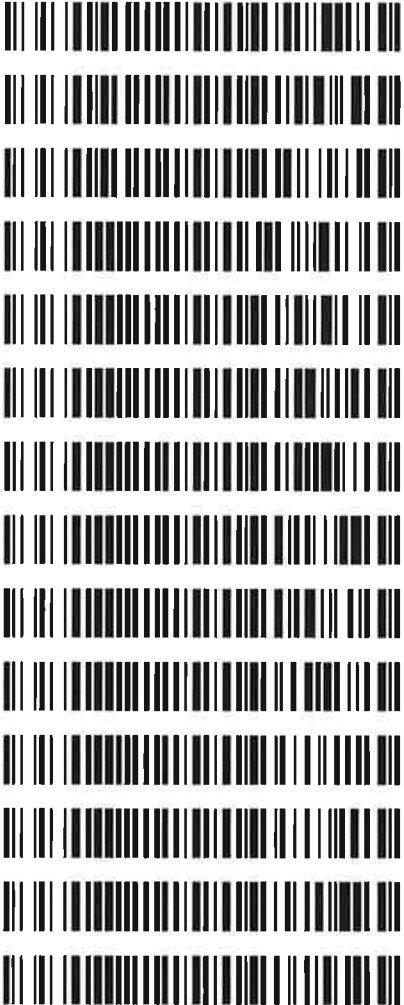


Worklist: 2928

<u>LAB CASE</u>	<u>ITEM</u>	<u>TASK ID</u>	<u>DESCRIPTION</u>
M2019-0270	3	138874	AM 27 Blood THC Quant by LC-QQQ
M2019-0306	2	138875	AM 27 Blood THC Quant by LC-QQQ
M2019-0336	1	138876	AM 27 Blood THC Quant by LC-QQQ
P2019-0077	2	138877	AM 27 Blood THC Quant by LC-QQQ
P2019-0233	1	138878	AM 27 Blood THC Quant by LC-QQQ
P2019-0234	1	138879	AM 27 Blood THC Quant by LC-QQQ
P2019-0235	1	138880	AM 27 Blood THC Quant by LC-QQQ
P2019-0257	1	138881	AM 27 Blood THC Quant by LC-QQQ
P2019-0268	1	138882	AM 27 Blood THC Quant by LC-QQQ
P2019-0283	1	138883	AM 27 Blood THC Quant by LC-QQQ
P2019-0302	1	138884	AM 27 Blood THC Quant by LC-QQQ
P2019-0302	2	138885	AM 27 Blood THC Quant by LC-QQQ
P2019-0311	1	138886	AM 27 Blood THC Quant by LC-QQQ
P2019-0337	1	138887	AM 27 Blood THC Quant by LC-QQQ





# Idaho State Police Forensic Services

JS

## 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 1ug/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	

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

S

Extraction Date: 2/4/19  
Plate lot#: 0539904

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

**Mobile phase A:** 0.1% Formic Acid in LCMS Water  
MTBE  
**Blank Blood Lot:** 445283-1  
**LCMS-QQQ ID:** 59740

**Mobile phase B:** 0.1% Formic acid in Acetonitrile  
LCMS Methanol  
Hexane  
**Column:** UCT Selectra DA 100 x 2.1mm 3um

## 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: #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: 020419 THCQ SP Batch Name: THCQ
- 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: *Curve range limited: Carboxy THC 10 100*

5

# ISP FORENSICS - Pocatello Instrument # 59740

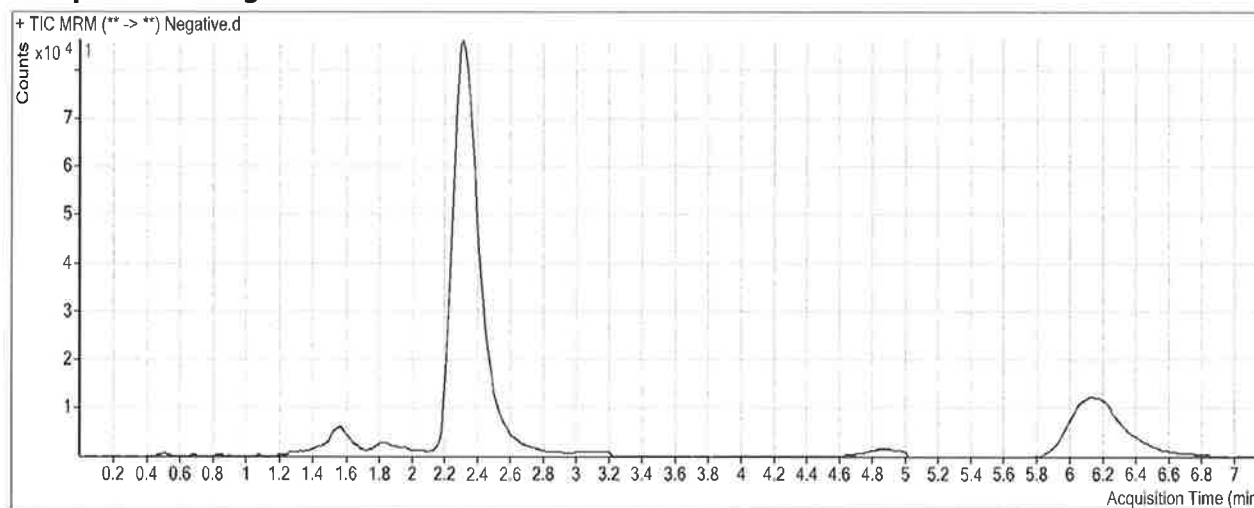
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:41 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 18:20 **Data File** Negative.d  
**Sample Type** Sample **Sample Name** Negative  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-H5 **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	1.825	12177	710276	0.0171	2.1757 < 3
THC-COOH	THC-COOH-D9	2.299	7502	247184	0.0303	0.6123 < 10

5

# ISP FORENSICS - Pocatello Instrument # 59740

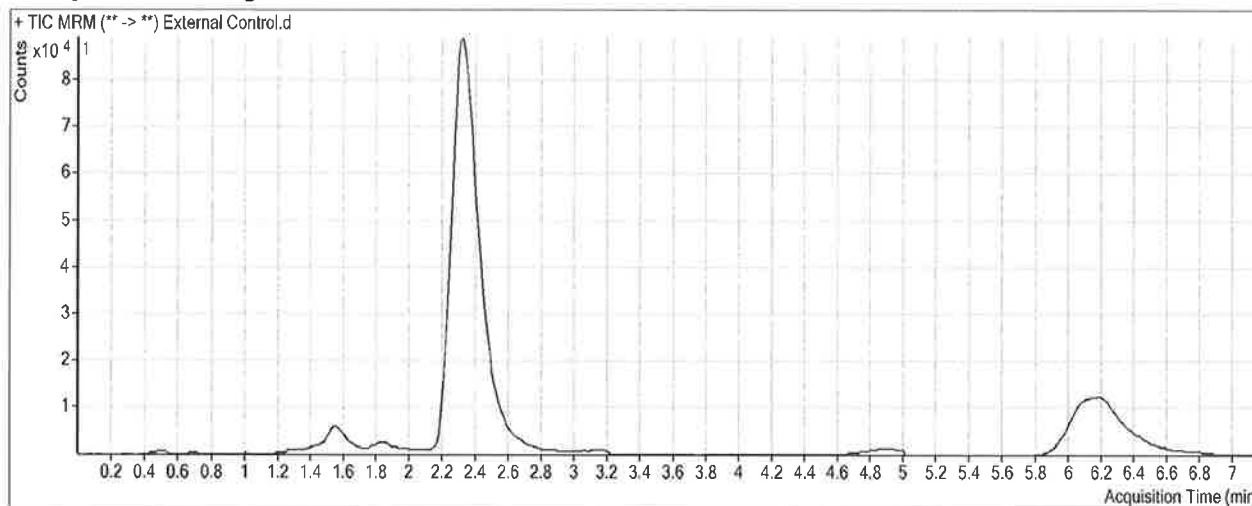
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:41 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

**Analysis Info**

**Acq Time** 2019-02-04 18:44 **Data File** External Control.d  
**Sample Type** Sample **Sample Name** External Control  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-G5 **Sample Info**  
**Inj Vol** -1 **Comment** Hemostate 445283-1 + WS020419

**Sample Chromatogram**



**Results**

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.332	60705	675648	0.0898	8.5211
THC-COOH	THC-COOH-D9	2.432	46567	233790	0.1992	9.4398
THC	THC-D3	6.212	17752	279552	0.0635	7.1860

S

# ISP FORENSICS - Pocatello Instrument # 59740

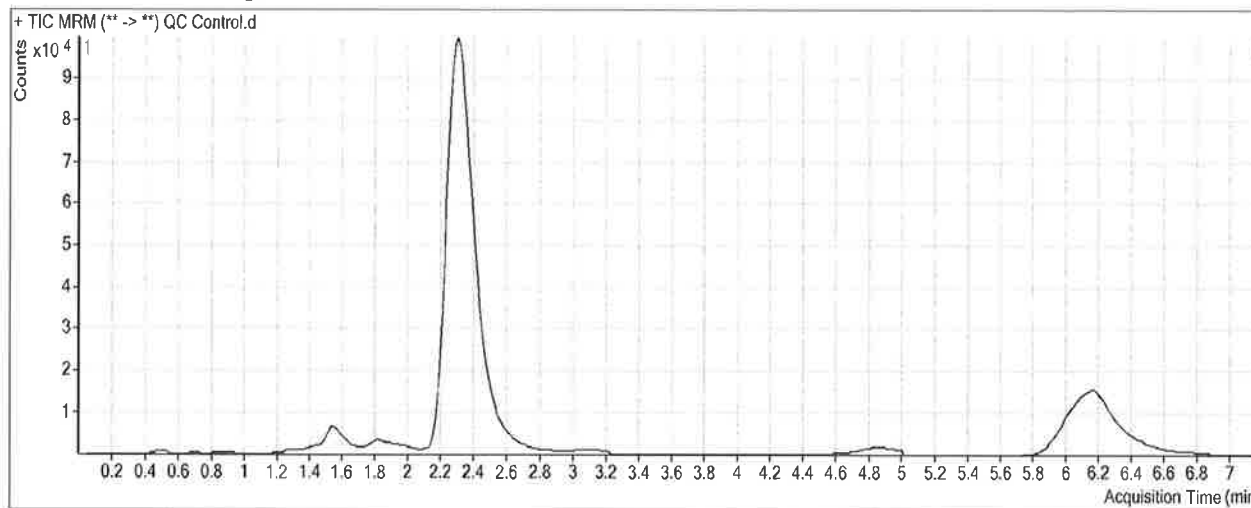
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:41 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 17:56 **Data File** QC Control.d  
**Sample Type** QC **Sample Name** QC Control  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-A6 **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	39407	792591	0.0497	5.0188
THC-COOH	THC-COOH-D9	2.392	58877	266014	0.2213	10.5976
THC	THC-D3	6.199	12403	303689	0.0408	4.6623

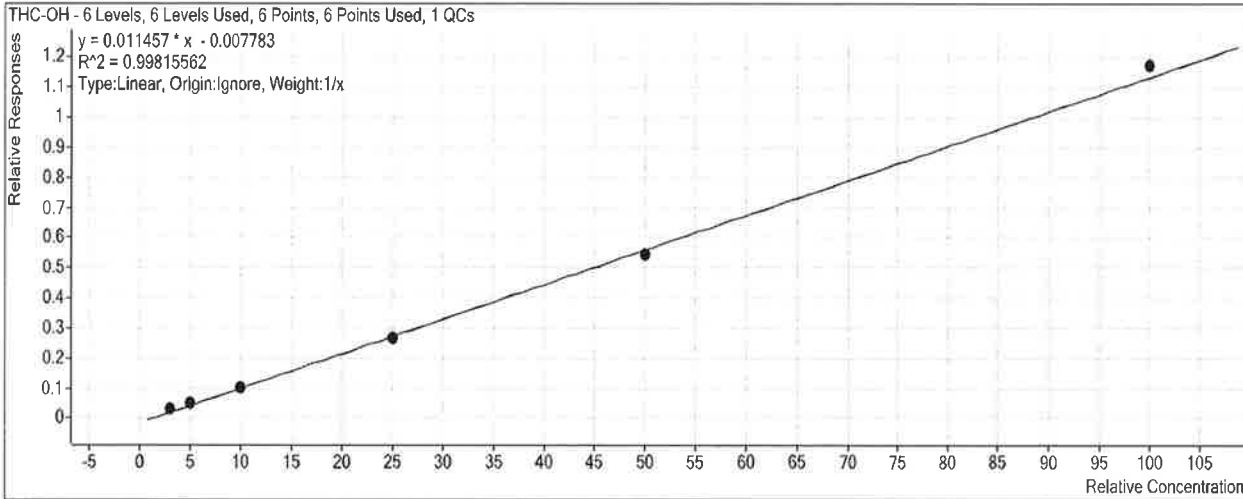
# ISP Forensics Calibration Curve Report

P

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin

**Last Calib Update** 2/15/2019 8:38 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	3.3	108.9
Cal 2-5ng	2	<input checked="" type="checkbox"/>	5	5.0	100.0
QC Control	2	<input checked="" type="checkbox"/>	5	5.0	100.4
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	9.7	96.7
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	23.7	94.8
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	48.2	96.5
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	103.1	103.1

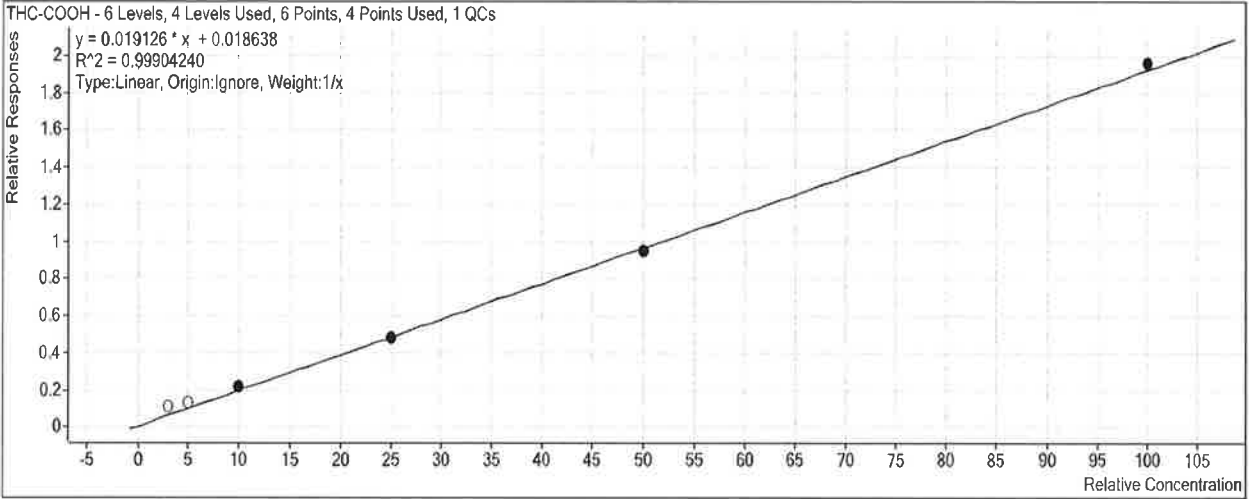
# ISP Forensics Calibration Curve Report

S

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin

**Last Calib Update** 2/15/2019 8:38 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	4.8	159.0
Cal 2-5ng	2	<input type="checkbox"/>	5	5.9	117.4
QC Control	2	<input type="checkbox"/>	5	10.6	212.0
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	10.3	103.4
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	24.4	97.8
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	48.6	97.3
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	101.6	101.6



# ISP Forensics Calibration Curve Report

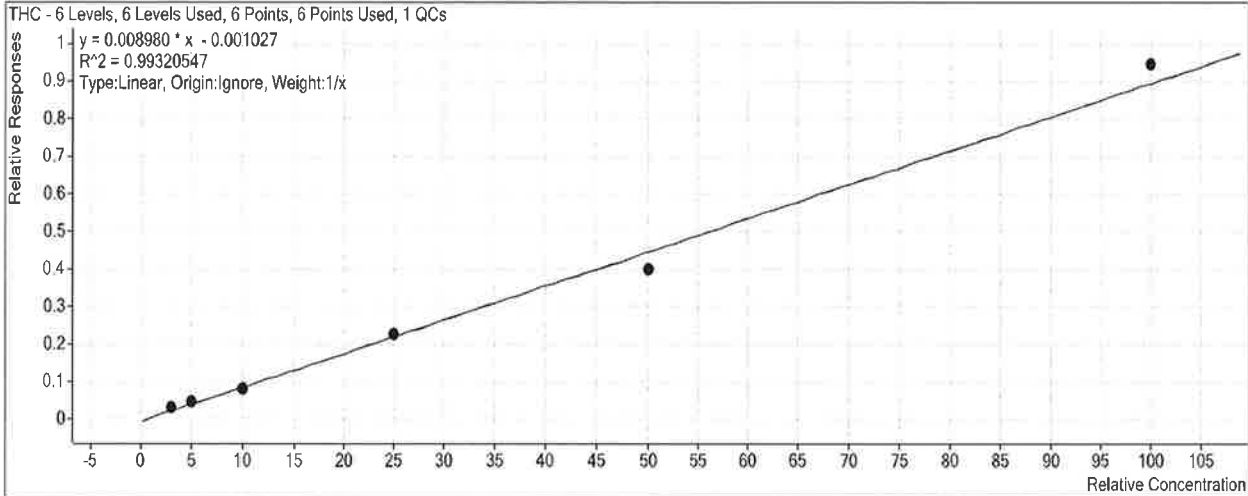
S

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin

**Last Calib Update** 2/15/2019 8:38 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	3.3	109.4
Cal 2-5ng	2	<input checked="" type="checkbox"/>	5	5.2	103.1
QC Control	2	<input checked="" type="checkbox"/>	5	4.7	93.2
Cal 3-10ng	3	<input checked="" type="checkbox"/>	10	9.1	91.2
Cal 4-25ng	4	<input checked="" type="checkbox"/>	25	25.4	101.6
Cal 5-50ng	5	<input checked="" type="checkbox"/>	50	44.7	89.4
Cal 6-100ng	6	<input checked="" type="checkbox"/>	100	105.4	105.4

D

# ISP FORENSICS - Pocatello Instrument # 59740

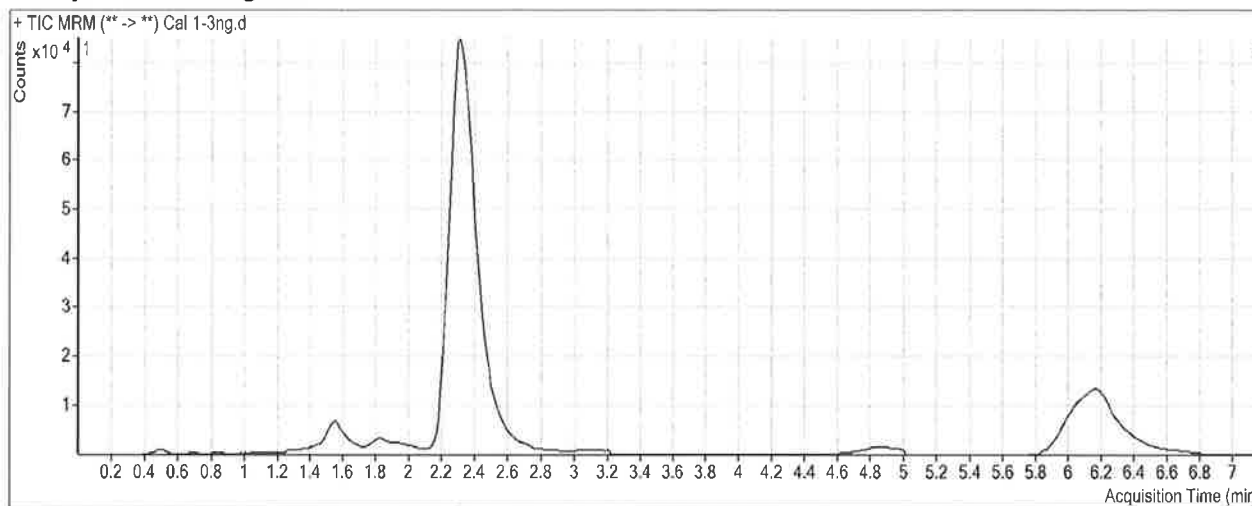
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:40 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 16:33 **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-G6 **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	20415	688969	0.0296	3.2655
THC-COOH	THC-COOH-D9	2.419	25848	235267	0.1099	4.7698
THC	THC-D3	6.199	7578	266461	0.0284	3.2816

5

# ISP FORENSICS - Pocatello Instrument # 59740

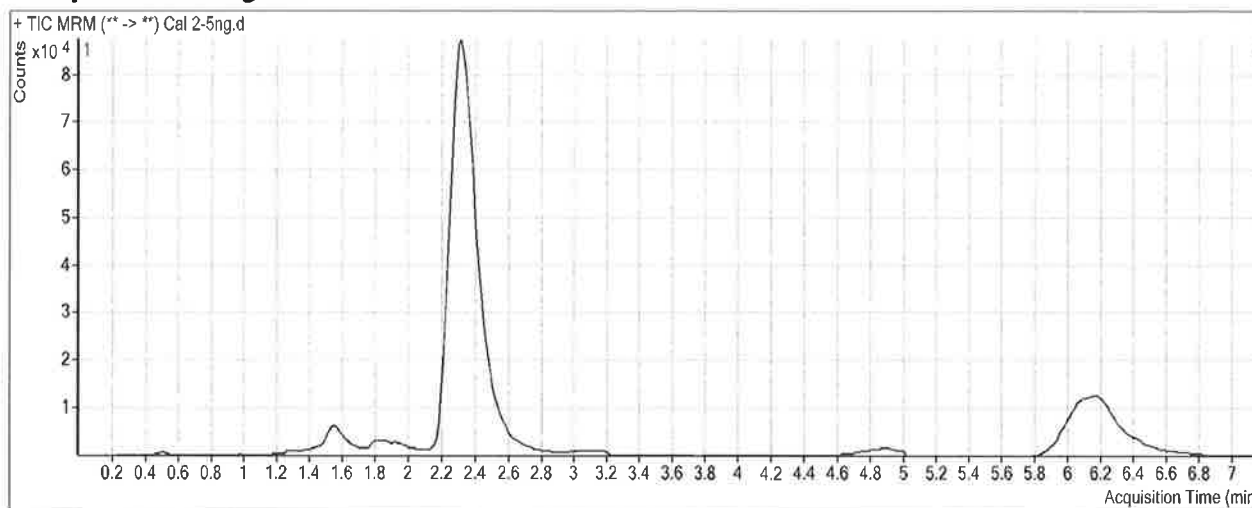
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:40 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 16:45 **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-F6 **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	2.319	33991	686278	0.0495	5.0022
THC-COOH	THC-COOH-D9	2.419	30668	234243	0.1309	5.8708
THC	THC-D3	6.172	11509	254216	0.0453	5.1561

D

# ISP FORENSICS - Pocatello Instrument # 59740

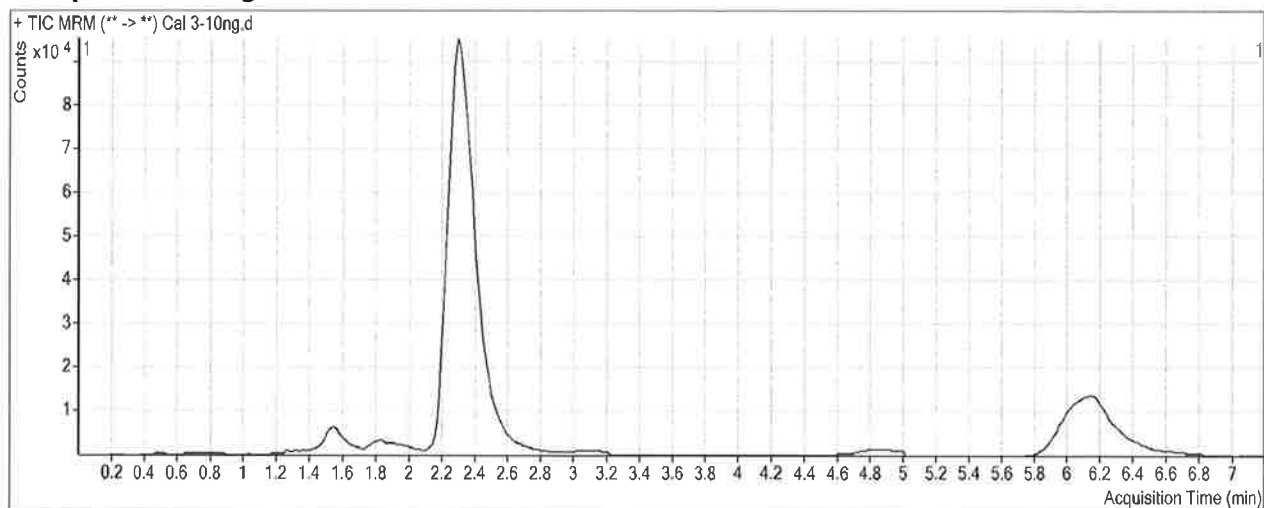
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:40 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 16:57 **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-E6 **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	71914	698144	0.1030	9.6698
THC-COOH	THC-COOH-D9	2.406	52590	243050	0.2164	10.3386
THC	THC-D3	6.146	23660	292697	0.0808	9.1160

S

# ISP FORENSICS - Pocatello Instrument # 59740

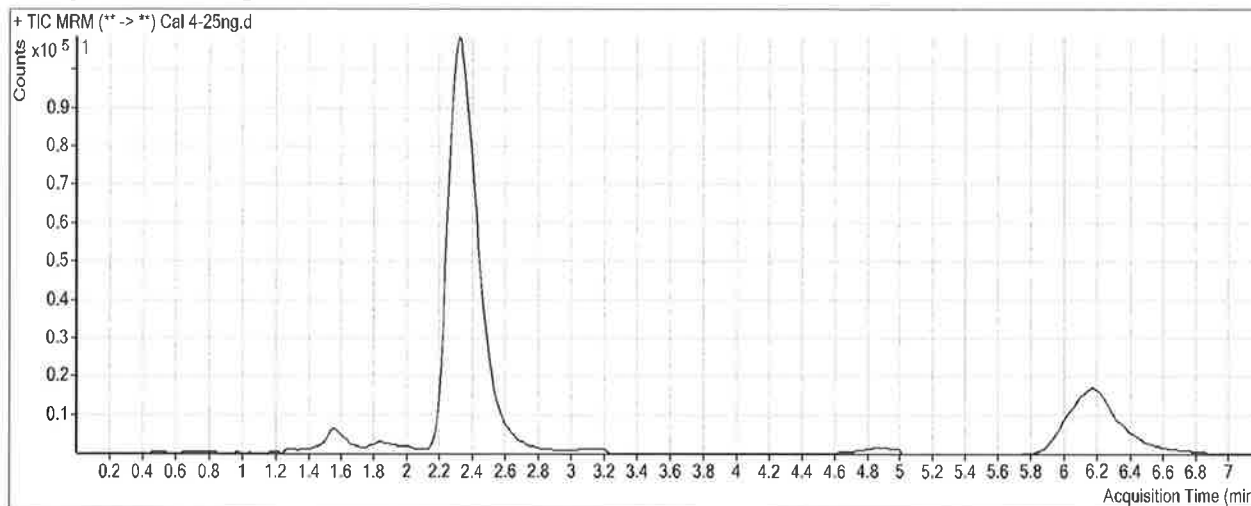
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:40 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 17:09 **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-D6 **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	2.319	188196	713348	0.2638	23.7055
THC-COOH	THC-COOH-D9	2.419	119154	245107	0.4861	24.4425
THC	THC-D3	6.186	60638	267026	0.2271	25.4026

8

# ISP FORENSICS - Pocatello Instrument # 59740

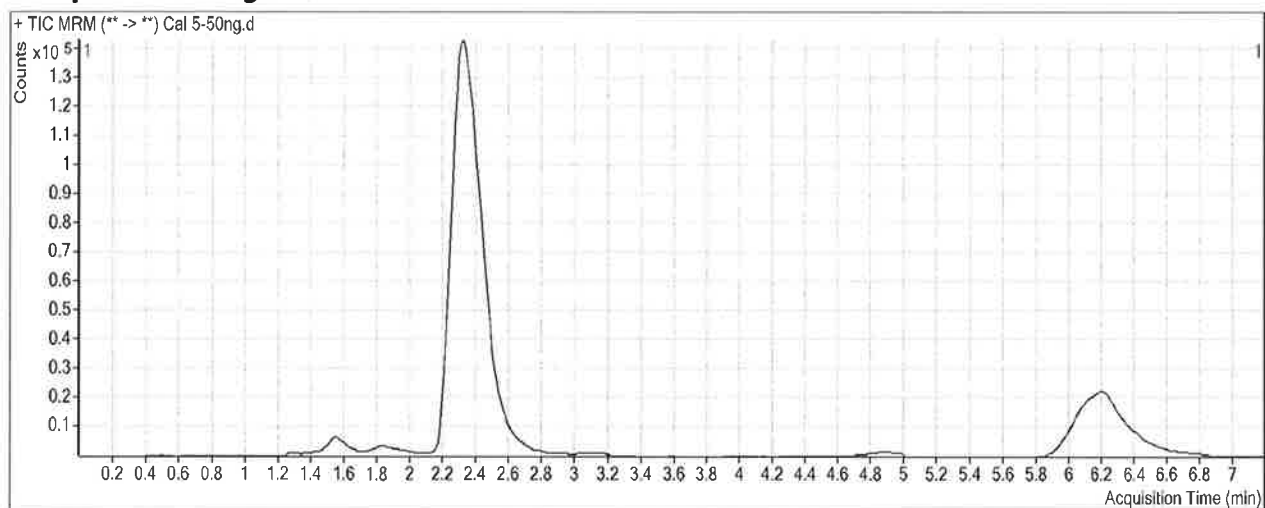
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:40 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 17:21 **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-C6 **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	2.319	412330	756854	0.5448	48.2288
THC-COOH	THC-COOH-D9	2.419	241130	254182	0.9486	48.6250
THC	THC-D3	6.212	131041	327452	0.4002	44.6785

D

# ISP FORENSICS - Pocatello Instrument # 59740

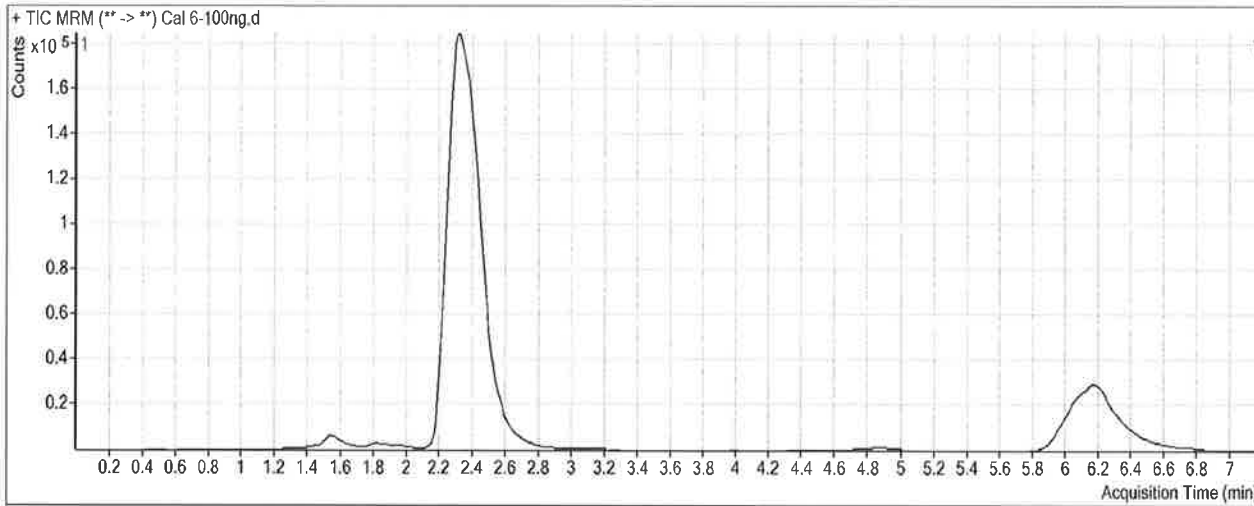
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2019\AM 27\020419 THCQ SP\QuantResults\THCQ.batch.bin  
**Analysis Time** 2/15/2019 8:38 AM **Analyst Name** datastor  
**Report Time** 2/15/2019 8:40 AM **Reporter Name** datastor  
**Last Calib Update** 2/15/2019 8:38 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-02-04 17:32 **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-B6 **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	812257	691989	1.1738	103.1283
THC-COOH	THC-COOH-D9	2.419	451600	230203	1.9617	101.5939
THC	THC-D3	6.172	241593	255613	0.9452	105.3652