













REVIEWED

By Anne Nord at 9:02 am, Apr 01, 2019

TS
3/27/2019
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Worklist: 3160

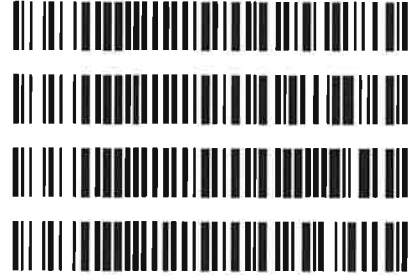
<u>LAB_CASE</u>	<u>ITEM</u>	<u>TASK_ID</u>	<u>DESCRIPTION</u>	
M2019-0962	1	146212	AM 27 Blood THC Quant by LC-QQQ	
M2019-1043	1	146213	AM 27 Blood THC Quant by LC-QQQ	
M2019-1173	1	146214	AM 27 Blood THC Quant by LC-QQQ	
M2019-1254	4	146215	AM 27 Blood THC Quant by LC-QQQ	
P2019-0807	1	146216	AM 27 Blood THC Quant by LC-QQQ	
P2019-0808	1	146217	AM 27 Blood THC Quant by LC-QQQ	
P2019-0809	1	146218	AM 27 Blood THC Quant by LC-QQQ	
P2019-0810	1	146219	AM 27 Blood THC Quant by LC-QQQ	
P2019-0811	1	146220	AM 27 Blood THC Quant by LC-QQQ	
P2019-0905	1	146221	AM 27 Blood THC Quant by LC-QQQ	
P2019-0920	1	146222	AM 27 Blood THC Quant by LC-QQQ	
P2019-0923	1	146223	AM 27 Blood THC Quant by LC-QQQ	

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3/26/2019

Worklist: 3155

<u>LAB_CASE</u>	<u>ITEM</u>	<u>TASK_ID</u>	<u>DESCRIPTION</u>
P2019-0645	1	146184	AM 27 Blood THC Quant by LC-QQQ
P2019-0756	1	146185	AM 27 Blood THC Quant by LC-QQQ
P2019-0782	1	146186	AM 27 Blood THC Quant by LC-QQQ
P2019-0789	3	146187	AM 27 Blood THC Quant by LC-QQQ



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

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Extraction Date: 3/27/19
Plate lot#: 0539904

Analyst: Sarah Pickle
Plate Expiration: 09/10/19

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: 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: _____

Analytic:

- 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- 2. Pipette **1000µL blood (calibrated pipette) Pipette ID: #3** 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: 032719 THCQ SP Batch Name: THCQ
- 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: *Curve range limited: Carboxy THC 10-100*

Worklist 3155 was ran with Sarah Pickle acting as the primary analyst. I witnessed and approved of all methods used during the extraction.

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Idaho State Police Forensic Services

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

Methanol External Control Solution (Lot: WS020419)

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

Approximate concentration $\mu\text{g/mL}$.

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>	<i>Expiration Date</i>
Methanol (LCMS)	Fisher	184782	
THC	Cerilliant	FE04231406	04/30/2019
C-THC	Cerilliant	FE07171501	09/31/2020
THC-OH	Cerilliant	FE01121503	01/31/2020
Prepared:	02/04/19		
Prepared By:	Tamara Salazar		
Expires:	04/30/2019		

Blood External Control Solution (Lot: 020419)

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	Hemostat	445283-1
Methanol External Control Solution	-	WS020419
Prepared:	02/04/19	
Prepared by:	Tamara Salazar	
Expires:	04/30/2019	

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ISP FORENSICS - Pocatello Instrument # 59740

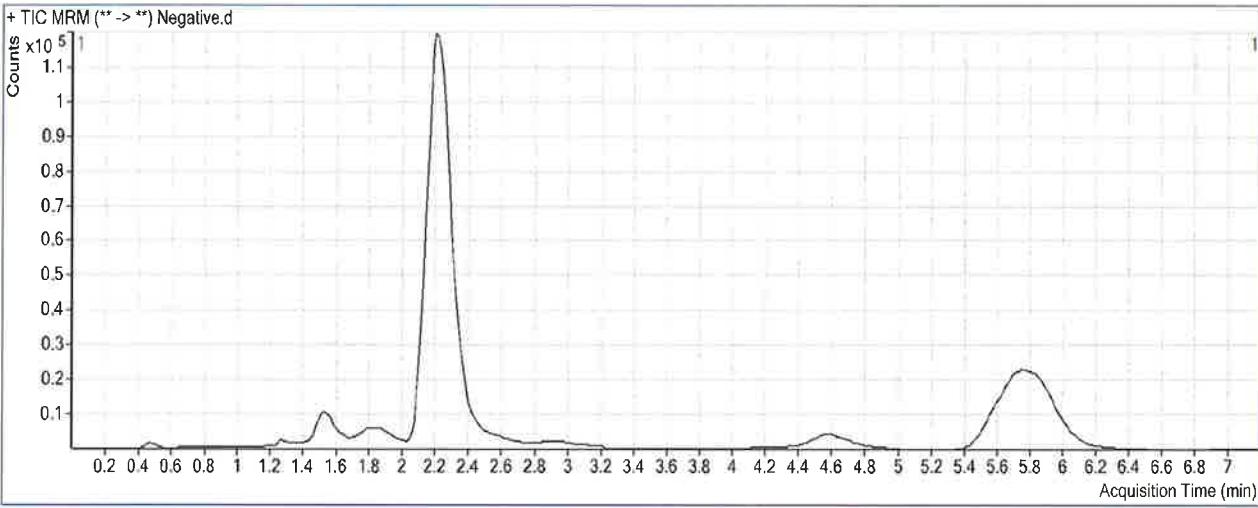
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\032719 THCQ SP\QuantResults\THCQ.batch.bin
Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:05 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 17:10 **Data File** Negative.d
Sample Type Sample **Sample Name** Negative
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.439	4136	936380	0.0044	0.9289 3
THC-COOH	THC-COOH-D9	2.285	18056	335230	0.0539	0.0000

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ISP FORENSICS - Pocatello Instrument # 59740

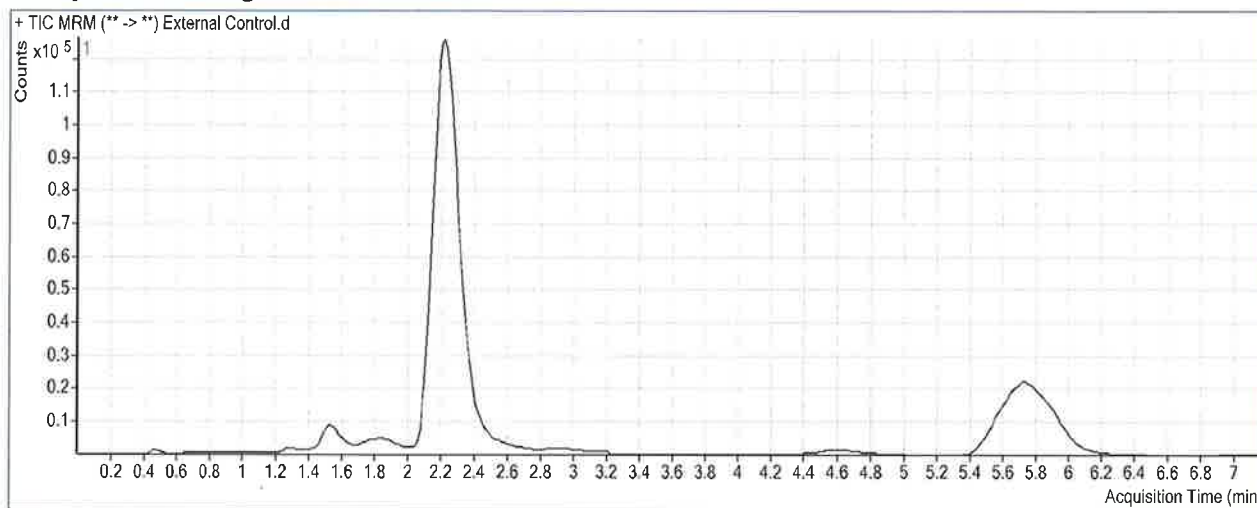
Cannabinoids Analysis Report

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Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:05 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 17:34 **Data File** External Control.d
Sample Type Sample **Sample Name** External Control
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-B2 **Sample Info**
Inj Vol -1 **Comment** Hemostat 445283-1 + WS102418

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.212	85799	892732	0.0961	8.7765
THC-COOH	THC-COOH-D9	2.299	74699	328479	0.2274	7.5505
THC	THC-D3	5.758	28125	466578	0.0603	7.3080

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ISP FORENSICS - Pocatello Instrument # 59740

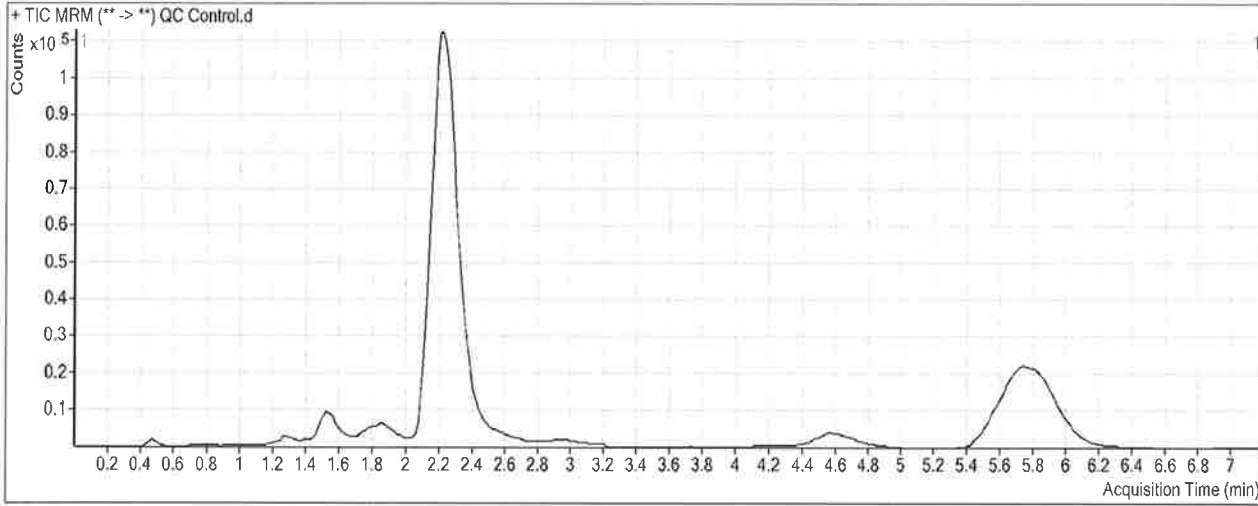
Cannabinoids Analysis Report

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Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:05 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 16:46 **Data File** QC Control.d
Sample Type QC **Sample Name** QC Control
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.212	44045	828214	0.0532	5.1024
THC-COOH	THC-COOH-D9	2.299	74161	300587	0.2467	8.5564
THC	THC-D3	5.825	20461	515712	0.0397	4.9268

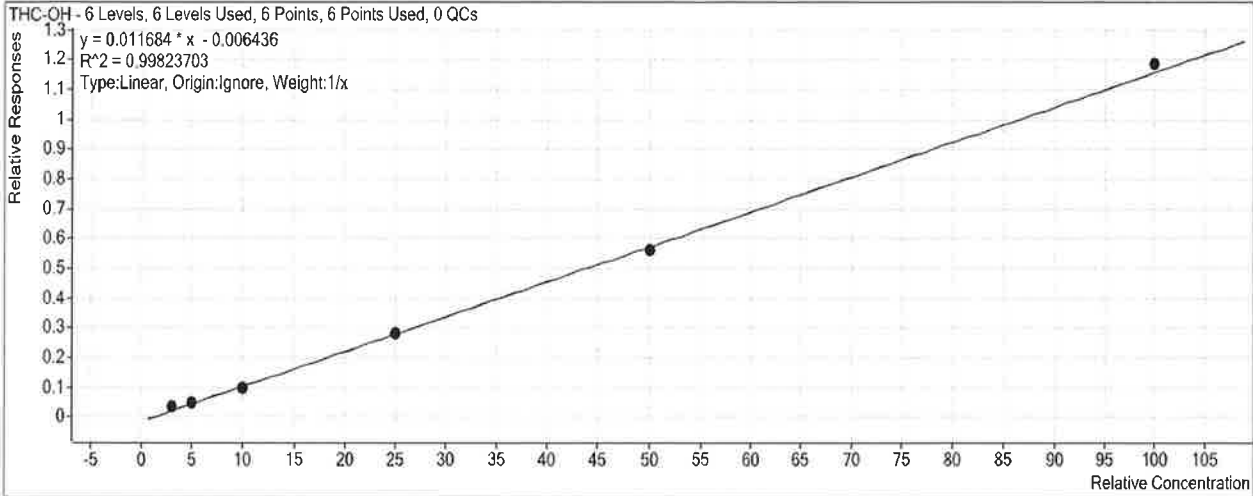
ISP Forensics Calibration Curve Report

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Batch Data Path C:\MassHunter\Data\2019\AM 27\032719 THCQ SP\QuantResults\THCQ.batch.bin

Last Calib Update 4/1/2019 8:03 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	<input checked="" type="checkbox"/>	3	3.5	115.1
Cal 2-5ng	2	<input checked="" type="checkbox"/>	5	4.8	95.7
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	9.0	90.4
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	24.8	99.1
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	48.8	97.5
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	102.2	102.2

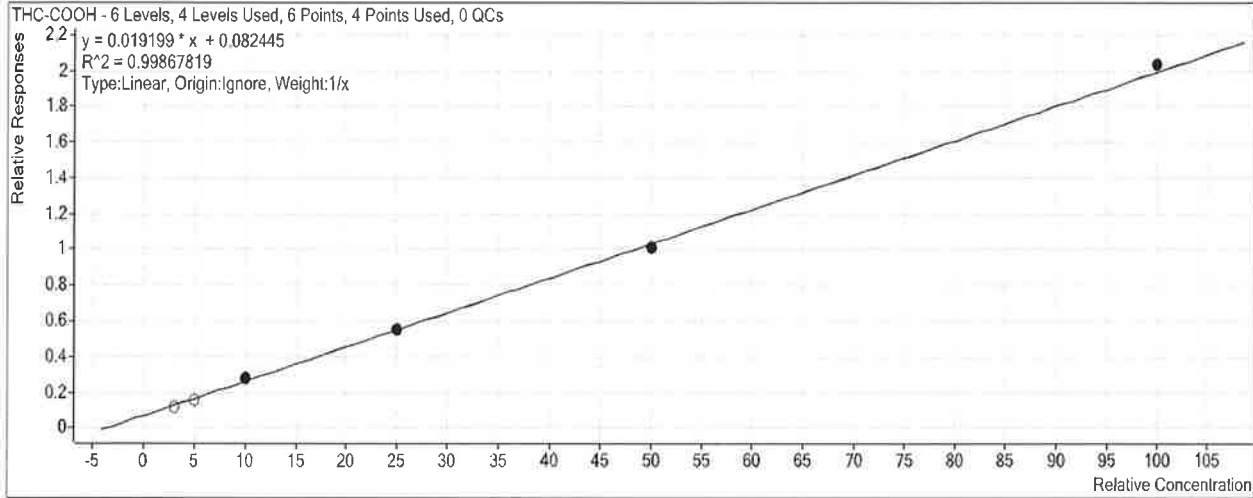
ISP Forensics Calibration Curve Report

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Batch Data Path C:\MassHunter\Data\2019\AM 27\032719 THCQ SP\QuantResults\THCQ.batch.bin

Last Calib Update 4/1/2019 8:03 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	<input type="checkbox"/>	3	1.7	55.8
Cal 2-5ng	2	<input type="checkbox"/>	5	4.0	80.8
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	10.3	103.5
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	24.5	98.2
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	48.2	96.4
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	101.9	101.9

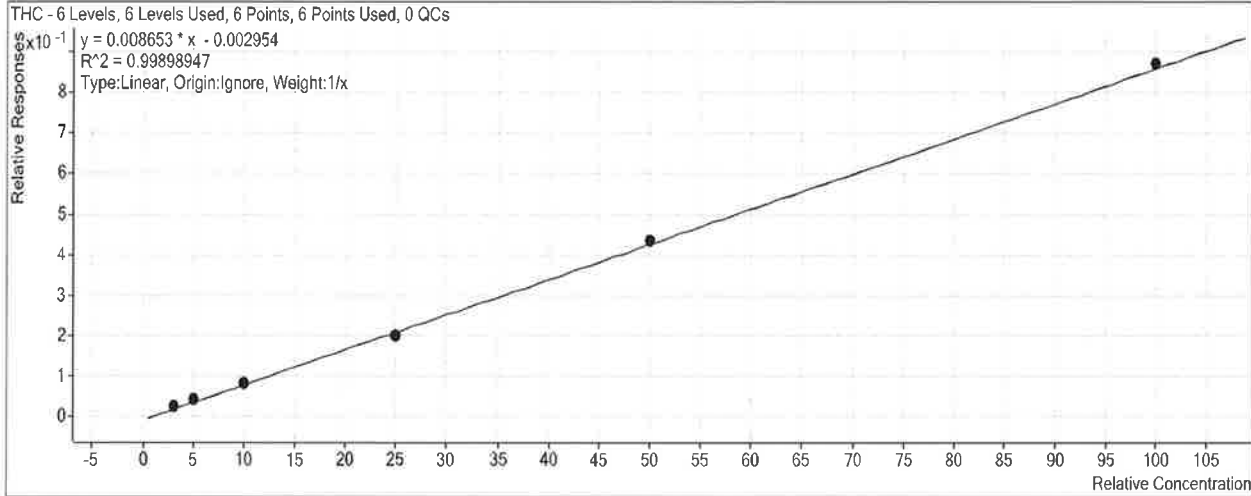
ISP Forensics Calibration Curve Report

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Batch Data Path C:\MassHunter\Data\2019\AM 27\032719 THCQ SP\QuantResults\THCQ.batch.bin

Last Calib Update 4/1/2019 8:03 AM **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	3.1	104.8
Cal 2-5ng	2	<input checked="" type="checkbox"/>	5	5.1	102.5
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	9.7	97.2
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	23.4	93.4
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	50.4	100.9
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	101.2	101.2

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ISP FORENSICS - Pocatello Instrument # 59740

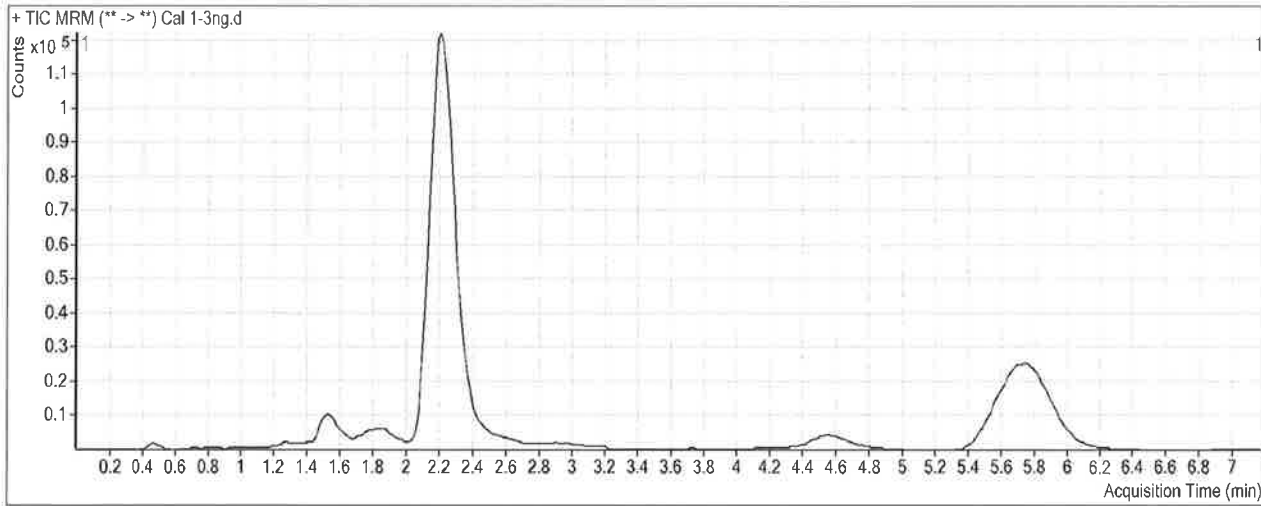
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\032719 THCQ SP\QuantResults\THCQ.batch.bin
Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:04 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 15:23 **Data File** Cal 1-3ng.d
Sample Type Calibration **Sample Name** Cal 1-3ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.199	30797	908314	0.0339	3.4527
THC-COOH	THC-COOH-D9	2.285	37886	330709	0.1146	1.6727
THC	THC-D3	5.745	13997	577387	0.0242	3.1430

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ISP FORENSICS - Pocatello Instrument # 59740

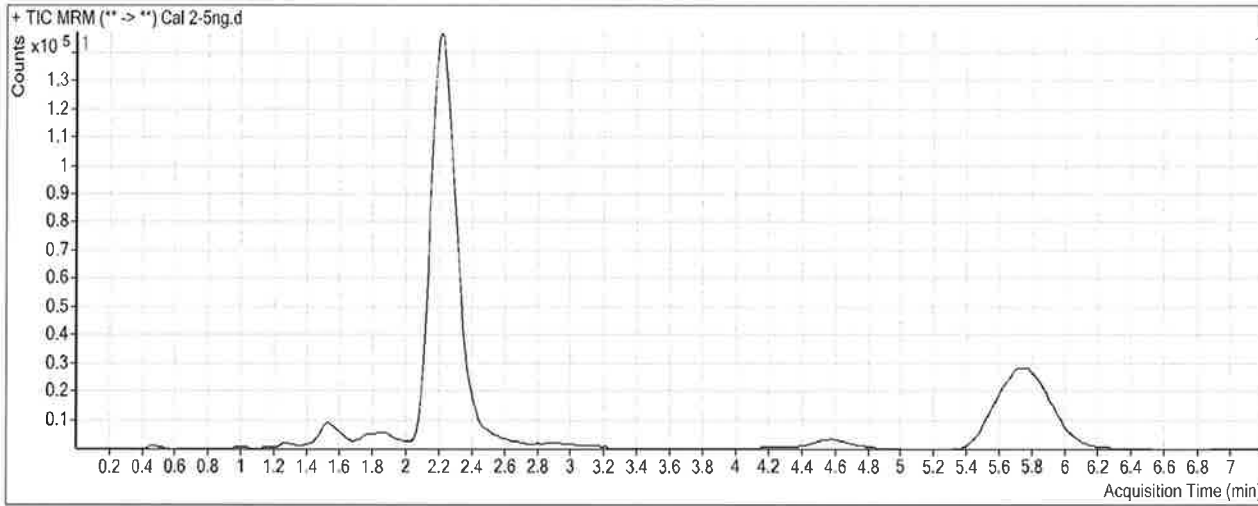
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\032719 THCQ SP\QuantResults\THCQ.batch.bin
Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:04 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 15:35 **Data File** Cal 2-5ng.d
Sample Type Calibration **Sample Name** Cal 2-5ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.212	53346	1078273	0.0495	4.7851
THC-COOH	THC-COOH-D9	2.299	63415	396337	0.1600	4.0396
THC	THC-D3	5.785	25987	628108	0.0414	5.1231

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ISP FORENSICS - Pocatello Instrument # 59740

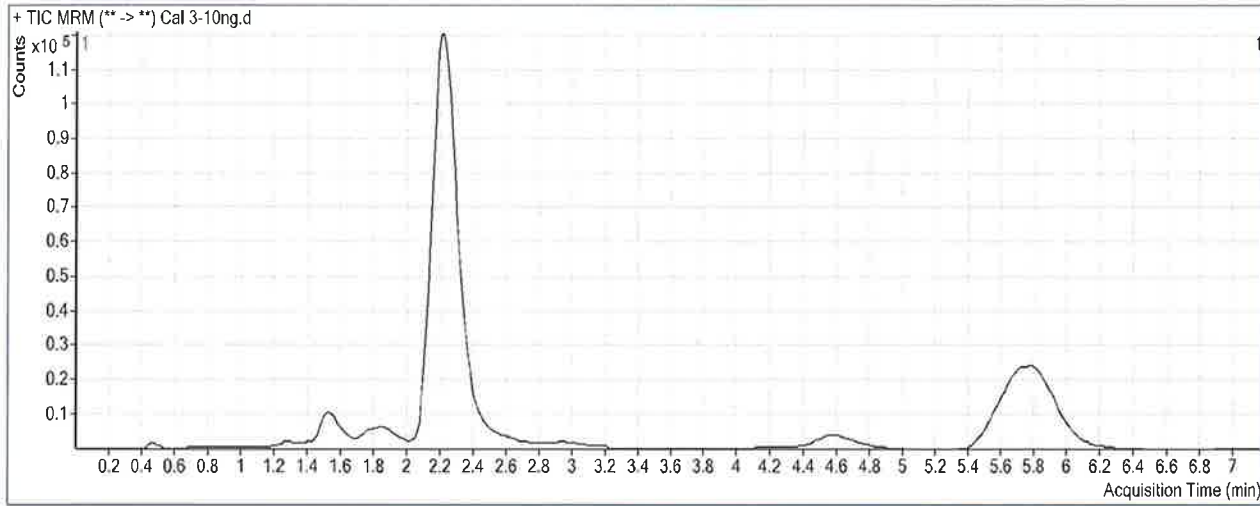
Cannabinoids Analysis Report

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Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:04 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 15:47 **Data File** Cal 3-10ng.d
Sample Type Calibration **Sample Name** Cal 3-10ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.212	82420	831149	0.0992	9.0381
THC-COOH	THC-COOH-D9	2.299	85345	303563	0.2811	10.3494
THC	THC-D3	5.799	42727	526360	0.0812	9.7230

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ISP FORENSICS - Pocatello Instrument # 59740

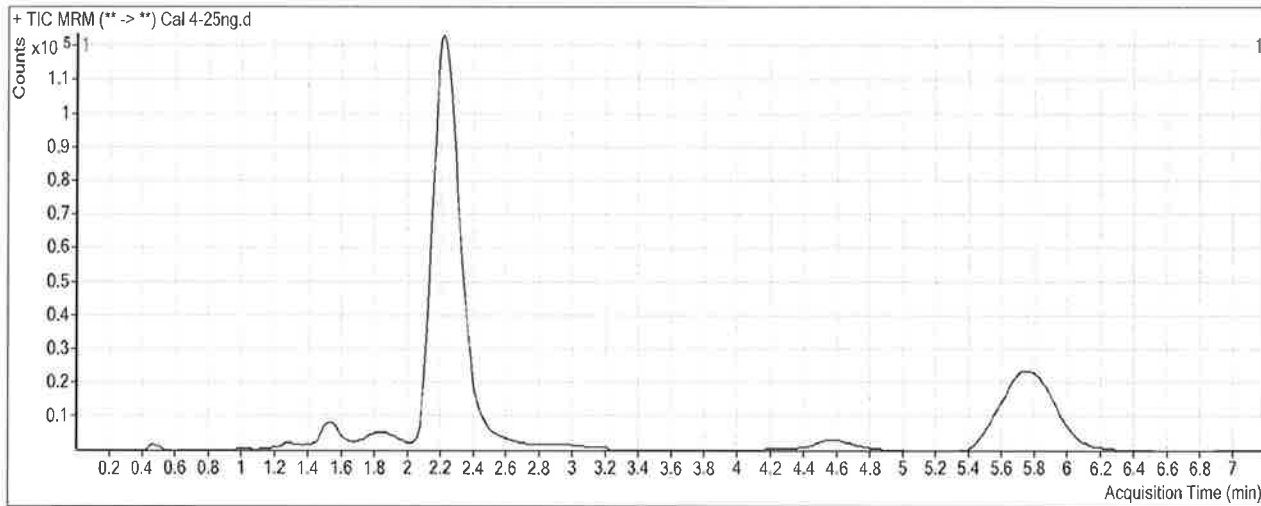
Cannabinoids Analysis Report

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Report Time 4/1/2019 8:04 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 15:59 **Data File** Cal 4-25ng.d
Sample Type Calibration **Sample Name** Cal 4-25ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.212	204691	723015	0.2831	24.7812
THC-COOH	THC-COOH-D9	2.299	146572	264686	0.5538	24.5488
THC	THC-D3	5.772	86367	433615	0.1992	23.3609

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ISP FORENSICS - Pocatello Instrument # 59740

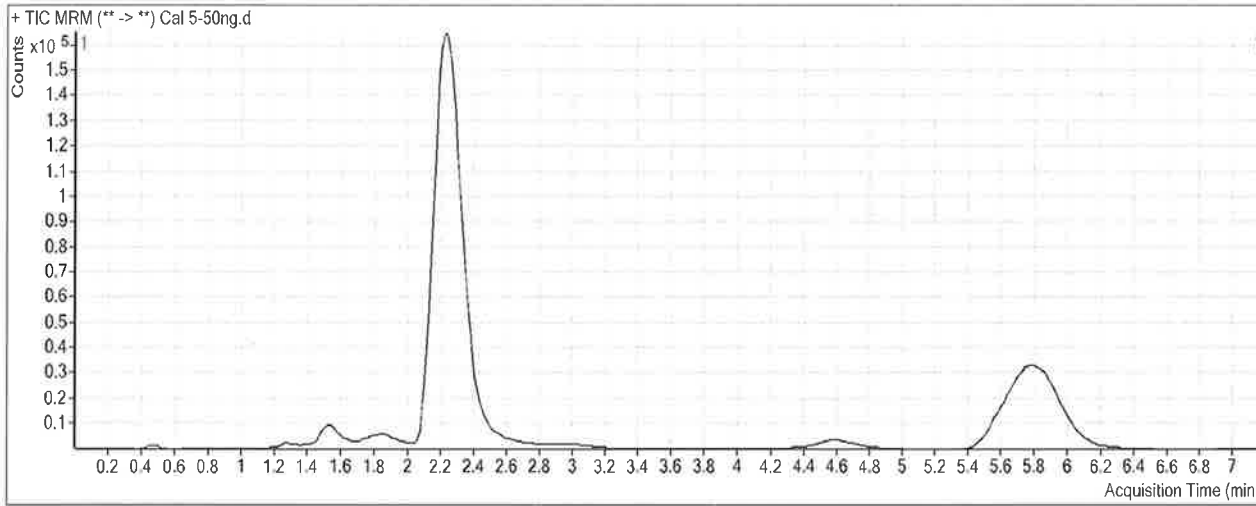
Cannabinoids Analysis Report

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Report Time 4/1/2019 8:04 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 16:11 **Data File** Cal 5-50ng.d
Sample Type Calibration **Sample Name** Cal 5-50ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.212	439569	780392	0.5633	48.7594
THC-COOH	THC-COOH-D9	2.299	284569	282304	1.0080	48.2094
THC	THC-D3	5.785	207694	479048	0.4336	50.4480

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ISP FORENSICS - Pocatello Instrument # 59740

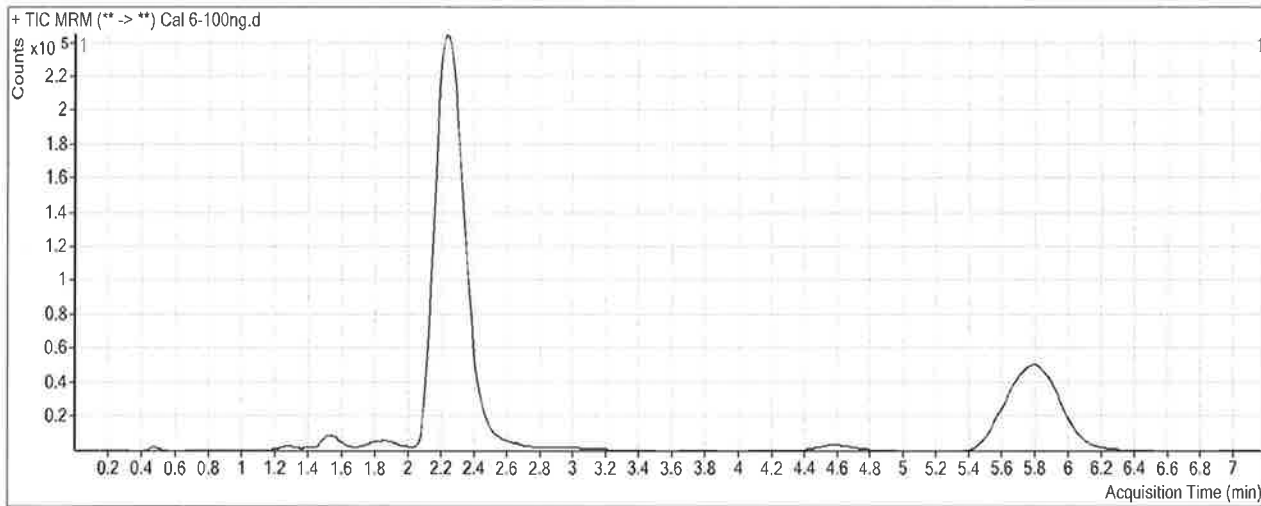
Cannabinoids Analysis Report

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Analysis Time 4/1/2019 8:03 AM **Analyst Name** datastor
Report Time 4/1/2019 8:05 AM **Reporter Name** datastor
Last Calib Update 4/1/2019 8:03 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-27 16:22 **Data File** Cal 6-100ng.d
Sample Type Calibration **Sample Name** Cal 6-100ng
Dilution 1 **Acq Method** THC Quant 051517 workingmm.m
Position P2-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	2.212	952739	802324	1.1875	102.1835
THC-COOH	THC-COOH-D9	2.299	581337	285153	2.0387	101.8925
THC	THC-D3	5.799	437649	501481	0.8727	101.2021