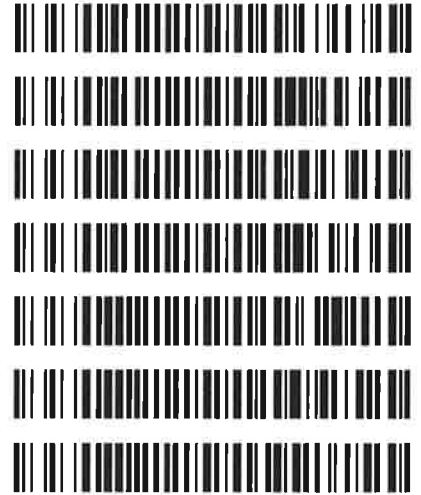


B

**Worklist: 2834**

<u>LAB CASE</u>	<u>ITEM</u>	<u>TASK_ID</u>	<u>DESCRIPTION</u>
M2018-5372	1	134225	AM 27 Blood THC Quant by LC-QQQ
M2018-5592	1	134226	AM 27 Blood THC Quant by LC-QQQ
M2018-5624	1	134227	AM 27 Blood THC Quant by LC-QQQ
M2018-5767	3	134228	AM 27 Blood THC Quant by LC-QQQ
P2018-3187	1	134229	AM 27 Blood THC Quant by LC-QQQ
P2018-3235	1	134230	AM 27 Blood THC Quant by LC-QQQ
P2018-3275	1	134231	AM 27 Blood THC Quant by LC-QQQ



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

Extraction Date: 12/12/18  
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:** 361331-1  
**LCMS-QQQ ID:** 59740

**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/urine (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 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\2018\THC Quant\121218 THCQ TS  
Batch Name: THCQ 121218 TS
- 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: *Curves limited: THC-COOH ~~10-100~~ 5-100* TS  
*Due to poor peak shapes, THC will be reported qualitatively for this batch.*



# Idaho State Police Forensic Services

B

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

Analyst: Tamara Salazar  
Extraction Date: 12/12/18  
Worklist Number: 2834

<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	0539904	09/10/19			
Negative Blood	445283-1		10/25/18		
Methanol External Control Solution	WS102418	02/08/19	10/24/18		
Blood External Control Solution	102418	02/08/19	10/24/18		
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)	100518		10/05/18		
0.1% Formic Acid in Acetonitrile (Mobile Phase B)	110818		11/08/18		
Needle Rinse--75% LCMS MeOH in LCMS Water	110818		11/08/18		

### 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:	02/07/19		

### Blood External Control Solution (Lot: 102418)

*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	Lampire	18G207D7
Methanol External Control Solution		WS102418
Prepared:	10/24/18	
Prepared by:	Sarah Pickle	
Expires:	02/07/19	

D

**0.1% Formic Acid in LCMS Water (Mobile Phase A) (Lot: 100518)**

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>
Formic Acid (LCMS Grade)	Fisher	095180B
Water (LCMS Grade)	Fisher	182702
Prepared:	10/05/18	
Prepared By:	Sarah Pickle	

**Needle Rinse (75% LCMS MeOH in LCMS Water) (Lot: 110818)**

<i>Component</i>	<i>Source</i>	<i>Source Lot Number</i>
MeOH (LCMS Grade)	Fisher	177145
Water (LCMS Grade)	Fisher	182702
Prepared:	11/08/18	
Prepared By:	Sarah Pickle	

TS

# ISP FORENSICS - Pocatello Instrument # 59740

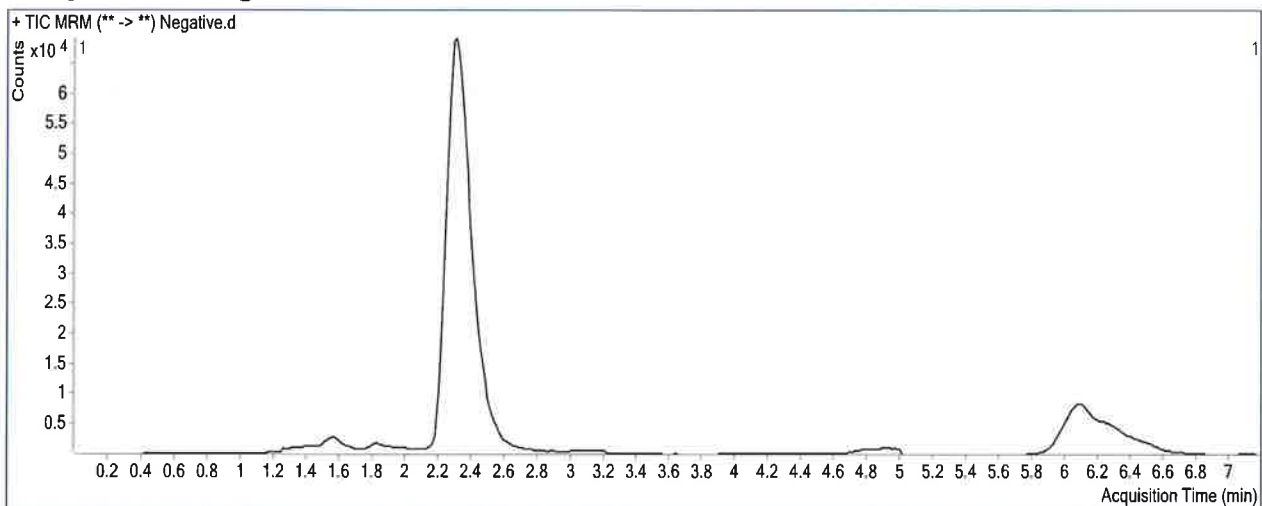
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bir  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISPUser  
**Report Time** 12/19/2018 9:18 AM **Reporter Name** ISPUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 15:32 **Data File** Negative.d  
**Sample Type** Sample **Sample Name** Negative  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-H11 **Sample Info**  
**Inj Vol** -1 **Comment** Hemostat 445283-1

### Sample Chromatogram



# ISP FORENSICS - Pocatello Instrument # 59740

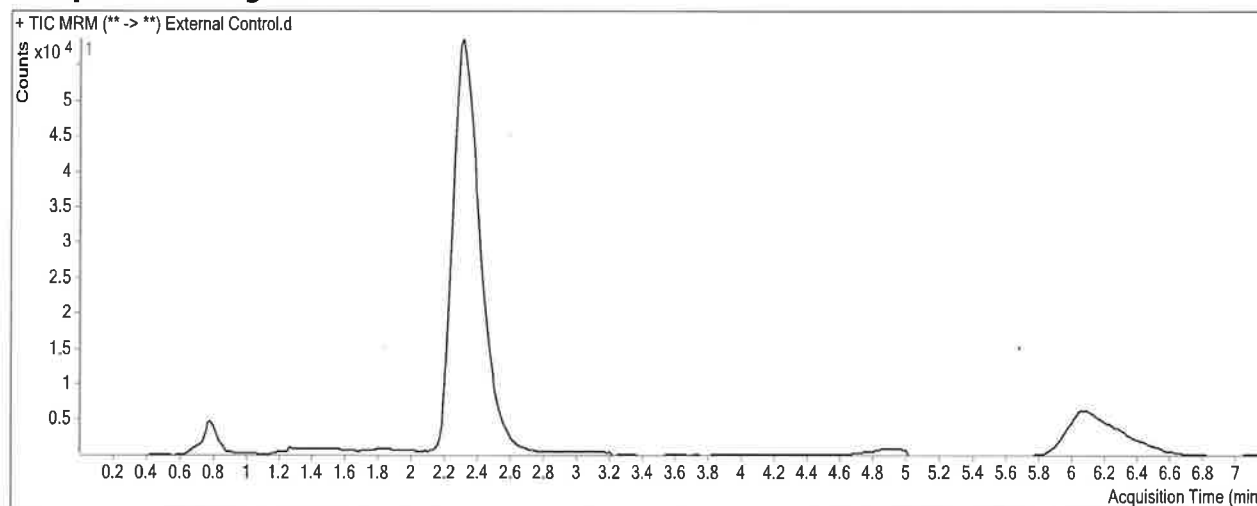
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISPUser  
**Report Time** 12/19/2018 9:18 AM **Reporter Name** ISPUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

<b>Acq Time</b>	2018-12-12 15:55	<b>Data File</b>	External Control.d
<b>Sample Type</b>	Sample	<b>Sample Name</b>	External Control
<b>Dilution</b>	1	<b>Acq Method</b>	THC Quant 051517 workingmm.m
<b>Position</b>	P1-G11	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	Lampire 18G207D7 + WS 102418

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.305	41153	419053	0.0982	9.2896
THC-COOH	THC-COOH-D9	2.406	29300	163058	0.1797	8.1790
THC	THC-D3	6.106	10200	135655	0.0752	9.4070

15

# ISP FORENSICS - Pocatello Instrument # 59740

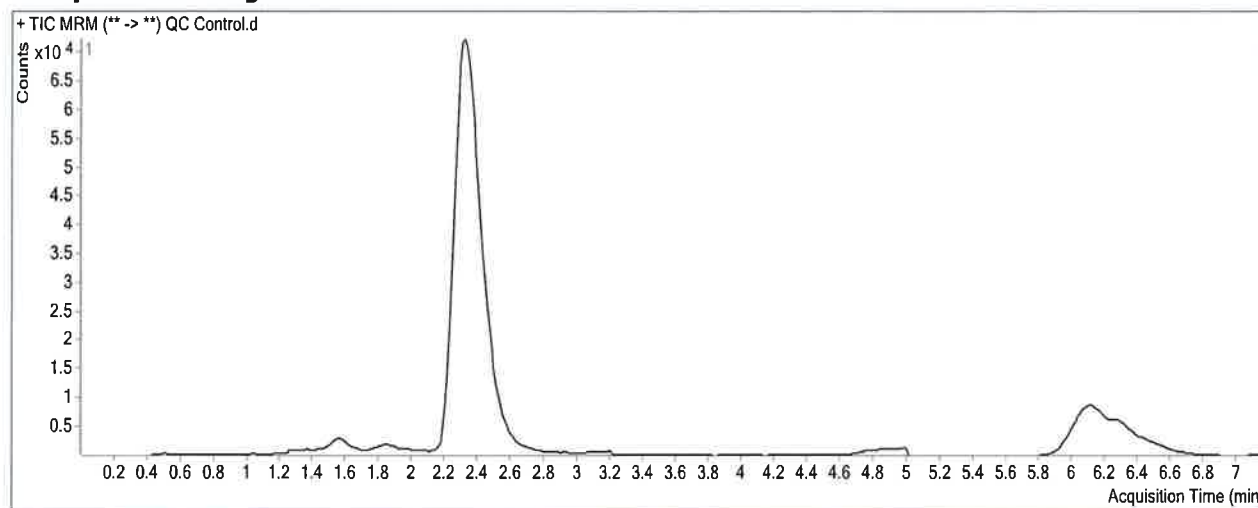
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISPUser  
**Report Time** 12/19/2018 9:17 AM **Reporter Name** ISPUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 14:44 **Data File** QC Control.d  
**Sample Type** Sample **Sample Name** QC Control  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-A12 **Sample Info**  
**Inj Vol** -1 **Comment**

### Sample Chromatogram



### Results

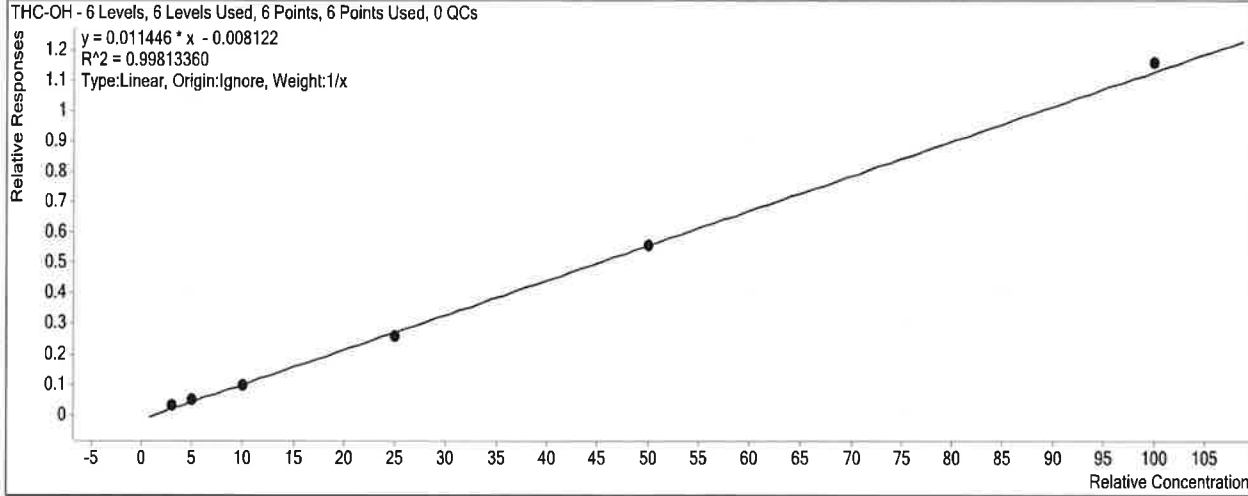
Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.319	27966	563023	0.0497	5.0493
THC-COOH	THC-COOH-D9	2.419	36619	189854	0.1929	8.9053
THC	THC-D3	6.132	7623	199722	0.0382	4.6732

TS

# ISP Forensics Calibration Curve Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218  
TS.batch.bin  
**Last Calib Update** 12/19/2018 9:16 AM **Analyst Name** ISP TOX

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



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 2-3ng	2	<input checked="" type="checkbox"/>	3	3.4	112.1
Cal 3-5ng_reinject	3	<input checked="" type="checkbox"/>	5	5.0	99.8
Cal 4-10ng	4	<input checked="" type="checkbox"/>	10	9.3	93.4
Cal 5-25ng	5	<input checked="" type="checkbox"/>	25	23.3	93.2
Cal 6-50ng	6	<input checked="" type="checkbox"/>	50	49.6	99.2
Cal 7-100ng	7	<input checked="" type="checkbox"/>	100	102.4	102.4

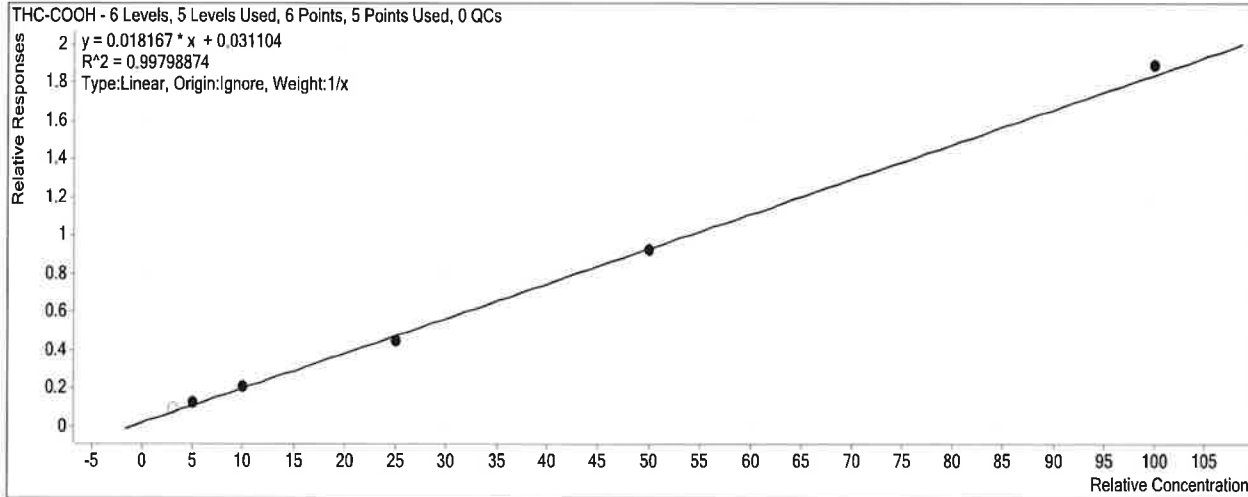


TS

# ISP Forensics Calibration Curve Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218  
TS.batch.bin  
**Last Calib Update** 12/19/2018 9:16 AM **Analyst Name** ISP TOX

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



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 2-3ng	2	<input type="checkbox"/>	3	3.5	117.8
Cal 3-5ng_reinject	3	<input checked="" type="checkbox"/>	5	5.4	108.5
Cal 4-10ng	4	<input checked="" type="checkbox"/>	10	9.8	98.0
Cal 5-25ng	5	<input checked="" type="checkbox"/>	25	23.2	92.9
Cal 6-50ng	6	<input checked="" type="checkbox"/>	50	49.1	98.1
Cal 7-100ng	7	<input checked="" type="checkbox"/>	100	102.5	102.5

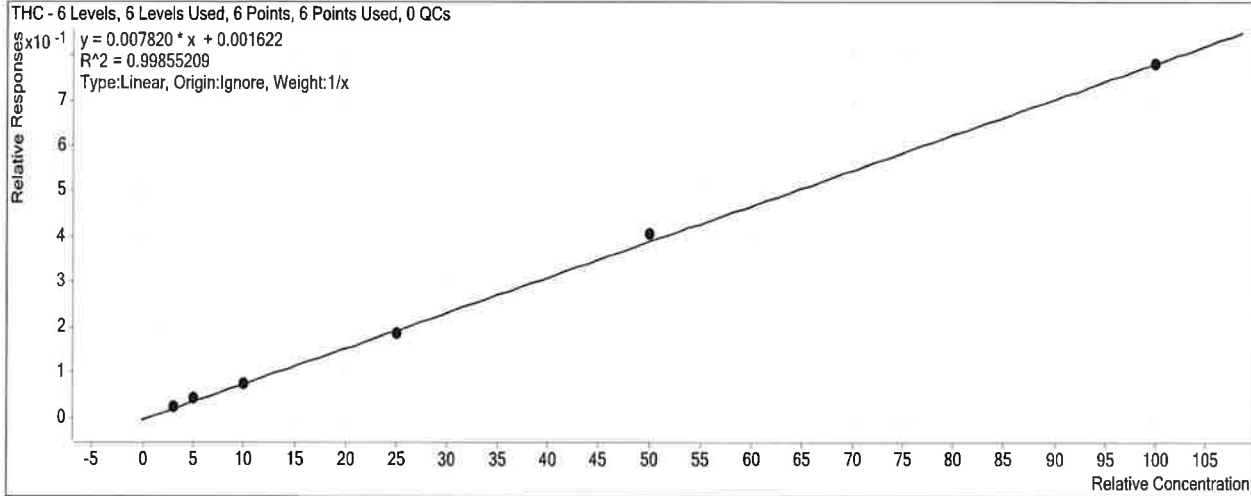
# ISP Forensics Calibration Curve Report

TS

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218  
TS.batch.bin

**Last Calib Update** 12/19/2018 9:16 AM      **Analyst Name** ISP TOX

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



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 2-3ng	2	<input checked="" type="checkbox"/>	3	2.9	98.2
Cal 3-5ng_reinject	3	<input checked="" type="checkbox"/>	5	5.5	109.7
Cal 4-10ng	4	<input checked="" type="checkbox"/>	10	9.4	94.0
Cal 5-25ng	5	<input checked="" type="checkbox"/>	25	23.7	95.0
Cal 6-50ng	6	<input checked="" type="checkbox"/>	50	51.7	103.4
Cal 7-100ng	7	<input checked="" type="checkbox"/>	100	99.7	99.7

15

# ISP FORENSICS - Pocatello Instrument # 59740

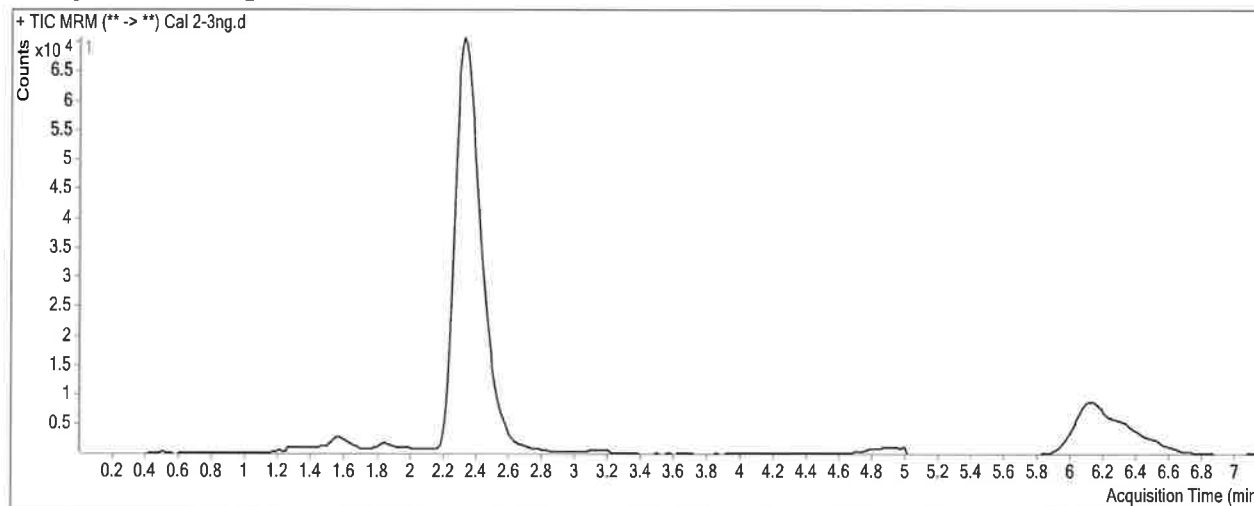
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISUser  
**Report Time** 12/19/2018 9:17 AM **Reporter Name** ISUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 13:10 **Data File** Cal 2-3ng.d  
**Sample Type** Calibration **Sample Name** Cal 2-3ng  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-G12 **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	16937	557926	0.0304	3.3618
THC-COOH	THC-COOH-D9	2.446	18386	192946	0.0953	3.5332
THC	THC-D3	6.172	4903	198799	0.0247	2.9463

TS

# ISP FORENSICS - Pocatello Instrument # 59740

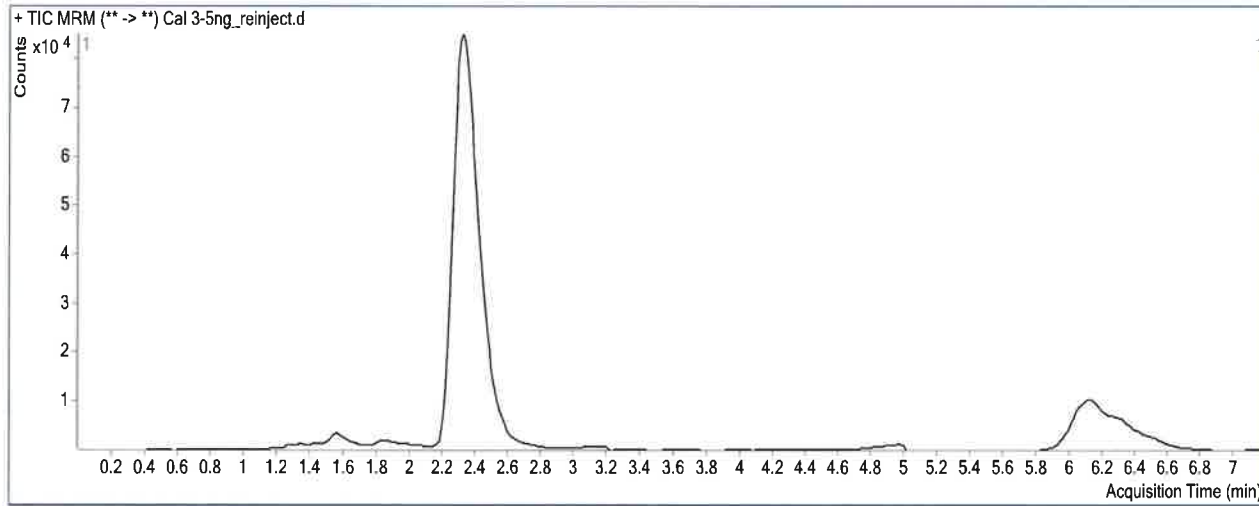
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISUser  
**Report Time** 12/19/2018 9:17 AM **Reporter Name** ISUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 13:57 **Data File** Cal 3-5ng\_reinject.d  
**Sample Type** Calibration **Sample Name** Cal 3-5ng\_reinject  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-F12 **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	31926	651993	0.0490	4.9877
THC-COOH	THC-COOH-D9	2.432	29075	224201	0.1297	5.4263
THC	THC-D3	6.132	9673	217279	0.0445	5.4853

\*Calibrator reinjected due to poor internal standard response in the initial injection. -TS

15

# ISP FORENSICS - Pocatello Instrument # 59740

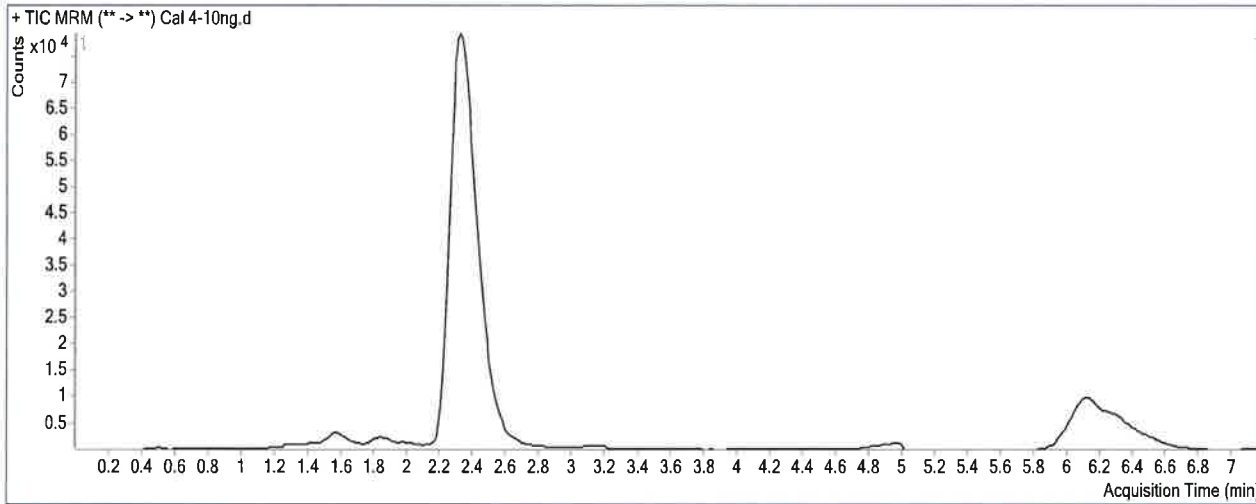
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISPUser  
**Report Time** 12/19/2018 9:18 AM **Reporter Name** ISPUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 13:33 **Data File** Cal 4-10ng.d  
**Sample Type** Calibration **Sample Name** Cal 4-10ng  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-E12 **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	57881	586052	0.0988	9.3385
THC-COOH	THC-COOH-D9	2.432	43323	207199	0.2091	9.7974
THC	THC-D3	6.186	15698	208925	0.0751	9.4003

15

# ISP FORENSICS - Pocatello Instrument # 59740

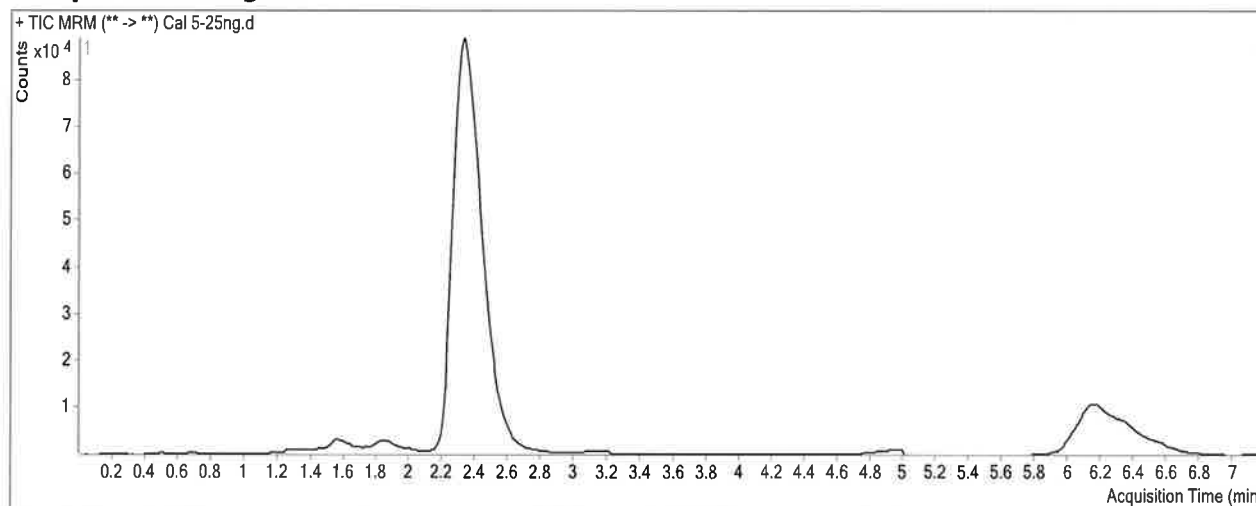
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISUser  
**Report Time** 12/19/2018 9:17 AM **Reporter Name** ISUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 13:45 **Data File** Cal 5-25ng.d  
**Sample Type** Calibration **Sample Name** Cal 5-25ng  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-D12 **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	150738	582861	0.2586	23.3045
THC-COOH	THC-COOH-D9	2.432	91146	201262	0.4529	23.2169
THC	THC-D3	6.186	37741	201527	0.1873	23.7397

TS

# ISP FORENSICS - Pocatello Instrument # 59740

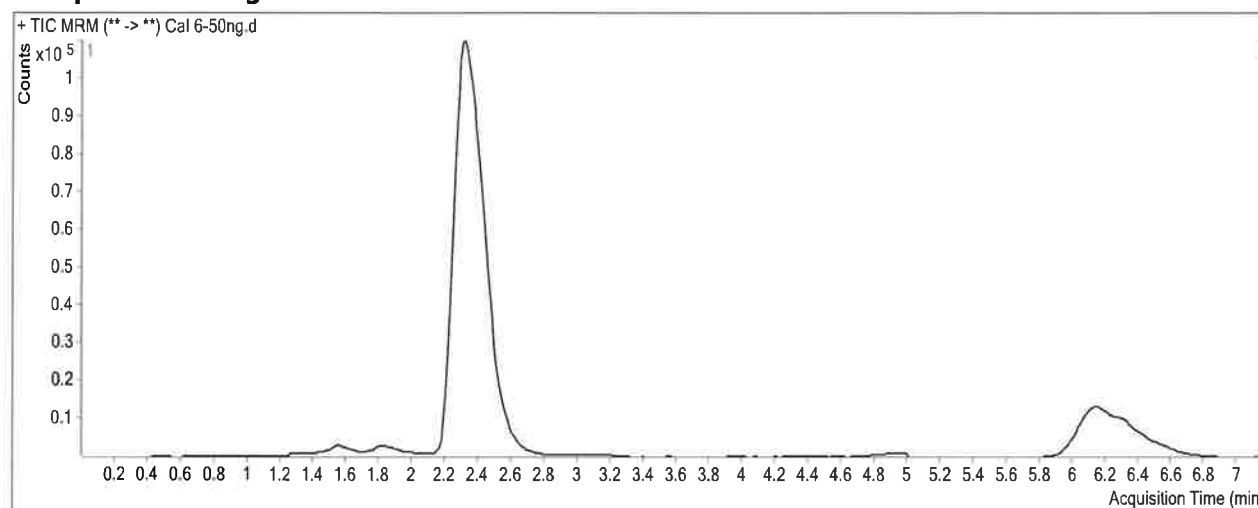
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISPUser  
**Report Time** 12/19/2018 9:17 AM **Reporter Name** ISPUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

### Analysis Info

**Acq Time** 2018-12-12 14:09 **Data File** Cal 6-50ng.d  
**Sample Type** Calibration **Sample Name** Cal 6-50ng  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-C12 **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	318575	569587	0.5593	49.5753
THC-COOH	THC-COOH-D9	2.419	182333	197637	0.9226	49.0718
THC	THC-D3	6.172	82053	202157	0.4059	51.6938

15

# ISP FORENSICS - Pocatello Instrument # 59740

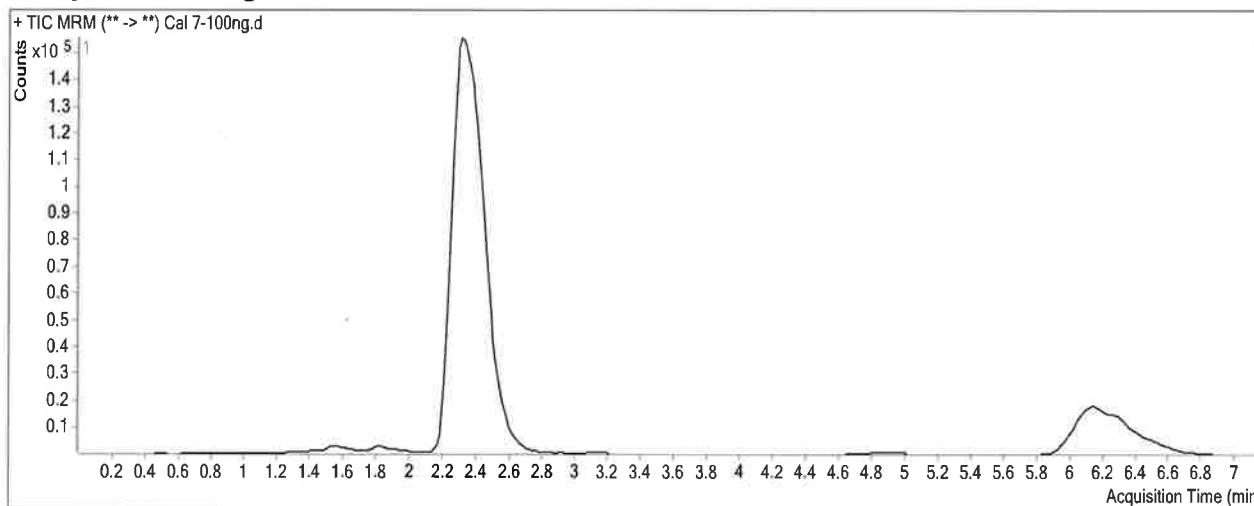
## Cannabinoids Analysis Report

**Batch Data Path** C:\MassHunter\Data\2018\THC Quant\121218 THCQ TS\QuantResults\THCQ 121218 TS.batch.bin  
**Analysis Time** 12/19/2018 9:16 AM **Analyst Name** ISPUser  
**Report Time** 12/19/2018 9:17 AM **Reporter Name** ISPUser  
**Last Calib Update** 12/19/2018 9:16 AM **Batch State** Processed

**Analysis Info**

**Acq Time** 2018-12-12 14:21 **Data File** Cal 7-100ng.d  
**Sample Type** Calibration **Sample Name** Cal 7-100ng  
**Dilution** 1 **Acq Method** THC Quant 051517 workingmm.m  
**Position** P1-B12 **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	673507	578465	1.1643	102.4322
THC-COOH	THC-COOH-D9	2.406	363479	192017	1.8929	102.4875
THC	THC-D3	6.146	156106	199729	0.7816	99.7346