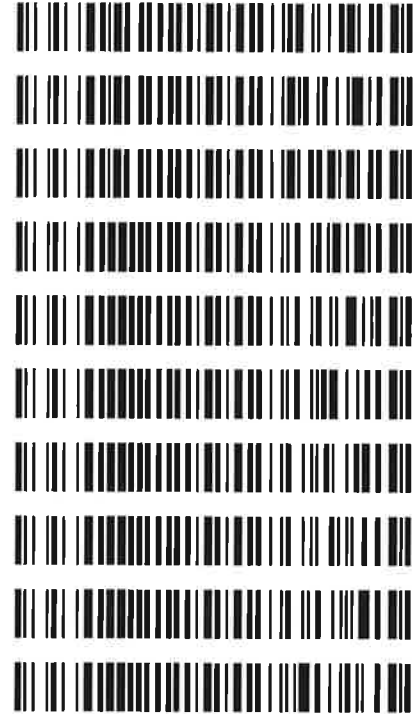


**Worklist: 2636**

<u>LAB_CASE</u>	<u>ITEM</u>	<u>TASK_ID</u>	<u>DESCRIPTION</u>
M2018-3413	1	124211	AM 27 Blood THC Quant by LC-QQQ
M2018-3443	1	124212	AM 27 Blood THC Quant by LC-QQQ
M2018-3449	1	124213	AM 27 Blood THC Quant by LC-QQQ
P2018-2003	1	124214	AM 27 Blood THC Quant by LC-QQQ
P2018-2004	1	124215	AM 27 Blood THC Quant by LC-QQQ
P2018-2005	1	124216	AM 27 Blood THC Quant by LC-QQQ
P2018-2047	1	124217	AM 27 Blood THC Quant by LC-QQQ
P2018-2048	1	124218	AM 27 Blood THC Quant by LC-QQQ
P2018-2074	1	124219	AM 27 Blood THC Quant by LC-QQQ
P2018-2089	1	124220	AM 27 Blood THC Quant by LC-QQQ



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

Extraction Date: 08/14/18  
Plate lot#: 0515037

Analyst: Sarah Pickle  
Plate Expiration: 09/28/18

**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:** 361331-1  
**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: 3382167** 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: 081418 THCQ SP Batch Name: THCQ 081418 SP
- 2. Make any necessary integration changes, Curve weighting of Linear 1/x with  $r^2$  values  $\geq 0.98$  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: Click here to enter text.



# Idaho State Police Forensic Services

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

Analyst: Sarah Pickle  
Extraction Date: 8/14/18  
Worklist Number: 2636

<i>Reagent</i>	<i>Lot Number</i>	<i>Expiration Date</i>	<i>Date in Service</i>	<i>Date Out of Service</i>	<i>Initials</i>
ToxBox THC/THC Metabolite Plate	0515037	09/28/18			
Negative Blood	361331-1		12/27/17		
Methanol External Control Solution	WS020718	02/07/19	02/07/18		
Blood External Control Solution	061718	02/07/19	06/07/18		
Methyl Tert-Butyl Ether (MTBE) 99.9%	A0375555		6/26/17		
Hexanes (ACS)	101642		10/26/17		
Methanol (LCMS Grade)	177145		4/11/18		
0.1% Formic Acid in Water (Mobile Phase A)	166541		6/26/17		
0.1% Formic Acid in Acetonitrile (Mobile Phase B)	176190		2/6/18		
Needle Rinse--75% LCMS MeOH in LCMS Water	080318		08/03/18		

**Methanol External Control Solution (Lot: WS020718)**

*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	172516	
THC	Cerilliant	FE04231406	04/30/2019
C-THC	Cayman	0497429	02/08/2019
THC-OH	Cerilliant	FE01121503	01/31/2020
Prepared:	02/07/18		
Prepared By:	Tamara Salazar		
Expires:	02/07/19		

**Blood External Control Solution (Lot: 061718)**

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

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>
Negative Blood	Hemostat	361331-1
Methanol External Control Solution		WS020718
Prepared:	06/17/18	
Prepared by:	Tamara Salazar	
Expires:	02/07/19	

S

**Needle Rinse (75% LCMS MeOH in LCMS Water) (Lot: 080318)**

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>
MeOH (LCMS Grade)	Fisher	177145
Water (LCMS Grade)	Fisher	181370
Prepared:	08/03/18	
Prepared By:	Sarah Pickle	

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

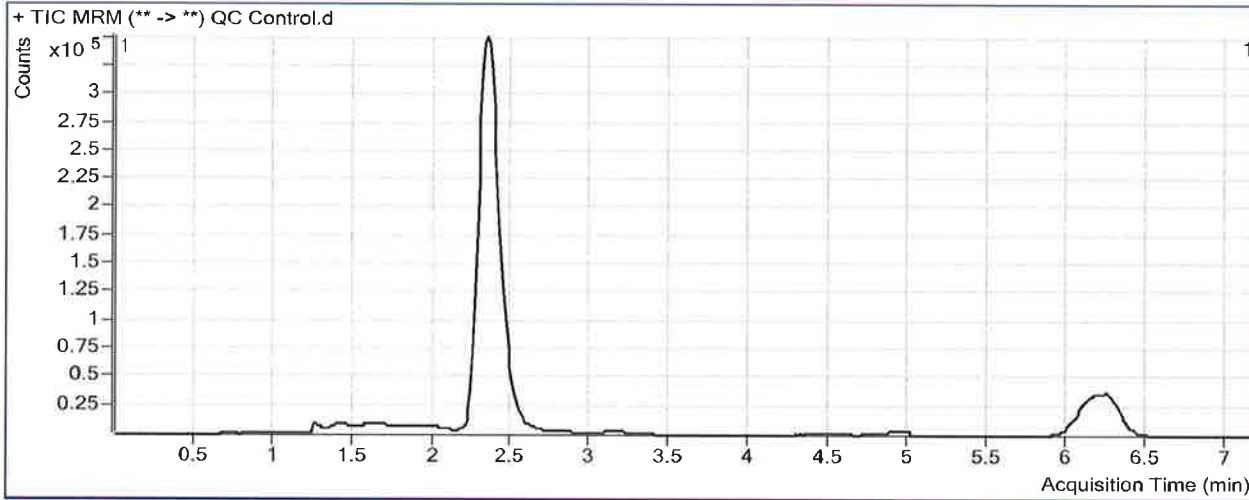


<b>Batch Data Path</b>	C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin		
<b>Analysis Time</b>	8/15/2018 1:19 PM	<b>Analyst Name</b>	ISPUser
<b>Report Time</b>	8/15/2018 1:20 PM	<b>Reporter Name</b>	ISPUser
<b>Last Calib Update</b>	8/15/2018 1:19 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2018-08-14 16:42	<b>Data File</b>	QC Control.d
<b>Sample Type</b>	Sample	<b>Sample Name</b>	QC Control
<b>Dilution</b>	1	<b>Acq Method</b>	THC Quant 051517 workingmm.m
<b>Position</b>	P1-A7	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.345	198951	2297785	0.0866	8.6629
THC-COOH	THC-COOH-D9	2.446	128843	594858	0.2166	10.1279
THC	THC-D3	6.266	52003	563510	0.0923	8.8423

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

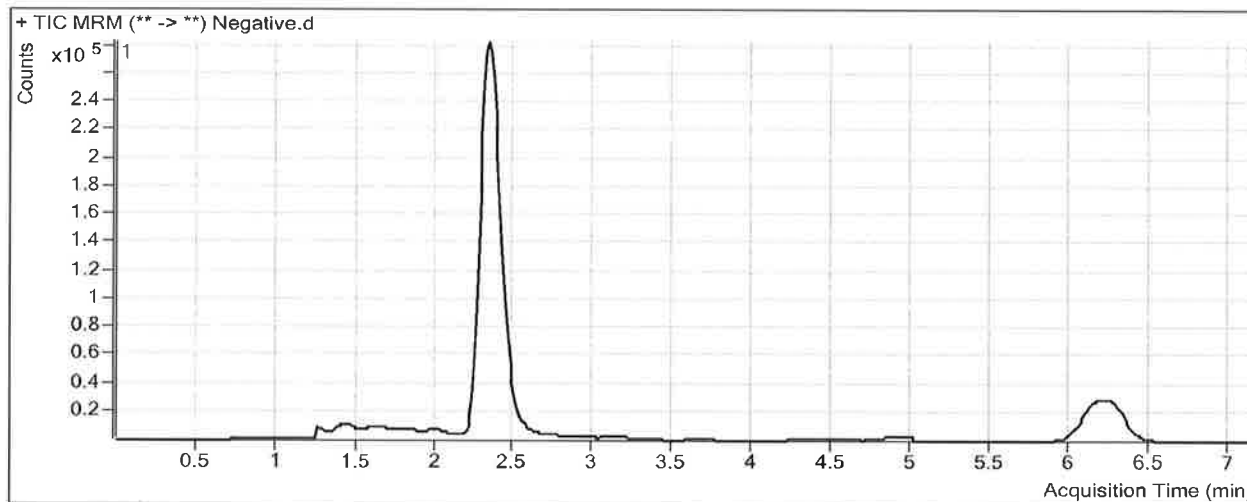
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<b>Batch Data Path</b>	C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin		
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<b>Report Time</b>	8/15/2018 1:20 PM	<b>Reporter Name</b>	ISPUser
<b>Last Calib Update</b>	8/15/2018 1:19 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2018-08-14 17:06	<b>Data File</b>	Negative.d
<b>Sample Type</b>	Sample	<b>Sample Name</b>	Negative
<b>Dilution</b>	1	<b>Acq Method</b>	THC Quant 051517 workingmm.m
<b>Position</b>	P1-H6	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	Hemostat 361331-1

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.199	12556	2003944	0.0063	2.0723 < 3
THC-COOH	THC-COOH-D9	2.419	37050	513381	0.0722	4.3545 < 10

S

# ISP FORENSICS - Pocatello Instrument # 59740

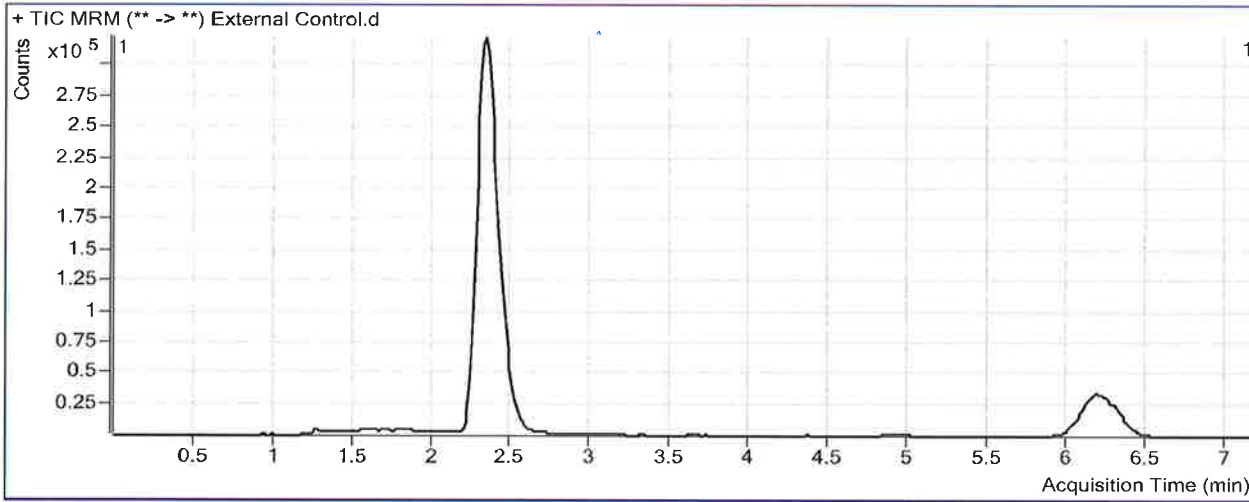
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin  
**Analysis Time** 8/15/2018 1:19 PM **Analyst Name** ISPUser  
**Report Time** 8/15/2018 1:20 PM **Reporter Name** ISPUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

**Analysis Info**

**Acq Time** 2018-08-14 17:29 **Data File** External Control.d  
**Sample Type** Sample **Sample Name** External Control  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-G6 **Sample Info**  
**Inj Vol** -1 **Comment** Hemostat 361331-1 + WS 020718

**Sample Chromatogram**



**Results**

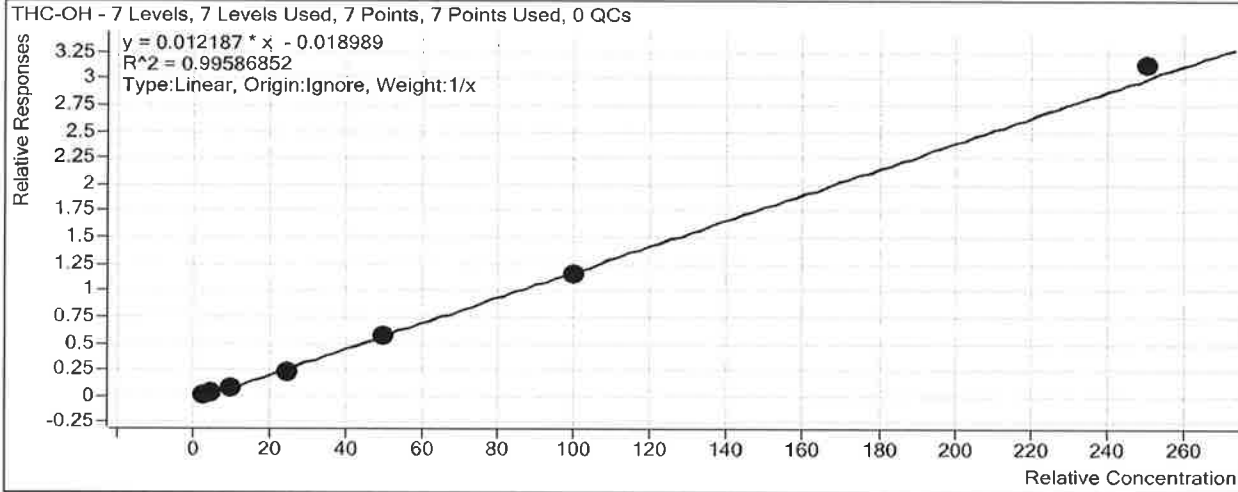
Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.345	166677	2144619	0.0777	7.9355
THC-COOH	THC-COOH-D9	2.459	108590	565752	0.1919	9.1424
THC	THC-D3	6.266	38831	519026	0.0748	7.4180

# ISP Forensics Calibration Curve Report

B

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin  
**Last Calib Update** 8/15/2018 1:19 PM **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	3.8	125.3
Cal 2	2	<input checked="" type="checkbox"/>	5	5.2	104.2
Cal 3	3	<input checked="" type="checkbox"/>	10	9.1	90.5
Cal 4	4	<input checked="" type="checkbox"/>	25	20.2	80.9
Cal 5	5	<input checked="" type="checkbox"/>	50	49.2	98.4
Cal 6	6	<input checked="" type="checkbox"/>	100	97.4	97.4
Cal 7	7	<input checked="" type="checkbox"/>	250	258.1	103.3



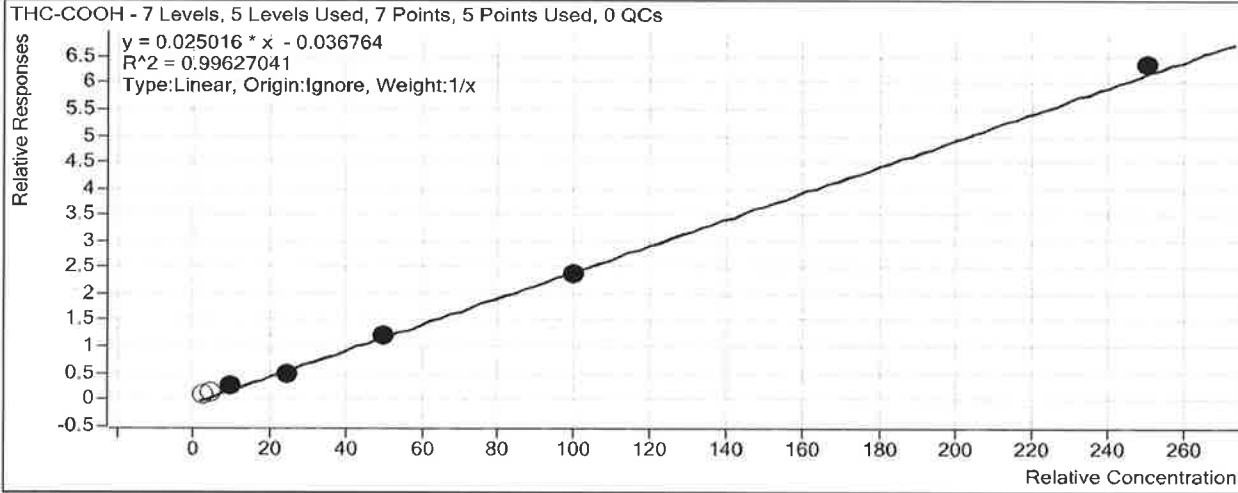
# ISP Forensics Calibration Curve Report

D

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418  
SP.batch.bin

**Last Calib Update** 8/15/2018 1:19 PM **Analyst Name** ISP TOX

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



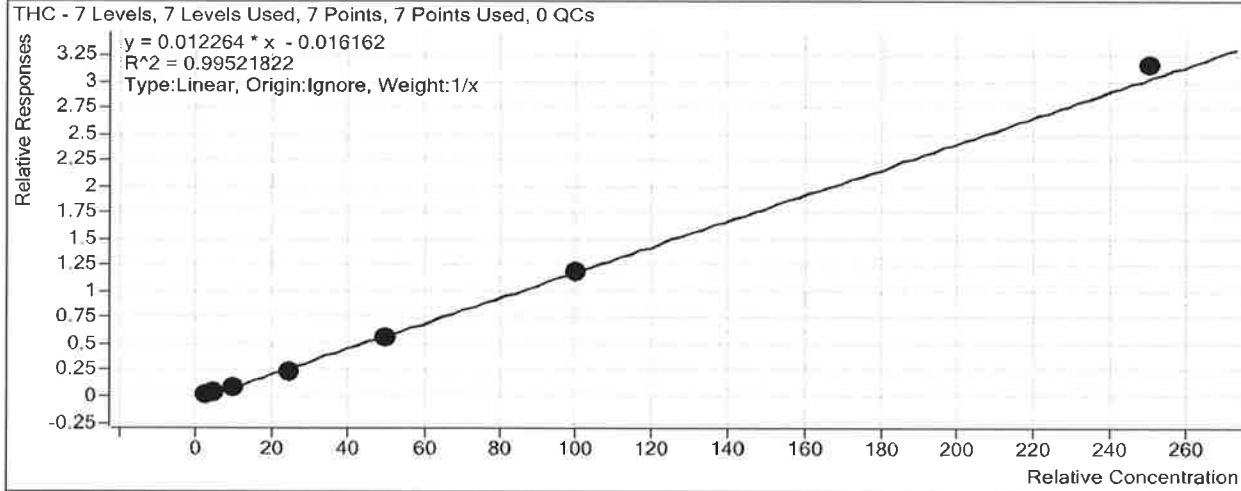
Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1	1	<input type="checkbox"/>	3	5.9	197.2
Cal 2	2	<input type="checkbox"/>	5	7.8	155.3
Cal 3	3	<input checked="" type="checkbox"/>	10	11.7	117.0
Cal 4	4	<input checked="" type="checkbox"/>	25	21.0	84.2
Cal 5	5	<input checked="" type="checkbox"/>	50	49.7	99.4
Cal 6	6	<input checked="" type="checkbox"/>	100	97.4	97.4
Cal 7	7	<input checked="" type="checkbox"/>	250	255.2	102.1

# ISP Forensics Calibration Curve Report

P

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418  
SP.batch.bin  
**Last Calib Update** 8/15/2018 1:19 PM **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	3.8	127.3
Cal 2	2	<input checked="" type="checkbox"/>	5	5.3	105.2
Cal 3	3	<input checked="" type="checkbox"/>	10	9.1	90.7
Cal 4	4	<input checked="" type="checkbox"/>	25	20.1	80.5
Cal 5	5	<input checked="" type="checkbox"/>	50	46.8	93.6
Cal 6	6	<input checked="" type="checkbox"/>	100	99.2	99.2
Cal 7	7	<input checked="" type="checkbox"/>	250	258.8	103.5

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

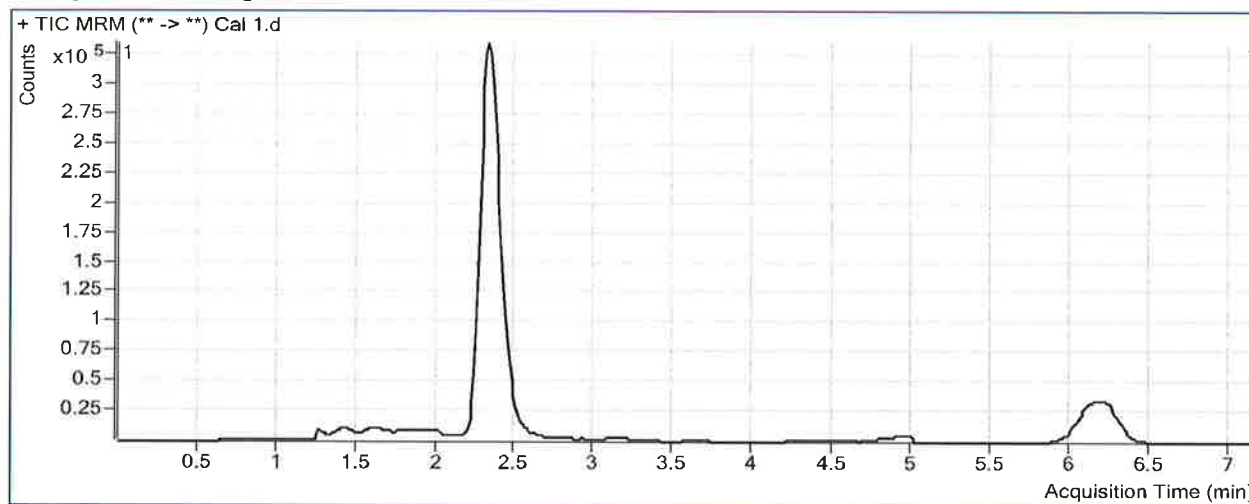
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**Analysis Time** 8/15/2018 1:19 PM **Analyst Name** ISPUser  
**Report Time** 8/15/2018 1:19 PM **Reporter Name** ISPUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-08-14 15:07 **Data File** Cal 1.d  
**Sample Type** Calibration **Sample Name** Cal 1  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-H7 **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	2.332	61040	2275978	0.0268	3.7589
THC-COOH	THC-COOH-D9	2.446	64258	577685	0.1112	5.9162
THC	THC-D3	6.239	17559	572479	0.0307	3.8188

# ISP FORENSICS - Pocatello Instrument # 59740

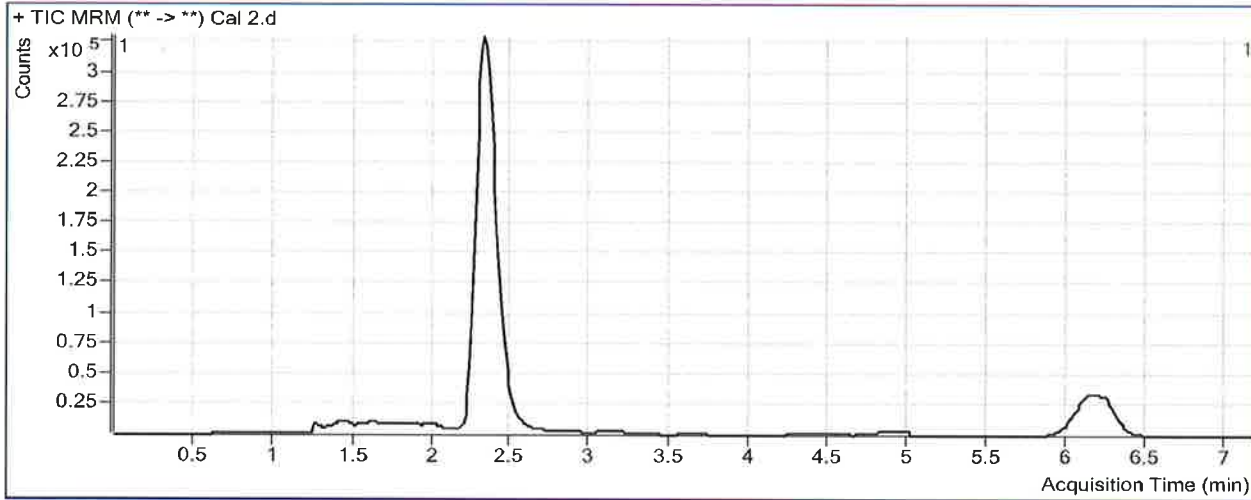
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin  
**Analysis Time** 8/15/2018 1:19 PM **Analyst Name** ISPUser  
**Report Time** 8/15/2018 1:19 PM **Reporter Name** ISPUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

### Analysis Info

<b>Acq Time</b>	2018-08-14 15:19	<b>Data File</b>	Cal 2.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 2
<b>Dilution</b>	1	<b>Acq Method</b>	THC Quant 051517 workingmm.m
<b>Position</b>	P1-G7	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.332	99126	2227042	0.0445	5.2105
THC-COOH	THC-COOH-D9	2.446	87198	553520	0.1575	7.7670
THC	THC-D3	6.252	26195	541584	0.0484	5.2615

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

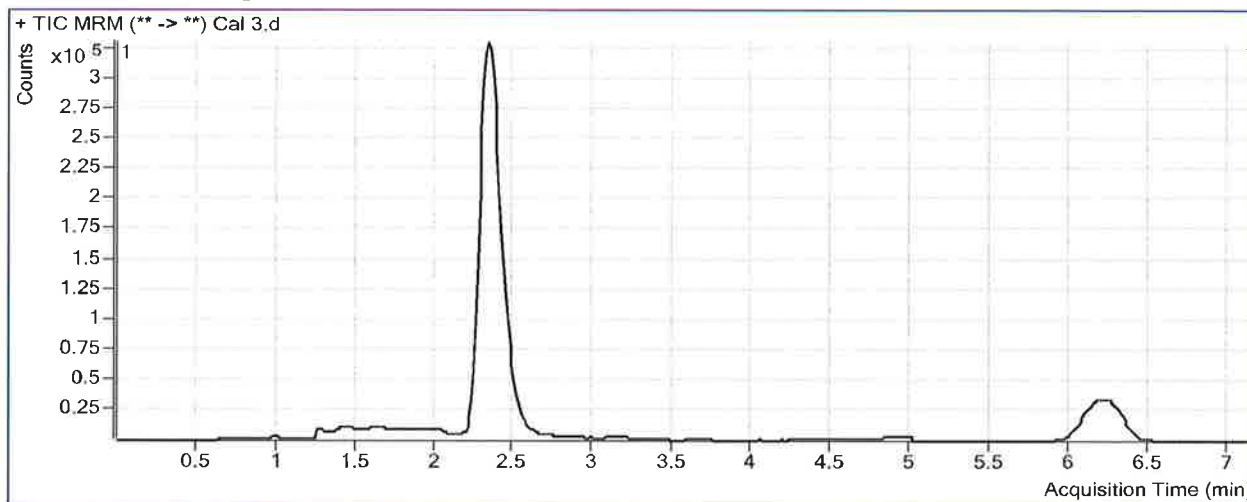
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**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin  
**Analysis Time** 8/15/2018 1:19 PM **Analyst Name** ISUser  
**Report Time** 8/15/2018 1:19 PM **Reporter Name** ISUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-08-14 15:31 **Data File** Cal 3.d  
**Sample Type** Calibration **Sample Name** Cal 3  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-F7 **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	2.359	197712	2164795	0.0913	9.0524
THC-COOH	THC-COOH-D9	2.446	137651	538011	0.2559	11.6973
THC	THC-D3	6.266	50290	528641	0.0951	9.0744

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

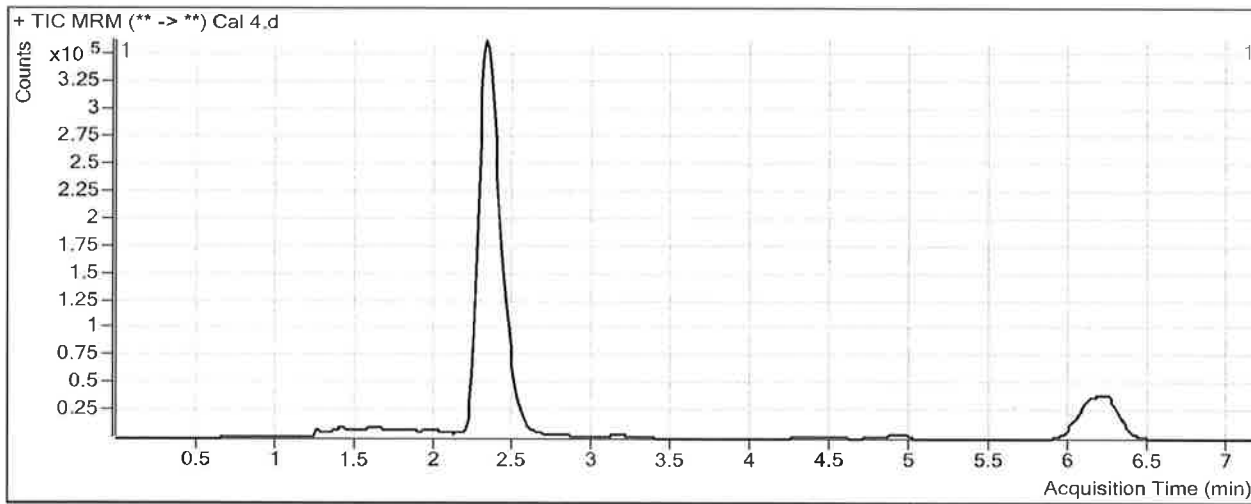
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<b>Batch Data Path</b>	C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin		
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<b>Report Time</b>	8/15/2018 1:20 PM	<b>Reporter Name</b>	ISPUser
<b>Last Calib Update</b>	8/15/2018 1:19 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2018-08-14 15:43	<b>Data File</b>	Cal 4.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 4
<b>Dilution</b>	1	<b>Acq Method</b>	THC Quant 051517 workingmm.m
<b>Position</b>	P1-E7	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.332	478372	2103478	0.2274	20.2194
THC-COOH	THC-COOH-D9	2.446	262575	536261	0.4896	21.0429
THC	THC-D3	6.252	118145	512300	0.2306	20.1215

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

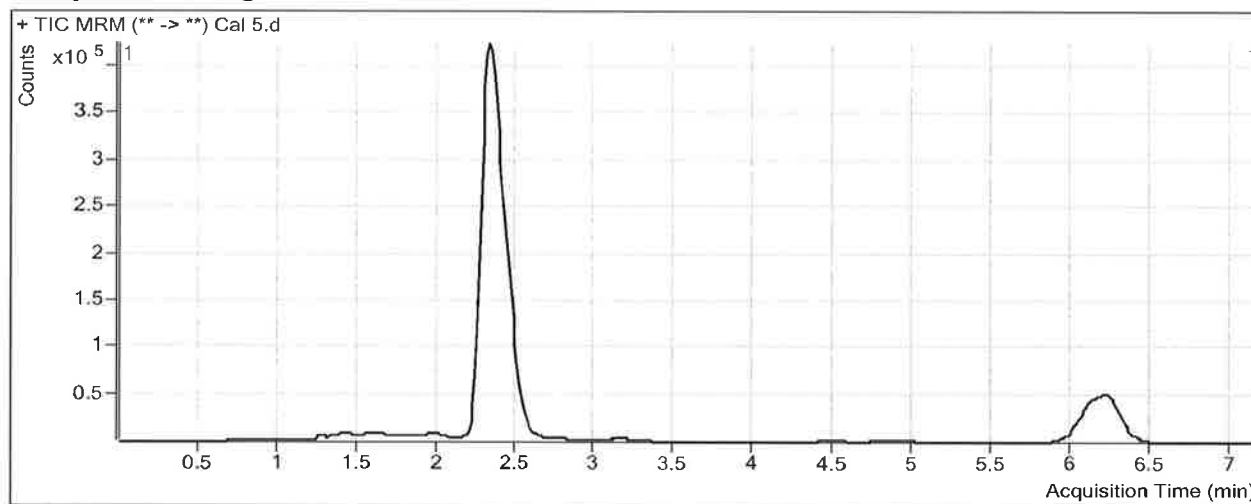
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**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin  
**Analysis Time** 8/15/2018 1:19 PM **Analyst Name** ISPUser  
**Report Time** 8/15/2018 1:20 PM **Reporter Name** ISPUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-08-14 15:54 **Data File** Cal 5.d  
**Sample Type** Calibration **Sample Name** Cal 5  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-D7 **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	2.332	1077009	1854128	0.5809	49.2224
THC-COOH	THC-COOH-D9	2.432	561170	465165	1.2064	49.6948
THC	THC-D3	6.239	257993	462711	0.5576	46.7800

# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

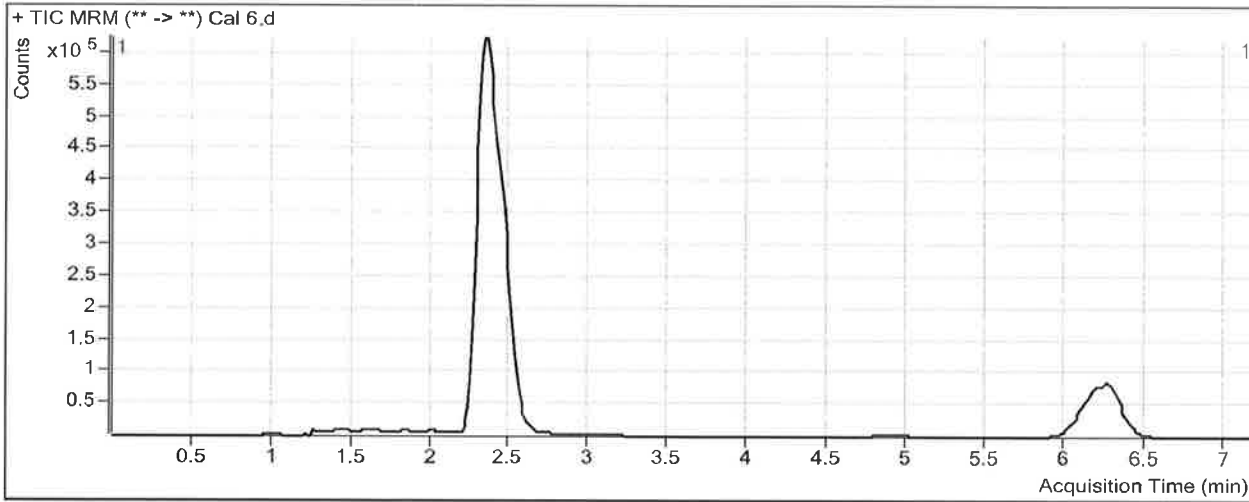
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**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\081418 THCQ SP\QuantResults\THCQ 081418 SP.batch.bin  
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**Report Time** 8/15/2018 1:20 PM **Reporter Name** ISPUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

**Analysis Info**

**Acq Time** 2018-08-14 16:06 **Data File** Cal 6.d  
**Sample Type** Calibration **Sample Name** Cal 6  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-C7 **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	2.345	2368371	2027928	1.1679	97.3900
THC-COOH	THC-COOH-D9	2.459	1186099	494255	2.3998	97.4000
THC	THC-D3	6.266	579463	482771	1.2003	99.1850



# ISP FORENSICS - Pocatello Instrument # 59740

## Cannabinoids Analysis Report

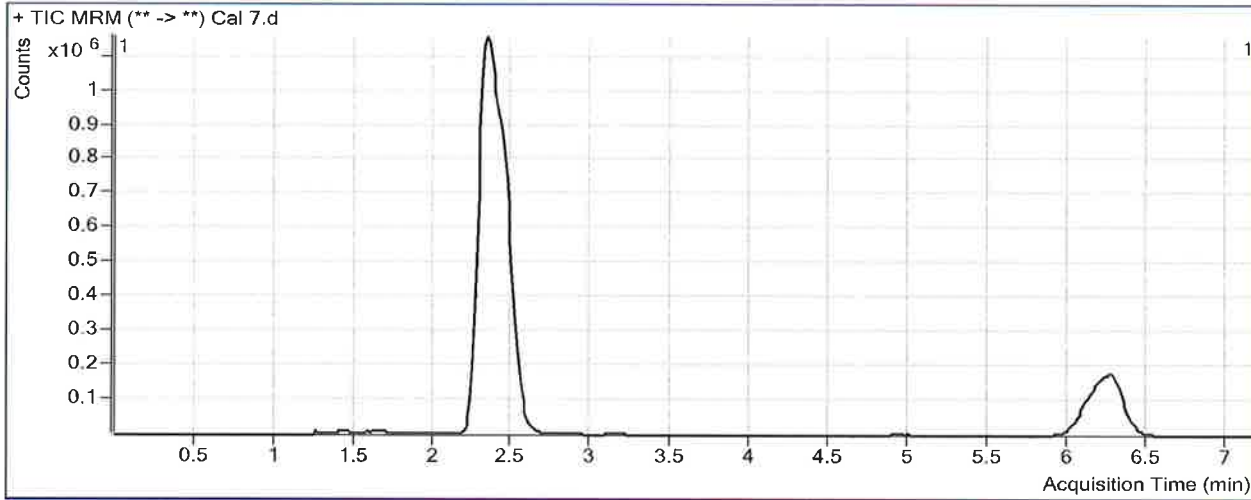
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**Analysis Time** 8/15/2018 1:19 PM **Analyst Name** ISPUser  
**Report Time** 8/15/2018 1:20 PM **Reporter Name** ISPUser  
**Last Calib Update** 8/15/2018 1:19 PM **Batch State** Processed

**Analysis Info**

**Acq Time** 2018-08-14 16:18 **Data File** Cal 7.d  
**Sample Type** Calibration **Sample Name** Cal 7  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-B7 **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	2.345	6104001	1952048	3.1270	258.1464
THC-COOH	THC-COOH-D9	2.446	2941367	463472	6.3464	255.1650
THC	THC-D3	6.266	1517326	480567	3.1574	258.7588