









Ⓟ

Worklist: 2113

<u>LAB CASE</u>	<u>ITEM</u>	<u>TASK ID</u>	<u>DESCRIPTION</u>	
M2017-5581	1	104455	AM 27 Blood THC Quant by LC	
P2017-1829	3	104462	AM 27 Blood THC Quant by LC	
P2017-2585	1	104456	AM 27 Blood THC Quant by LC	
P2017-2817	1	104457	AM 27 Blood THC Quant by LC	
P2017-2841	1	104458	AM 27 Blood THC Quant by LC	
P2017-2889	2	104459	AM 27 Blood THC Quant by LC	
P2017-3012	1	104460	AM 27 Blood THC Quant by LC	
P2017-3084	1	104461	AM 27 Blood THC Quant by LC	

Quantitation of THC and Metabolites in Blood by LC-MS/MS

5

Extraction Date: 01/04/18

Analyst: Sarah Pickle

Plate lot#: 0499102

Plate Expiration: 01/29/18

Mobile phase A: 0.1% Formic Acid in LCMS Water
MTBE

Mobile phase B: 0.1% Formic acid in Acetonitrile
LCMS Methanol Hexane

Blank Blood Lot: 361331-3

Column: UCT Selectra DA 100 x 2.1mm 3um

LCMS-QQQ ID: 59740

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: #27** in wells of analytical (standards) plate.
3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes. *Shaker ID: 067105*
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: 067104
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: 067103
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: *010498 TS and SP THC Quant* Batch Name: *010408 THC Quant SP*
2. Make any necessary integration changes, r^2 values ≥ 0.98 for each analyte.
3. Did all QCs pass for each analyte? Y / N Enter QCs into control charting?
4. Central File Packet to include: LIMS Worklist, Method Checklist, Calibration and Control Reports

COMMENTS:

Curve Range Limited: THC-COOH 3-100

spelling verified

5

Toxicology AM method 27 panel 1 external prep information

Working Solution 1 ug/ml in MeOH C-THC, THC-OH, THC

Stock Solution 1mg/ml 10 ul THC, 100ug/ml 100ul THC-OH, C-THC in 9790 ul MeOH (Fisher Lot # 172516)

Prepared: 01/04/18 Expires: 06/30/18 By:SP

Drug	Lot	Expiration
C-THC	FE05311303	6/30/2018
THC-OH	FE04231406	4/30/2019
THC	FE01121503	4/31/2020

THC-OH: Lot #: FE01121503 Expiration: 01/31/2020
THC: Lot # FE04231406 Expiration: 04/30/2019

FS

AM 27 control 100 ul working solution lot (WS010418) in 9900ul blood (Hemostat Lot# 361331-3)
Prepared: 01/04/18 Expires: 06/30/18 By: SP

Idaho State Police
Forensic Services
Toxicology Discipline

P

Request for Departure from an Analytical Method

Date of Request
01/08/2018

Forensic Scientist
Sarah Pickle

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

Request

I am formally requesting a deviation to report the results from this run qualitatively due to the external control concentrations of THC and metabolites being slightly above the 10 ng/mL limit. A new control with new standards will be made for the next run.

Discipline Leader Review

Departure approved
Comments:

Departure Not Approved
Comments:

Celena Shrum

Date: 01/10/2018

Celena Shrum
Toxicology Discipline Lead

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

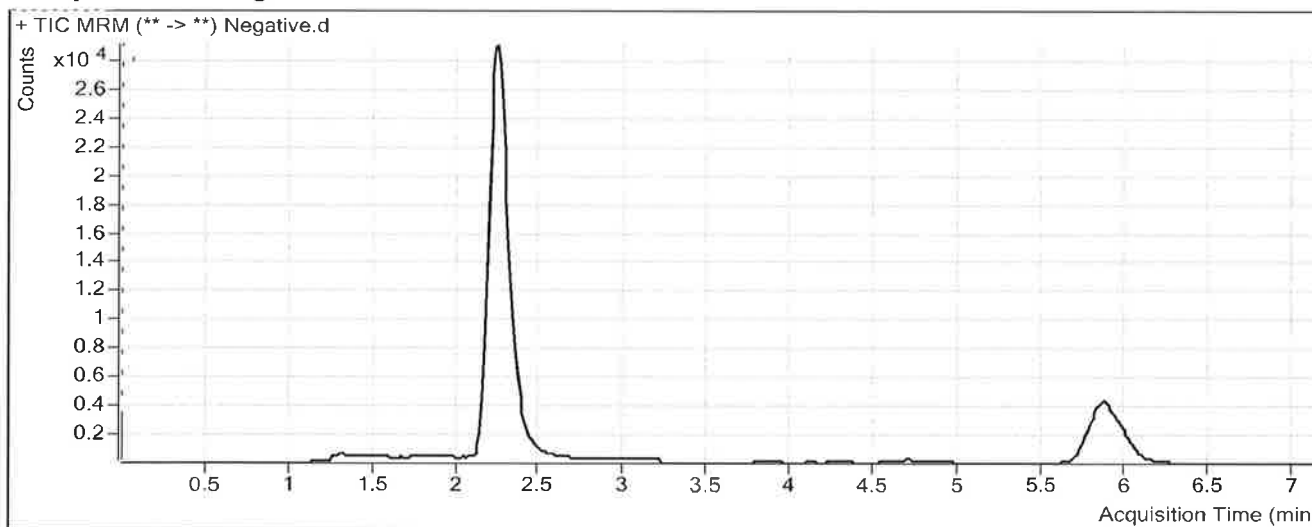
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Batch Data Path	C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat		
Analysis Time	1/18/2018 10:41 AM	Analyst Name	ISPUser
Report Time	1/18/2018 10:49 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 18:08	Data File	Negative.d
Sample Type	Sample	Sample Name	Negative
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-A6	Sample Info	
Inj Vol	-1	Comment	Hemostat 361331-3

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.078	524	192983	0.0027	0.7919
THC-COOH	THC-COOH-D9	2.312	2758	50254	0.0549	1.7992

ISP FORENSICS - Pocatello Instrument # 59740

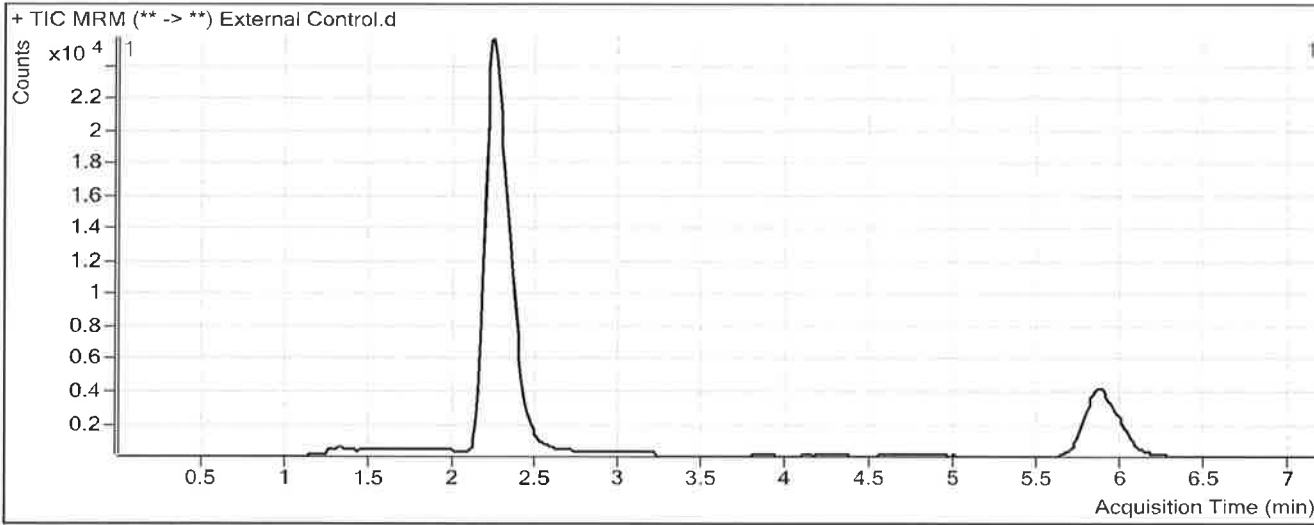
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat		
Analysis Time	1/18/2018 10:41 AM	Analyst Name	ISPUser
Report Time	1/18/2018 10:49 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 20:54	Data File	External Control.d
Sample Type	Sample	Sample Name	External Control
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-B6	Sample Info	
Inj Vol	-1	Comment	Hemostat 361331-3 + WS 010418

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	13994	155357	0.0901	9.7933
THC-COOH	THC-COOH-D9	2.339	23103	41413	0.5579	29.3804
THC	THC-D3	5.879	7142	47241	0.1512	13.9113

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

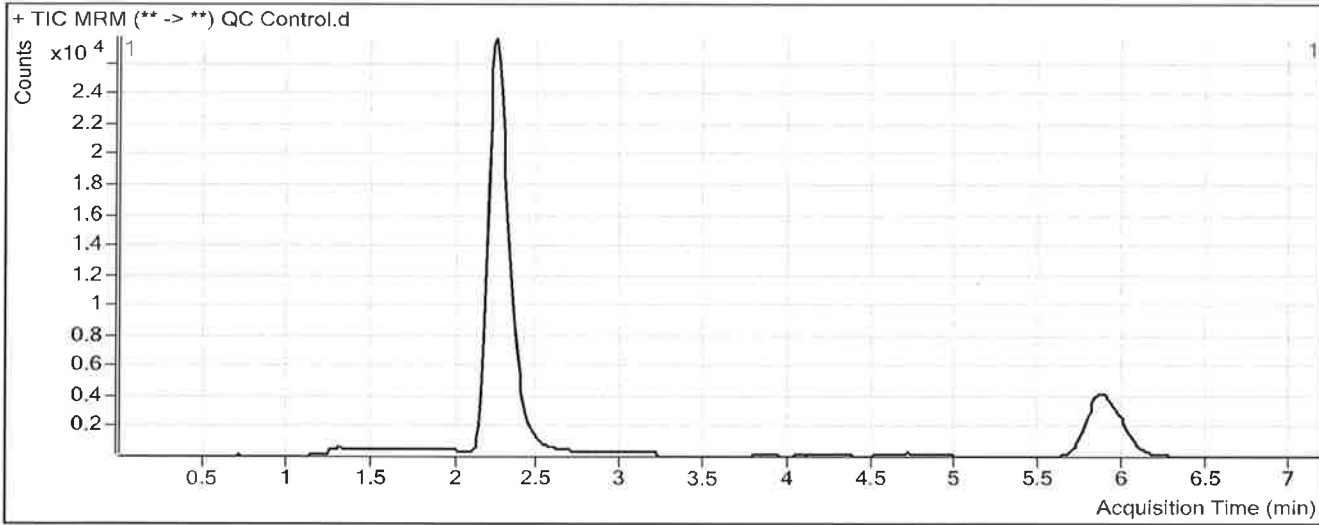
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Batch Data Path C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat
Analysis Time 1/18/2018 10:41 AM **Analyst Name** ISPUser
Report Time 1/18/2018 10:49 AM **Reporter Name** ISPUser
Last Calib Update 1/18/2018 10:41 AM **Batch State** Processed

Analysis Info

Acq Time 2018-01-04 17:44 **Data File** QC Control.d
Sample Type Sample **Sample Name** QC Control
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-H5 **Sample Info**
Inj Vol -1 **Comment**

Sample Chromatogram



Results

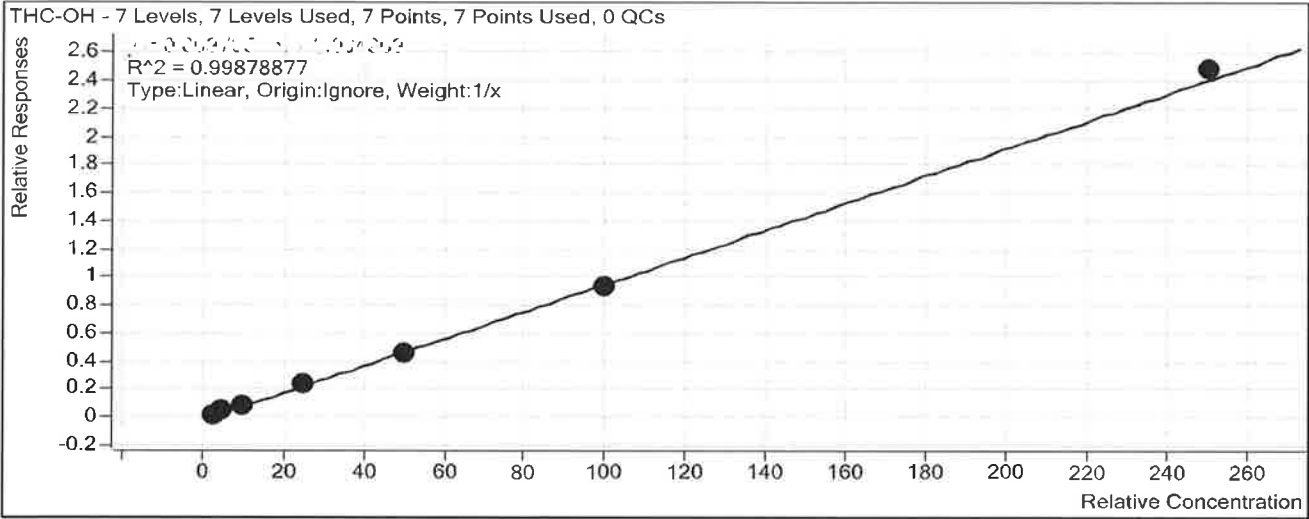
Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	16438	171091	0.0961	10.4113
THC-COOH	THC-COOH-D9	2.339	9352	43241	0.2163	10.6501
THC	THC-D3	5.919	5588	50766	0.1101	10.0988

ISP FORENSICS Calibration Curve Report

SP

Batch Data Path C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408
THC Quant SP.batch.bin
Last Calib Update 1/18/2018 10:41 AM **Analyst Name** ISP TOX

Target Compound THC-OH
Internal Standard THC-OH-D3



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1	1	<input checked="" type="checkbox"/>	3	3.1	102.6
Cal 2	2	<input checked="" type="checkbox"/>	5	5.5	110.5
Cal 3	3	<input checked="" type="checkbox"/>	10	9.4	93.6
Cal 4	4	<input checked="" type="checkbox"/>	25	24.7	98.7
Cal 5	5	<input checked="" type="checkbox"/>	50	47.9	95.8
Cal 6	6	<input checked="" type="checkbox"/>	100	96.5	96.5
Cal 7	7	<input checked="" type="checkbox"/>	250	256.0	102.4

ISP FORENSICS Calibration Curve Report

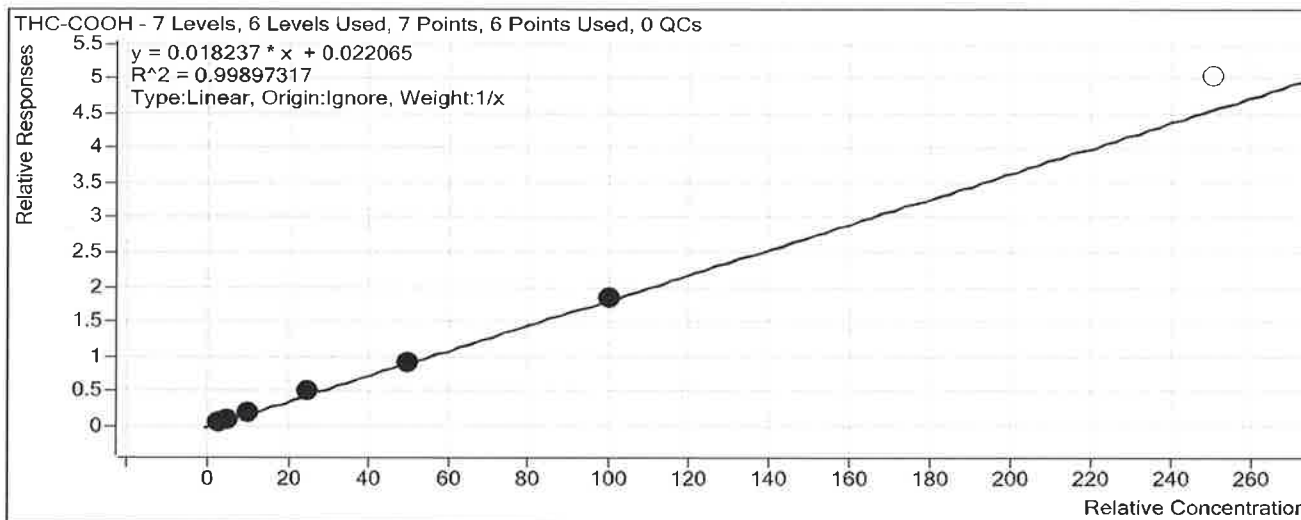
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THC Quant SP.batch.bin

Last Calib Update 1/18/2018 10:41 AM

Analyst Name ISP TOX

SP

Target Compound *THC-COOH*
Internal Standard *THC-COOH-D9*



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1	1	<input checked="" type="checkbox"/>	3	3.1	103.1
Cal 2	2	<input checked="" type="checkbox"/>	5	4.5	90.0
Cal 3	3	<input checked="" type="checkbox"/>	10	10.4	103.7
Cal 4	4	<input checked="" type="checkbox"/>	25	26.3	105.2
Cal 5	5	<input checked="" type="checkbox"/>	50	49.3	98.6
Cal 6	6	<input checked="" type="checkbox"/>	100	99.5	99.5
Cal 7	7	<input type="checkbox"/>	250	274.4	109.7

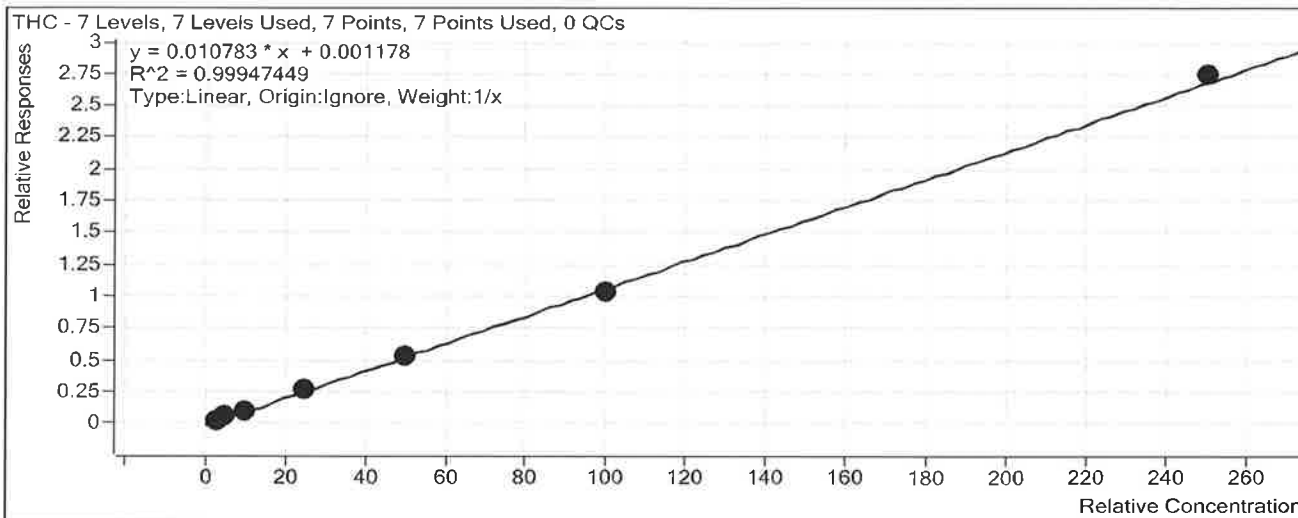
ISP FORENSICS Calibration Curve Report

Batch Data Path C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408
THC Quant SP.batch.bin

Last Calib Update 1/18/2018 10:41 AM

Analyst Name ISP TOX

Target Compound THC
Internal Standard THC-D3



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1	1	<input checked="" type="checkbox"/>	3	3.0	101.5
Cal 2	2	<input checked="" type="checkbox"/>	5	5.2	103.2
Cal 3	3	<input checked="" type="checkbox"/>	10	9.8	98.1
Cal 4	4	<input checked="" type="checkbox"/>	25	25.0	99.9
Cal 5	5	<input checked="" type="checkbox"/>	50	49.6	99.1
Cal 6	6	<input checked="" type="checkbox"/>	100	96.5	96.5
Cal 7	7	<input checked="" type="checkbox"/>	250	253.9	101.6

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

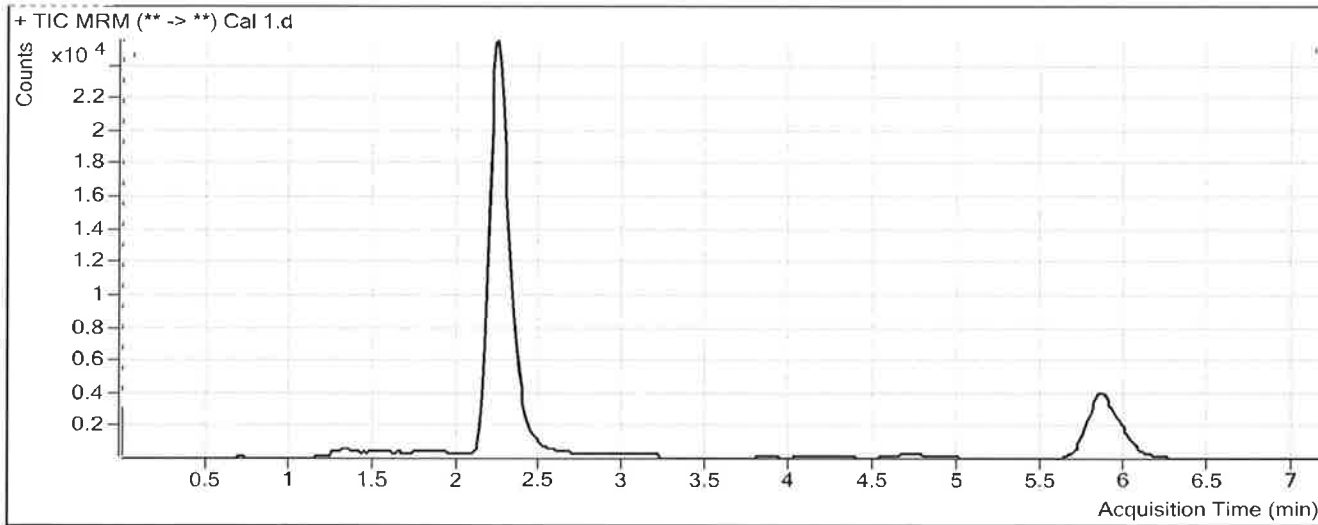
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Analysis Time	1/18/2018 10:41 AM	Analyst Name	ISPUser
Report Time	1/18/2018 10:48 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 16:10	Data File	Cal 1.d
Sample Type	Calibration	Sample Name	Cal 1
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-A5	Sample Info	
Inj Vol	-1	Comment	

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	4212	169123	0.0249	3.0778
THC-COOH	THC-COOH-D9	2.339	3173	40435	0.0785	3.0930
THC	THC-D3	5.879	1722	50595	0.0340	3.0463

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

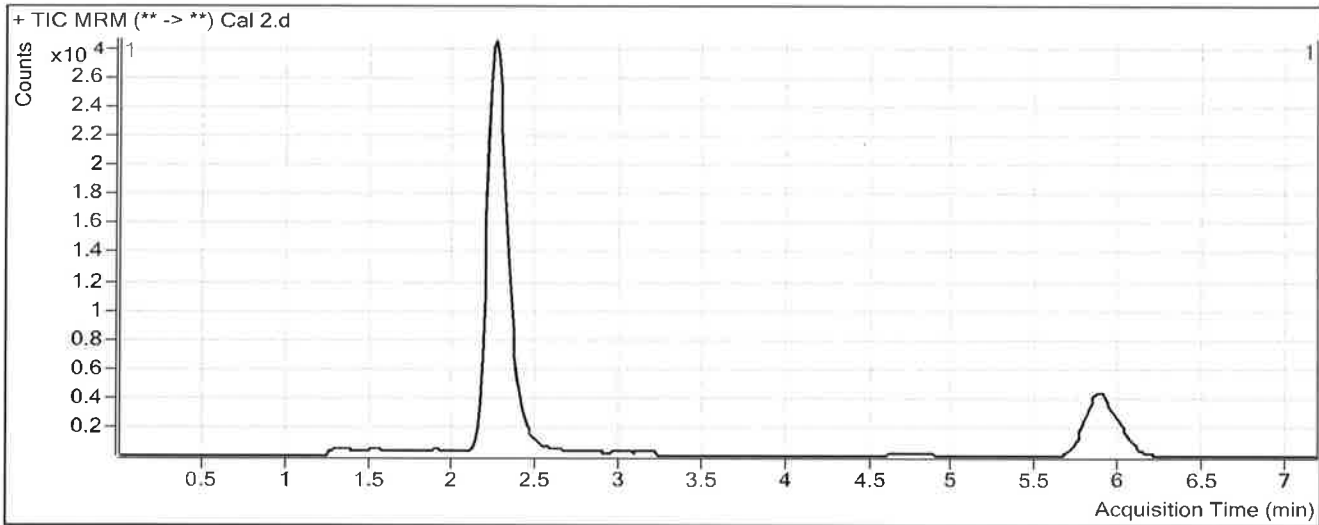
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Batch Data Path	C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat		
Analysis Time	1/18/2018 10:41 AM	Analyst Name	ISPUser
Report Time	1/18/2018 10:48 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 16:21	Data File	Cal 2.d
Sample Type	Calibration	Sample Name	Cal 2
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-B5	Sample Info	
Inj Vol	-1	Comment	

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	8678	178442	0.0486	5.5229
THC-COOH	THC-COOH-D9	2.352	4789	45975	0.1042	4.5020
THC	THC-D3	5.905	3145	55355	0.0568	5.1592

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

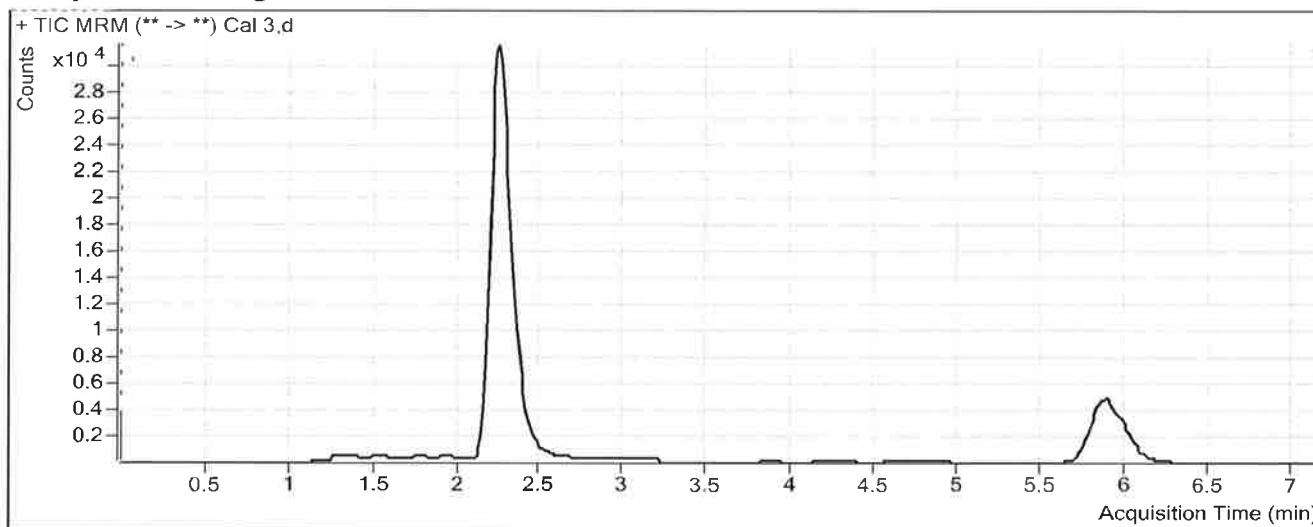
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Batch Data Path	C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat		
Analysis Time	1/18/2018 10:41 AM	Analyst Name	ISPUser
Report Time	1/18/2018 10:48 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 16:33	Data File	Cal 3.d
Sample Type	Calibration	Sample Name	Cal 3
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-C5	Sample Info	
Inj Vol	-1	Comment	

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	16926	197158	0.0858	9.3574
THC-COOH	THC-COOH-D9	2.352	10181	48225	0.2111	10.3668
THC	THC-D3	5.905	6166	57625	0.1070	9.8144

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

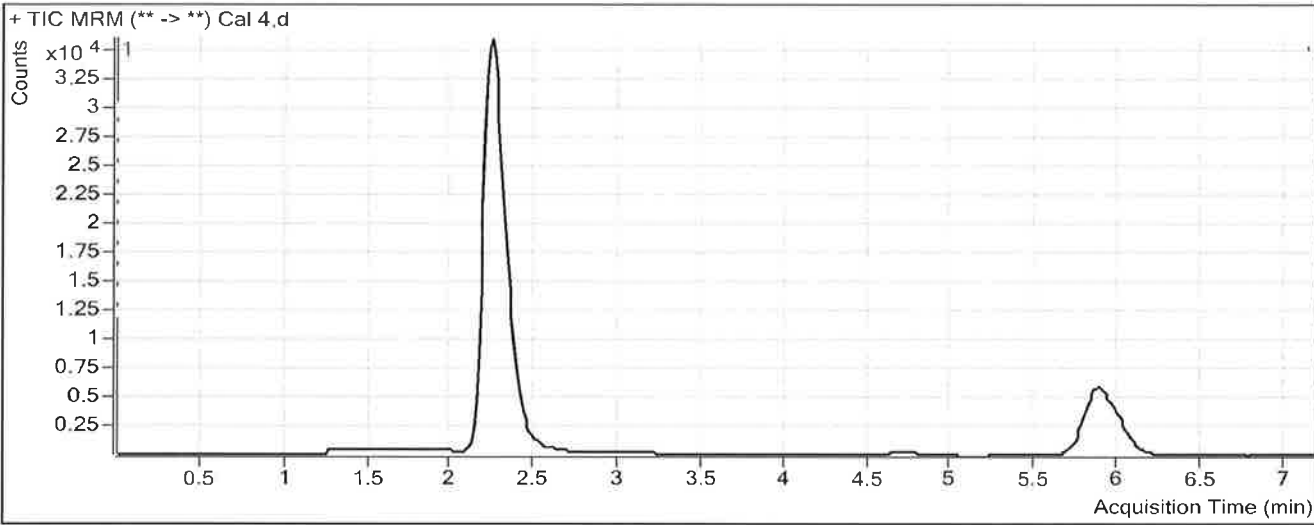


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Analysis Time 1/18/2018 10:41 AM **Analyst Name** ISPUser
Report Time 1/18/2018 10:48 AM **Reporter Name** ISPUser
Last Calib Update 1/18/2018 10:41 AM **Batch State** Processed

Analysis Info

Acq Time 2018-01-04 16:45 **Data File** Cal 4.d
Sample Type Calibration **Sample Name** Cal 4
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-D5 **Sample Info**
Inj Vol -1 **Comment**

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	45441	193841	0.2344	24.6661
THC-COOH	THC-COOH-D9	2.352	23832	47520	0.5015	26.2910
THC	THC-D3	5.892	15908	58792	0.2706	24.9841

ISP FORENSICS - Pocatello Instrument # 59740

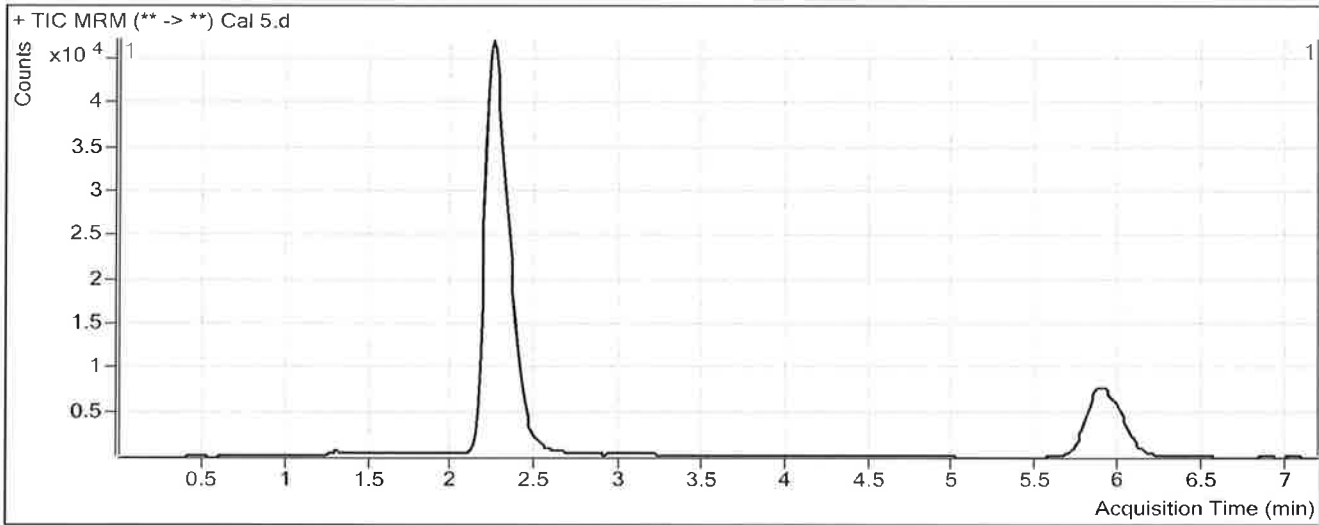
Cannabinoids Analysis Report

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Analysis Time	1/18/2018 10:41 AM	Analyst Name	ISPUser
Report Time	1/18/2018 10:49 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 16:57	Data File	Cal 5.d
Sample Type	Calibration	Sample Name	Cal 5
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-E5	Sample Info	
Inj Vol	-1	Comment	

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	98109	213291	0.4600	47.9060
THC-COOH	THC-COOH-D9	2.352	47638	51735	0.9208	49.2821
THC	THC-D3	5.905	33661	62860	0.5355	49.5526

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

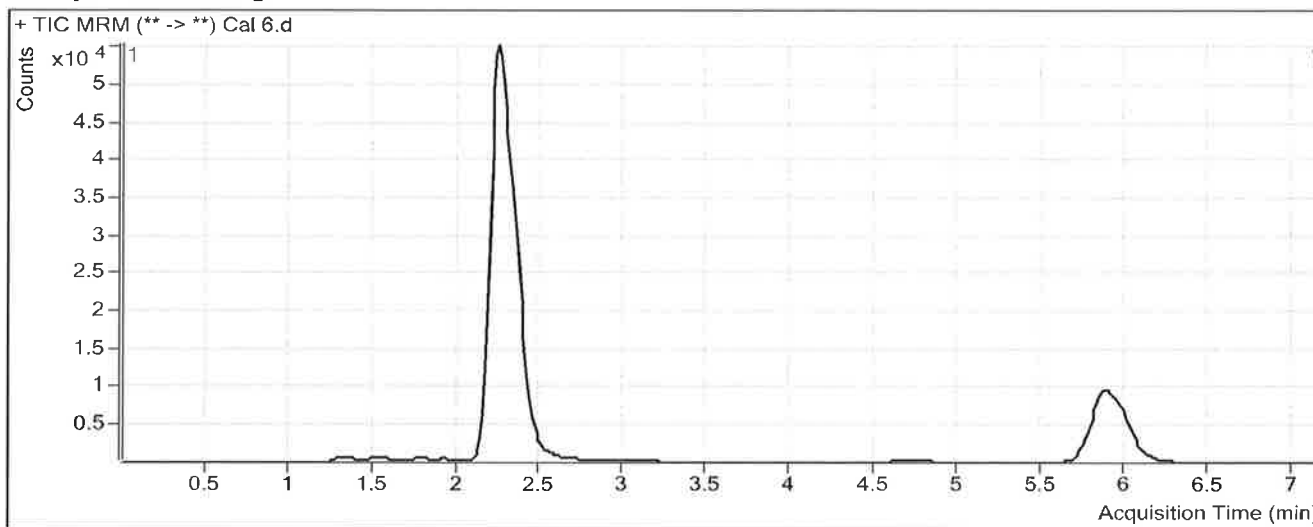
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Batch Data Path	C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat		
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Report Time	1/18/2018 10:49 AM	Reporter Name	ISPUser
Last Calib Update	1/18/2018 10:41 AM	Batch State	Processed

Analysis Info

Acq Time	2018-01-04 17:09	Data File	Cal 6.d
Sample Type	Calibration	Sample Name	Cal 6
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-F5	Sample Info	
Inj Vol	-1	Comment	

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	173388	186086	0.9318	96.5169
THC-COOH	THC-COOH-D9	2.339	81964	44643	1.8360	99.4652
THC	THC-D3	5.905	55608	53374	1.0419	96.5142

ISP FORENSICS - Pocatello Instrument # 59740

Cannabinoids Analysis Report

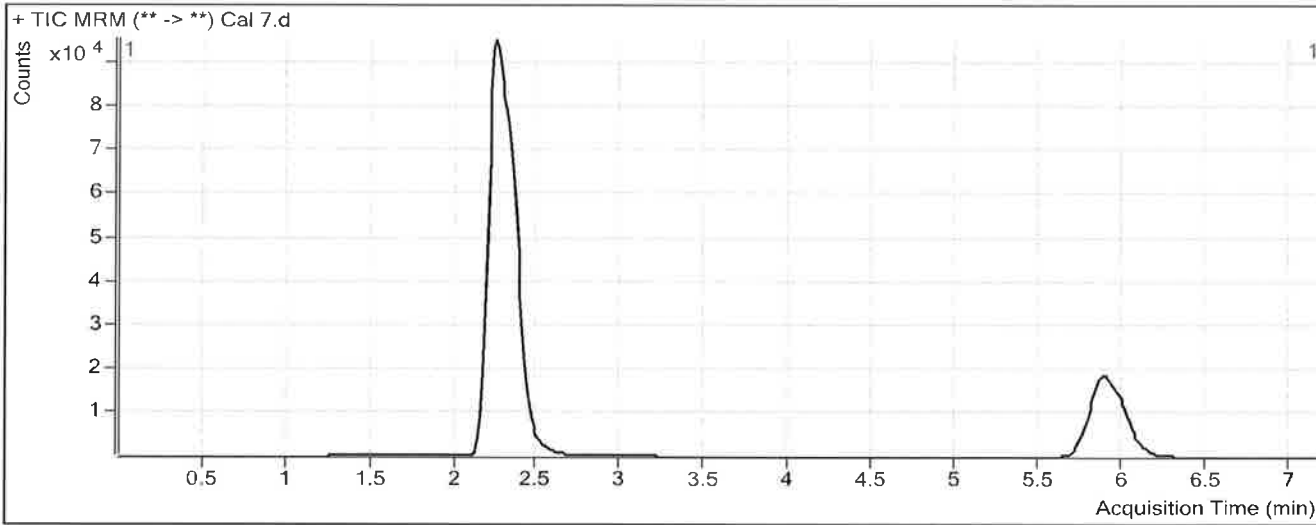
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Batch Data Path C:\MassHunter\Data\2018\THC Quant\010418 TS and SP THC Quant\QuantResults\010408 THC Quant SP.bat
Analysis Time 1/18/2018 10:41 AM **Analyst Name** ISPUser
Report Time 1/18/2018 10:49 AM **Reporter Name** ISPUser
Last Calib Update 1/18/2018 10:41 AM **Batch State** Processed

Analysis Info

Acq Time 2018-01-04 17:21 **Data File** Cal 7.d
Sample Type Calibration **Sample Name** Cal 7
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-G5 **Sample Info**
Inj Vol -1 **Comment**

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.252	433006	174659	2.4791	255.9528
THC-COOH	THC-COOH-D9	2.339	203305	40455	5.0255	274.3630
THC	THC-D3	5.892	139701	51001	2.7392	253.9291