REVIEWED
By Anne Nord at 7:58 am, Sep 07, 2018

8/29/2018

Worklist: 2670

LAB_CASE	ITEM	TASK_ID	DESCRIPTION
C2018-1575	1	125706	AM 27 Blood THC Quant by LC-QQQ
C2018-1619	1	125707	AM 27 Blood THC Quant by LC-QQQ
C2018-1642	1	125708	AM 27 Blood THC Quant by LC-QQQ
C2018-1715	2	125709	AM 27 Blood THC Quant by LC-QQQ
C2018-1723	1	125710	AM 27 Blood THC Quant by LC-QQQ
C2018-1724	1	125711	AM 27 Blood THC Quant by LC-QQQ
M2018-3766	2	125712	AM 27 Blood THC Quant by LC-QQQ
M2018-3822	5	125713	AM 27 Blood THC Quant by LC-QQQ
M2018-3849	2	125715	AM 27 Blood THC Quant by LC-QQQ
M2018-3871	2	125714	AM 27 Blood THC Quant by LC-QQQ
P2018-2159	1	125719	AM 27 Blood THC Quant by LC-QQQ
P2018-2160	1	125718	AM 27 Blood THC Quant by LC-QQQ
P2018-2218	1	125717	AM 27 Blood THC Quant by LC-QQQ
P2018-2264	1	125716	AM 27 Blood THC Quant by LC-QQQ

AM# 27: Quantitation of THC and Metabolites in Blood by LC-MS/MS

Extraction Date: 8/28/18 Run Date : 8/29/18 Analyst: Britany Wylie
Plate lot#: 0515037 Plate Expiration: 09/28/2018

Mobile phase A: 0.1% Formic Acid in LCMS Water **Mobile phase B:** 0.1% Formic acid in Acetonitrile
MTBE LCMS Methanol Hexane
Blank Blood Lot: 18G207D7 **Column**: UCT Selectra DA 100 x 2.1mm 3um
LCMS-QQQ ID: 62340

Pre-Analytic:

☒ 1. Check levels of mobile phases and needle wash refill as needed. Ensure waste is not full.
☒ 2. Ensure correct column is installed and begin mobile phase flow allow to equilibrate ~ 30 minutes.
☒ 3. Create worklist:

Analytic:

☒ 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
☒ 2. Pipette **1000µL blood (calibrated pipette) Pipette ID: k52558g** in wells of analytical (standards) plate.
☒ 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes. *Shaker ID: 66759*
☒ 4. Pipette **500µL 0.1% formic acid in water** in wells of analytical plate.
☒ 5. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
☒ 6. Transfer **800µL of blood+acid** mixture to corresponding wells of SLE+ plate.
☒ 7. Apply positive pressure for approx. 10-15 seconds (or until no liquid remains on top of sorbent). ***(Load at 85-100 PSI- Selector to the right)*** Manifold ID: 66792
☒ 8. Wait 5 minutes.
☒ 9. Add **2.25mL MTBE. (*Add in 3 increments of 750uL)***
☒ 10. Wait 5 minutes.
☒ 11. Apply positive pressure for approx. 15 seconds. ***(10-15 PSI- Selector to the left).***
☒ 12. Add **2.25mL Hexane. (*Add in 3 increments of 750uL)***
☒ 13. Wait 5 minutes.
☒ 14. Apply positive pressure for approx. 15 seconds. ***(10-15 PSI- Selector to the left).***
☒ 15. Remove plate containing eluate. Place on SPE Dry and evaporate to dryness at approx. 35°C. *SPE Dry ID: 66819*
☒ 16. Reconstitute in **100µL 100% MeOH** and heat seal plate with foil. Place in autosampler and run worklist.

Post-Analytic

☒ 1. Create batch and process data.
Worklist path: 08292018 cann quant reinject Batch Name: 8292018 the
☒ 2. Make any necessary integration changes, Curve weighting of Linear 1/x with r^2 values ≥0.98 for each analyte
☒ 3. RT +/- 3% or 0.100 min, whichever is greater, +/- 20% Accuracy for greater than (+/- 30% for 10ng/ml or less). Ion ratios must be within +/- 20% of the averaged calibrators
☒ 4. Case sample response for THC and OH-THC 3ng/mL (quantitative), Carboxy-THC: 10ng/mL (qualitative only) will be reported. Samples with a THC or OH-THC response over 50 ng/mL will be reported out as greater than 50 ng/mL.
☒ 5. Did all QCs pass for each analyte? (Y) N
☒ 6 Enter QCs into control charting.
☒ 7 Central File Packet to include: LIMS Worklist, Method Checklist, Calibration and Control Reports

COMMENTS: all Cal & Samples/QC's were reconstituted & reinjected. part way through initial run it was noted that there was no internal standard in the sample blank, a new blank was made & the batch ~~rest~~ reinjected BV

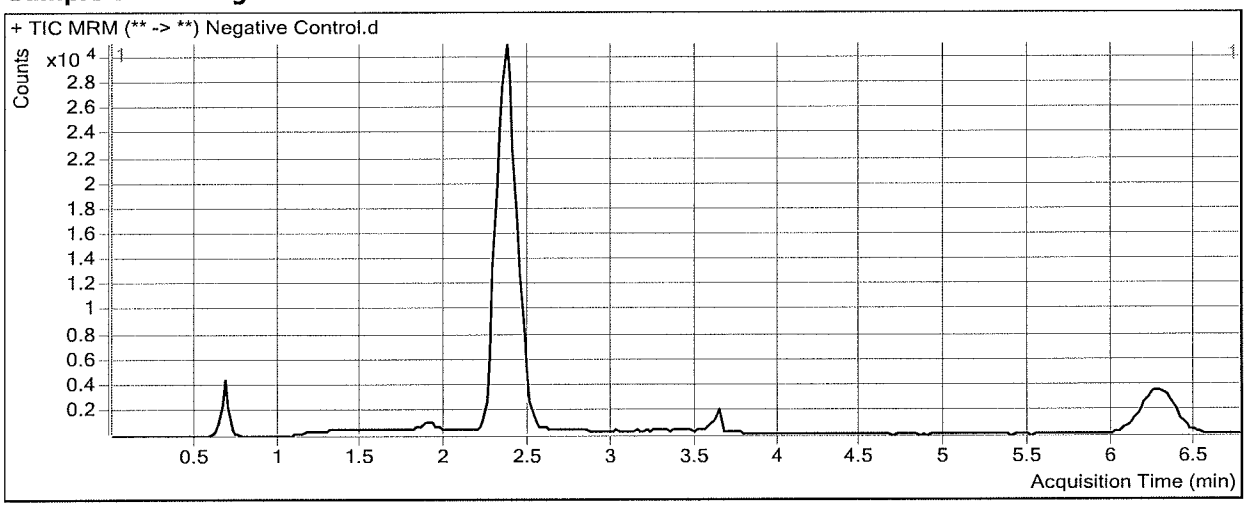
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 21:38	**Data File**	Negative Control.d
Sample Type	Sample	**Sample Name**	Negative Control
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-E3	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-COOH	THC-COOH-d9	2.506	2803	69305	0.0404	1.5604

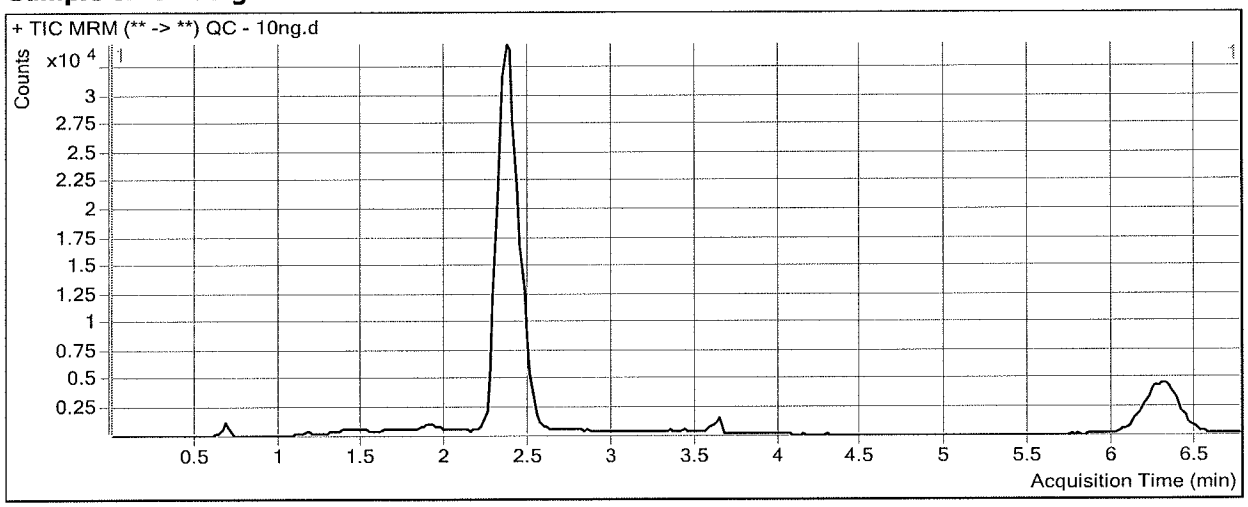
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 21:50	**Data File**	QC - 10ng.d
Sample Type	QC	**Sample Name**	QC - 10ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-H1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.396	19379	199900	0.0969	9.7981
THC-COOH	THC-COOH-d9	2.466	15531	69452	0.2236	10.1409
THC	THC-d3	6.353	6797	59684	0.1139	10.0453

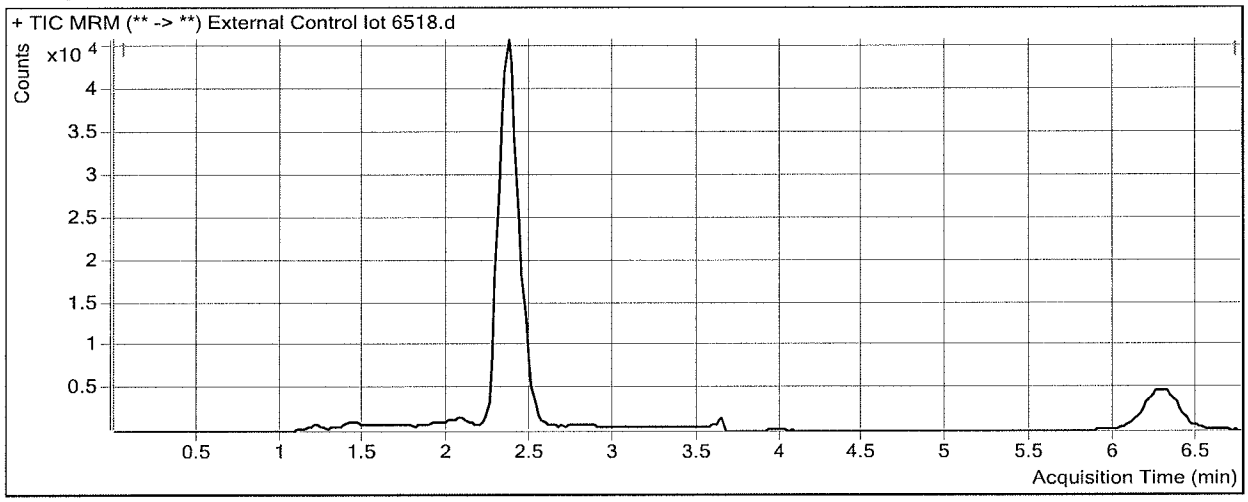
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 22:13	**Data File**	External Control lot 6518.d
Sample Type	Sample	**Sample Name**	External Control lot 6518
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-H3	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	15680	276891	0.0566	5.9715
THC-COOH	THC-COOH-d9	2.486	10854	84077	0.1291	5.7132
THC	THC-d3	6.313	5183	65356	0.0793	7.0550

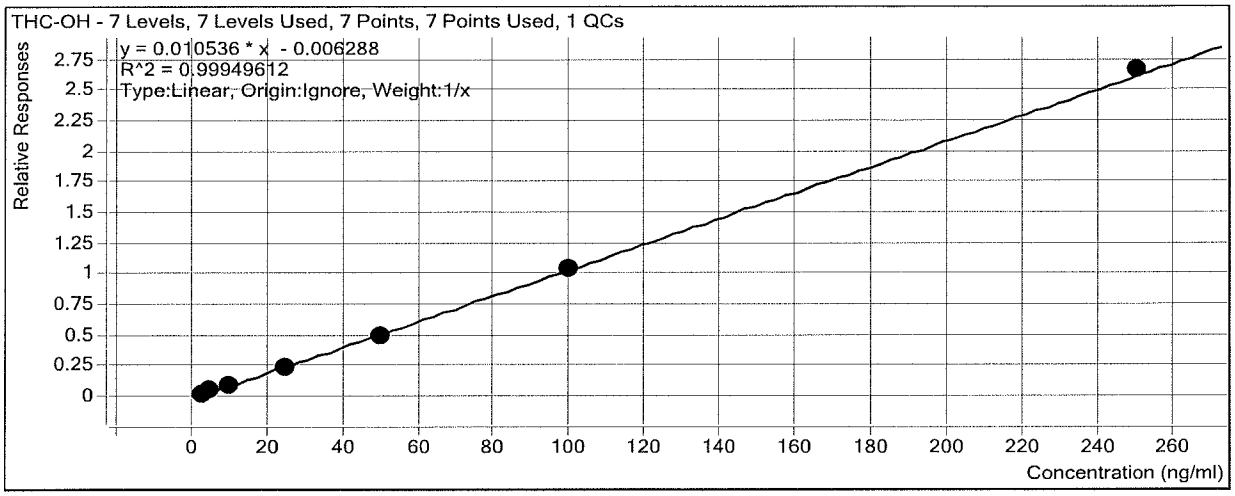
ISP Forensics
Calibration Curve Report

Batch Data Path D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin

Last Calib Update 9/4/2018 11:39 AM **Analyst Name** ISP TOX

Target Compound *THC-OH*

Internal Standard *THC-OH-d3*



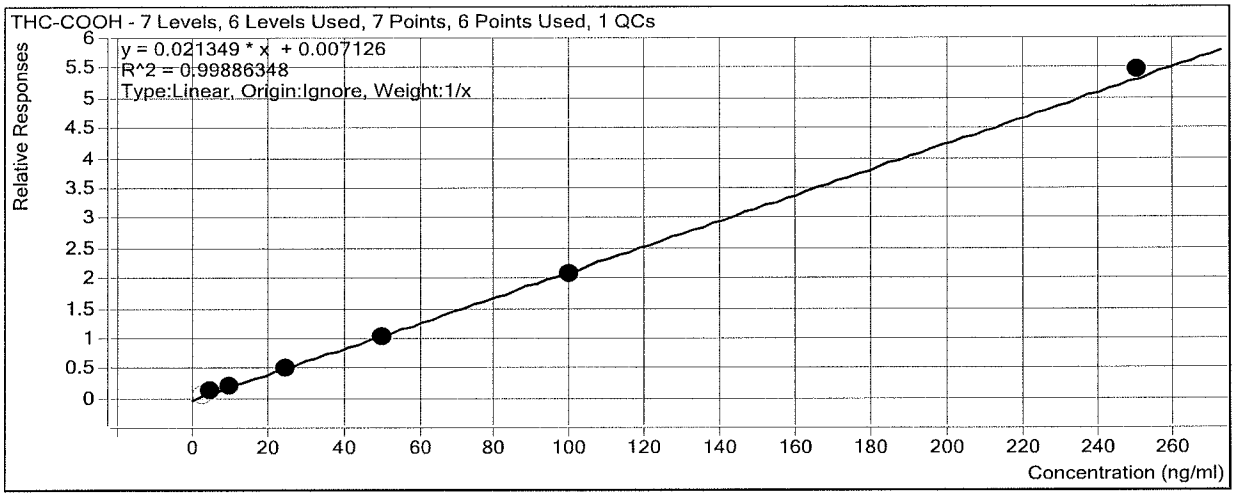
Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1 - 3ng	1	☑	3	3.2	106.2
Cal 2 - 5ng	2	☑	5	5.1	101.9
Cal 3 - 10ng	3	☑	10	10.0	99.6
QC - 10ng	3	☑	10	9.8	98.0
Cal 4 - 25ng	4	☑	25	23.8	95.2
Cal 5 - 50ng	5	☑	50	48.3	96.6
Cal 6 - 100ng	6	☑	100	99.0	99.0
Cal 7 - 250ng	7	☑	250	253.6	101.4

ISP Forensics
Calibration Curve Report

Batch Data Path D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin

Last Calib Update 9/4/2018 11:39 AM **Analyst Name** ISP TOX

Target Compound *THC-COOH*
Internal Standard *THC-COOH-d9*



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1 - 3ng	1	☐	3	3.4	114.2
Cal 2 - 5ng	2	☑	5	5.5	110.9
Cal 3 - 10ng	3	☑	10	9.8	97.9
QC - 10ng	3	☑	10	10.1	101.4
Cal 4 - 25ng	4	☑	25	23.7	95.0
Cal 5 - 50ng	5	☑	50	48.6	97.2
Cal 6 - 100ng	6	☑	100	96.8	96.8
Cal 7 - 250ng	7	☑	250	255.5	102.2

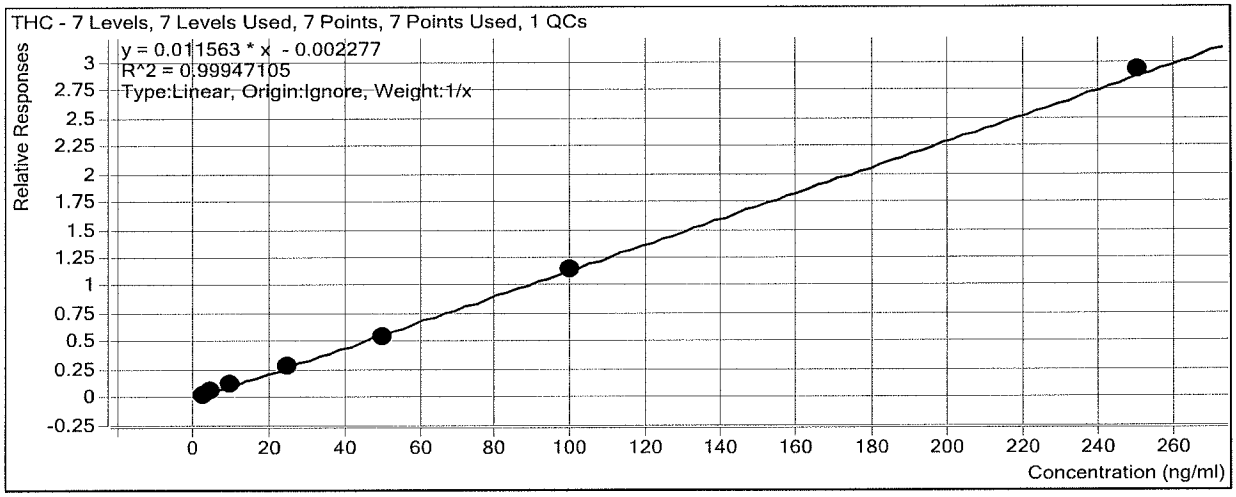
ISP Forensics
Calibration Curve Report

Batch Data Path D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin

Last Calib Update 9/4/2018 11:39 AM **Analyst Name** ISP TOX

Target Compound *THC*

Internal Standard *THC-d3*



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1 - 3ng	1	☑	3	3.0	100.8
Cal 2 - 5ng	2	☑	5	5.2	103.6
Cal 3 - 10ng	3	☑	10	10.2	102.4
QC - 10ng	3	☑	10	10.0	100.5
Cal 4 - 25ng	4	☑	25	24.3	97.4
Cal 5 - 50ng	5	☑	50	47.7	95.4
Cal 6 - 100ng	6	☑	100	98.9	98.9
Cal 7 - 250ng	7	☑	250	253.6	101.4

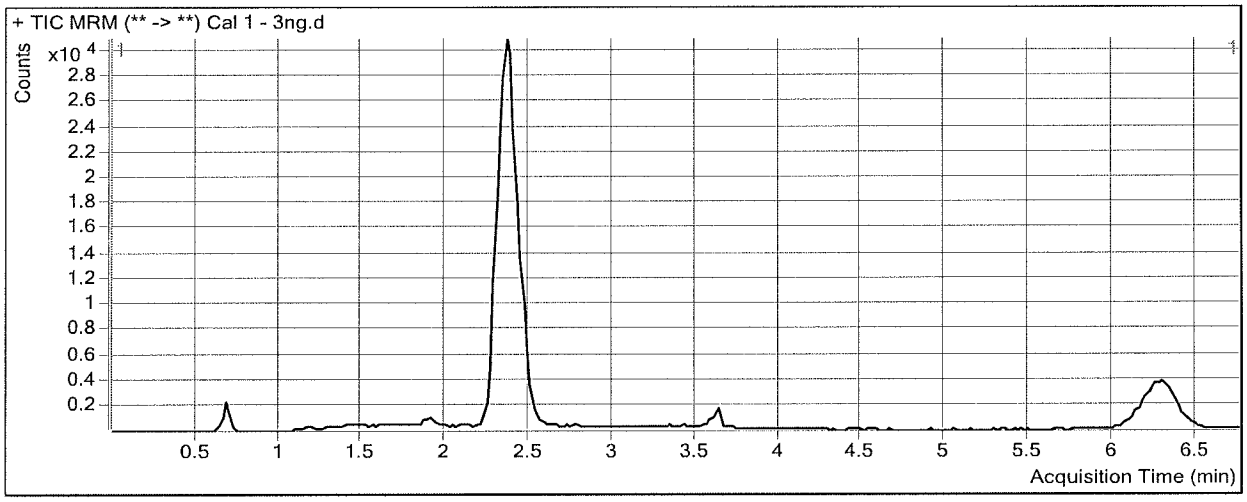
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 20:03	**Data File**	Cal 1 - 3ng.d
Sample Type	Calibration	**Sample Name**	Cal 1 - 3ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-A1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	5083	186422	0.0273	3.1846
THC-COOH	THC-COOH-d9	2.486	5445	67827	0.0803	3.4267
THC	THC-d3	6.293	1764	53974	0.0327	3.0238

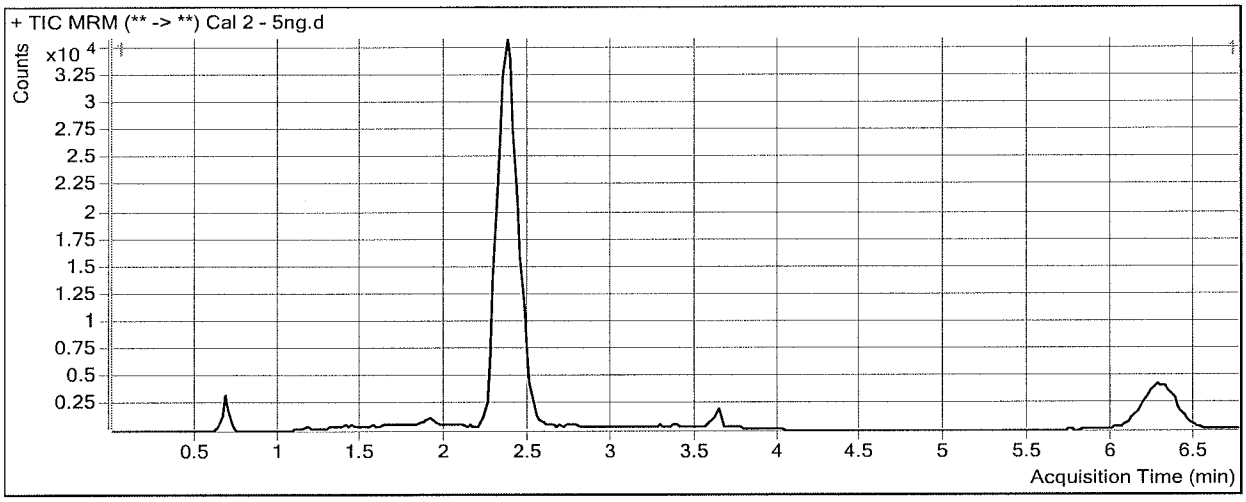
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 20:15	**Data File**	Cal 2 - 5ng.d
Sample Type	Calibration	**Sample Name**	Cal 2 - 5ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-B1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	10097	213087	0.0474	5.0942
THC-COOH	THC-COOH-d9	2.486	9636	76808	0.1255	5.5427
THC	THC-d3	6.313	3368	58437	0.0576	5.1817

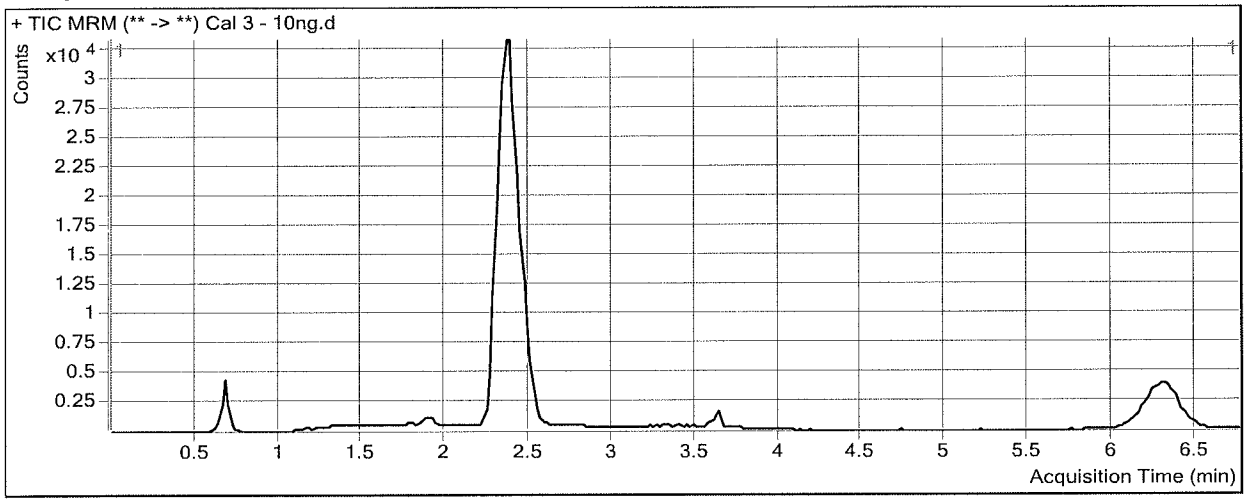
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 20:27	**Data File**	Cal 3 - 10ng.d
Sample Type	Calibration	**Sample Name**	Cal 3 - 10ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-C1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.396	18945	191950	0.0987	9.9645
THC-COOH	THC-COOH-d9	2.486	14978	69277	0.2162	9.7935
THC	THC-d3	6.333	5960	51303	0.1162	10.2434

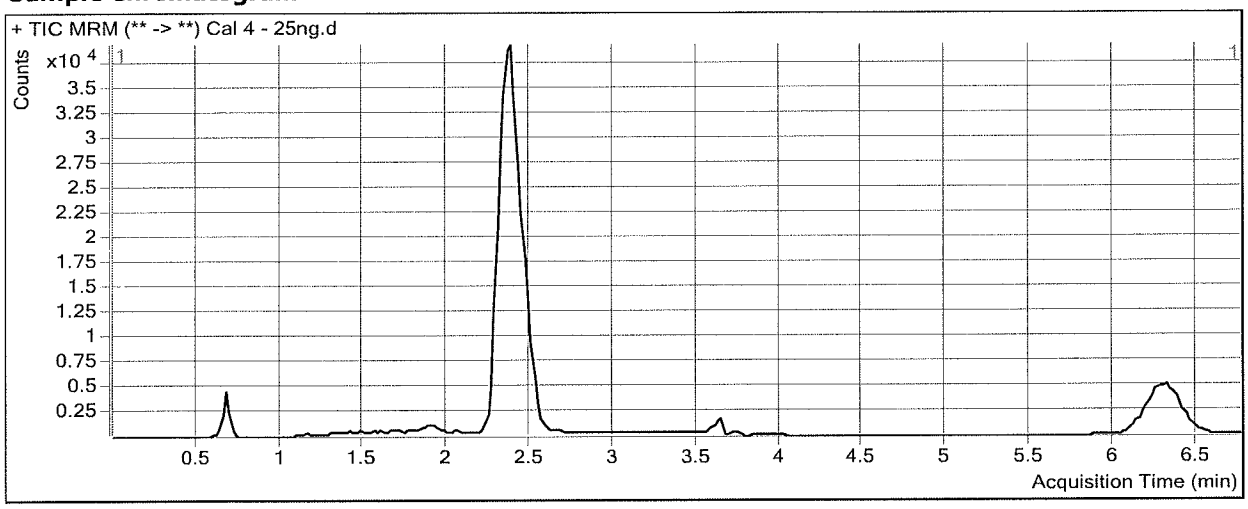
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 20:39	**Data File**	Cal 4 - 25ng.d
Sample Type	Calibration	**Sample Name**	Cal 4 - 25ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-D1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	48677	199111	0.2445	23.8003
THC-COOH	THC-COOH-d9	2.486	36531	71053	0.5141	23.7486
THC	THC-d3	6.313	15480	55448	0.2792	24.3410

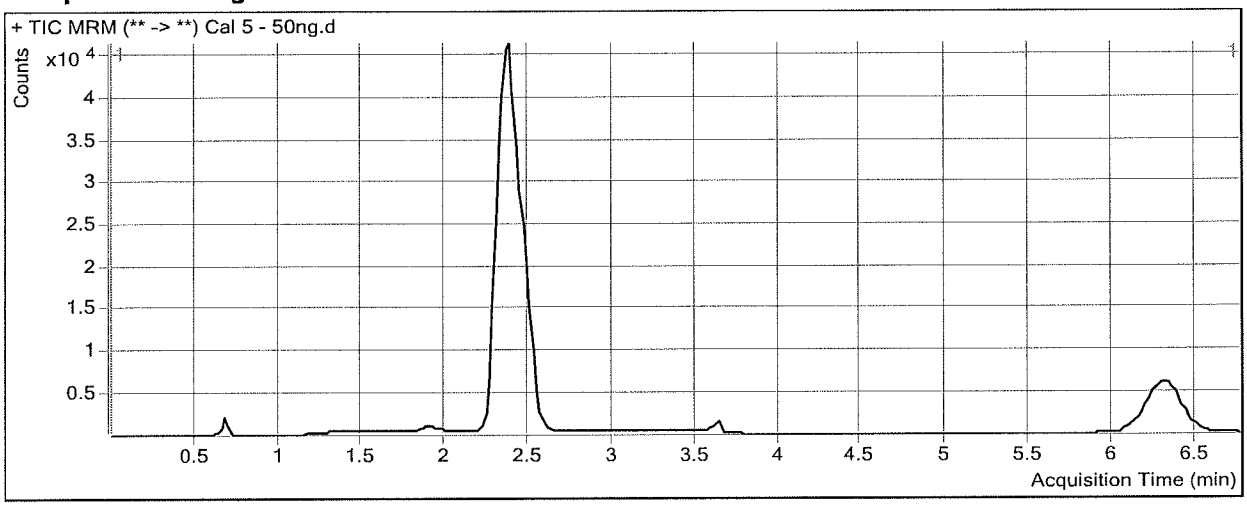
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 20:50	**Data File**	Cal 5 - 50ng.d
Sample Type	Calibration	**Sample Name**	Cal 5 - 50ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-E1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	97641	194186	0.5028	48.3206
THC-COOH	THC-COOH-d9	2.486	71868	68763	1.0451	48.6217
THC	THC-d3	6.313	29596	53868	0.5494	47.7106

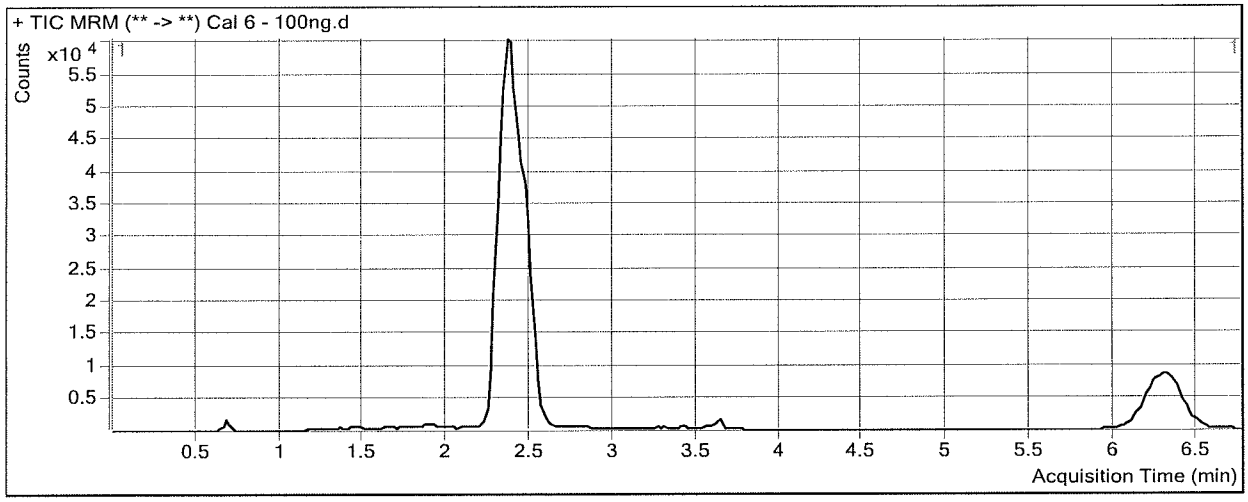
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 21:02	**Data File**	Cal 6 - 100ng.d
Sample Type	Calibration	**Sample Name**	Cal 6 - 100ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-F1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	190547	183722	1.0371	99.0350
THC-COOH	THC-COOH-d9	2.466	132151	63753	2.0729	96.7612
THC	THC-d3	6.313	60721	53191	1.1416	98.9211

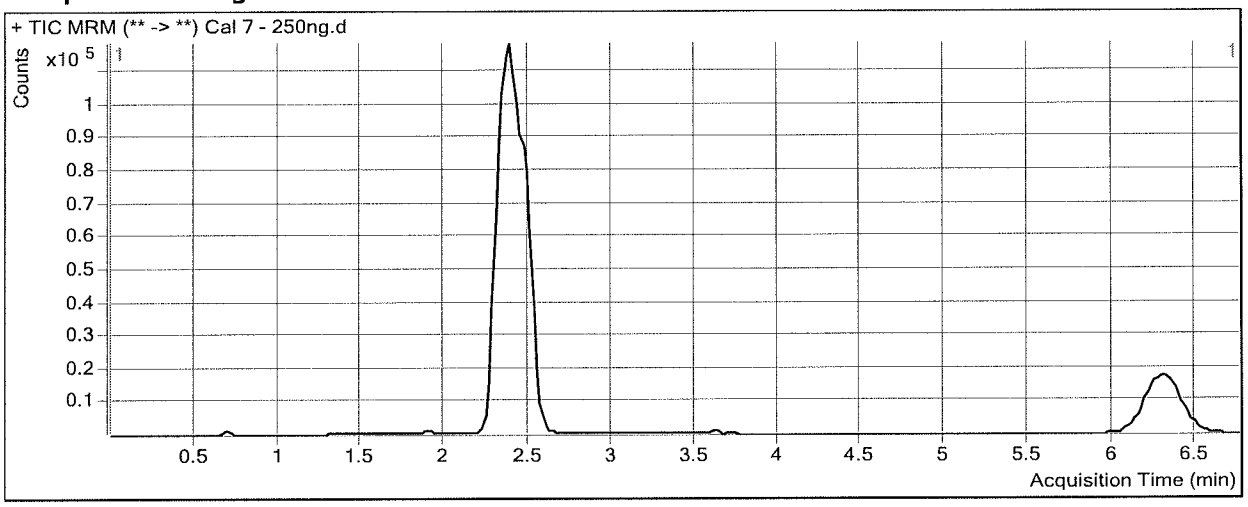
ISP FORENSICS - Cd'A Instrument # 62340
Cannabinoids Analysis Report

Batch Data Path	D:\2018 Data\08292018 cann quant reinject\QuantResults\8292018 the.batch.bin		
Analysis Time	9/4/2018 11:39 AM	**Analyst Name**	ISP Tox
Report Time	9/4/2018 11:40 AM	**Reporter Name**	ISP Tox
Last Calib Update	9/4/2018 11:39 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-08-29 21:14	**Data File**	Cal 7 - 250ng.d
Sample Type	Calibration	**Sample Name**	Cal 7 - 250ng
Dilution	1	**Acq Method**	AM 27 Quant THC 7-2017.m
Position	P1-G1	**Sample Info**	
Inj Vol	-1	**Comment**	AM 27 Cannabinoid Confirmation

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	2.376	539156	202260	2.6657	253.6007
THC-COOH	THC-COOH-d9	2.486	354221	64846	5.4625	255.5323
THC	THC-d3	6.333	162158	55346	2.9299	253.5784

Idaho State Police
Forensic Services
Toxicology Discipline

Request for Departure from an Analytical Method

Date of Request
9/4/18

Forensic Scientist
Britany Wylie

Analytical Method
Toxicology AM #27: Quantitative Analysis of THC and Metabolites in Blood by LCMS-QQQ

4.3.2.4 For calibrators and controls 10 ng and below the accuracy must be within 30%, for calibrators and controls greater than 10 ng/mL the accuracy must be within 20%.
If the control over 10 ng falls outside the accuracy range at the analyst's discretion the compound may be reported qualitatively.

Request

I am requesting a deviation to report the results for THC-OH from worklist 2670 qualitatively due to the external control concentrations of THC being outside the accuracy range of 30% with a value of 5.97 ng/ml.

Discipline Leader Review

☒ Departure approved
Comments:

☐ Departure Not Approved
Comments:

Celena Shrum

Date: 09/06/2018

Celena Shrum
Toxicology Discipline Lead