

REVIEWED

By Celena Shrum at 2:32 pm, Feb 28, 2019

REVIEWED

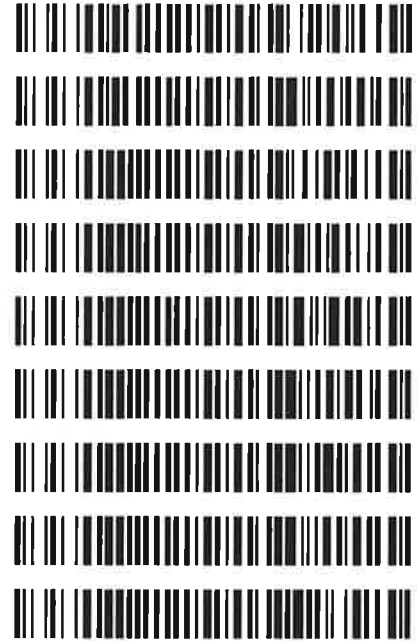
By Sarah Pickle at 4:09 pm, Jan 30, 2019

1/28/2019

TS

Worklist: 2906

<u>LAB CASE</u>	<u>ITEM</u>	<u>TASK ID</u>	<u>DESCRIPTION</u>
M2018-6344	1	138135	AM 27 Blood THC Quant by LC-QQQ
M2019-0057	2	138136	AM 27 Blood THC Quant by LC-QQQ
P2018-3370	1	138137	AM 27 Blood THC Quant by LC-QQQ
P2019-0111	1	138138	AM 27 Blood THC Quant by LC-QQQ
P2019-0127	1	138139	AM 27 Blood THC Quant by LC-QQQ
P2019-0133	1	138140	AM 27 Blood THC Quant by LC-QQQ
P2019-0153	1	138141	AM 27 Blood THC Quant by LC-QQQ
P2019-0154	1	138142	AM 27 Blood THC Quant by LC-QQQ
P2019-0195	1	138143	AM 27 Blood THC Quant by LC-QQQ



TS

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

Extraction Date: 01/29/19
Plate lot#: 0539904

Analyst: Tamara Salazar
Plate Expiration: 09/10/19

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

Mobile phase B: 0.1% Formic acid in Acetonitrile
Hexane

Blank Blood Lot: Hemostat 445283-1

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: Data Path: C:\MassHunter\Worklists\012918 THCQ TS.wkl

Analytic:

- 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- 2. Pipette **1000µL blood/urine (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 for blood samples.
- 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: C:\MassHunter\Data\2019\AM 27\012919 THCQ TS
Batch Name: THCQ 012919 TS
- 2. Make any necessary integration changes, Curve weighting of Linear 1/x with r² 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: *Curves limited: THC-COOH 10-100*



Idaho State Police Forensic Services

15

AM #27 Quantitative Analysis of THC and Metabolites in Blood by LCMS-QQQ

Methanol External Control Solution (Lot: WS102418)

10 ul of 1mg/mL THC, 100 ul of 100 ug/mL THC-OH, C-THC in 9790 ul MeOH

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>	<i>Expiration Date</i>
Methanol (LCMS)	Fisher	177145	
THC	Cerilliant	FE04231406	04/30/2019
C-THC	Cayman	0497429	02/08/2019
THC-OH	Cerilliant	FE01121503	01/31/2020
Prepared:	10/24/18		
Prepared By:	Tamara Salazar		
Expires:	02/08/19		

Blood External Control Solution (Lot: 102418)

100 ul of methanol external control solution was added to 9900 ul of blood.

Approximately 10ng/mL of each compound.

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>
Negative Blood	Lampire	18G207D7
Methanol External Control Solution		WS102418
Prepared:	10/24/18	
Prepared by:	Sarah Pickle	
Expires:	02/08/19	

TS

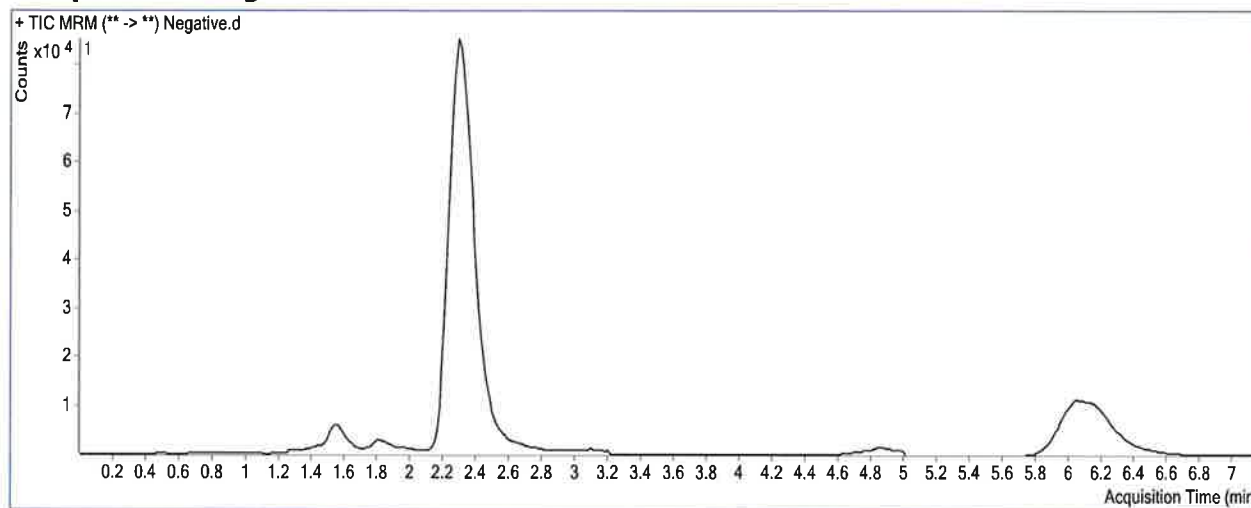
ISP FORENSICS - Pocatello Instrument # 59740 Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 15:17 **Data File** Negative.d
Sample Type Sample **Sample Name** Negative
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-A2 **Sample Info**
Inj Vol -1 **Comment** Hemostat 445283-1

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.519	3873	676219	0.0057	1.1371 <i>LB TS</i>
THC-COOH	THC-COOH-D9	2.259	13810	238449	0.0579	1.9266 <i><10 TS</i>

TS

ISP FORENSICS - Pocatello Instrument # 59740

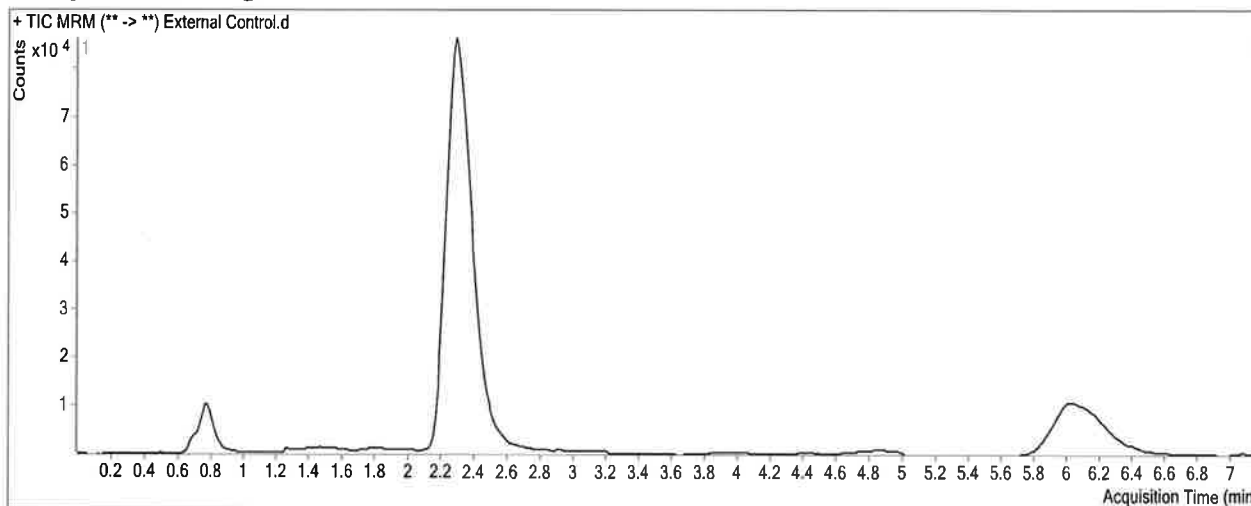
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:48 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 15:40 **Data File** External Control.d
Sample Type Sample **Sample Name** External Control
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-B2 **Sample Info**
Inj Vol -1 **Comment** Lampire 18G207D7 + WS 102418

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.292	52674	599766	0.0878	8.4557
THC-COOH	THC-COOH-D9	2.392	35771	233040	0.1535	7.1813
THC	THC-D3	6.052	16699	224612	0.0743	9.0789

TS

ISP FORENSICS - Pocatello Instrument # 59740

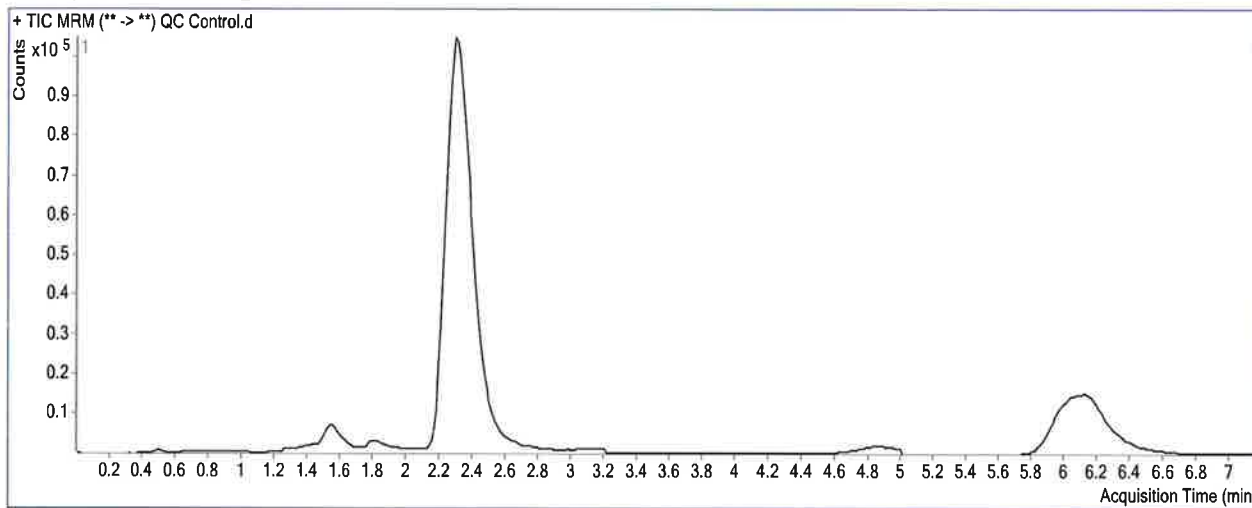
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 14:53 **Data File** QC Control.d
Sample Type Sample **Sample Name** QC Control
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-H1 **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	2.305	36332	784356	0.0463	4.7559
THC-COOH	THC-COOH-D9	2.406	55937	273091	0.2048	10.0031
THC	THC-D3	6.119	12259	326930	0.0375	4.8407

ISP Forensics Calibration Curve Report

TS

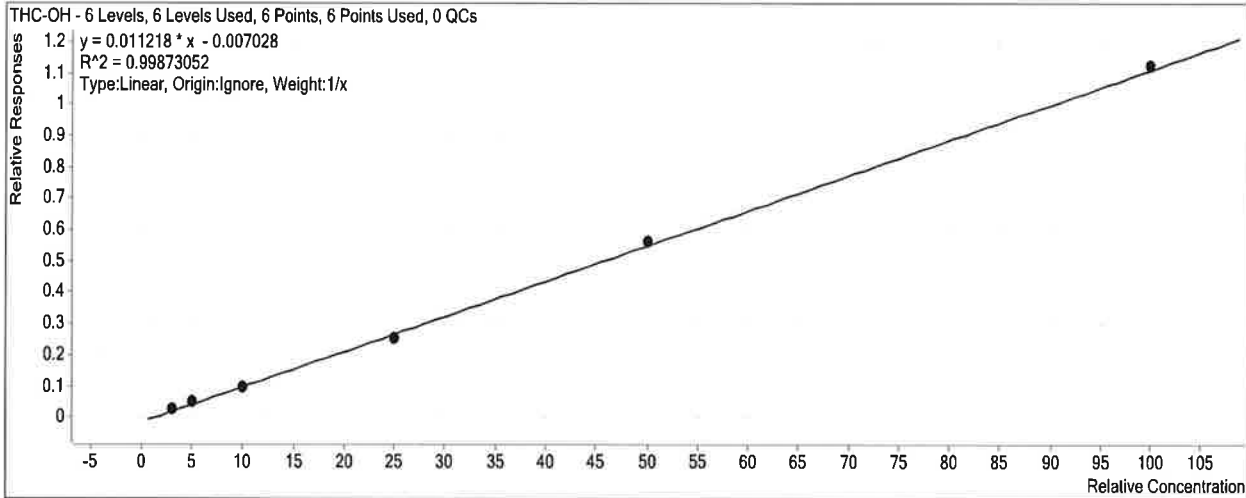
Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin

Last Calib Update 1/30/2019 1:46 PM

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	<input checked="" type="checkbox"/>	3	3.1	105.0
Cal 2-5ng	2	<input checked="" type="checkbox"/>	5	5.2	103.8
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	9.5	95.5
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	23.3	93.0
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	50.8	101.7
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	101.0	101.0

ISP Forensics Calibration Curve Report

TS

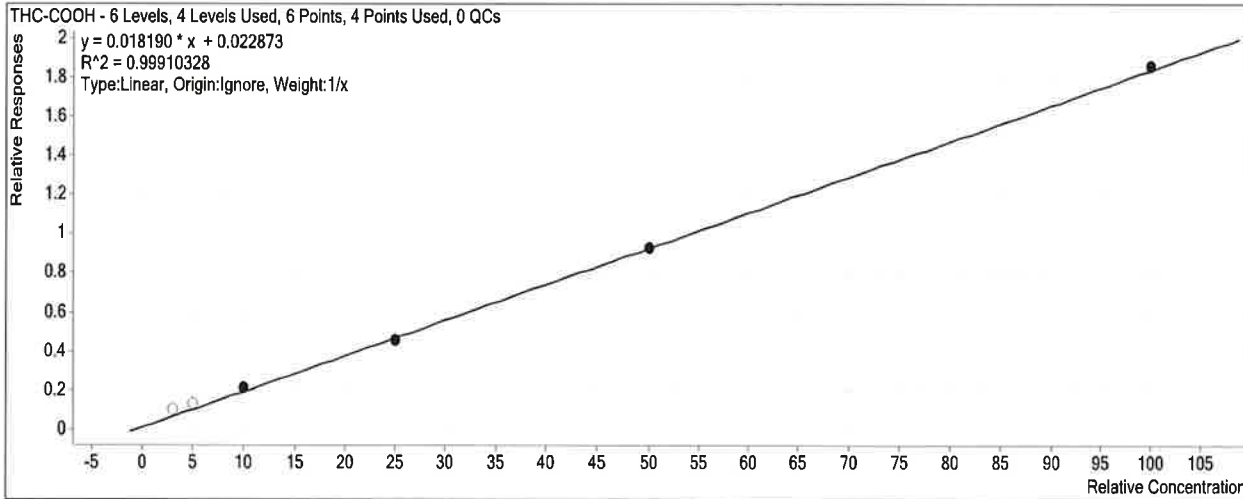
Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin

Last Calib Update 1/30/2019 1:46 PM

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	<input type="checkbox"/>	3	4.4	145.0
Cal 2-5ng	2	<input type="checkbox"/>	5	6.0	120.0
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	10.4	104.1
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	23.8	95.2
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	49.9	99.8
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	100.9	100.9

TS

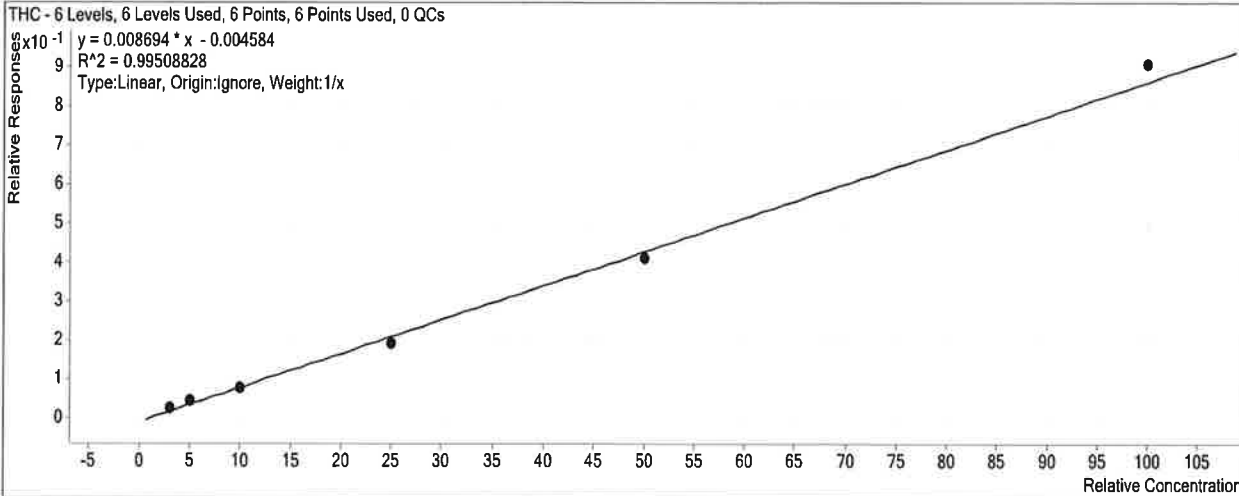
ISP Forensics Calibration Curve Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin

Last Calib Update 1/30/2019 1:46 PM

Analyst Name ISP TOX

Target Compound *THC*
Internal Standard *THC-D3*



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1-3ng	1	<input checked="" type="checkbox"/>	3	3.3	109.7
Cal 2-5ng	2	<input checked="" type="checkbox"/>	5	5.4	107.3
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	9.3	92.7
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	22.5	90.1
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	47.7	95.4
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	104.9	104.9

TS

ISP FORENSICS - Pocatello Instrument # 59740

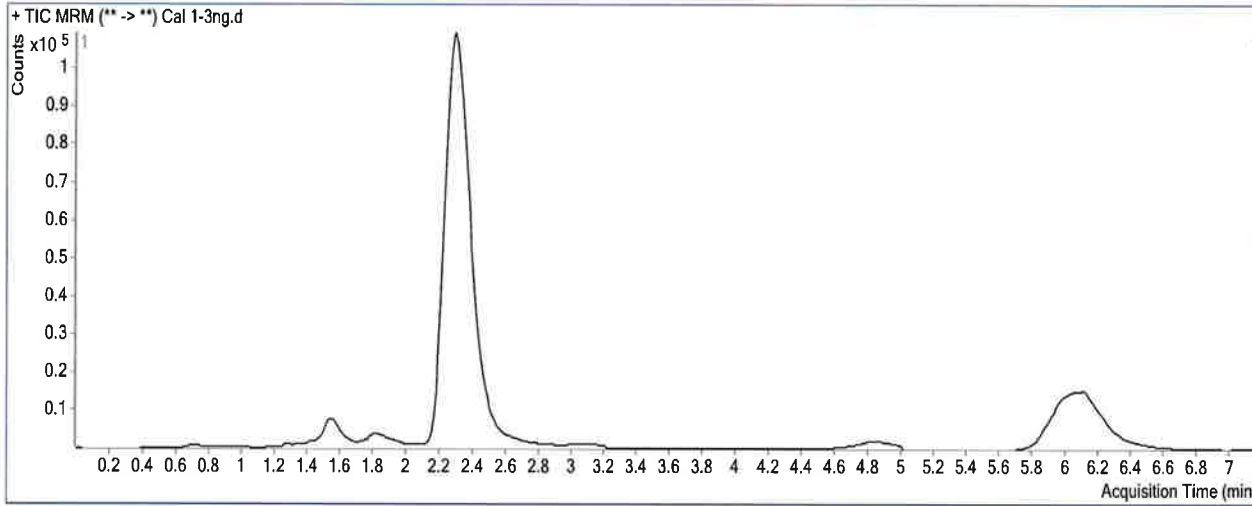
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 13:30 **Data File** Cal 1-3ng.d
Sample Type Calibration **Sample Name** Cal 1-3ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-B1 **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	2.292	23899	844537	0.0283	3.1493
THC-COOH	THC-COOH-D9	2.392	28708	281411	0.1020	4.3509
THC	THC-D3	6.119	8054	335285	0.0240	3.2905

TS

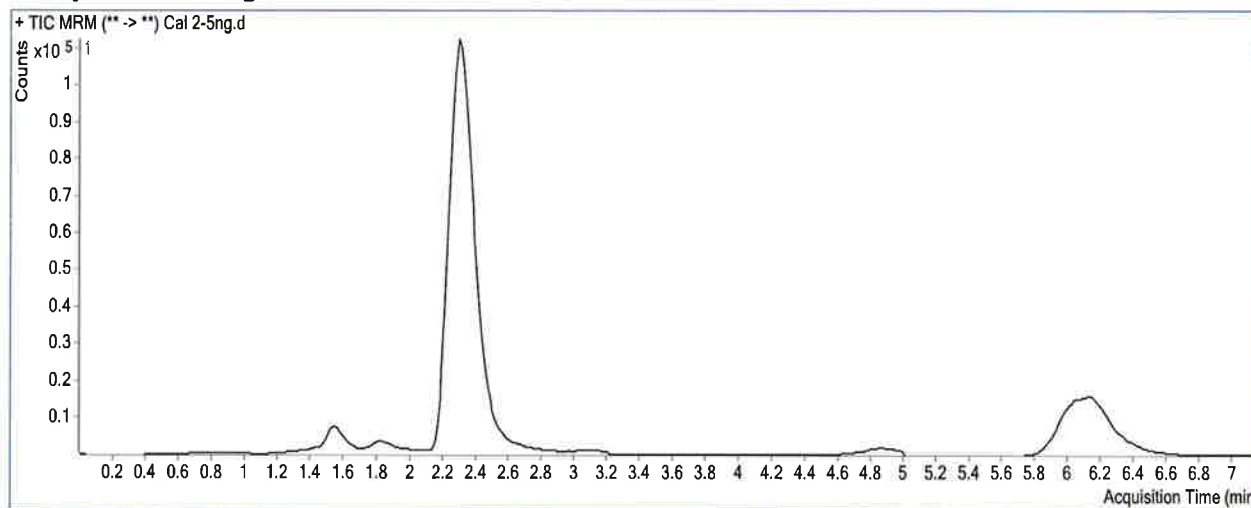
ISP FORENSICS - Pocatello Instrument # 59740 Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 13:42 **Data File** Cal 2-5ng.d
Sample Type Calibration **Sample Name** Cal 2-5ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-C1 **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	2.305	43297	845572	0.0512	5.1912
THC-COOH	THC-COOH-D9	2.406	38775	293724	0.1320	6.0000
THC	THC-D3	6.132	13538	321891	0.0421	5.3650

15

ISP FORENSICS - Pocatello Instrument # 59740

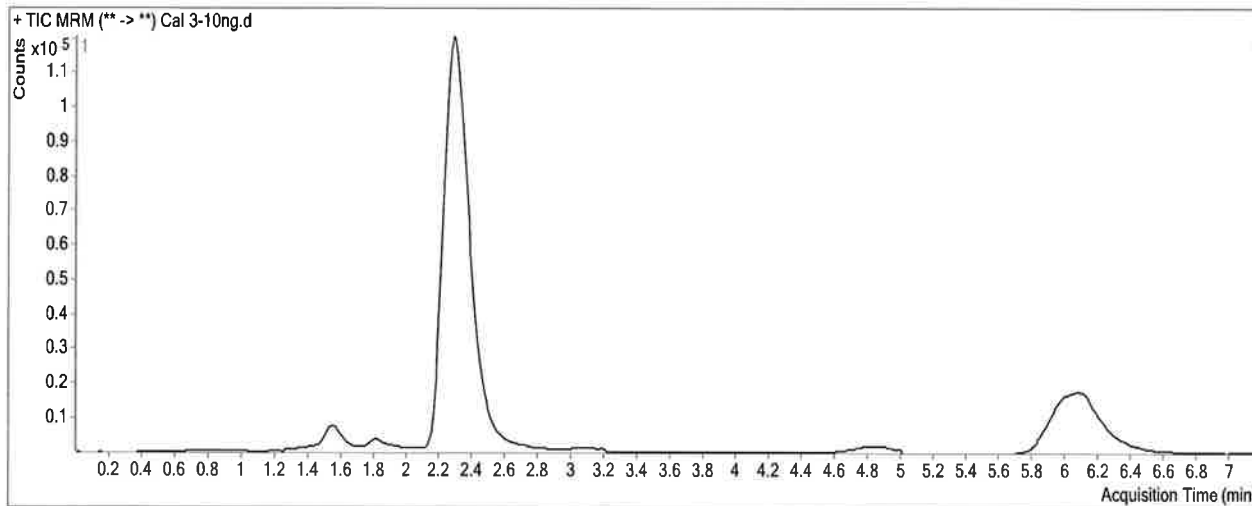
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 13:54 **Data File** Cal 3-10ng.d
Sample Type Calibration **Sample Name** Cal 3-10ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-D1 **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	2.292	86409	863425	0.1001	9.5480
THC-COOH	THC-COOH-D9	2.392	62718	295565	0.2122	10.4082
THC	THC-D3	6.106	26841	353125	0.0760	9.2706

15

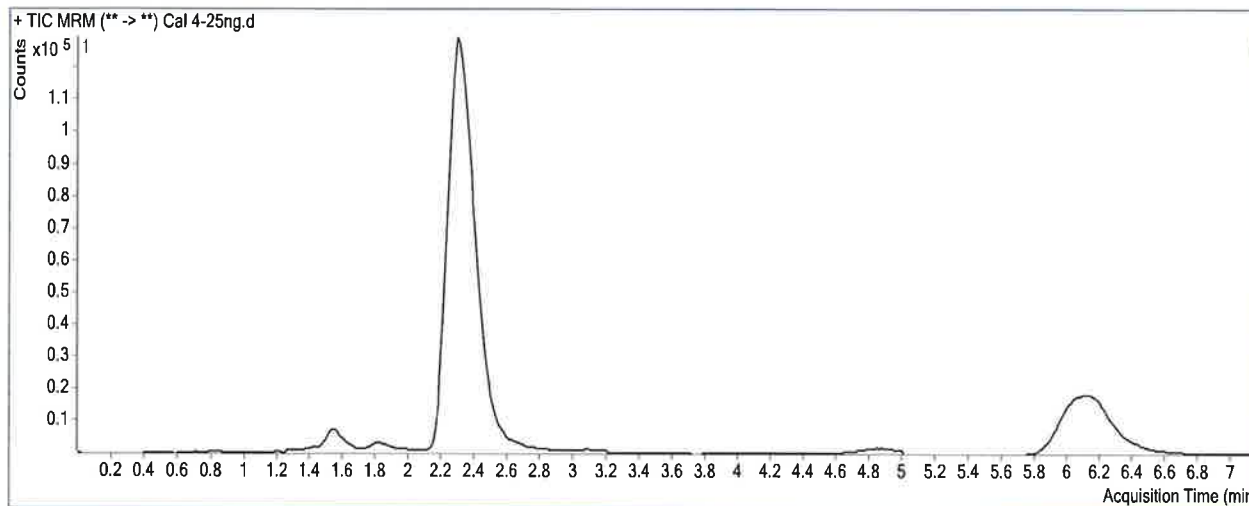
ISP FORENSICS - Pocatello Instrument # 59740 Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 14:06 **Data File** Cal 4-25ng.d
Sample Type Calibration **Sample Name** Cal 4-25ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-E1 **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	2.305	204772	806487	0.2539	23.2612
THC-COOH	THC-COOH-D9	2.406	124769	273678	0.4559	23.8060
THC	THC-D3	6.146	62885	328904	0.1912	22.5200

TS

ISP FORENSICS - Pocatello Instrument # 59740

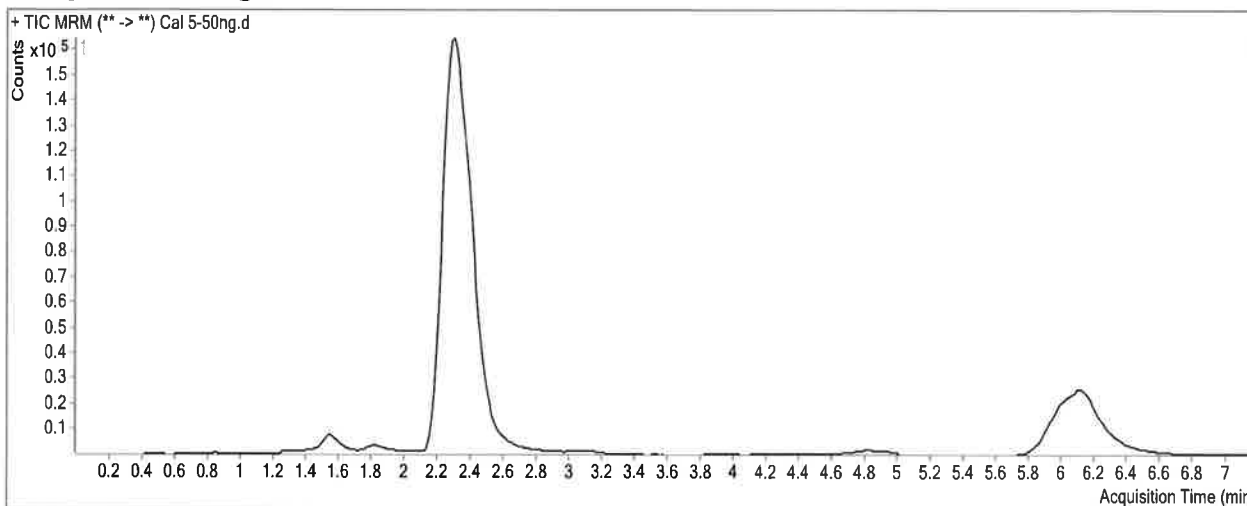
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin		
Analysis Time	1/30/2019 1:46 PM	Analyst Name	datastor
Report Time	1/30/2019 1:47 PM	Reporter Name	datastor
Last Calib Update	1/30/2019 1:46 PM	Batch State	Processed

Analysis Info

Acq Time	2019-01-29 14:18	Data File	Cal 5-50ng.d
Sample Type	Calibration	Sample Name	Cal 5-50ng
Dilution	1	Acq Method	THC Quant 051517 workingmm.m
Position	P1-F1	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	2.292	458621	814417	0.5631	50.8269
THC-COOH	THC-COOH-D9	2.392	258503	277755	0.9307	49.9080
THC	THC-D3	6.119	130733	318947	0.4099	47.6758

15

ISP FORENSICS - Pocatello Instrument # 59740

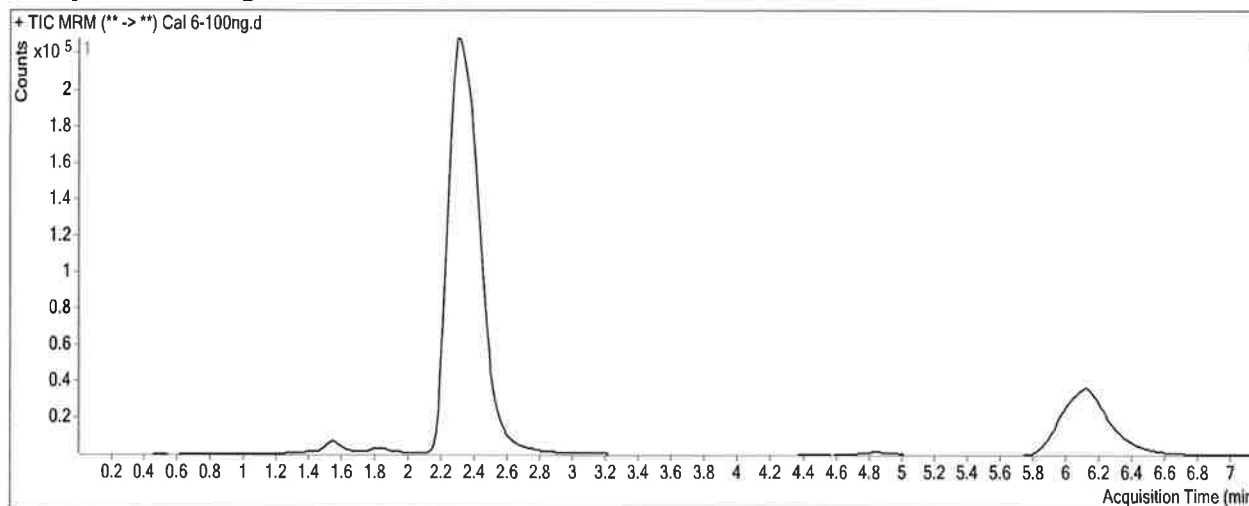
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\012919 THCQ TS\QuantResults\THCQ 012919 TS.batch.bin
Analysis Time 1/30/2019 1:46 PM **Analyst Name** datastor
Report Time 1/30/2019 1:47 PM **Reporter Name** datastor
Last Calib Update 1/30/2019 1:46 PM **Batch State** Processed

Analysis Info

Acq Time 2019-01-29 14:29 **Data File** Cal 6-100ng.d
Sample Type Calibration **Sample Name** Cal 6-100ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P1-G1 **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	2.305	947200	841049	1.1262	101.0235
THC-COOH	THC-COOH-D9	2.406	518828	279268	1.8578	100.8778
THC	THC-D3	6.119	292729	322678	0.9072	104.8781