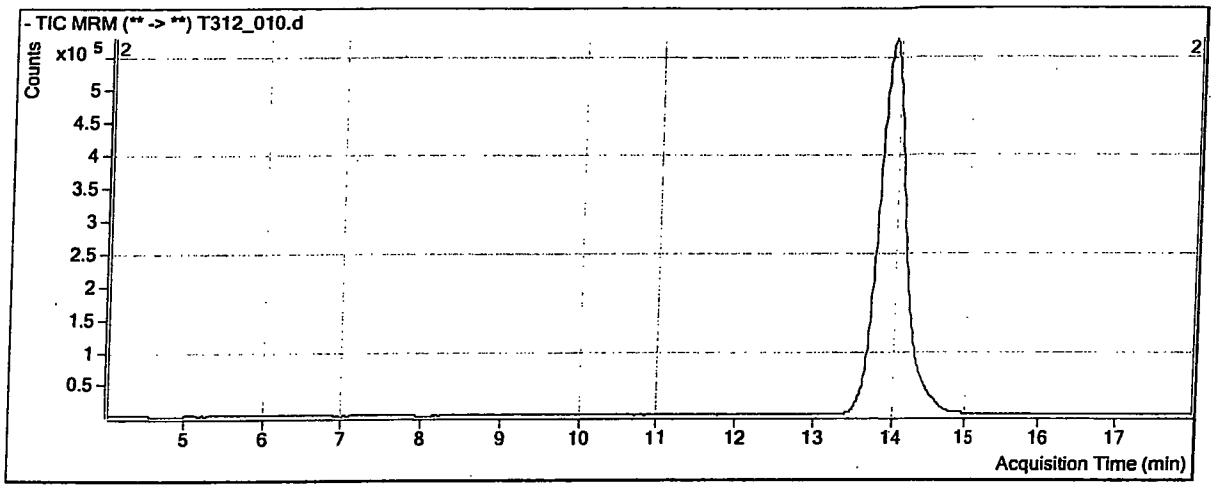
Sample ID : PER_SS 0.0004 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.946	12977621	PER_IS_89
13.942	1472839	Perchlorate_83
13.959	440675	Perchlorate_85

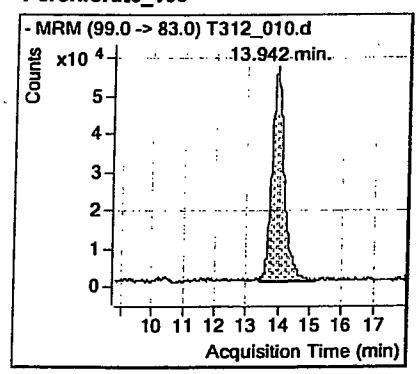
Quantitative Analysis Sample Report

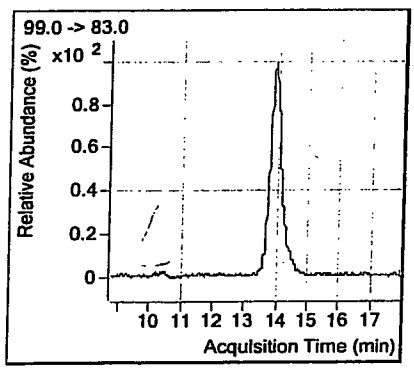
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_010.d	**Sample Name**	PER_SS 0.0004 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	20:02
ClientID	NA	**Inj Vol**	20

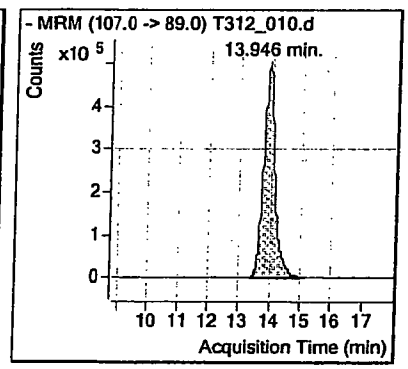


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.942	1472839	12977621
Perchlorate_102	PER_IS_108	13.959	440675	12977621

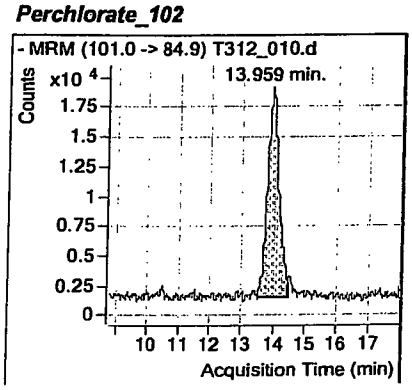
Perchlorate_100

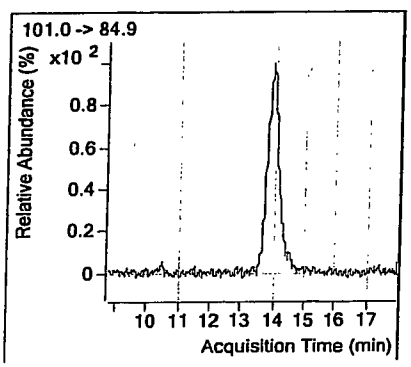


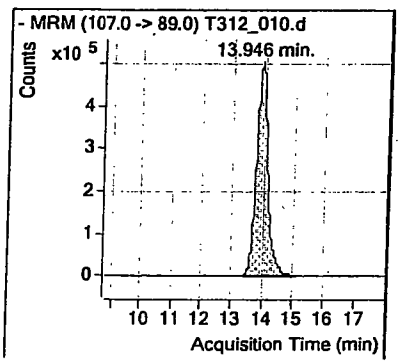




Perchlorate_102







SECOND SOURCE CALIBRATION VERIFICATION SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T312_011.d

	Date (s) of Analysis From:03/12/15 To:03/12/15 Time (s) of Analysis From:17:33 To:19:44				Date of Analysis: 03/12/15 Time of Analysis: 20:21 Standard Id: PER_SS (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	14.01	1.358201	N	6.9
Perchlorate_85	13.54	13.44	13.64	0.391605	14.00	0.404148	N	3.2

FILE ID : TQCK1211.RFB

Data File ID: T312_011.d

Date Injected : 03/12/15

Time Injected : 20:21

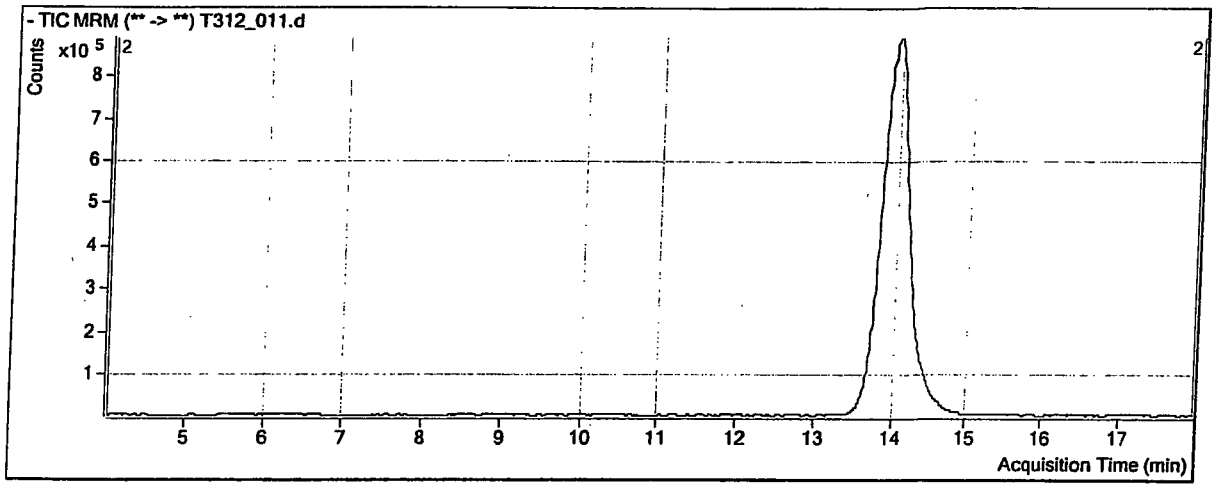
Sample ID : PER_SS 0.002 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.976	13747369	PER_IS_89
14.014	7468678	Perchlorate_83
14.000	2222387	Perchlorate_85

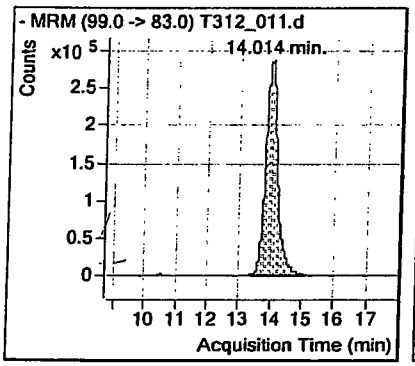
Quantitative Analysis Sample Report

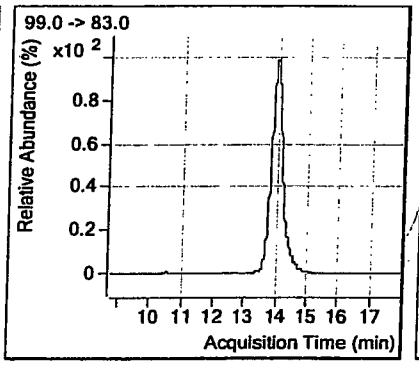
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_011.d	**Sample Name**	PER_SS 0.002 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	20:21
ClientID	NA	**Inj Vol**	20

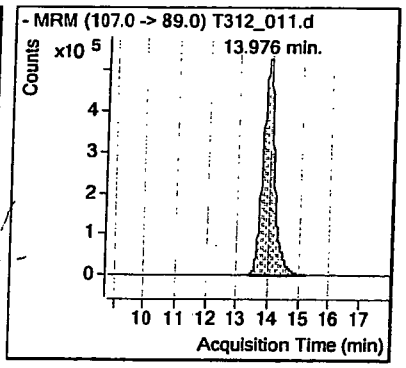


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.014	7468678	13747369
Perchlorate_102	PER_IS_108	14.000	2222387	13747369

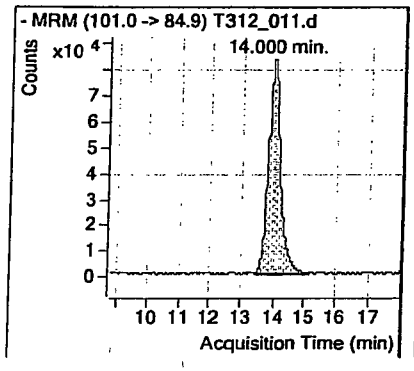
Perchlorate_100

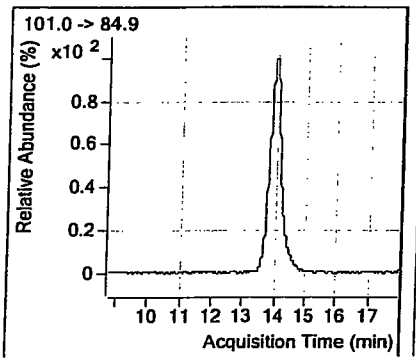


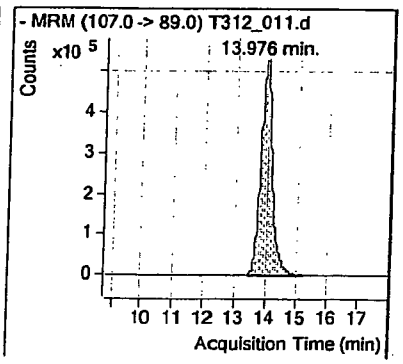




Perchlorate_102







CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T312_013.d

	Date (s) of Analysis From:03/12/15 To:03/12/15 Time (s) of Analysis From:17:33 To:20:40				Date of Analysis: 03/12/15 Time of Analysis: 20:58 Standard Id: PER_CCV_1 (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	14.10	1.285147	N	1.2
Perchlorate_85	13.54	13.44	13.64	0.391605	14.14	0.416428	N	6.3

FILE ID : TQCK1213.RFB

Data File ID: T312_013.d

Date Injected : 03/12/15

Time Injected : 20:58

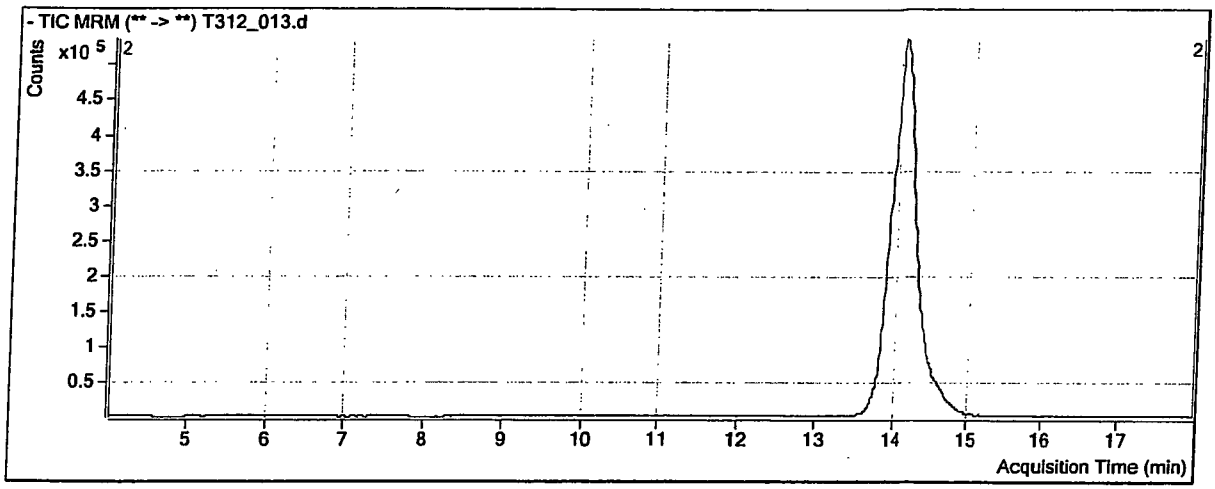
Sample ID : PER_CCV_1 0.0004 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.109	12323795	PER_IS_89
14.105	1267031	Perchlorate_83
14.143	410558	Perchlorate_85

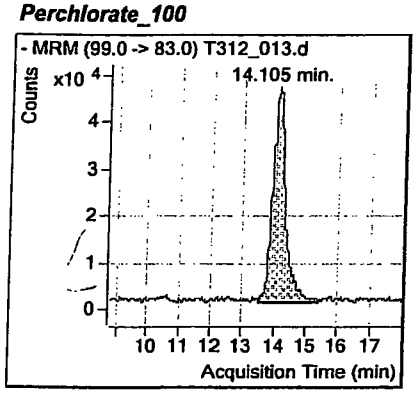
Quantitative Analysis Sample Report

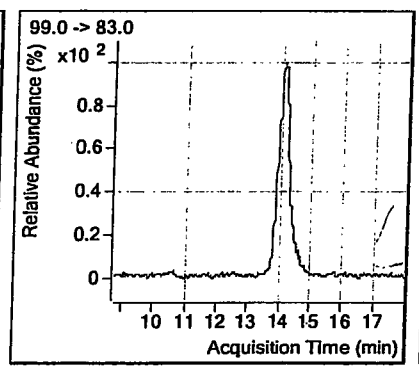
Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_013.d	**Sample Name**	PER_CCV_1 0.0004 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	20:58
ClientID	NA	**Inj Vol**	20

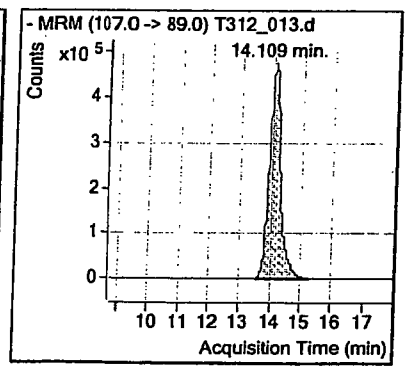


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.105	1267031	12323795
Perchlorate_102	PER_IS_108	14.143	410558	12323795

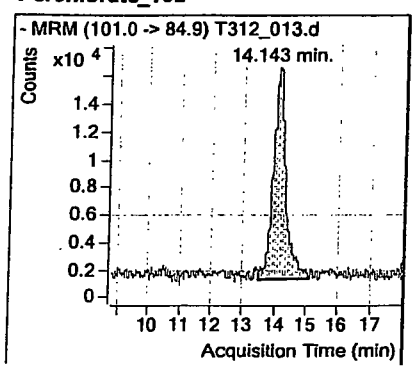
Perchlorate_100

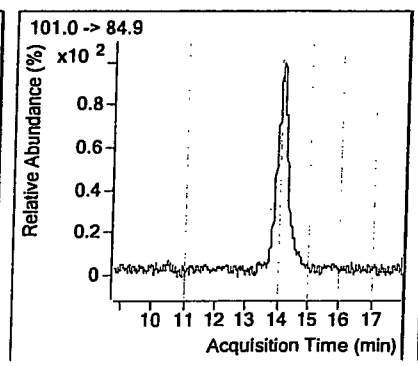


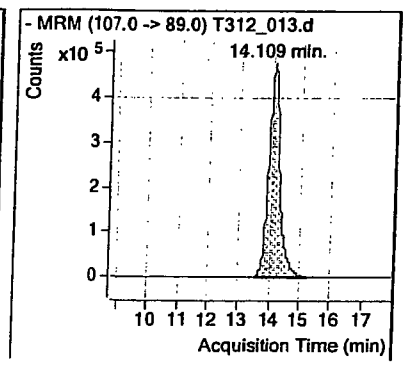




Perchlorate_102







CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T312_014.d

Date (s) of Analysis From:03/12/15 To:03/12/15 Time (s) of Analysis From:17:33 To:20:40	Date of Analysis: 03/12/15 Time of Analysis: 21:17 Standard Id: PER_CCV_1 (Standard) 0.002 ug/ml

COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	14.15	1.271875	N	0.1
Perchlorate_85	13.54	13.44	13.64	0.391605	14.12	0.385509	N	1.6

FILE ID : TQCK1214.RFB

Data File ID: T312_014.d

Date Injected : 03/12/15

Time Injected : 21:17

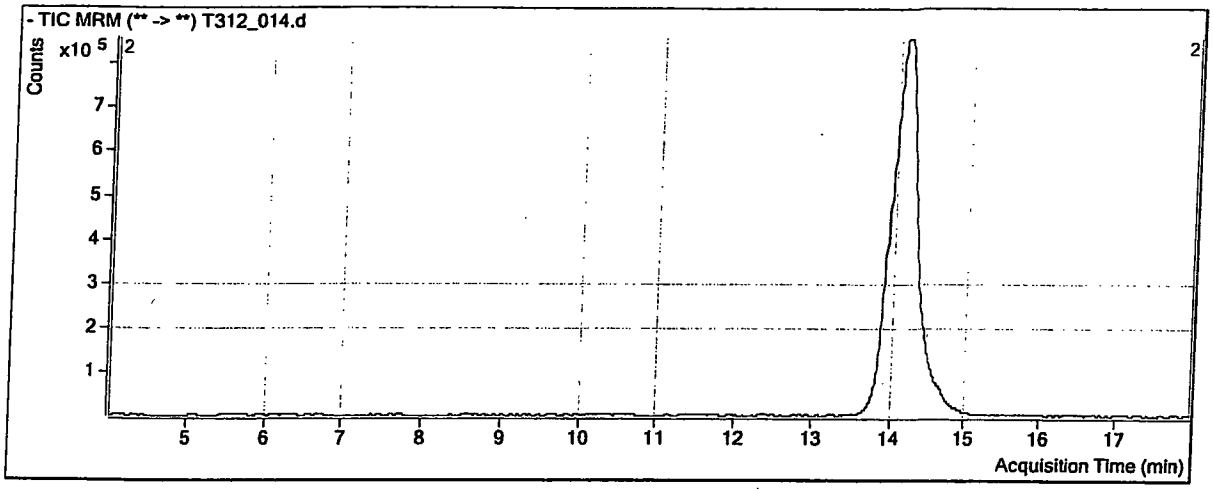
Sample ID : PER_CCV_1 0.002 ug/ml 11/11/14

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.139	13576634	PER_IS_89
14.146	6907110	Perchlorate_83
14.122	2093567	Perchlorate_85

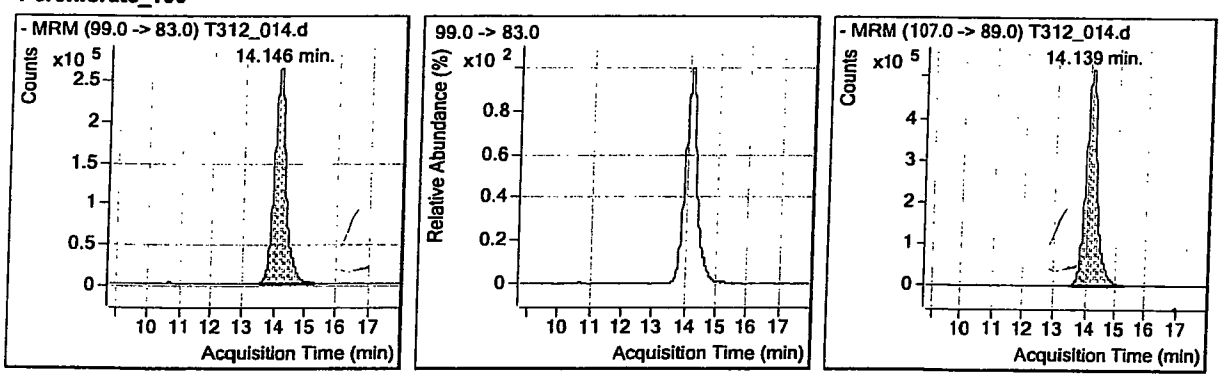
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T312_014.d	**Sample Name**	PER_CCV_1 0.002 ug/ml 11/11/14
Sample Type	Sample	**Acq_Date**	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	21:17
ClientID	NA	**Inj Vol**	20

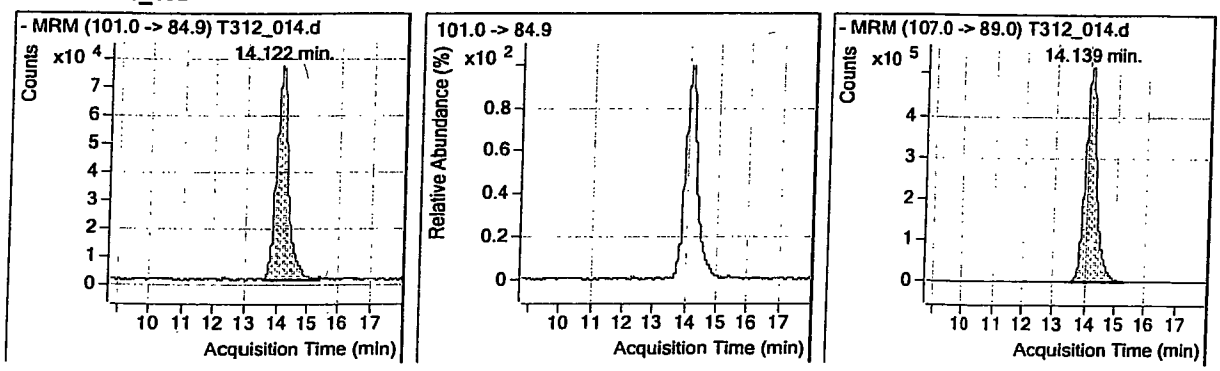


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.146	6907110	13576634
Perchlorate_102	PER_IS_108	14.122	2093567	13576634

Perchlorate_100



Perchlorate_102



CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_002.d

	Date (s) of Analysis From:06/04/15 To:06/04/15 Time (s) of Analysis From:9:43 To:9:24				Date of Analysis: 06/04/15 Time of Analysis: 9:43 Standard Id: PER_CCV (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.49	13.39	13.59	1.270255	13.37	1.332570	N	4.9
Perchlorate_85	13.56	13.46	13.66	0.391605	13.34	0.439672	N	12.3

FILE ID : TQCK0402.RFB

Data File ID: T604_002.d

Date Injected : 06/04/15

Time Injected : 9:43

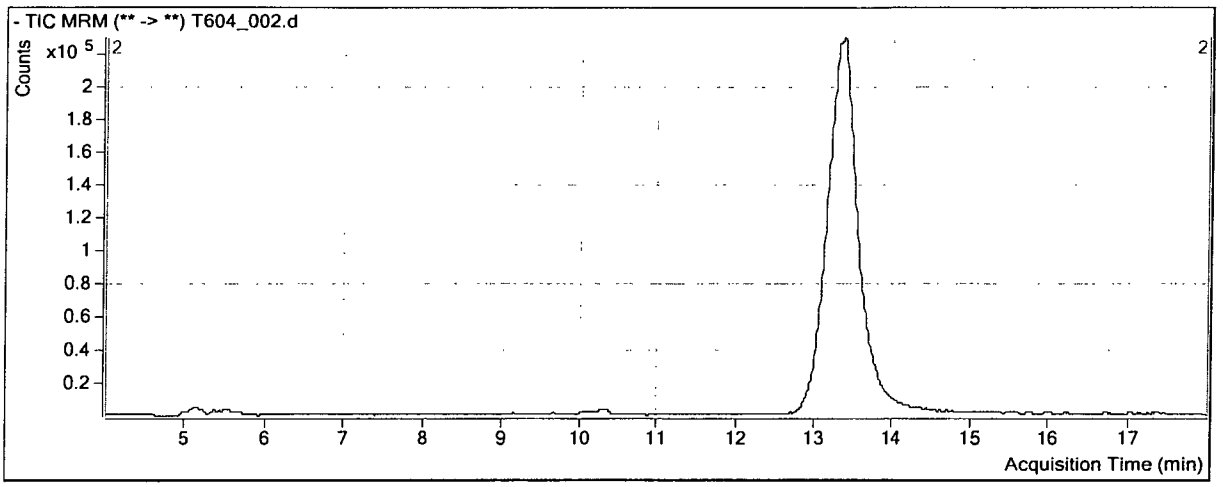
Sample ID : PER_CCV 0.0004 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.375	5585900	PER_IS_89
13.372	595488	Perchlorate_83
13.338	196477	Perchlorate_85

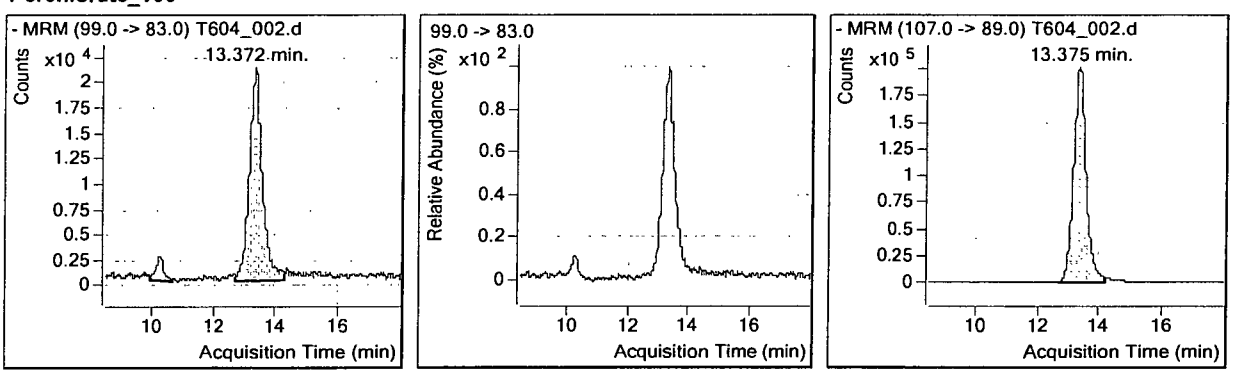
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_002.d	**Sample Name**	PER_CCV 0.0004 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	9:43
ClientID	NA	**Inj Vol**	20

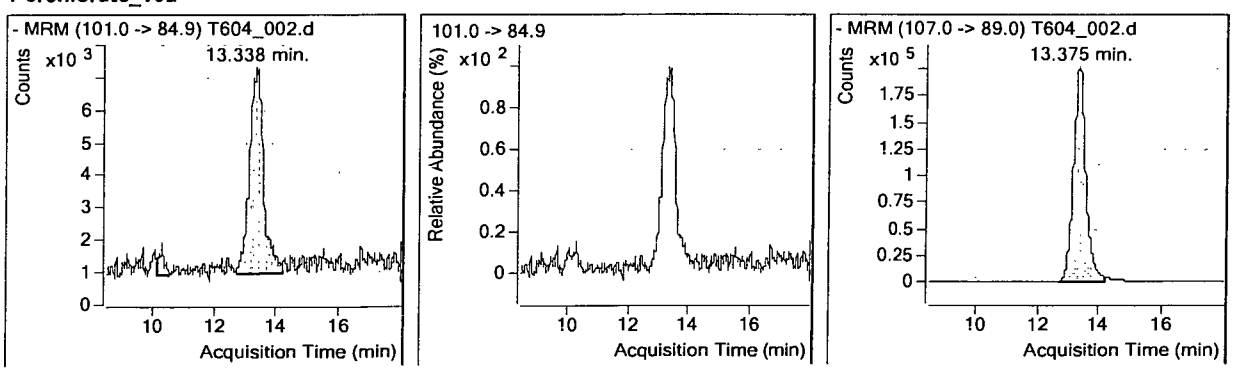


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.372	595488	5585900
Perchlorate_102	PER_IS_108	13.338	196477	5585900

Perchlorate_100



Perchlorate_102



CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_003.d

	Date (s) of Analysis From:06/04/15 To:06/04/15 Time (s) of Analysis From:10:02 To:9:24				Date of Analysis: 06/04/15 Time of Analysis: 10:02 Standard Id: PER_CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.49	13.39	13.59	1.270255	13.48	1.139064	N	10.3
Perchlorate_85	13.56	13.46	13.66	0.391605	13.49	0.343330	N	12.3

FILE ID : TQCK0403.RFB

Data File ID: T604_003.d

Date Injected : 06/04/15

Time Injected : 10:02

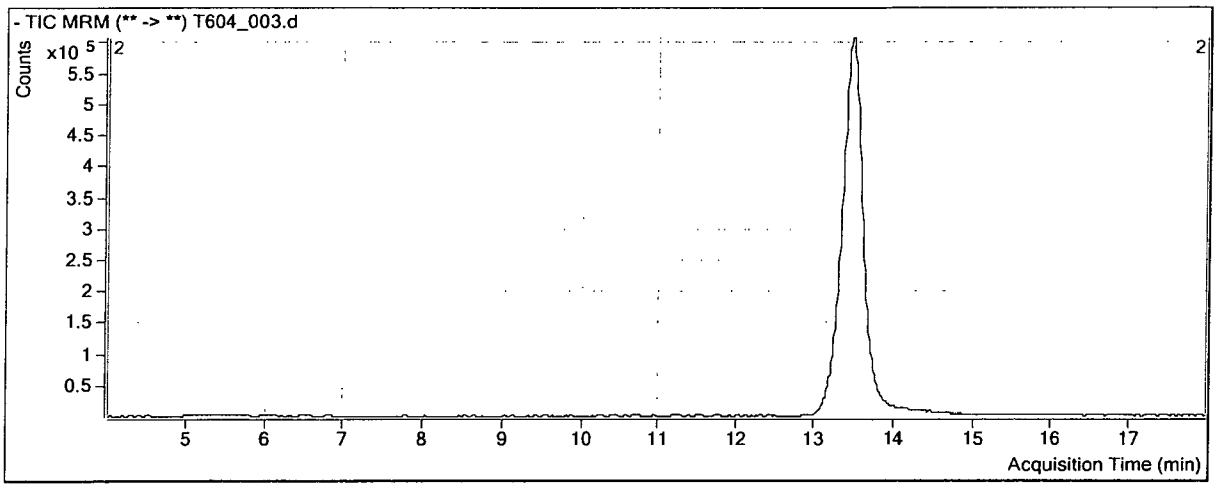
Sample ID : PER_CCV 0.002 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.467	7150829	PER_IS_89
13.484	3258101	Perchlorate_83
13.491	982038	Perchlorate_85

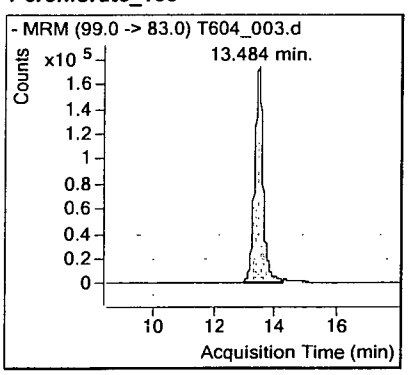
Quantitative Analysis Sample Report

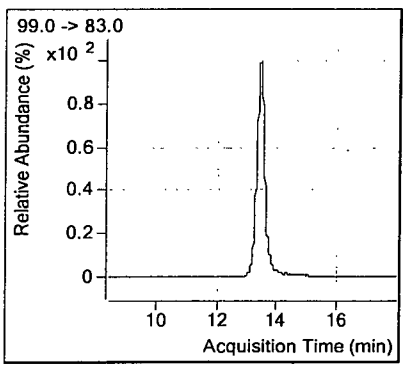
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_003.d	**Sample Name**	PER_CCV 0.002 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	10:02
ClientID	NA	**Inj Vol**	20

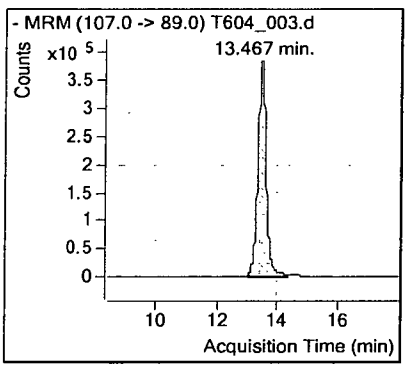


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.484	3258101	7150829
Perchlorate_102	PER_IS_108	13.491	982038	7150829

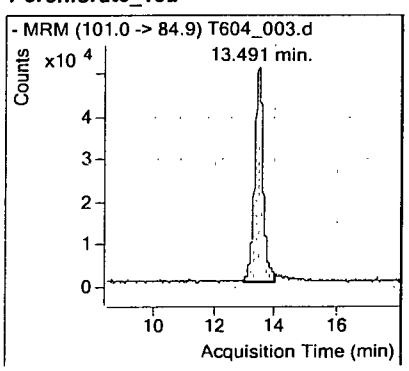
Perchlorate_100

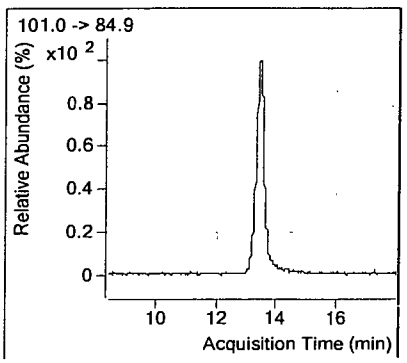


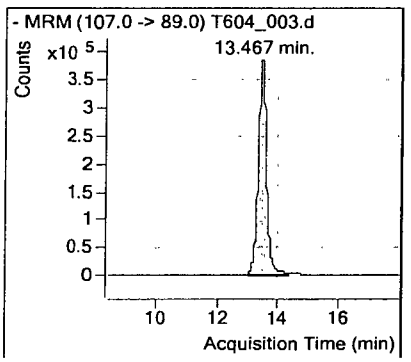




Perchlorate_102







CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_016.d

	Date (s) of Analysis From:06/04/15 To:06/04/15 Time (s) of Analysis From:14:14 To:13:37				Date of Analysis: 06/04/15 Time of Analysis: 14:14 Standard Id: PER_CCV (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.49	13.39	13.59	1.270255	13.70	1.272744	N	0.2
Perchlorate_85	13.56	13.46	13.66	0.391605	13.73	0.421104	N	7.5

FILE ID : TQCK0416.RFB

Data File ID: T604_016.d

Date Injected : 06/04/15

Time Injected : 14:14

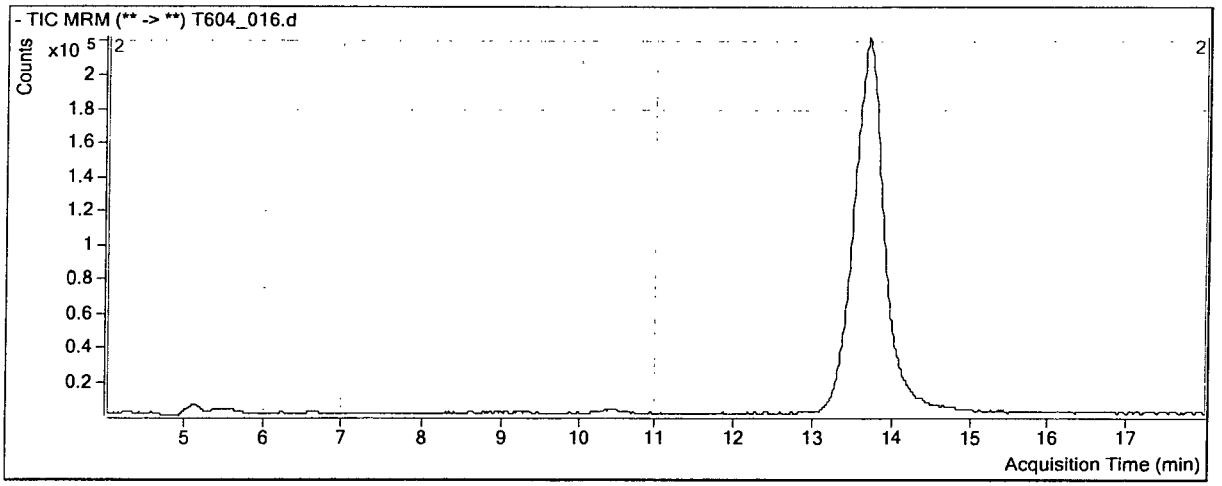
Sample ID : PER_CCV 0.0004 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.681	5333219	PER_IS_89
13.698	543026	Perchlorate_83
13.735	179667	Perchlorate_85

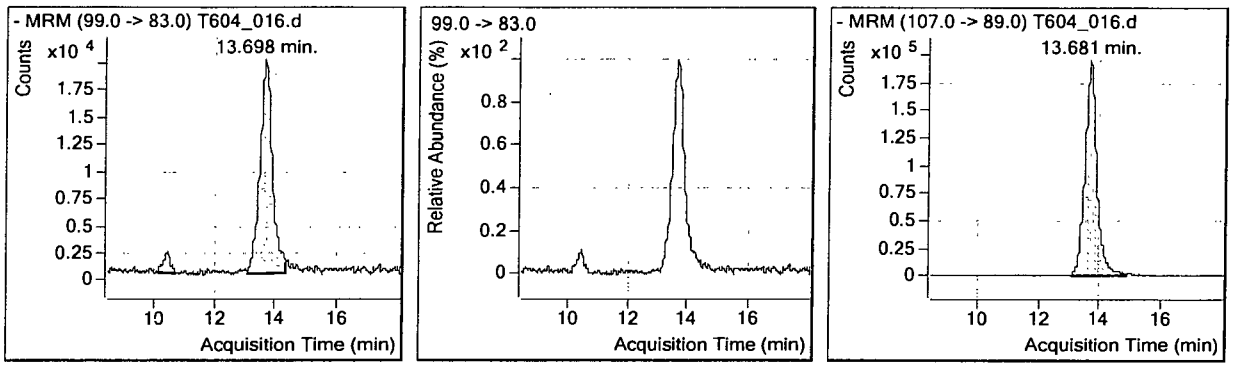
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_016.d	**Sample Name**	PER_CCV 0.0004 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	14:14
ClientID	NA	**Inj Vol**	20

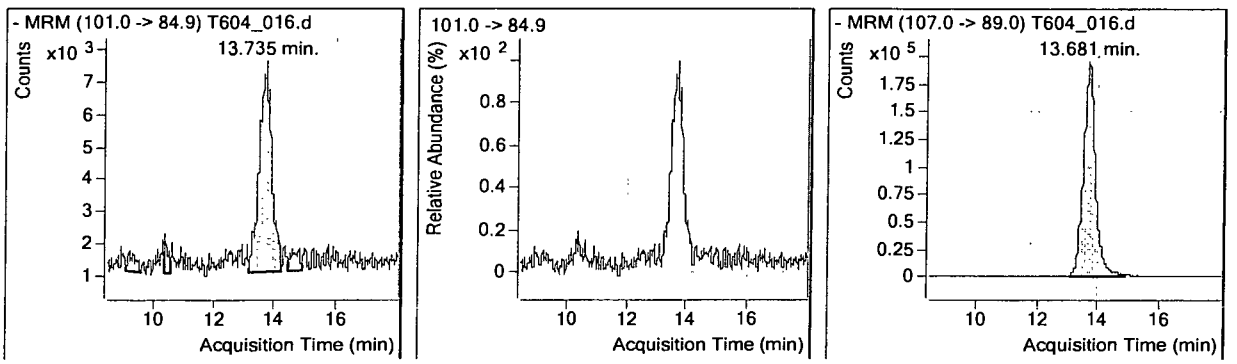


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.698	543026	5333219
Perchlorate_102	PER_IS_108	13.735	179667	5333219

Perchlorate_100



Perchlorate_102



CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_017.d

	Date (s) of Analysis From:06/04/15 To:06/04/15 Time (s) of Analysis From:14:33 To:13:37				Date of Analysis: 06/04/15 Time of Analysis: 14:33 Standard Id: PER_CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.49	13.39	13.59	1.270255	14.13	1.164828	N	8.3
Perchlorate_85	13.56	13.46	13.66	0.391605	14.11	0.348037	N	11.1

FILE ID : TQCK0417.RFB

Data File ID: T604_017.d

Date Injected : 06/04/15

Time Injected : 14:33

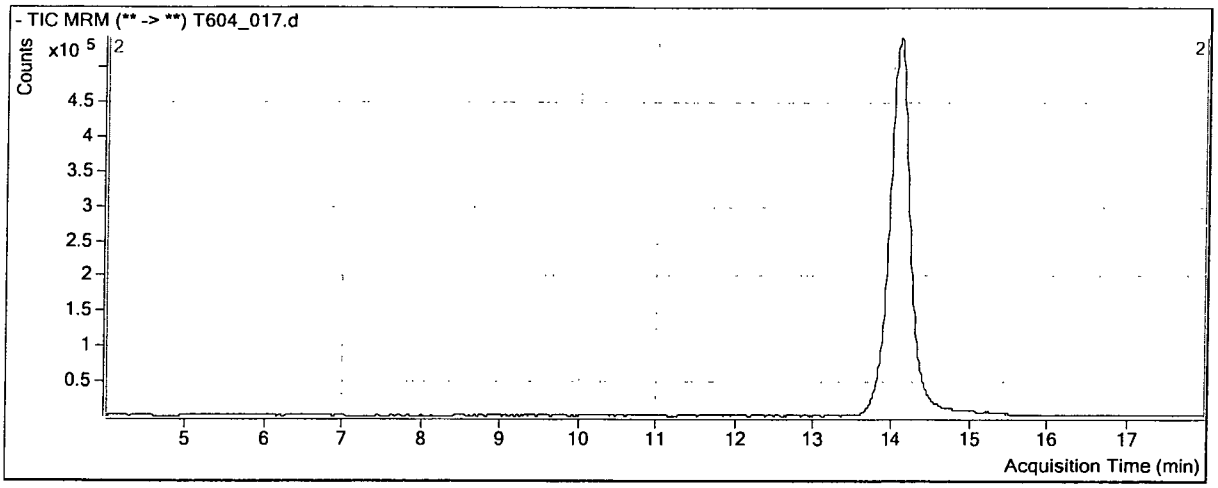
Sample ID : PER_CCV 0.002 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.109	6491116	PER_IS_89
14.126	3024414	Perchlorate_83
14.112	903659	Perchlorate_85

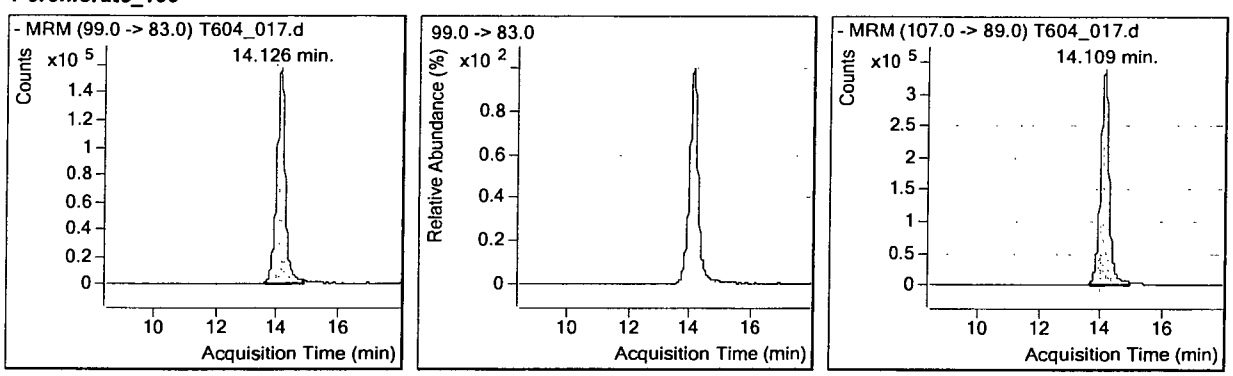
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_017.d	**Sample Name**	PER_CCV 0.002 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	14:33
ClientID	NA	**Inj Vol**	20

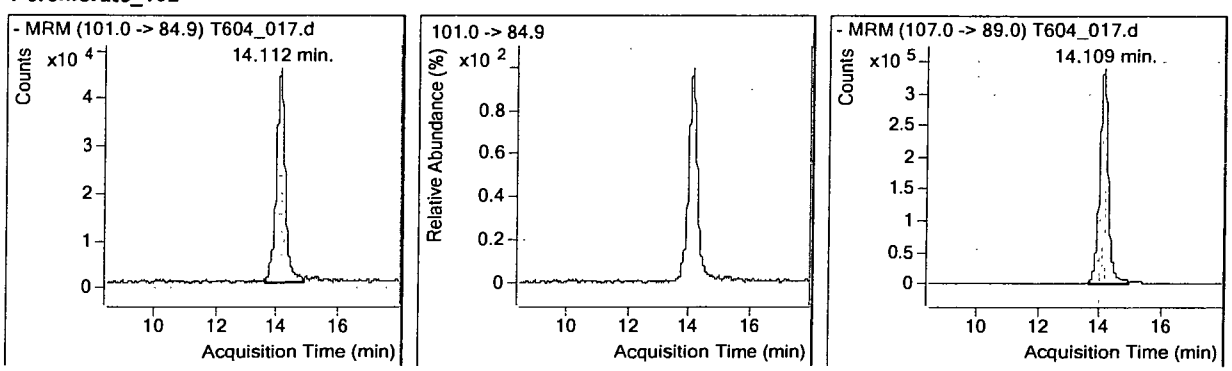


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.126	3024414	6491116
Perchlorate_102	PER_IS_108	14.112	903659	6491116

Perchlorate_100



Perchlorate_102



CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_060.d

	Date (s) of Analysis From:03/12/15 To:06/05/15 Time (s) of Analysis From:17:52 To:2:03				Date of Analysis: 06/05/15 Time of Analysis: 11:58 Standard Id: PER_CCV (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.84	1.315338	N	3.5
Perchlorate_85	13.70	13.60	13.80	0.391605	13.91	0.443885	N	13.4

FILE ID : TQCK0460.RFB

Data File ID: T604_060.d

Date Injected : 06/05/15

Time Injected : 11:58

Sample ID : PER_CCV 0.0004 ug/ml 05/29/15

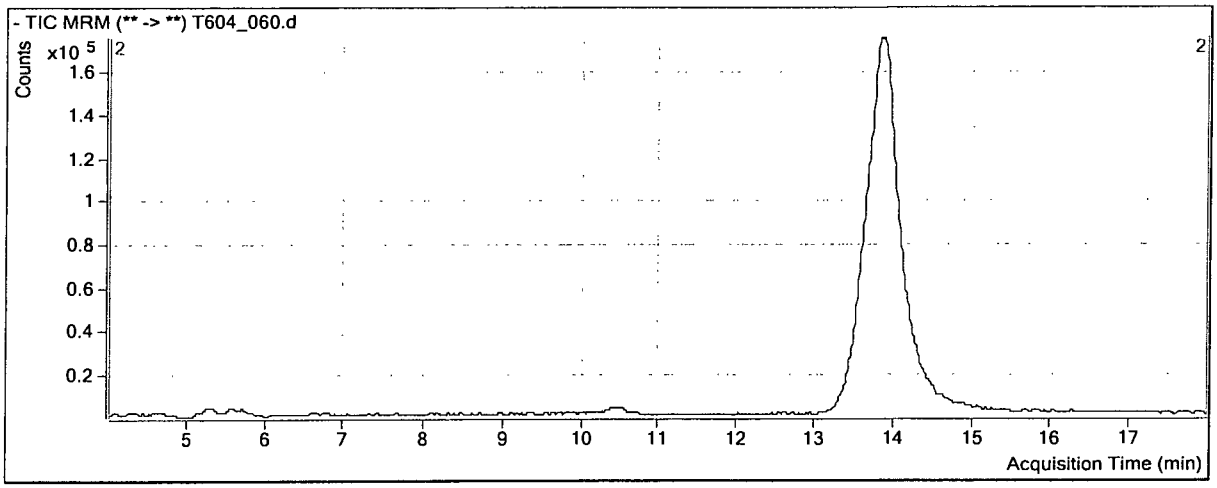
Client ID : NA

Retention Time		Area Count Response	Compound_ID Product Ion
13.854		5058882	PER_IS_89
13.800		532331	Perchlorate_83
13.908	*	179645	Perchlorate_85

* MANUAL INTEGRAION

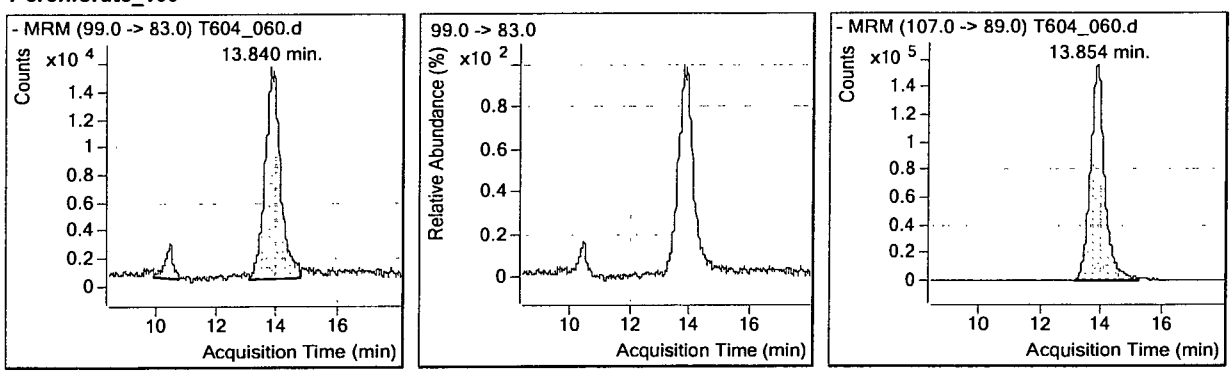
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_060.d	**Sample Name**	PER_CCV 0.0004 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	11:58
ClientID	NA	**Inj Vol**	20

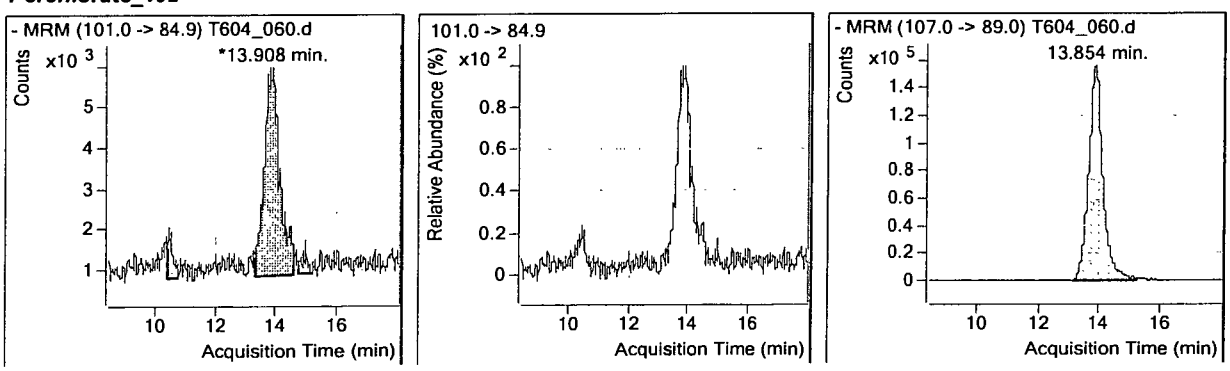


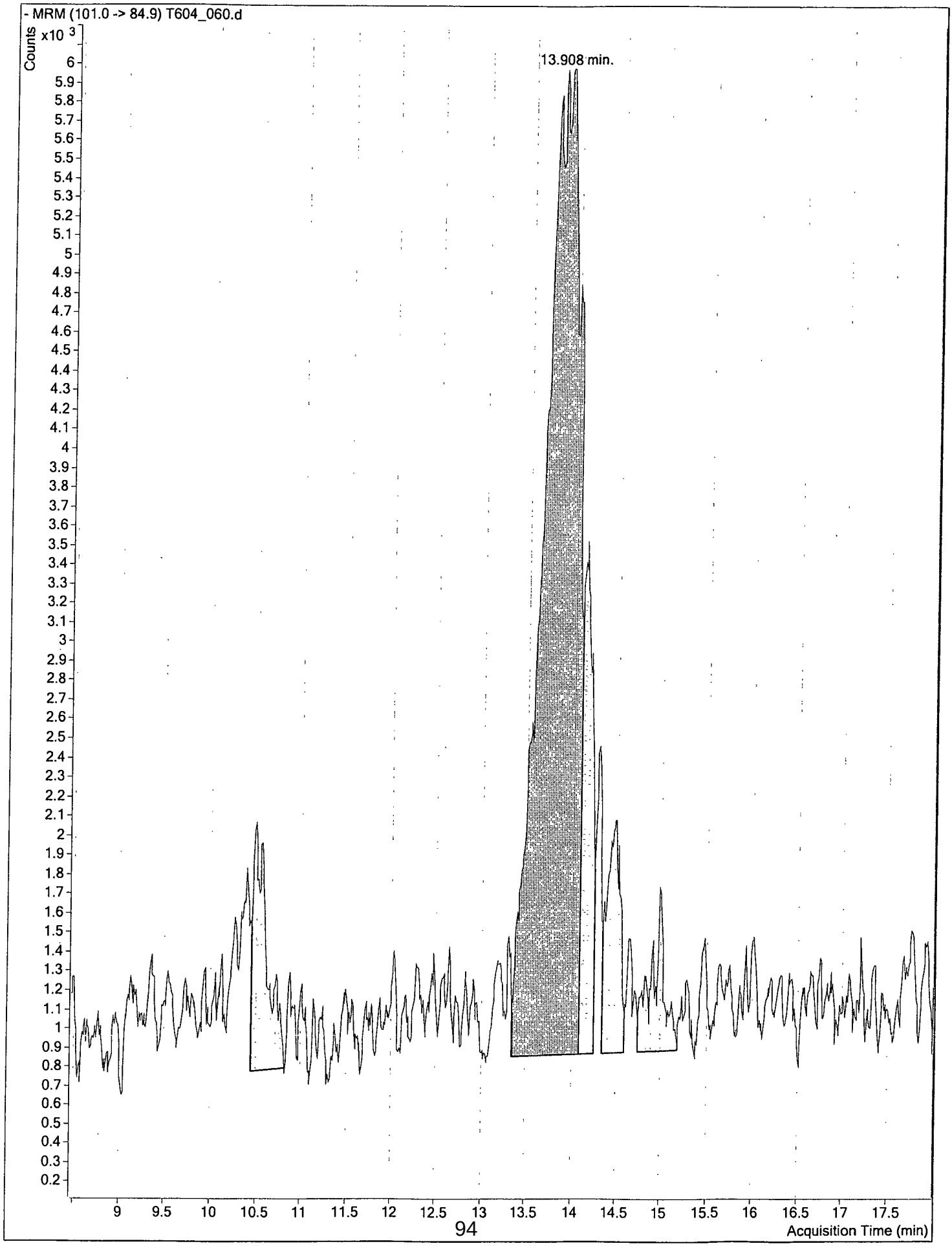
Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.840	532331	5058882
Perchlorate_102	PER_IS_108	13.908	179645	5058882

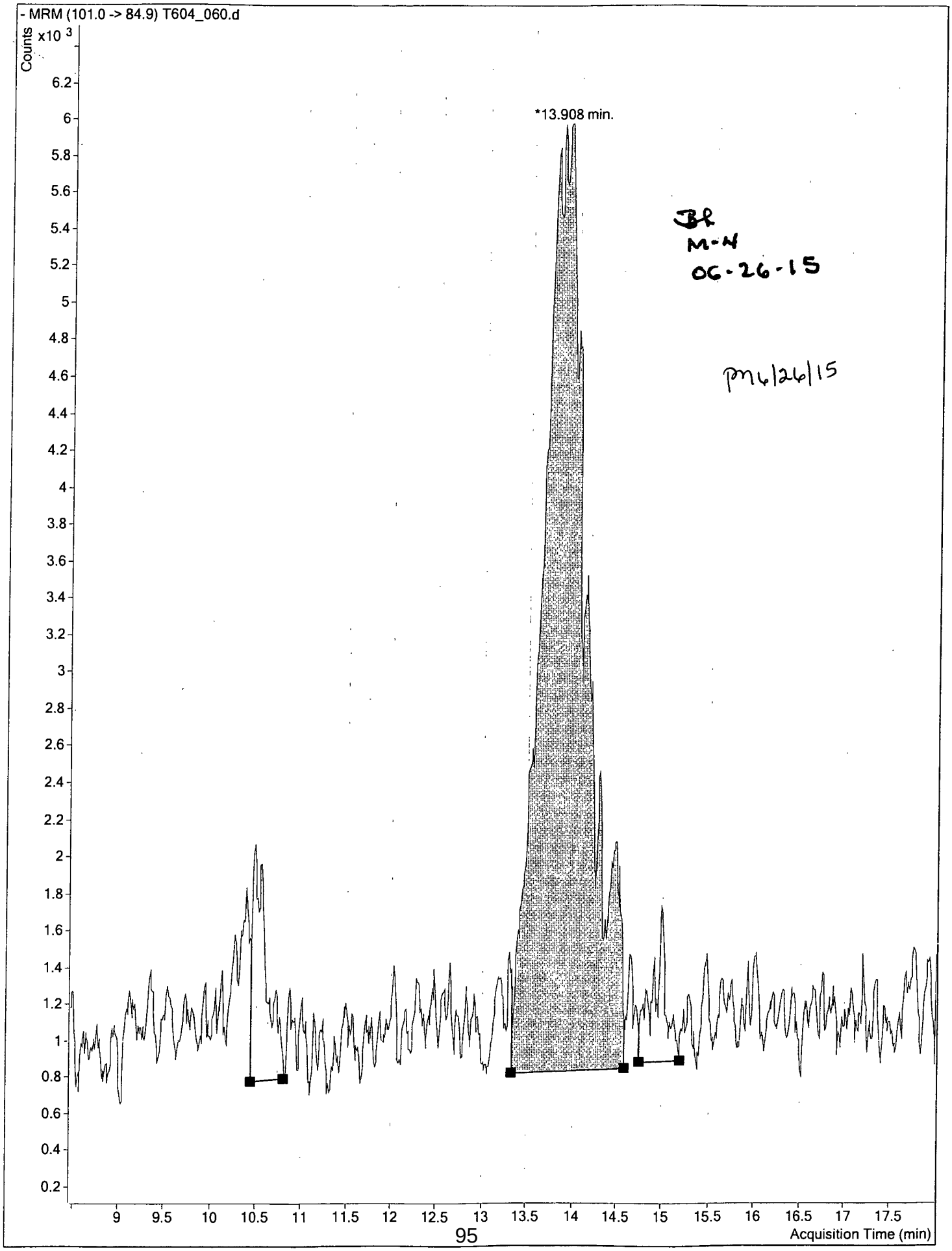
Perchlorate_100



Perchlorate_102




- MRM (101.0 -> 84.9) T604_060.d
Counts
x10 3
13.908 min.
Acquisition Time (min)


- MRM (101.0 -> 84.9) T604_060.d
Counts x10 3
*13.908 min.
Acquisition Time (min)
JR
M-N
06-26-15
pm 6/26/15

CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_061.d

	Date (s) of Analysis From:03/12/15 To:06/05/15 Time (s) of Analysis From:17:52 To:2:03				Date of Analysis: 06/05/15 Time of Analysis: 12:16 Standard Id: PER_CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	14.14	1.180778	N	7.0
Perchlorate_85	13.70	13.60	13.80	0.391605	14.12	0.355856	N	9.1

FILE ID : TQCK0461.RFB

Data File ID: T604_061.d

Date Injected : 06/05/15

Time Injected : 12:16

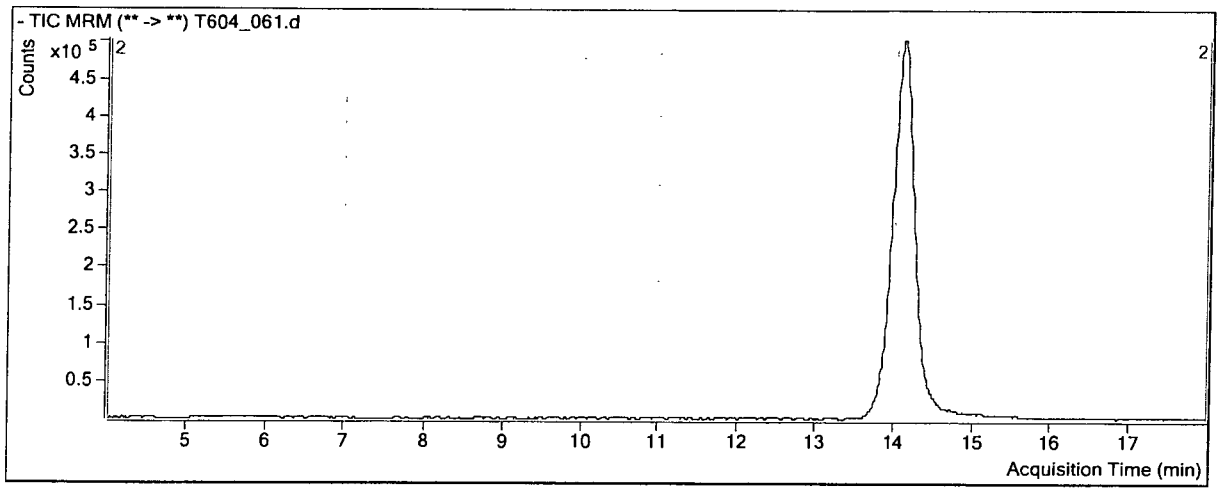
Sample ID : PER_CCV 0.002 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.098	6235540	PER_IS_89
14.136	2945116	Perchlorate_83
14.122	887582	Perchlorate_85

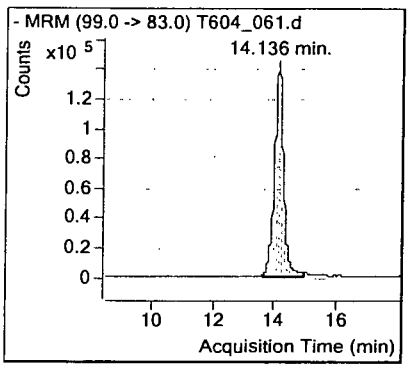
Quantitative Analysis Sample Report

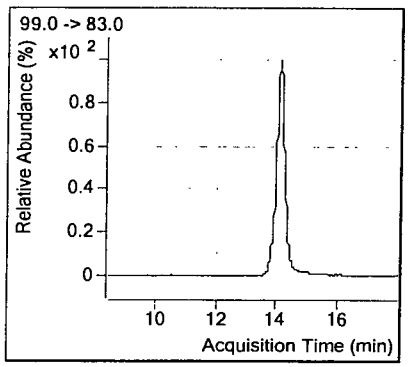
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_061.d	**Sample Name**	PER_CCV 0.002 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	12:16
ClientID	NA	**Inj Vol**	20

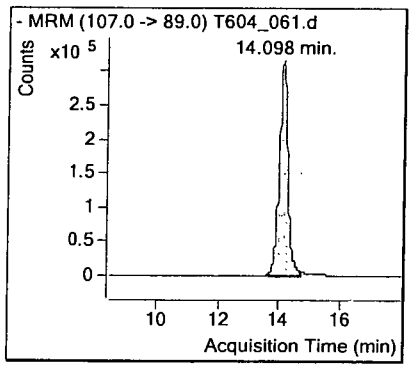


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.136	2945116	6235540
Perchlorate_102	PER_IS_108	14.122	887582	6235540

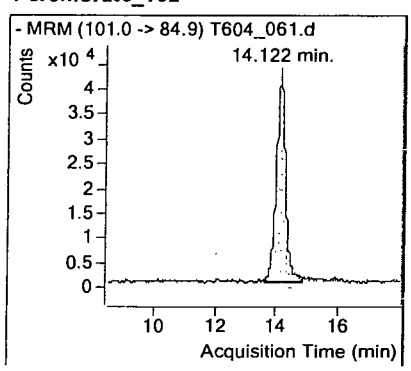
Perchlorate_100

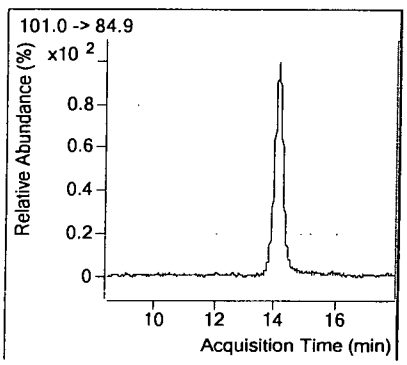


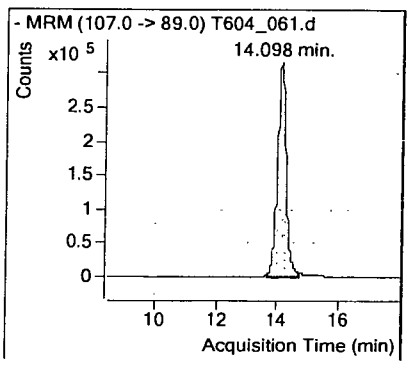




Perchlorate_102







CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_069.d

	Date (s) of Analysis From:03/12/15 To:06/05/15 Time (s) of Analysis From:17:52 To:14:10				Date of Analysis: 06/05/15 Time of Analysis: 14:48 Standard Id: PER_CCV (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.98	1.278880	N	0.7
Perchlorate_85	13.70	13.60	13.80	0.391605	13.99	0.440109	N	12.4

FILE ID : TQCK0469.RFB

Data File ID: T604_069.d

Date Injected : 06/05/15

Time Injected : 14:48

Sample ID : PER_CCV 0.0004 ug/ml 05/29/15

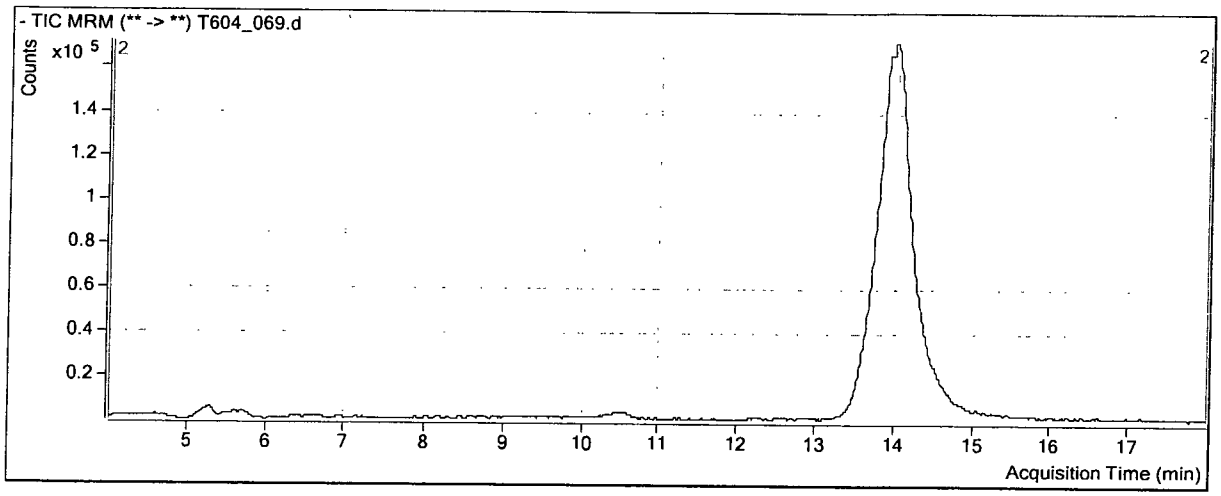
Client ID : NA

Retention Time		Area Count Response	Compound_ID Product Ion
14.007		4986885	PER_IS_89
13.983		510210	Perchlorate_83
13.900	*	175582	Perchlorate_85

* MANUAL INTEGRAION

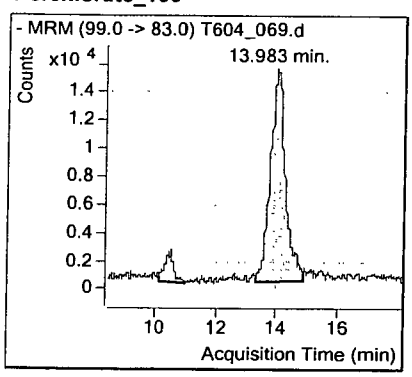
Quantitative Analysis Sample Report

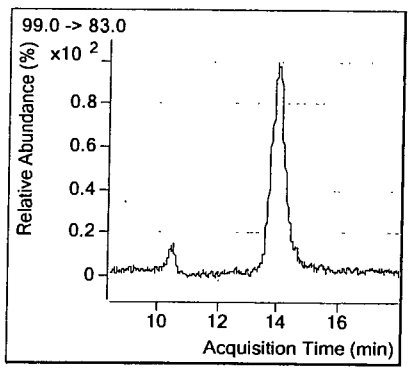
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_069.d	**Sample Name**	PER_CCV 0.0004 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	14:48
ClientID	NA	**Inj Vol**	20

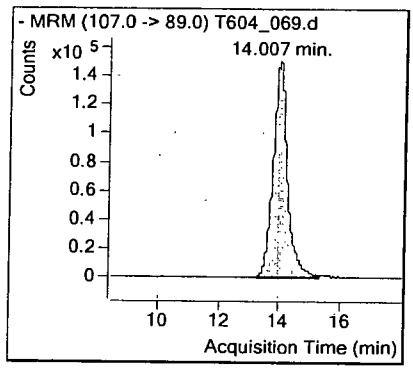


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108		13.983	510210	4986885	
Perchlorate_102	PER_IS_108	*	13.990	175582	4986885	* MANUAL INT

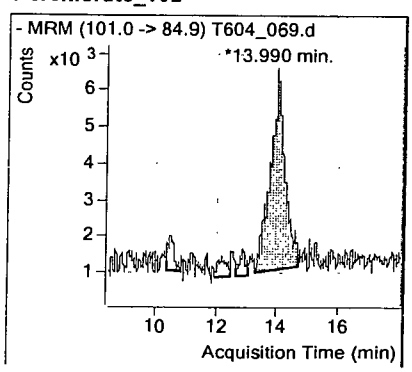
Perchlorate_100

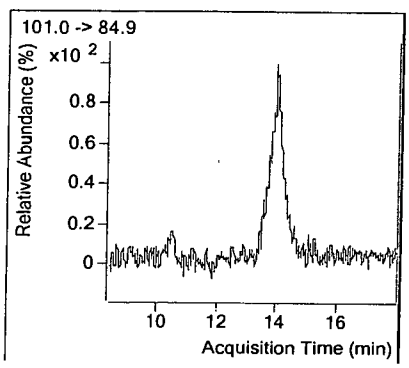


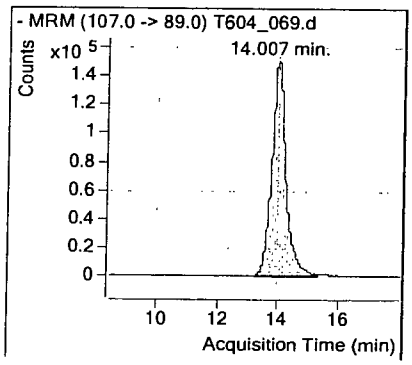


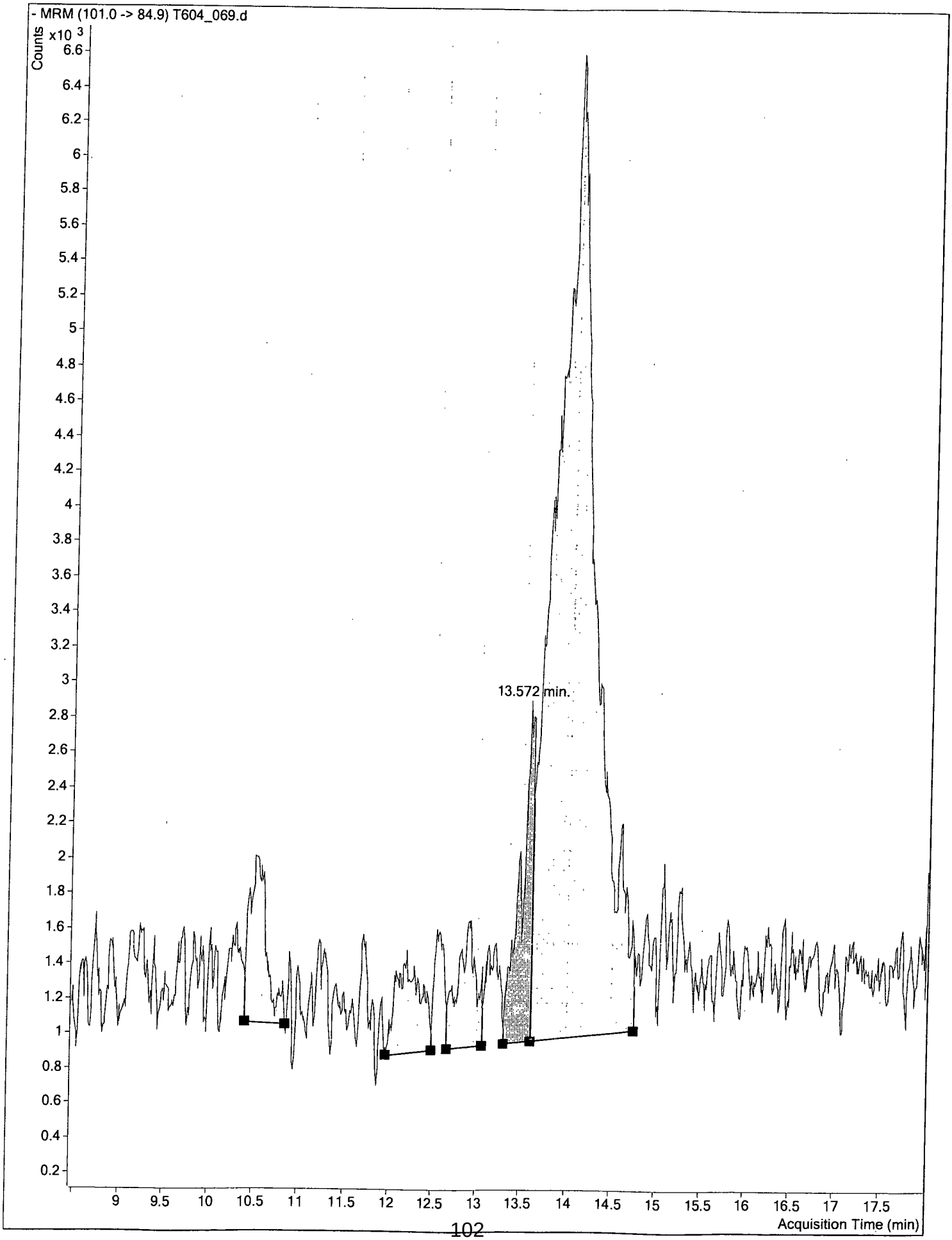


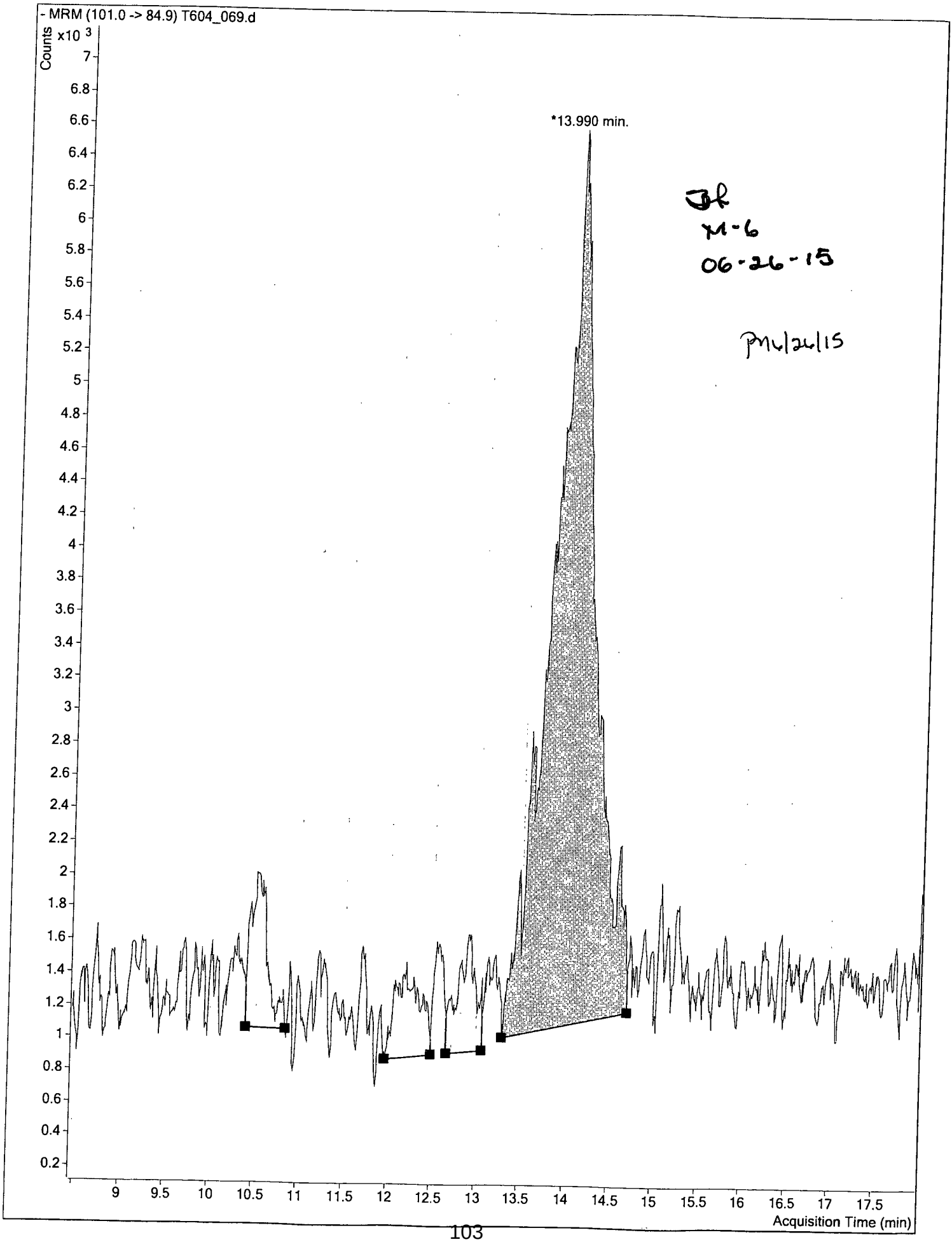
Perchlorate_102








- MRM (101.0 -> 84.9) T604_069.d
Counts
x10 3
6.6
6.4
6.2
6
5.8
5.6
5.4
5.2
5
4.8
4.6
4.4
4.2
4
3.8
3.6
3.4
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
13.572 min.
9
9.5
10
10.5
11
11.5
12
12.5
13
13.5
14
14.5
15
15.5
16
16.5
17
17.5
Acquisition Time (min)


- MRM (101.0 -> 84.9) T604_069.d
Counts
x10 3
*13.990 min.
Acquisition Time (min)
JH
M-6
06-26-15
PM 6/26/15

CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_070.d

	Date (s) of Analysis From:03/12/15 To:06/05/15 Time (s) of Analysis From:17:52 To:14:10				Date of Analysis: 06/05/15 Time of Analysis: 15:06 Standard Id: PER_CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	14.43	1.160897	N	8.6
Perchlorate_85	13.70	13.60	13.80	0.391605	14.46	0.351921	N	10.1

FILE ID : TQCK0470.RFB

Data File ID: T604_070.d

Date Injected : 06/05/15

Time Injected : 15:06

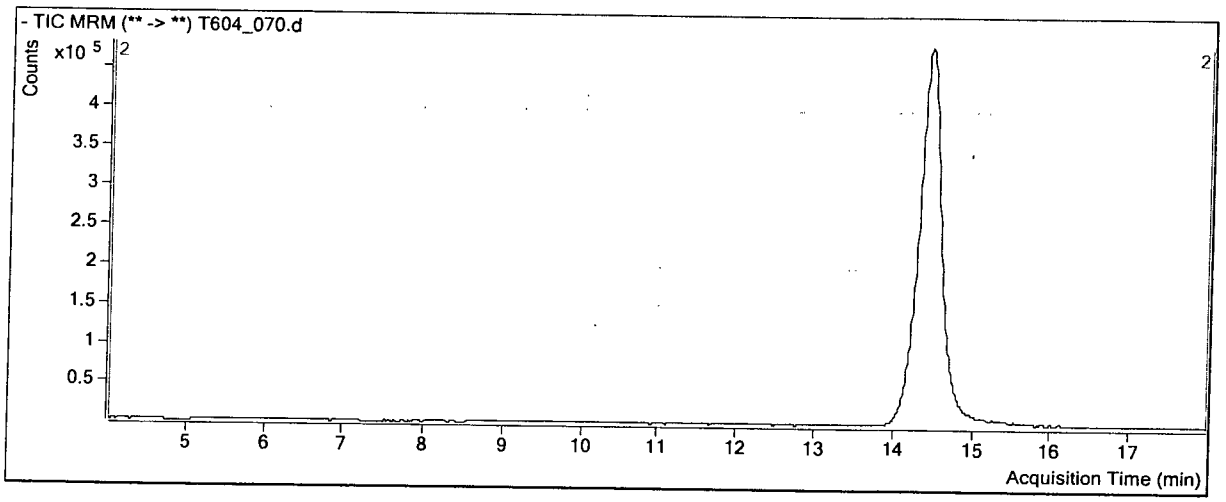
Sample ID : PER_CCV 0.002 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.445	6195014	PER_IS_89
14.431	2876710	Perchlorate_83
14.458	872063	Perchlorate_85

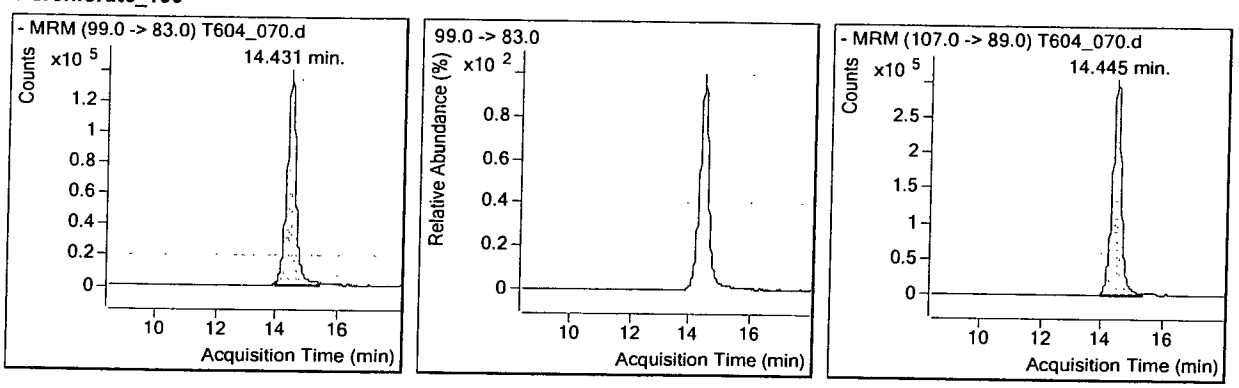
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_070.d	**Sample Name**	PER_CCV 0.002 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	15:06
ClientID	NA	**Inj Vol**	20

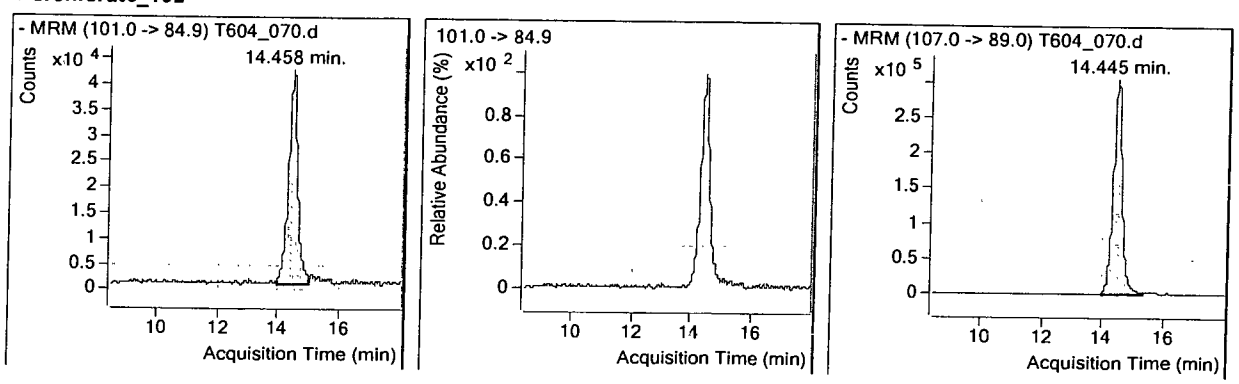


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.431	2876710	6195014
Perchlorate_102	PER_IS_108	14.458	872063	6195014

Perchlorate_100



Perchlorate_102



CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_074.d

	Date (s) of Analysis From:03/12/15 To:06/05/15 Time (s) of Analysis From:17:52 To:16:58				Date of Analysis: 06/05/15 Time of Analysis: 17:38 Standard Id: PER_CCV (Standard) 0.0004ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.98	1.297303	N	2.1
Perchlorate_85	13.70	13.60	13.80	0.391605	13.86	0.437096	N	11.6

FILE ID : TQCK0474.RFB

Data File ID: T604_074.d

Date Injected : 06/05/15

Time Injected : 17:38

Sample ID : PER_CCV 0.0004 ug/ml 05/29/15

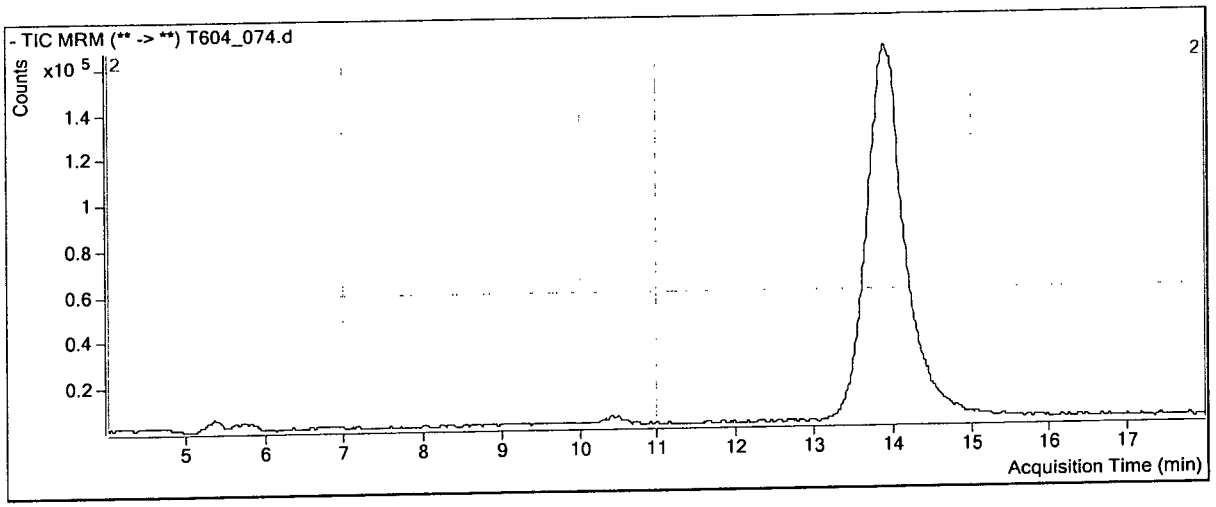
Client ID : NA

Retention Time		Area Count Response	Compound_ID Product Ion
13.895		4996270	PER_IS_89
13.983		518534	Perchlorate_83
13.857	*	174708	Perchlorate_85

* MANUAL INTEGRAION

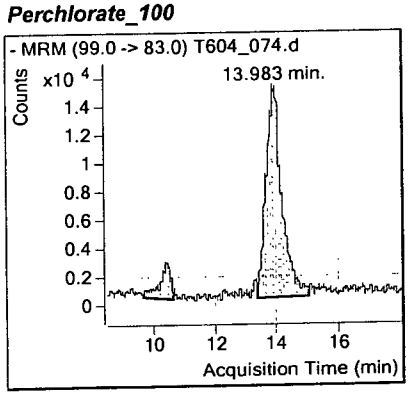
Quantitative Analysis Sample Report

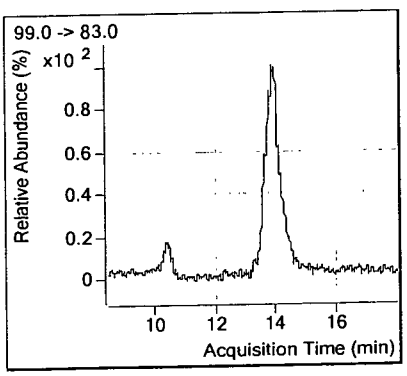
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_074.d	**Sample Name**	PER_CCV 0.0004 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	17:38
ClientID	NA	**Inj Vol**	20

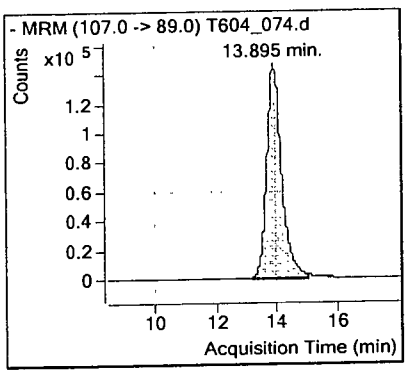


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108		13.983	518534	4996270	
Perchlorate_102	PER_IS_108	*	13.857	174708	4996270	* MANUAL INT

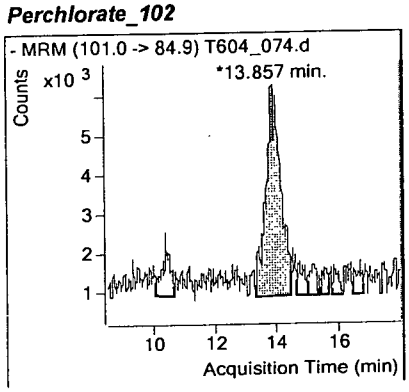
Perchlorate_100

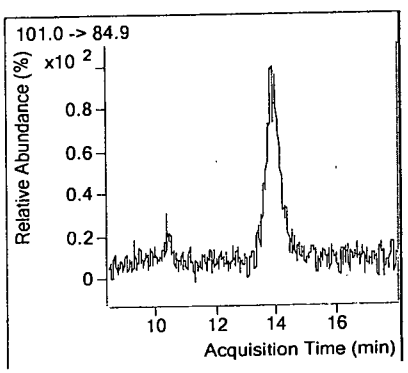


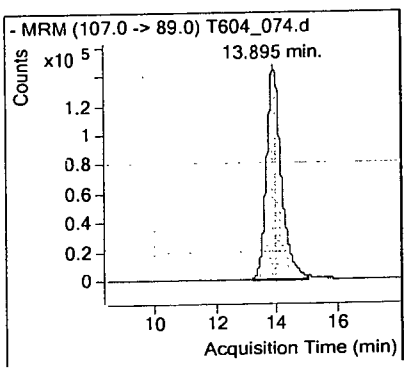


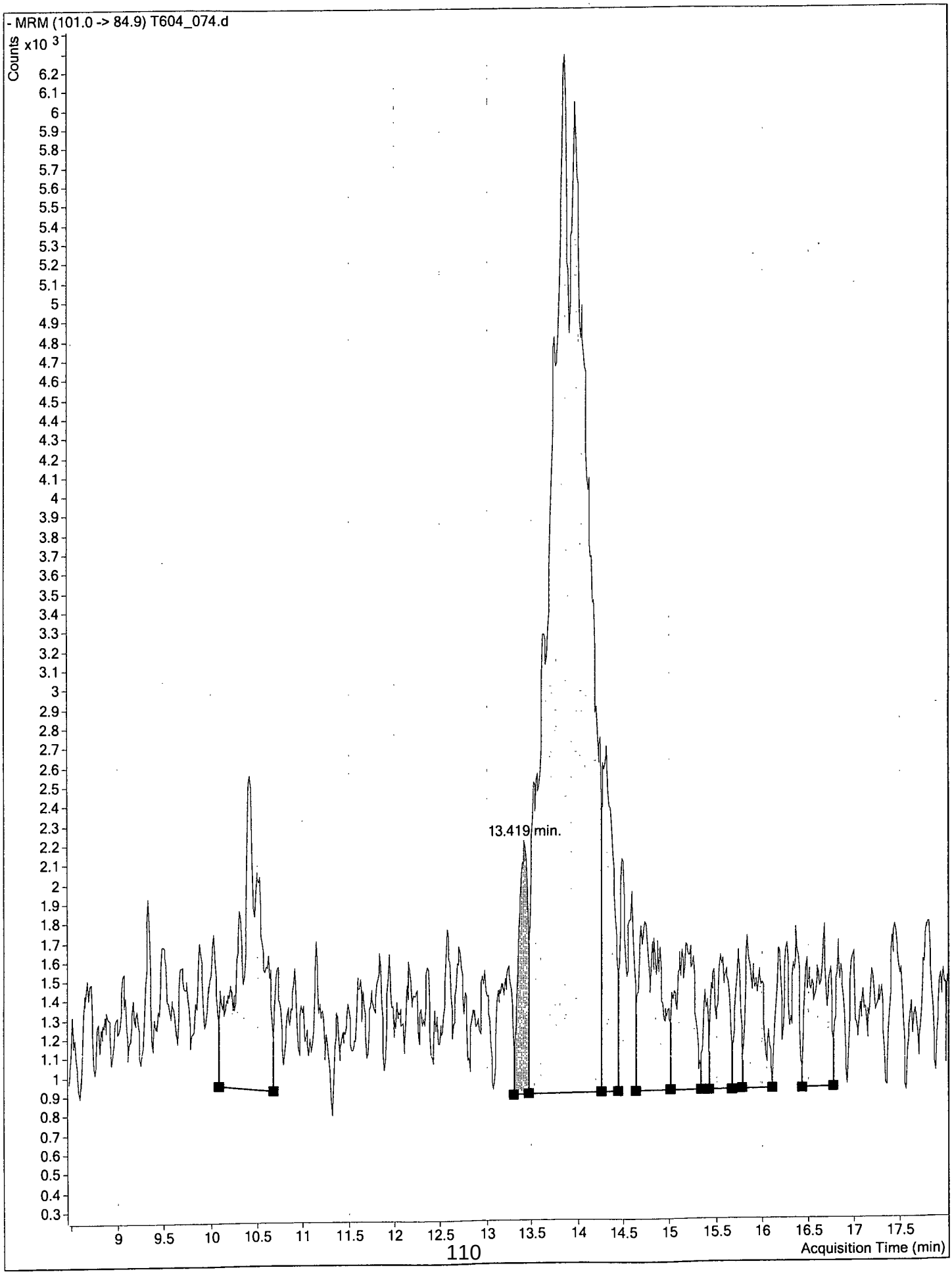


Perchlorate_102





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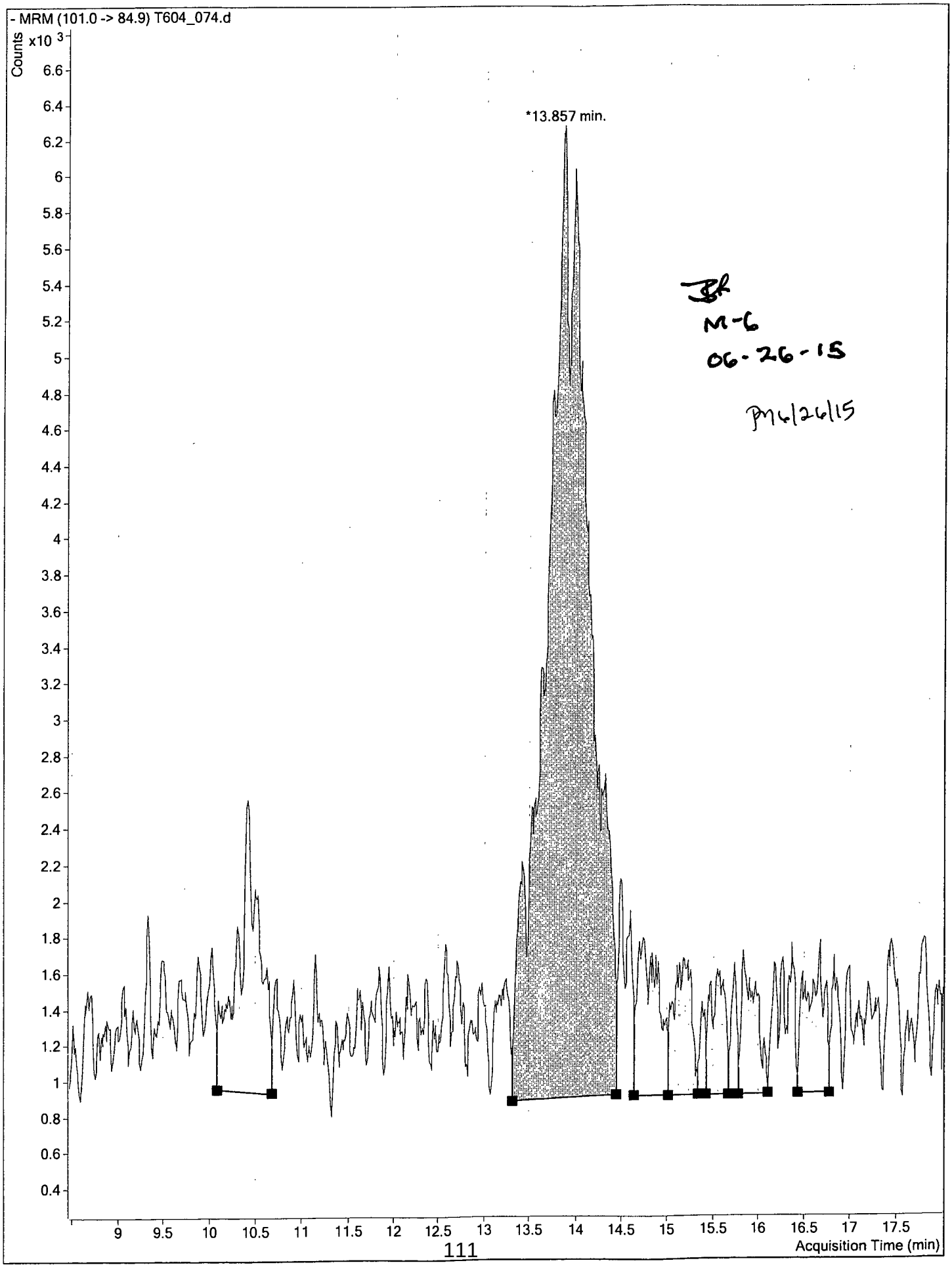
Counts
x10 3
13.419 min.
Acquisition Time (min)


- MRM (101.0 -> 84.9) T604_074.d
Counts
x10 3
*13.857 min.
Acquisition Time (min)
JR
M-6
06-26-15
PM 6/26/15

CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T604_075.d

	Date (s) of Analysis From:03/12/15 To:06/05/15 Time (s) of Analysis From:17:52 To:16:58				Date of Analysis: 06/05/15 Time of Analysis: 17:56 Standard Id: PER_CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM	TO	AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	14.65	1.143500	N	10.0
Perchlorate_85	13.70	13.60	13.80	0.391605	14.66	0.357093	N	8.8

FILE ID : TQCK0475.RFB

Data File ID: T604_075.d

Date Injected : 06/05/15

Time Injected : 17:56

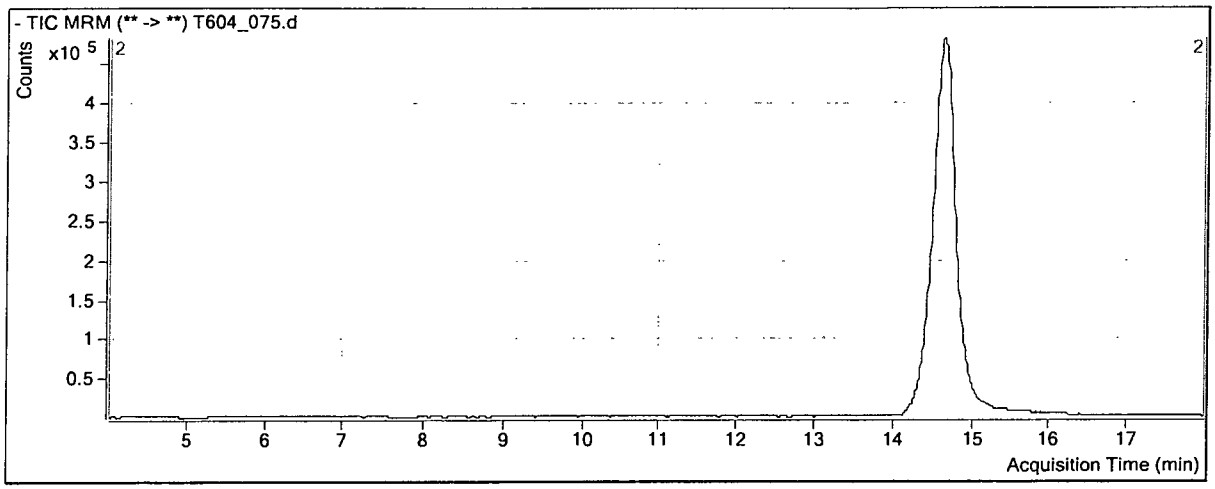
Sample ID : PER_CCV 0.002 ug/ml 05/29/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.649	6429464	PER_IS_89
14.645	2940837	Perchlorate_83
14.662	918366	Perchlorate_85

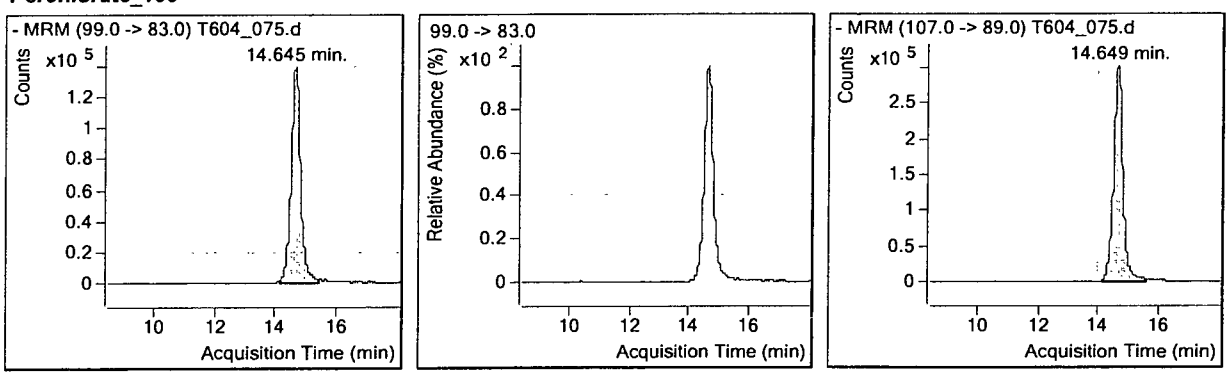
Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A2_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_075.d	**Sample Name**	PER_CCV 0.002 ug/ml 05/29/15
Sample Type	Sample	**Acq_Date**	06/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	17:56
ClientID	NA	**Inj Vol**	20

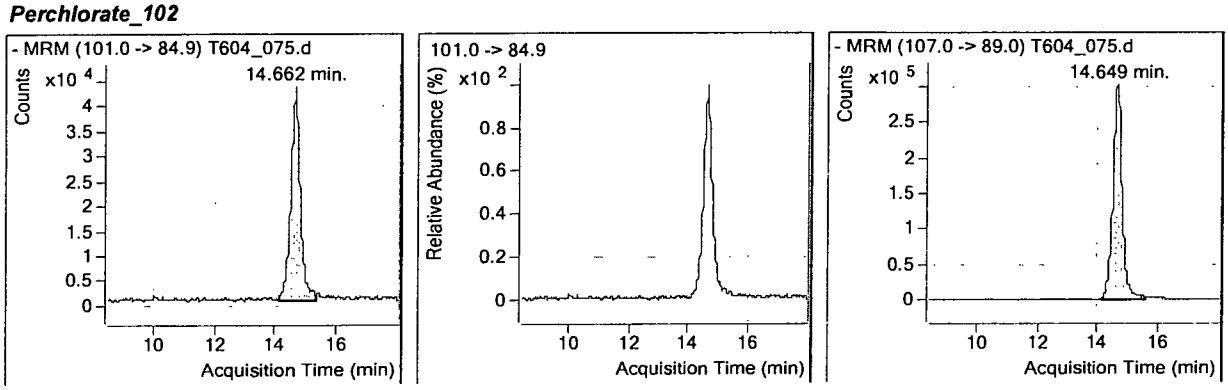


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.645	2940837	6429464
Perchlorate_102	PER_IS_108	14.662	918366	6429464

Perchlorate_100



Perchlorate_102



EPA METHOD 6850
Perchlorate
LC/MS

Raw Data

APPL, INC.

Method Blank
Perchlorate

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **150604W-17043 - 197775**
Batch ID: #6850-150604A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	06/04/15	06/04/15

Quant Method: QTLMFL2
Run #: T604_011.D
Instrument: AGIL_6460
Sequence: TQ060415
Initials: MP

GC SC-Blank-REG MDLs
Printed: 06/05/15 1:09:28 PM

Data File ID: T604_011.d

Date Injected : 06/04/15

Time Injected : 12:41

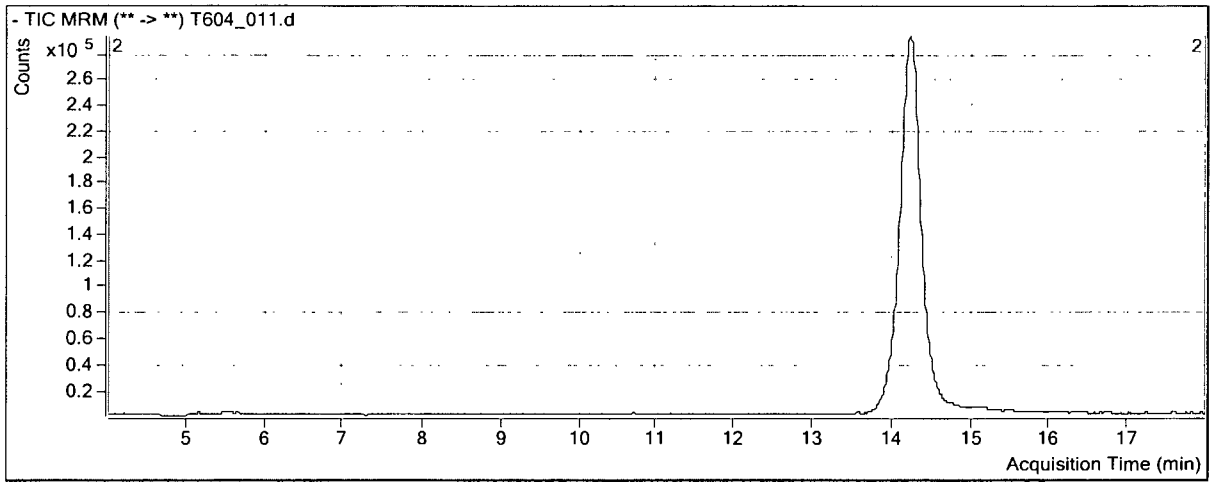
Sample ID : 150604WBLKA 1052.6 DF 06/04/15

Client ID : LAB_CNTL_W_BLKA

Retention Time	Area Count Response	Compound_ID Product Ion				
14.241	5637128	PER_IS_89				
13.606	11541	Perchlorate_83	(11541 * 0.0050) / (1.27 * 5637128.00) *	1052.60 =	0.008483 ppb
13.400	2194	Perchlorate_85	(2194 * 0.0050) / (0.39 * 5637128.00) *	1052.60 =	0.005231 ppb

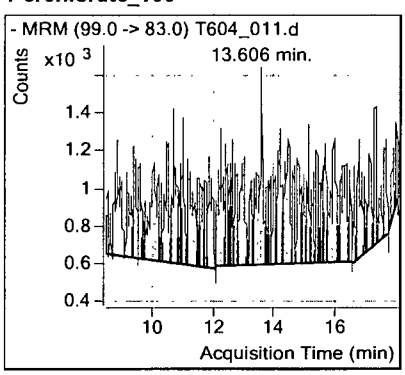
Quantitative Analysis Sample Report

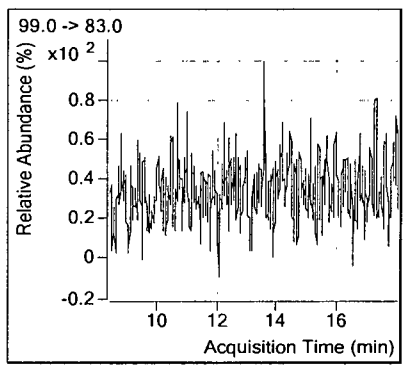
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_011.d	**Sample Name**	150604WBLKA 1052.6 DF 06/04/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	12:41
ClientID	LAB_CNTL_W_BLKA	**Inj Vol**	20

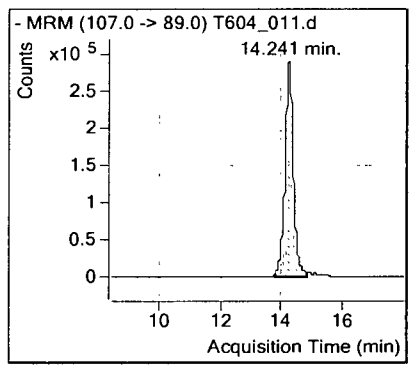


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.606	11541	5637128
Perchlorate_102	PER_IS_108	13.440	2194	5637128

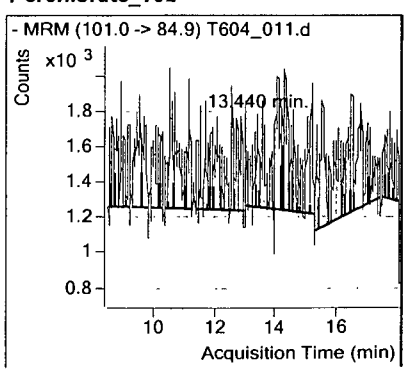
Perchlorate_100

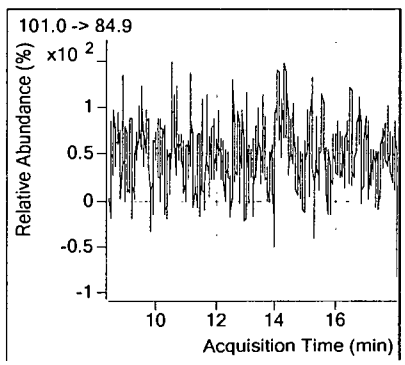


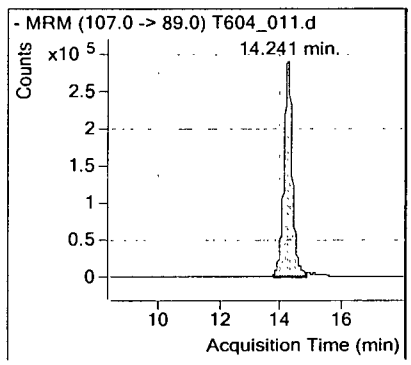




Perchlorate_102







Laboratory Control Spike Recovery
Perchlorate

APPL ID: **150604W-17043 LCS - 197775**
Batch ID: #6850-150604A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
PERCHLORATE	0.600	0.618	103	80-120

Comments: _____

Primary	SPK
Quant Method :	QTLMFL2
Extraction Date :	06/04/15
Analysis Date :	06/04/15
Instrument :	AGIL_6460
Run :	T604_009.D
Initials :	MP

Printed: 06/05/15 1:09:22 PM
APPL Standard LCS

Data File ID: T604_009.d

Date Injected : 06/04/15

Time Injected : 12:04

Sample ID : 150604WA_LCS-1 1052.6 DF 06/04/15

Client ID : LAB_CNTL_W_SPKA

Retention Time	Area Count Response	Compound_ID Product Ion				
13.691	5759331	PER_IS_89				
13.718	858740	Perchlorate_83	(858740 * 0.0050) / (1.27 * 5759331.00) *	1052.60 =	0.617777 ppb	
13.715	290599	Perchlorate_85	(290599 * 0.0050) / (0.39 * 5759331.00) *	1052.60 =	0.678121 ppb	

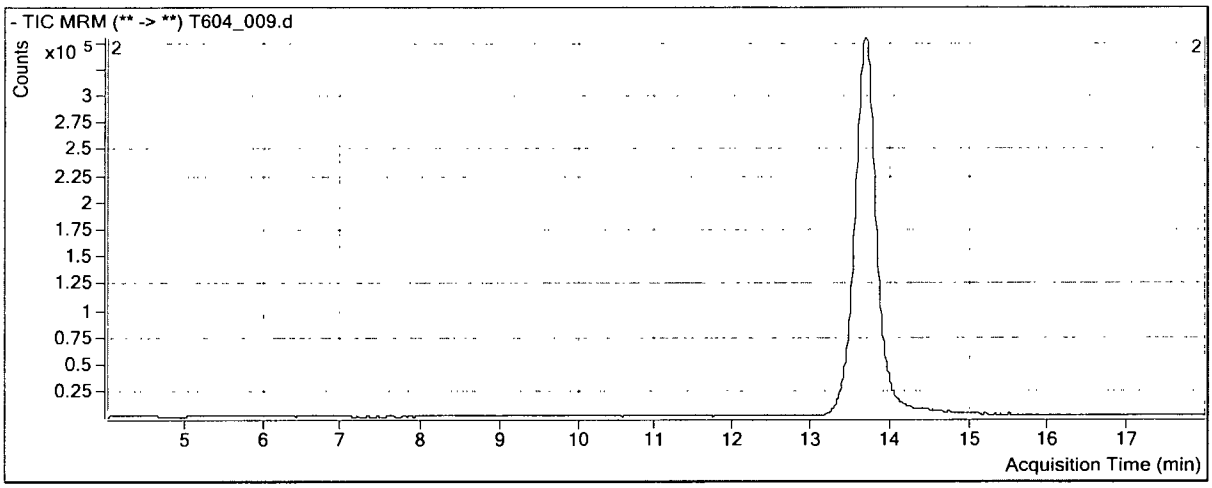
$$\frac{(1052.6)(858740)(0.005)}{(1.270255)(5759331)} = 0.617778$$

7/9/15

BM

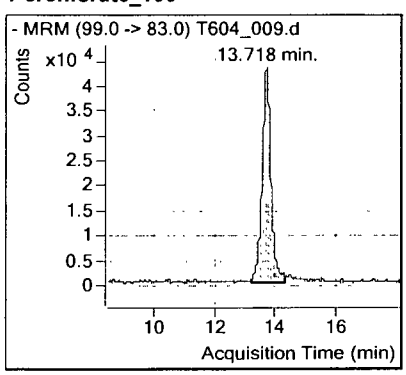
Quantitative Analysis Sample Report

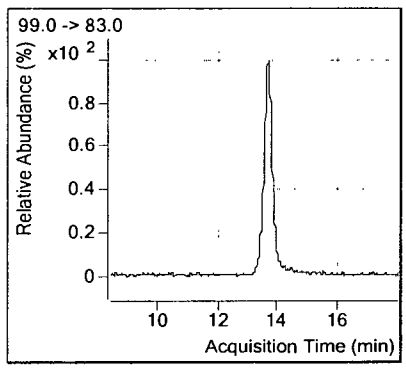
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_009.d	**Sample Name**	150604WA_LCS-1 1052.6 DF 06/04/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	12:04
ClientID	LAB_CNTL_W_SPKA	**Inj Vol**	20

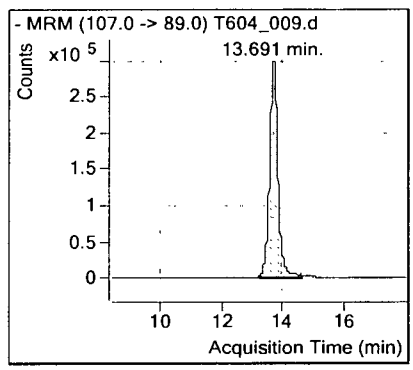


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.718	858740	5759331
Perchlorate_102	PER_IS_108	13.715	290599	5759331

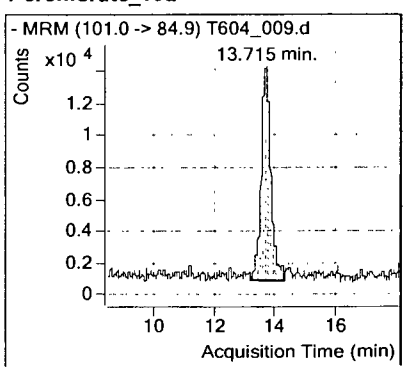
Perchlorate_100

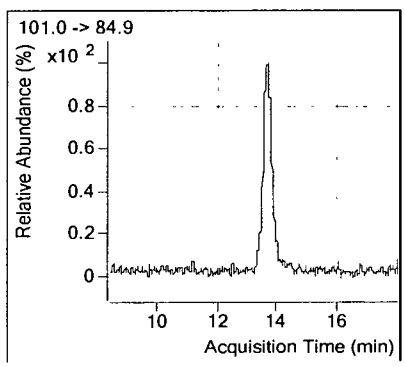


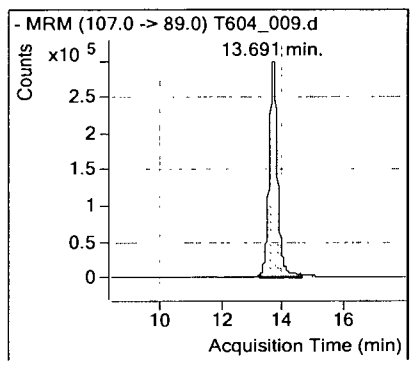




Perchlorate_102







Interferrence Check Sample

Perchlorate EPA 6850 Water

APPL ID: 150604W-17043 ICS - 197775
Batch ID: #6850-150604A

APPL Inc.
908 N. Temperance Ave.
Clovis, CA 93711

Compound Name	Spike Level ug/L	Spk Result ug/L	SPK% Recovery	Recovery Limits
Perchlorate	0.600	0.615	103%	70-130

Comments:

Quant Method:	QTLMFL2
Extraction Date:	06/04/15
Analysis Date:	06/04/15
Instrument:	AGIL_6460
Run:	T604_010.D
Initials:	MP

Data File ID: T604_010.d

Date Injected : 06/04/15

Time Injected : 12:22

Sample ID : 150604W_ICSA 1052.6 DF 06/04/15

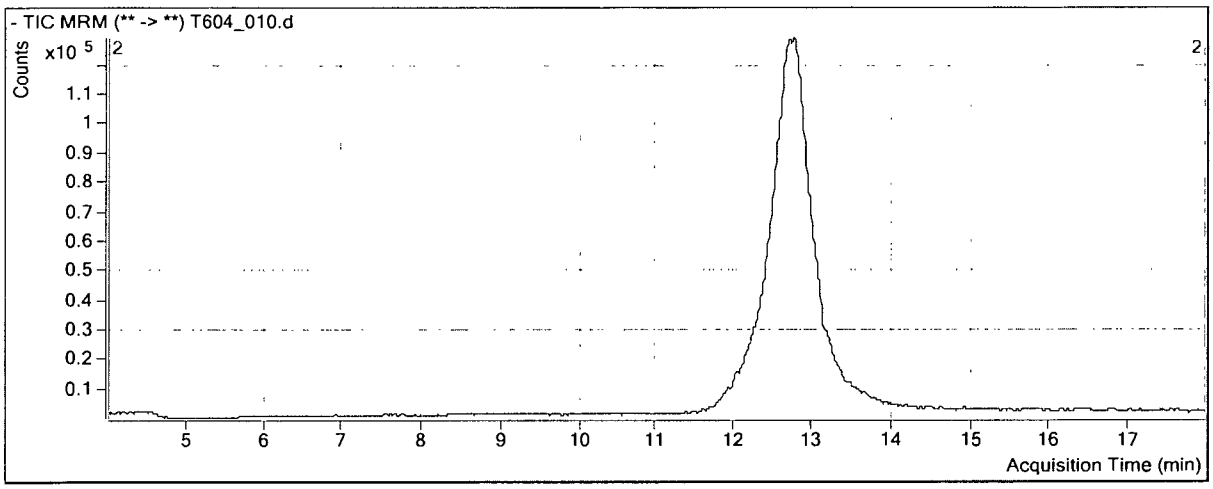
Client ID : LAB_CNTL_W_ICSA

Retention Time		Area Count Response	Compound_ID Product Ion				
12.794		4273155	PER_IS_89				
12.700		634625	Perchlorate_83	(634625 * 0.0050) / (1.27 * 4273155.00) *	1052.60 =	0.615334 ppb
12.747	*	243291	Perchlorate_85	(243291 * 0.0050) / (0.39 * 4273155.00) *	1052.60 =	0.765178 ppb

* MANUAL INTEGRAION

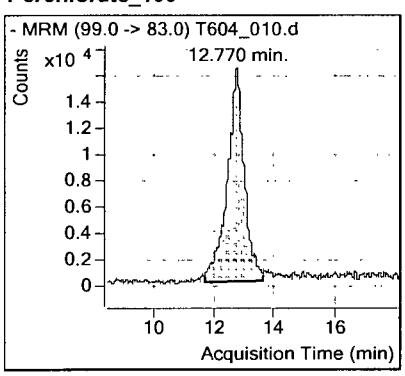
Quantitative Analysis Sample Report

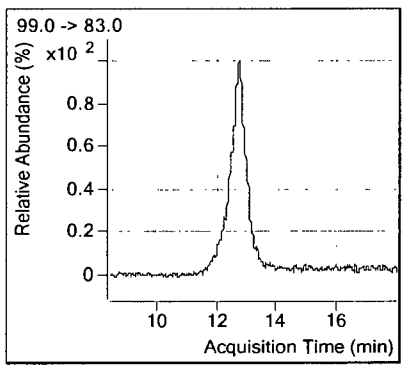
Batch Data Path	D:\MassHunter\Data\150604\QuantResults\150604_A1_MI.batch.bin		
Instrument	LCMS QQQ	**Operator**	ba
Data File	T604_010.d	**Sample Name**	150604W_ICSA 1052.6 DF 06/04/15
Sample Type	Sample	**Acq_Date**	06/04/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	**Acq Time**	12:22
ClientID	LAB_CNTL_W_ICSA	**Inj Vol**	20

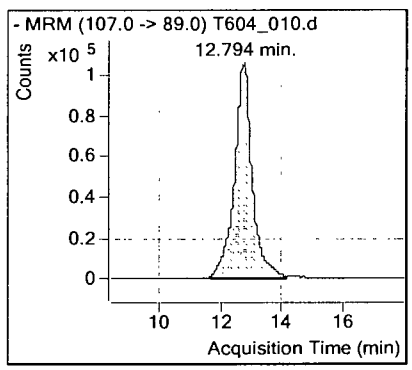


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108		12.770	634625	4273155	
Perchlorate_102	PER_IS_108	*	12.747	243291	4273155	* MANUAL INT

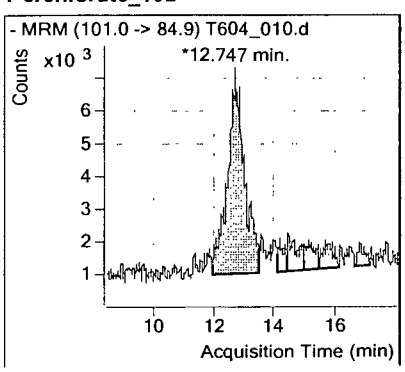
Perchlorate_100

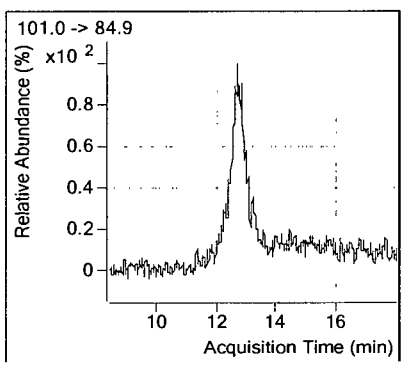


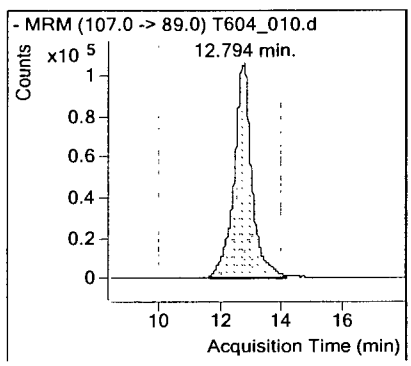


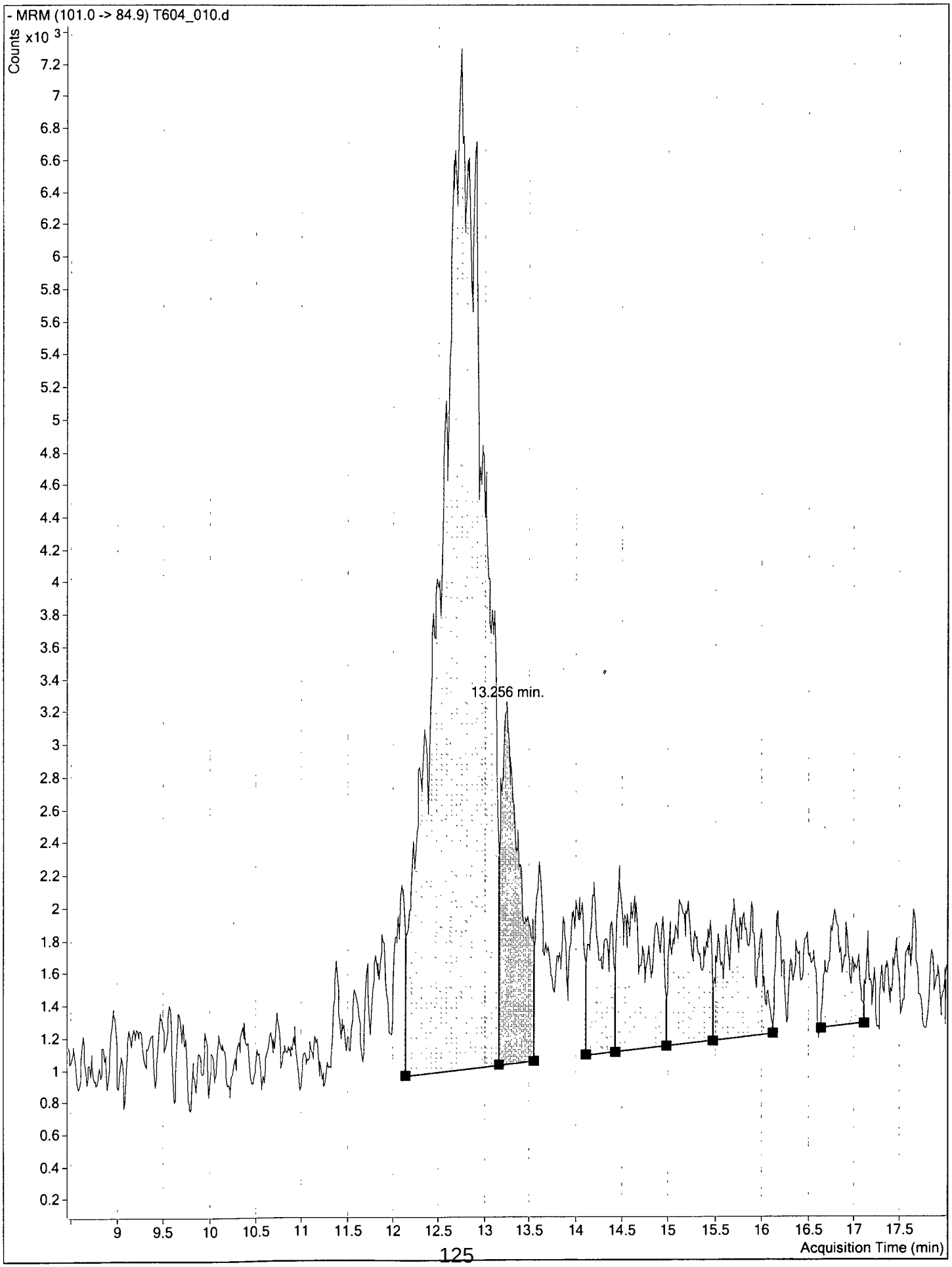


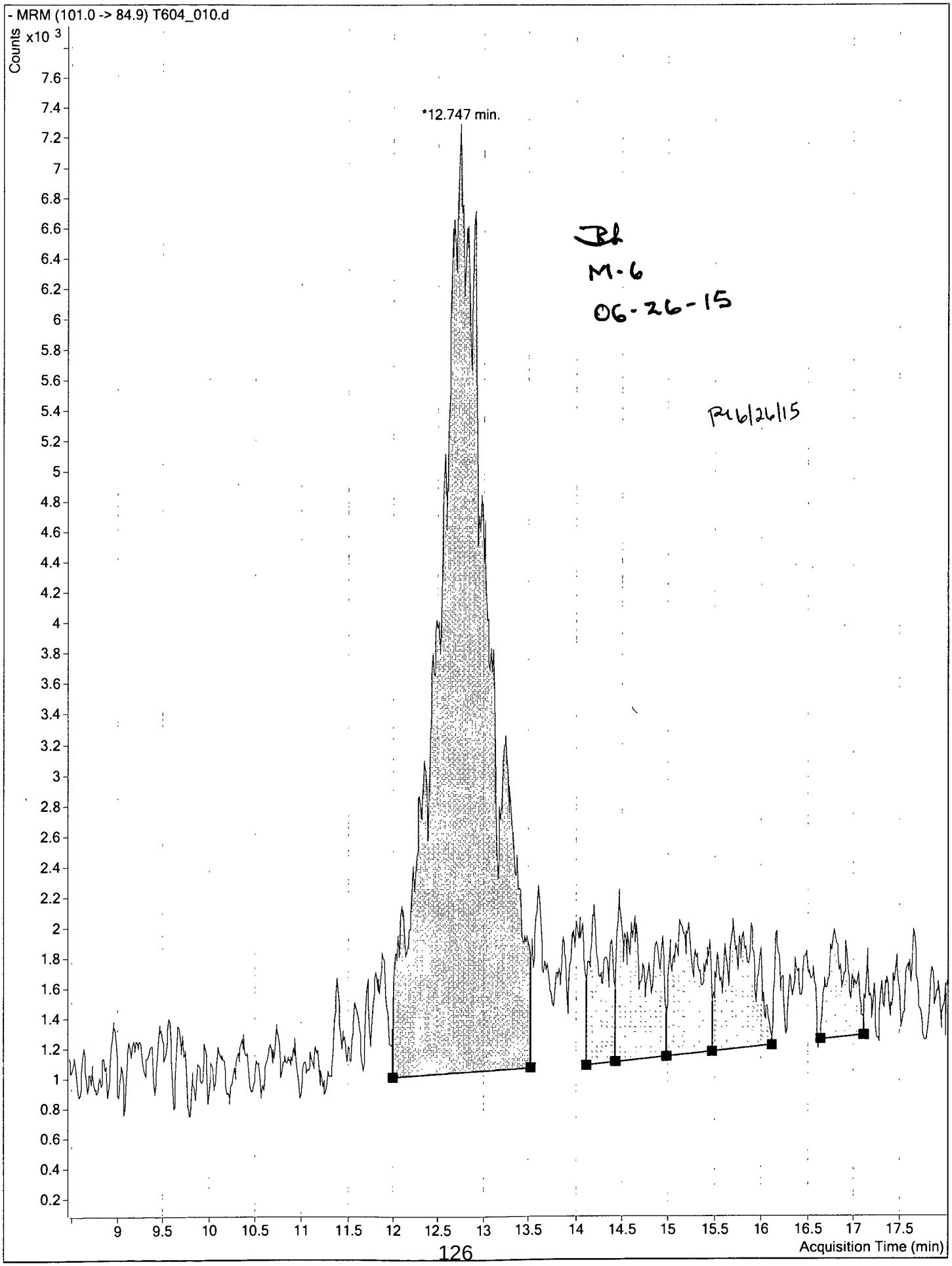
Perchlorate_102








- MRM (101.0 -> 84.9) T604_010.d
Counts
x10 3
13.256 min.
Acquisition Time (min)


- MRM (101.0 -> 84.9) T604_010.d
Counts
x10 3
*12.747 min.
Acquisition Time (min)
JB
M-6
06-26-15
R 6/26/15

ACN_H20_50:50 1 DF 08/27/14: Burdick & Jackson Acetonitrile Lot DL308 took 10.000 ml and added to 10.000 ml Laboratory Source DI_H20 Note : Above solution was prepared as needed.
PER_IS_50:50 0.005 ug/ml 11/11/14: Took 19.000 ml ACN_H20_50:50 11/11/14 and added 1.000 ml O2SI 18_O_4 Perchlorate 100 ug/L lot 1059192-33479 Note: Solution prepared as needed.
PERCHLORATE 0.005 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/28/14 took 0.500 ml and added to 0.500 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PERCHLORATE 0.002 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PERCHLORATE 0.001 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.100 ml and added to 0.900 ml PER_IS_50:50 0.005 ug/ml 11/11/14.

PERCHLORATE 0.0004 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PERCHLORATE 0.0002 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.020 ml and added to 0.980 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PERCHLORATE 0.0001 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.010 ml and added to 0.990 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_1 0.0004 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_1 0.002 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_2 0.0004 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.

PER_CCV_2 0.002 ug/ml 08/27/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_3 0.0004 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_3 0.002 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/28/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_4 0.0004 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_CCV_4 0.002 ug/ml 11/11/14: PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_SS 0.0004 ug/ml 11/11/14: PER_SS 0.010 ug/ml 08/28/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.
PER_SS 0.002 ug/ml 11/11/14: PER_SS 0.010 ug/ml 08/28/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT#	DATE/ INITIALS
PER IS 0.005 µg/ml 04-20-15:							JBl 04-21-15
02SI $^{18}O_4$ Perchlorate 100µg/L Lot 1059192-33479 took 0.050ml and added to 0.950 ml Laboratory Source DI H2O. NOTE: Repeated the above process four times in order to prepare 2-2ml vials that were full. The above was performed as dated. JBl							

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. ENT. LOT #	DATE INITIALS
Seal spk 250 ug/ml							
Hexahydro-1,3,5-tris-hydroxyethyltriazine							
	1010	04-10-15	1.24	5.0	250	ACN/DM394	04-17-15
2,2'-thiodiethanol							
	1090	04-10-15	1.15				
2-(1,3,5-Dithiazinan-5-yl)ethanol							
	1020	04-10-15	1.23				

PER_CCV 0.0004 µg/ml 04-20-15:
PER_SS 0.010 µg/ml 08-28-14
took 0.040 ml and added to
0.910 ml Laboratory Source DI-H2O
that had previously received
0.050 ml 02SI $^{18}O_4$ Perchlorate
100 µg/L lot 1059192-33479

PER_CCV 0.002 µg/ml 04-20-15:
PER_SS 0.010 µg/ml 08-28-14
took 0.200 ml and added to
0.750 ml Laboratory Source DI-H2O
that had previously received
0.050 ml 02SI $^{18}O_4$ Perchlorate
100 µg/L lot 1059192-33479

040 LC/MS/MS STANDARD PREP LOG# 105 PAGE 40

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT#	DATE/ INITIALS
PER IS 0.005 µg/ml 04-20-15:							JR
02SI $^{18}O_4$ Perchlorate 100 µg/L							04-21-15
Lot 1059192-33479 took 0.050 ml and added to 0.950 ml Laboratory Source DI H2O.							
NOTE: Repeated the above process four times in order to prepare 2-2ml vials that were full. The above was performed as dated. JR							

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. TEN. LOT#	DATE INITIALS

NOTE: THE FOLLOWING DOCUMENTATION JL
WAS PERFORMED AS DATED: 05-19-15

PER. CCV 0.0004 µg/ml 05-07-15: JL
PER. SS 0.010 µg/ml 08-28-14 took 05-07-15
0.040 ml and added to 0.910 ml
Laboratory Source DI-H20 that
had previously received 0.050 ml
02SI $^{18}O_4$ Perchlorate 100 µg/L
lot 1074176-35163

PER. CCV 0.002 µg/ml 05-07-15:
PER. SS 0.010 µg/ml 08-28-14
took 0.200 ml and added to
0.750 ML Laboratory Source
DI-H20 that had previously
received 0.050 ml 02SI $^{18}O_4$
Perchlorate 100 µg/L lot
1074176-35163

PER. IS 0.005 µg/ml 05-07-15:
02SI $^{18}O_4$ Perchlorate 100 µg/L
lot 1074176-35163 took 0.050
ml and added to 0.950 ml
Laboratory Source DI-H20
NOTE: Repeated the above
process four times in order
to prepare 2-2ml vials
that were full.

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT#	DATE/ INITIALS
NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: 06-02-15							JA 06-02-15
PER_IS_50:50 0.005µg/ml 05-10-15: COMBINED 10.000 ml Laboratory Source DI_H2O with 10.000 ml Burdick & Jackson Acetonitrile lot DL308. Withdrew 1.000 ml and then delivered 1.000 ml 025I $^{18}O_4$ Perchlorate 100µg/L lot 1074176-35163							JL 05-10-15
AZ16057_W01 10526.3 DF 05-07-15_5/10: AZ16057_W01 1052.6 DF 05-07-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							
AZ16057_W01 105263.2 DF 05-07-15_5/10: AZ16057_W01 10526.3 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							
AZ16057_W01 1052631.6 DF 05-07-15_5/10: AZ16057_W01 105263.2 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT#	DATE INITIALS

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: 06-02-15 06-02-15

AZ16057_W01 10526315.8 DF 05-07-15_5/10:
AZ16057_W01 1052631.6 DF 05-07-15_5/10 05-10-15
TOOK 0.050 ml AND ADDED TO
0.450 ml PER_IS_50:50 0.005 µg/ml
05-10-15

AZ16059_W01 10526.3 DF 05-07-15_5/10:
AZ16059_W01 1052.6 DF 05-07-15_5/10
TOOK 0.050 ml AND ADDED TO
0.450 ml PER_IS_50:50 0.005 µg/ml
05-10-15

AZ16059_W01 105263.2 DF 05-07-15_5/10:
AZ16059_W01 10526.3 DF 05-07-15_5/10
TOOK 0.050 ml AND ADDED TO
0.450 ml PER_IS_50:50 0.005 µg/ml
05-10-15

AZ16059_W01 1052631.6 DF 05-07-15_5/10:
AZ16059_W01 105263.2 DF 05-07-15_5/10
TOOK 0.050 ml AND ADDED TO
0.450 ml PER_IS_50:50 0.005 µg/ml
05-10-15

AZ16059_W01 10526315.8 DF 05-07-15_5/10:
AZ16059_W01 1052631.6 DF 05-07-15_5/10
TOOK 0.050 ml AND ADDED TO
0.450 ml PER_IS_50:50 0.005 µg/ml
05-10-15

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT#	DATE/ INITIALS
NOTE: THE FOLLOWING DOCUMENTATION							JR
WAS PERFORMED AS DATED: JR 06-02-15							06-02-15
AZ16061_IW01 10526.3 DF 05-07-15_5/10:							JR
AZ16061_IW01 10526 DF 05-07-15							05-10-15
TOOK 0.050 ml AND ADDED TO							
0.450 ml PER_IS_50:50 0.005 µg/ml							
05-10-15							
AZ16061_IW01 105263.2 DF 05-07-15_5/10:							
AZ16061_IW01 10526.3 DF 05-07-15_5/10							
TOOK 0.050 ml AND ADDED TO							
0.450 ml PER_IS_50:50 0.005 µg/ml							
05-10-15							
AZ16061_IW01 1052631.6 DF 05-07-15_5/10:							
AZ16061_IW01 105263.2 DF 05-07-15_5/10							
TOOK 0.050 ml AND ADDED TO							
0.450 ml PER_IS_50:50 0.005 µg/ml							
05-10-15							
AZ16061_IW01 10526315.8 DF 05-07-15_5/10							
AZ16061_IW01 1052631.6 DF 05-07-15_5/10							
TOOK 0.050 ml AND ADDED TO							
0.450 ml PER_IS_50:50 0.005 µg/ml							
05-10-15							

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. ID LOT #	DATE INITIALS

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: JH 06-02-15 — JH 06-02-15

AZ16062-W01 10526.3 DF 05-07-15_5/10: AZ16062-W01 1052.6 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15 — JH 05-10-15

AZ16062_W01 105263.2 DF 05-07-15_5/10: AZ16062_W01 10526.3 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15

AZ16062_W01 1052631.6 DF 05-07-15_5/10: AZ16062_W01 105263.2 DF 05-07-15_5/10 ~~TOOK 0.450 ml~~ JH 06-02-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005 µg/ml 05-10-15

AZ16062_W01 10526315.8 DF 05-07-15_5/10: AZ16062_W01 1052631.6 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15

AZ16062_W01_MS-1 10526.3 DF 05-07-15.5/10 AZ16062_W01_MS-1 1052.6 DF 05-07-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT#	DATE/ INITIALS
NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: JB 06-02-15							JB 06-02-15
AZ16062-W01-MS-1 105263.2 DF 05-07-15 5/10							JB
AZ16062-W01-MS-1 10526.3 DF 05-07-15 5/10							05-10
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15							
AZ16062-W01-MS-1 105263.1.6 DF 05-07-15 5/10;							
AZ16062-W01-MS-1 105263.2 DF 05-07-15 5/10							
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15							
AZ16062-W01-MS-1 10526315.8 DF 05-07-15 5/10							
AZ16062-W01-MS-1 105263.1.6 DF 05-07-15 5/10							
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15							
AZ16062-W01-MSD-1 10526.3 DF 05-07-15 5/10							
AZ16062-W01-MSD-1 1052.6 DF 05-07-15							
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15							
AZ16062-W01-MSD-1 105263.2 DF 05-07-15 5/10							
AZ16062-W01-MSD-1 10526.3 DF 05-07-15 5/10							
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15							

VOMS STANDARD PREP LOG: 105 PAGE 81

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. CN. LOT #	DATE INITIALS
NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: JL 06-02-15							JL 06-02-15
AZ16062-W01-MSD-1 1052631.6 DF 05-07-15-5/10							JL
AZ16062-W01-MSD-1 105263.2 DF 05-07-15-5/10							05-10-15
TOOK 0.050 ml AND ADDED TO 0.450 ml PER-IS-50:50 0.005 µg/ml 05-10-15							
AZ16062-W01-MSD-1 10526315.8 DF 05-07-15-5/10 AZ16062-W01-MSD-1 1052631.6 DF 05-07-15-5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER-IS-50:50 0.005 µg/ml 05-10-15							
AZ16058-W01 10526.3 DF 05-07-15-5/10: AZ16058-W01 1052.6 DF 05-07-15-5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER-IS-50:50 0.005 µg/ml 05-10-15							
AZ16058-W01 105263.2 DF 05-07-15-5/10: AZ16058-W01 10526.3 DF 05-07-15-5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER-IS-50:50 0.005 µg/ml 05-10-15							
AZ16058-W01 1052631.6 DF 05-07-15-5/10: AZ16058-W01 105263.2 DF 05-07-15-5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER-IS-50:50 0.005 µg/ml 05-10-15							

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL'N. LOT #	DATE/INITIAL
NOTE! THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED JR 06-02-15							JR 06-02-15
AZ16060_W01 10526.3 DF 05-07-15_5/10:							JR
AZ16060_W01 1052.6 DF 05-07-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							05-10-15
AZ16055_W01 10526.3 DF 05-07-15_~~5/10~~: 5/11 JR							JR
AZ16055_W01 1052.6 DF 05-07-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							05-10-15
AZ16055_W01 105263.2 DF 05-07-15_~~5/10~~: 5/11 JR							
AZ16055_W01 10526.3 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							
AZ16055_W01 1052631.6 DF 05-07-15_~~5/10~~ 5/11 JR							
AZ16055_W01 105263.2 DF 05-07-15_5/10 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							
AZ16056_W01 10526.3 DF 05-07-15_~~5/10~~: JR 5/11							
AZ16056_W01 1052.6 DF 05-07-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005µg/ml 05-10-15							

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INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. CON. LOT #	DATE INITIALS

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED JB 06-02-15 — JB 06-02-15

AZ16056-W01 105263.2 DF 05-07-15 ~~5/10~~ 5/11:
AZ16056-W01 10526.3 DF 05-07-15 5/~~10~~ 11 — 05-11-15
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15

AZ16056-W01 1052631.6 DF 05-07-15 ~~5/10~~ 5/11:
AZ16056-W01 105263.2 DF 05-07-15 5/~~10~~ 11
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15

AZ16136-W01 4210.4 DF 05-08-15 5/11:
AZ16136-W01 1052.6 DF 05-08-15
TOOK 0.050 ml AND ADDED TO 0.150 ml PER IS 50150 0.005 µg/ml 05-10-15

AZ16237-W01 ~~1052.6~~ 10526.3 DF 05-12-15 5/13: — JB
AZ16237-W01 1052.6 DF 05-12-15 — 05-13-15
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15

AZ16237-W01 105263.2 DF 05-12-15 5/13
AZ16237-W01 10526.3 DF 05-12-15 5/13
TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15

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LC/MS STANDARD PREP LOG# 105 PAGE# 84

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOLVENT LOT #	DATE INITIALS

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: JH 06-02-15 JH 06-02-15

AZ16237_W01 1052631.6 DF 05-12-15_5-13 JH
AZ16237_W01 105263.2 DF 05-12-15_5/13 05-13-15
TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005 µg/ml 05-10-15

AZ16237_W01 10526315.8 DF 05-12-15_5/13
AZ16237_W01 1052631.6 DF 05-12-15_5/13
TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005 µg/ml 05-10-15

AZ16229_W01 10526.3 DF 05-12-15_5/13:
AZ16229_W01 1052.6 DF 05-12-15
TOOK 0.050 ml AND ADDED TO JH ~~0.05~~ 0.450 ml PER_IS_50:50 0.005 µg/ml 05-10-15

AZ16229_W01 105263.2 DF 05-12-15_5/13
AZ16229_W01 10526.3 DF 05-12-15_5/13
TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005 µg/ml 05-10-15

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085

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. TEMP. LOT #	DATE INITIALS
NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED JR 06-02-15							JR 06-02-15
AZ16229-W01 1052631.6 DF 05-12-15 5/13: AZ16229-W01 105263.2 DF 05-12-15 5/13 TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-10-15							JR 05-13-15
Mx8330 spk 0.5 kg/L							N
8330MX-A	10	05-15-15	0.050	1.0	0.5	1:1 ACN/MeOH 5-22-15	06-04-15
NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: JR 06-08-15							JR 06-08-15
PER IS 50:50 0.005 µg/ml 05-14-15 COMBINED 10.000 ml Laboratory Source DI H2O with 10.000 ml Burdick & Jackson Acetonitrile lot DL308, Withdrew 1.000 ml and then delivered 1.000 ml 025I $^{18}O_4$ Perchlorate 100 µg/L lot 1074176-35163							JR 05-14-15
AZ16230-W01 10526.3 DF 05-12-15 5/14 AZ16230-W01 1052.6 DF 05-12-15 took 0.050 ml and added to 0.450 ml PER IS 50:50 0.005 µg/ml 05-14-15.							

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. EXT. LOT#	DATE & INITIALS

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: 06-08-15 06-08-

AZ16230-W01 105263.2 DF 05-12-15 5/14: TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-14-15
AZ16230-W01 10526.3 DF 05-12-15 5/14 05-14-

AZ16230-W01 1052631.6 DF 05-12-15 5/14: TOOK 0.050 ml AND ADDED TO ~~0.005 µg/ml~~ 0.450 ml PER IS 50:50 0.005 µg/ml 05-14-15
AZ16230-W01 105263.2 DF 05-12-15 5/14

AZ16230-W01 10526315.8 DF 05-12-15 5/14: TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-14-15
AZ16230-W01 1052631.6 DF 05-12-15 5/14

AZ16236-W01 10526.3 DF 05-12-15 5/14: TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS 50:50 0.005 µg/ml 05-14-15
AZ16236-W01 1052.6 DF 05-12-15

AZ16236-W01 105263.2 DF 05-12-15 5/14: TOOK 0.050 ml AND ADDED TO 0.450 ml PER
AZ16236-W01 10526.3 DF 05-12-15 5/14

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087

STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	SOL. SPK. LOT#	DATE INITIALS

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED. JF 06.08.15 — JF 06.08.15

AZ16236_W01 ~~105233~~ 1052631.6 DF 05.12.15_5/14: — JF 05.14.15

AZ16236_W01 105263.2 DF 05.12.15_5/14 TOOK 0.050 ml AND ADDED TO 0.450 ml PER IS_50:50 0.005 µg/ml 05.14.15

AZ16228_W01 10526.3 DF 05.12.15_5/14:
AZ16228_W01 1052.6 DF 05-12-15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS. 50:50 0.005 µg/ml 05.14.15:

~~AZ16228_W01~~ JF
AZ16231_W01 10526.3 DF 05.12.15_5/14:
AZ16231_W01 1052.6 DF 05.12.15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS. 50:50 0.005 µg/ml 05-14-15.

AZ16233_W01 10526.3 DF 05.12.15_5/14:
AZ16233_W01 1052.6 DF 05.12.15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS. 50:50 0.005 µg/ml 05.14.15.

AZ16233_W01 105263.2 DF 05.12.15_5/14:
AZ16233_W01 10526.3 DF 05.12.15_5/14 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005 µg/ml 05.14.15

088

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STANDARD	INITIAL CONC	SOURCE DATE	ALIQUOT	FINAL VOLUME	FINAL CONC	ACL EN. LOT #	DATE INITIALS
NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: JL 06-08-15							JL 06-08-15
AZ16231_W01 105263.2 DF 05-12-15_5/15: AZ16231-W01 10526.3 DF 05-12-15_5/14 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS. 50:50 0.005 µg/ml 05-14-15							JL DS-15-14
AZ16231_W01 1052631.6 DF 05-12-15_5/15: AZ16231_W01 105263.2 DF 05-12-15_5/15 TOOK 0.050 ml AND ADDED TO 0.450 ml PER_IS_50:50 0.005 µg/ml 05-14-15							

_HPL6850

Organic Extraction Worksheet

Method	EPA 6850 HPLC Perchlorate Extraction	Extraction Set	150604A	Extraction Method	HPL6850	Units	mL

Spiked ID 1	Perchlorate Spike Mix 0.1ppm 8-28-14 EXP 7-31-15		Surrogate ID 1	
Spiked ID 2	Mix Anions 25,000ppm 2-10-15 EXP 2-10-16		Surrogate ID 2	
Spiked ID 3			Surrogate ID 3	
Spiked ID 4			Surrogate ID 4	
Spiked ID 5			Surrogate ID 5	
Spiked ID 6			Sufficient Vol for Matrix QC:	NA
Spiked ID 7			Ext. Start Time:	06/04/15 11:42
Spiked ID 8			Ext. End Time:	06/04/15 11:46
			GC Requires Extract By:	

pH1			Water Bath Temp Criteria	
pH2				
pH3				

Spiked By: CFM **Date** 06/04/15 11:40:00 AM **Witnessed By:** DL **Date** 06/04/15 11:40:00 AM

	Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1	150604A Blk				NA	NA equip	5ML	5ML	NA	06/04/15 11:42	
2	150604A LCS-1		0.030	1	NA	NA equip	5ML	5ML	NA	06/04/15 11:42	
3	150604A ICS		0.030/0.060	1/2	NA	NA equip	5ML	5ML	NA	06/04/15 11:42	
4	AZ17043	AZ17043W01			NA	NA equip	5ML	5ML	NA	06/04/15 11:42	76567 - 24 HOURS RUSH
5	AZ17044	AZ17044W01			NA	NA equip	5ML	5ML	NA	06/04/15 11:42	76567 - 24 HOURS RUSH
6	AZ17045	AZ17045W01			NA	NA equip	5ML	5ML	NA	06/04/15 11:42	76567 - 24 HOURS RUSH
7	AZ17046	AZ17046W01			NA	NA equip	5ML	5ML	NA	06/04/15 11:42	76567 - 24 HOURS RUSH
8	AZ17047	AZ17047W01			NA	NA equip	5ML	5ML	NA	06/04/15 11:42	76567 - 24 HOURS RUSH

PM 6/4/15

olvent and Lot#	
DI WATER	6-4-15

Extraction COC Transfer	
Extraction lab employee Initials	CFM
GC analyst's initials	PM
Date	6/4/15
Time	12:40
Refrigerator	NA

	Technician's Initials
Scanned By	CFM
Sample Preparation	CFM
Extraction	CFM
Concentration	----------

Modified	06/04/15 11:48:06 AM

Reviewed By: PM **Date** 6/4/15

METHOD 6850 INJECTION LOG : 03/12/15 THRU 03/14/15

DETECTOR ID : Agilent 6460 Triple Quad LC/MS PAGE 1 OF 1

SAMPLE INJECTION ID :				DATA FILE ID:	INJECTION DATE/TIME	
PERCHLORATE	0.0002	ug/ml	11/11/14	T312_003.d	03/12/15	17:52
PERCHLORATE	0.0004	ug/ml	11/11/14	T312_004.d	03/12/15	18:11
PERCHLORATE	0.001	ug/ml	11/11/14	T312_005.d	03/12/15	18:29
PERCHLORATE	0.002	ug/ml	11/11/14	T312_006.d	03/12/15	18:48
PERCHLORATE	0.005	ug/ml	11/11/14	T312_007.d	03/12/15	19:07
PERCHLORATE	0.010	ug/ml	08/27/14	T312_008.d	03/12/15	19:25
PER_SS	0.0004	ug/ml	11/11/14	T312_010.d	03/12/15	20:02
PER_SS	0.002	ug/ml	11/11/14	T312_011.d	03/12/15	20:21
PER_CCV_1	0.0004	ug/ml	11/11/14	T312_013.d	03/12/15	20:58
PER_CCV_1	0.002	ug/ml	11/11/14	T312_014.d	03/12/15	21:17

FILE ID : TQ0312AA.SEQ

METHOD 6850 INJECTION LOG : 06/04/15 THRU 06/05/15

DETECTOR ID : Agilent 6460 Triple Quad LC/MS PAGE 1 OF 1

SAMPLE INJECTION ID :				DATA FILE ID:	INJECTION DATE/TIME	
PER_CCV	0.0004	ug/ml	05/29/15	T604_002.d	06/04/15	9:43
PER_CCV	0.002	ug/ml	05/29/15	T604_003.d	06/04/15	10:02
150604WA_LCS-1	1052.6	DF	06/04/15	T604_009.d	06/04/15	12:04
150604W_ICSA	1052.6	DF	06/04/15	T604_010.d	06/04/15	12:22
150604WBLKA	1052.6	DF	06/04/15	T604_011.d	06/04/15	12:41
AZ17043_W01	1052.6	DF	06/04/15	T604_012.d	06/04/15	12:59
AZ17045_W01	1052.6	DF	06/04/15	T604_014.d	06/04/15	13:37
PER_CCV	0.0004	ug/ml	05/29/15	T604_016.d	06/04/15	14:14
PER_CCV	0.002	ug/ml	05/29/15	T604_017.d	06/04/15	14:33
PER_CCV	0.0004	ug/ml	05/29/15	T604_060.d	06/05/15	11:58
PER_CCV	0.002	ug/ml	05/29/15	T604_061.d	06/05/15	12:16
AZ17044_W01	10526.3	DF	06/04/15	T604_063.d	06/05/15	12:56
AZ17046_W01	105263.2	DF	06/04/15	T604_065.d	06/05/15	13:33
PER_CCV	0.0004	ug/ml	05/29/15	T604_069.d	06/05/15	14:48
PER_CCV	0.002	ug/ml	05/29/15	T604_070.d	06/05/15	15:06
AZ17047_W01	10526.3	DF	06/04/15	T604_072.d	06/05/15	16:58
PER_CCV	0.0004	ug/ml	05/29/15	T604_074.d	06/05/15	17:38
PER_CCV	0.002	ug/ml	05/29/15	T604_075.d	06/05/15	17:56

FILE ID : R76567.SEQ