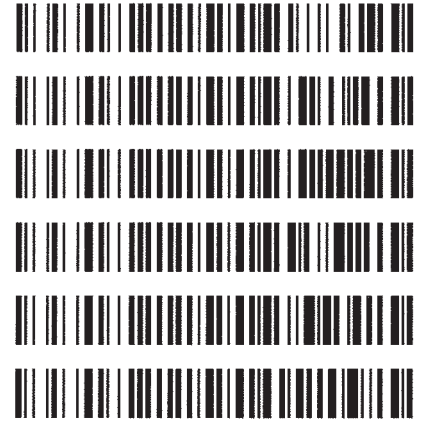


**Worklist: 2999**

<u>LAB CASE</u>	<u>ITEM</u>	<u>TASK ID</u>	<u>DESCRIPTION</u>
C2019-0216	1	142896	AM 27 Blood THC Quant by LC-QQQ
C2019-0255	1	143268	AM 27 Blood THC Quant by LC-QQQ
C2019-0262	1	143269	AM 27 Blood THC Quant by LC-QQQ
C2019-0287	1	143271	AM 27 Blood THC Quant by LC-QQQ
C2019-0325	1	143267	AM 27 Blood THC Quant by LC-QQQ
C2019-0354	1	143270	AM 27 Blood THC Quant by LC-QQQ



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

Extraction Date: 2/27/19  
 Plate lot#: 0539904

Analyst: Britany Wylie  
 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  
 Hexane

**Blank Blood Lot:** 19A207P3

**Column:** UCT Selectra DA 100 x 2.1mm 3um

**LCMS-QQQ ID:** 62340

**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:

**Analytic:**

- 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- 2. Pipette **1000µL blood (calibrated pipette) Pipette ID: k52558g** in wells of analytical (standards) plate.
- 3. Place on shaking incubator at ambient temp., 900rpm for 15 minutes. *Shaker ID: 66759*
- 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: 66792*
- 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: 66819*
- 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: 2019 Data\AM 27\03012019 Batch Name: cann quant 022719
- 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:

## Toxicology AM method 27 external prep information

working solution 1 ug/ml in meoh C-THC, THC-OH, THC

Stock solution 1mg/ml 10 ul each THC, THC-OH 100 ug/ml 100 ul C-THC in 9890 ul meOH

Ppd 6/5/18 Exp: 4/1/19 lot 6518 by AMN

Drug	lot (cerilliant)	expiration
C-THC	FE03121501	3/1/2020
THC-OH	FE01141502	1/1/2020
THC	FE04231406	4/1/2019

AM 27 control 50 ul working solution lot (6518) in 4950 ul blood lot (17J20718)

ppd 6/5/18 Exp 4/1/19 lot 6518 Concentration 10 ng/ml each by AMN

ppd 9/20/18 Exp 4/1/19 lot 92018 Concentration 10 ng/ml each by AMN

ppd 01/14/18 Exp 4/1/19 lot 011419 Concentration 10 ng/ml each by AMN

AM 27 control 50 ul working solution lot (6518) in 4950 ul blood lot (19A207P3)

ppd 2/25/19 Exp 4/1/19 lot 022519 Concentration 10 ng/ml each by BAW

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

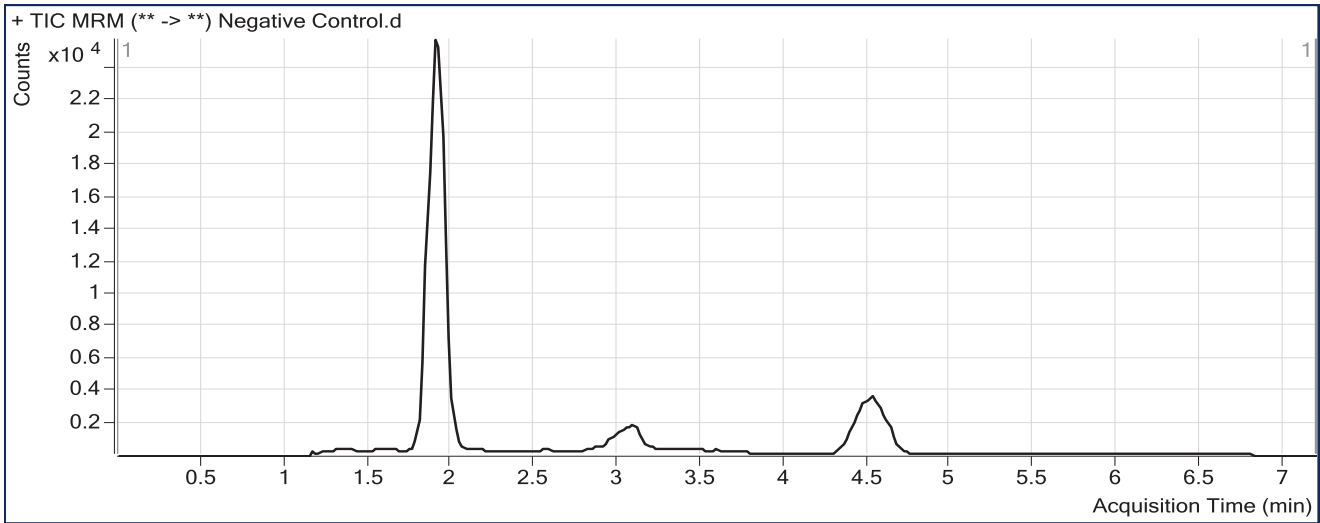
BW

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:26 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2019-03-01 16:15	<b>Data File</b>	Negative Control.d
<b>Sample Type</b>	Sample	<b>Sample Name</b>	Negative Control
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-A2	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation; neg lot 19A207P3

### Sample Chromatogram



# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

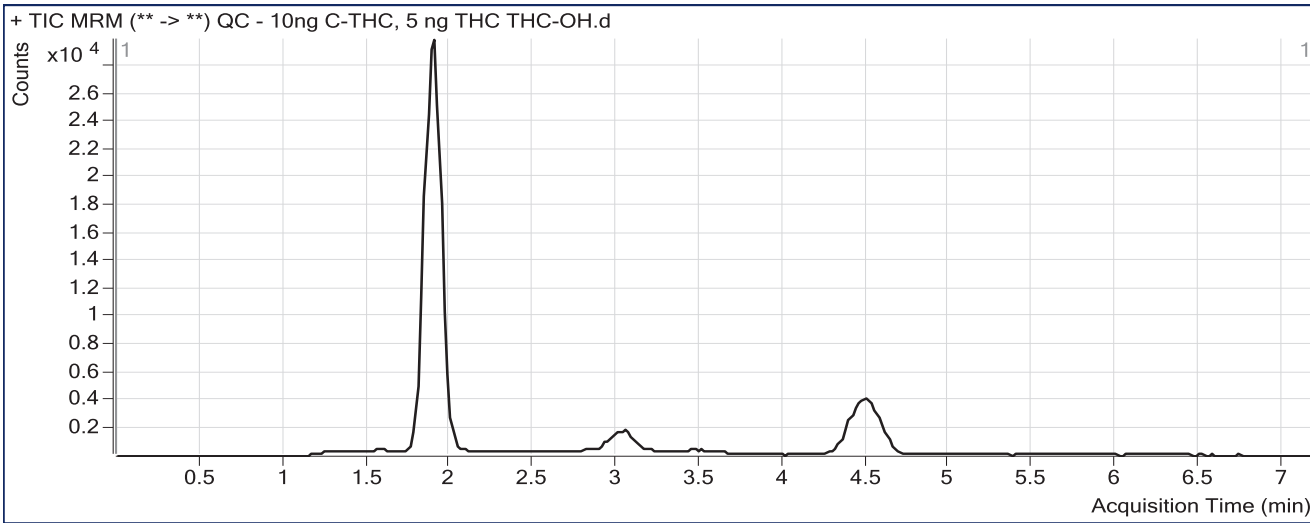
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:27 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

**Analysis Info**

<b>Acq Time</b>	2019-03-01 16:27	<b>Data File</b>	QC - 10ng C-THC, 5 ng THC THC-OH.d
<b>Sample Type</b>	QC	<b>Sample Name</b>	QC - 10ng C-THC, 5 ng THC THC-OH
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-H1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

**Sample Chromatogram**



**Results**

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.895	5639	146645	0.0385	4.7999
THC-COOH	THC-COOH-d9	1.965	8310	52620	0.1579	9.9026
THC	THC-d3	4.512	2736	49813	0.0549	5.0056

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

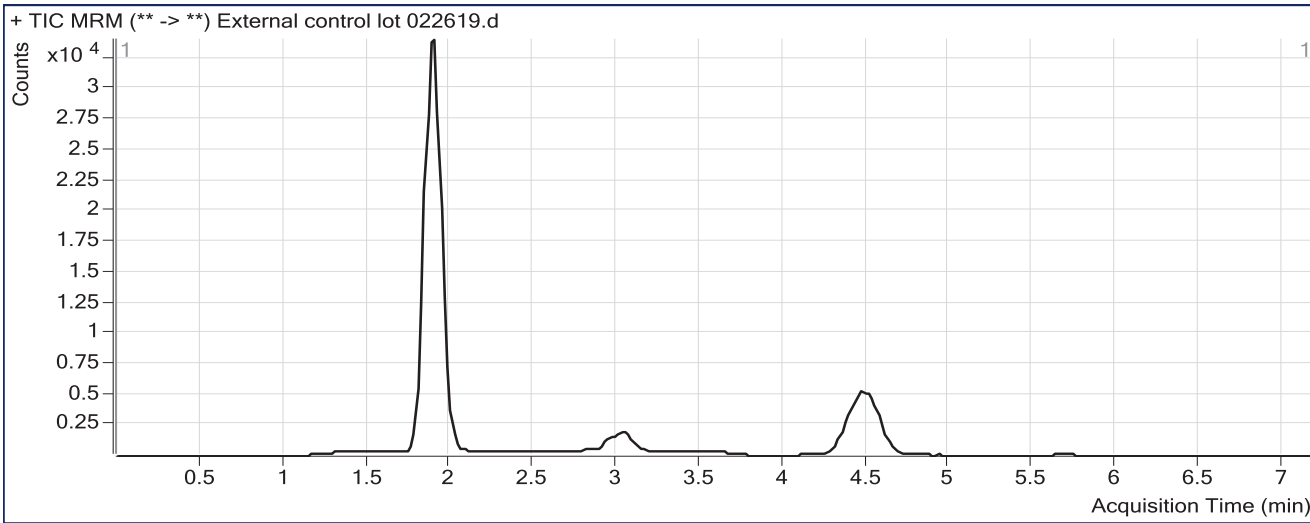
BW

**Batch Data Path** D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin  
**Analysis Time** 3/1/2019 8:22 PM **Analyst Name** ISP Tox  
**Report Time** 3/1/2019 8:27 PM **Reporter Name** ISP Tox  
**Last Calib Update** 3/1/2019 8:22 PM **Batch State** Processed

### Analysis Info

**Acq Time** 2019-03-01 16:39 **Data File** External control lot 022619.d  
**Sample Type** Sample **Sample Name** External control  
**Dilution** 1 **Acq Method** AM 27 Quant THC 7-2017.m  
**Position** P1-B2 **Sample Info**  
**Inj Vol** -1 **Comment** AM 27 Cannabinoid Confirmation

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.895	30003	136919	0.2191	26.8172
THC-COOH	THC-COOH-d9	1.965	18551	50744	0.3656	23.1565
THC	THC-d3	4.512	15756	48169	0.3271	32.5311

# ISP Forensics Calibration Curve Report

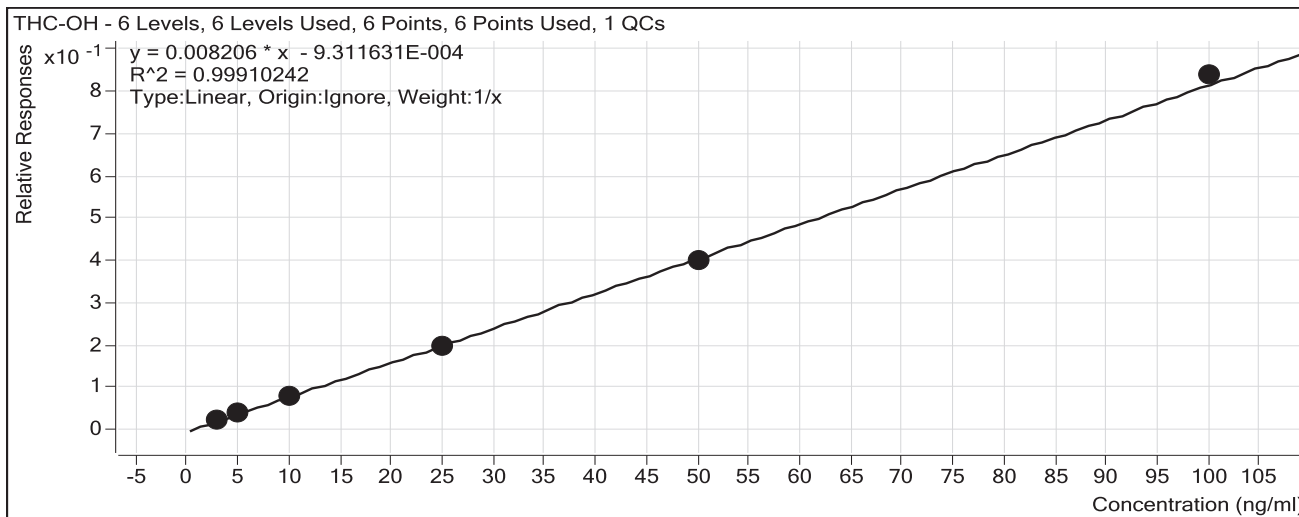
BW

**Batch Data Path** D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin

**Last Calib Update** 3/1/2019 8:22 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	3.2	105.5
Cal 2 - 5ng	2	<input checked="" type="checkbox"/>	5	5.0	99.7
Cal 3 - 10ng	3	<input checked="" type="checkbox"/>	10	9.9	99.2
Cal 4 - 25ng	4	<input checked="" type="checkbox"/>	25	24.0	95.8
Cal 5 - 50ng	5	<input checked="" type="checkbox"/>	50	48.8	97.7
Cal 6 - 100ng	6	<input checked="" type="checkbox"/>	100	102.2	102.2
QC - 10ng C-THC, 5 ng THC THC-OH	7	<input checked="" type="checkbox"/>	5	4.8	96.0

# ISP Forensics Calibration Curve Report

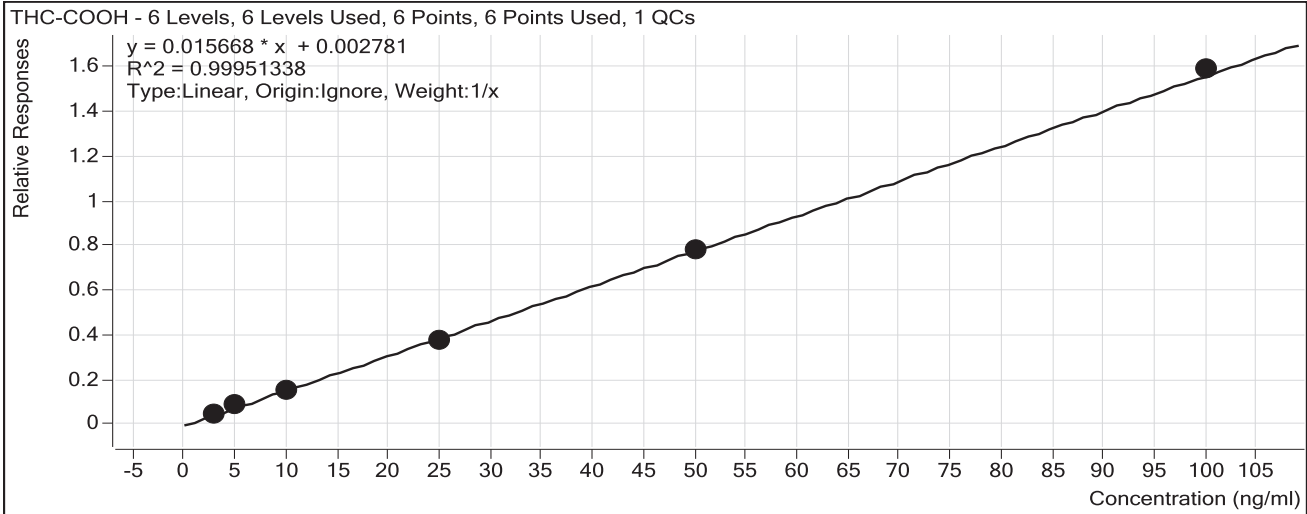
BW

**Batch Data Path** D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin

**Last Calib Update** 3/1/2019 8:22 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 checked="" type="checkbox"/>	3	3.1	102.9
Cal 2 - 5ng	2	<input checked="" type="checkbox"/>	5	5.2	103.8
Cal 3 - 10ng	3	<input checked="" type="checkbox"/>	10	9.6	95.7
Cal 4 - 25ng	4	<input checked="" type="checkbox"/>	25	24.2	96.9
Cal 5 - 50ng	5	<input checked="" type="checkbox"/>	50	49.7	99.4
Cal 6 - 100ng	6	<input checked="" type="checkbox"/>	100	101.2	101.2
QC - 10ng C-THC, 5 ng THC THC-OH	7	<input checked="" type="checkbox"/>	10	9.9	99.0



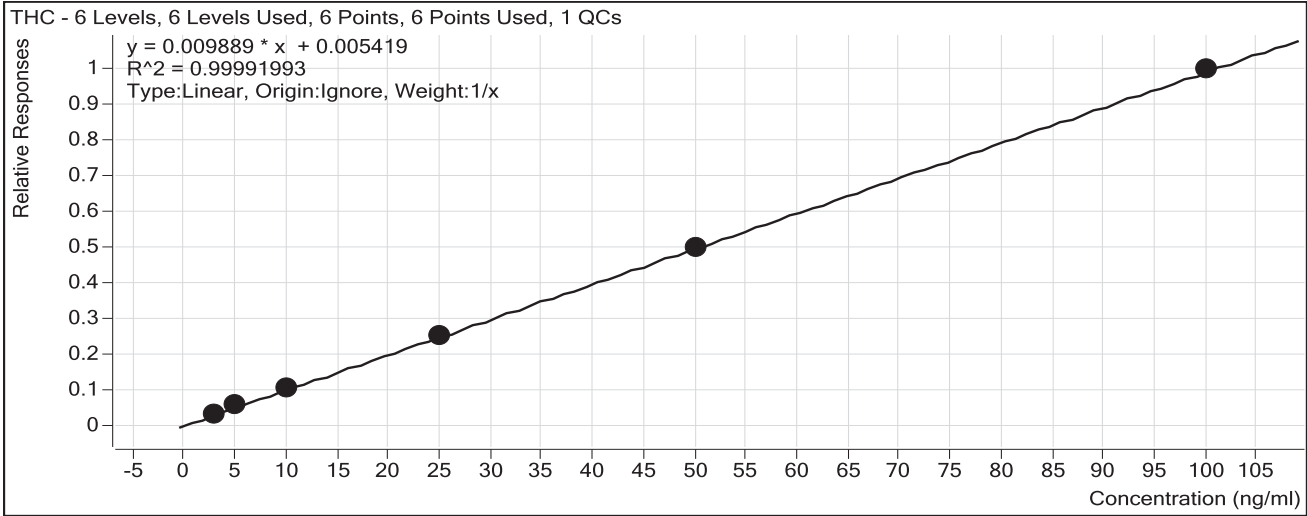
# ISP Forensics Calibration Curve Report

BW

**Batch Data Path** D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin

**Last Calib Update** 3/1/2019 8:22 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	3.0	98.4
Cal 2 - 5ng	2	<input checked="" type="checkbox"/>	5	5.0	100.9
Cal 3 - 10ng	3	<input checked="" type="checkbox"/>	10	10.2	102.0
Cal 4 - 25ng	4	<input checked="" type="checkbox"/>	25	24.6	98.5
Cal 5 - 50ng	5	<input checked="" type="checkbox"/>	50	50.0	100.1
Cal 6 - 100ng	6	<input checked="" type="checkbox"/>	100	100.1	100.1
QC - 10ng C-THC, 5 ng THC THC-OH	7	<input checked="" type="checkbox"/>	5	5.0	100.1

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

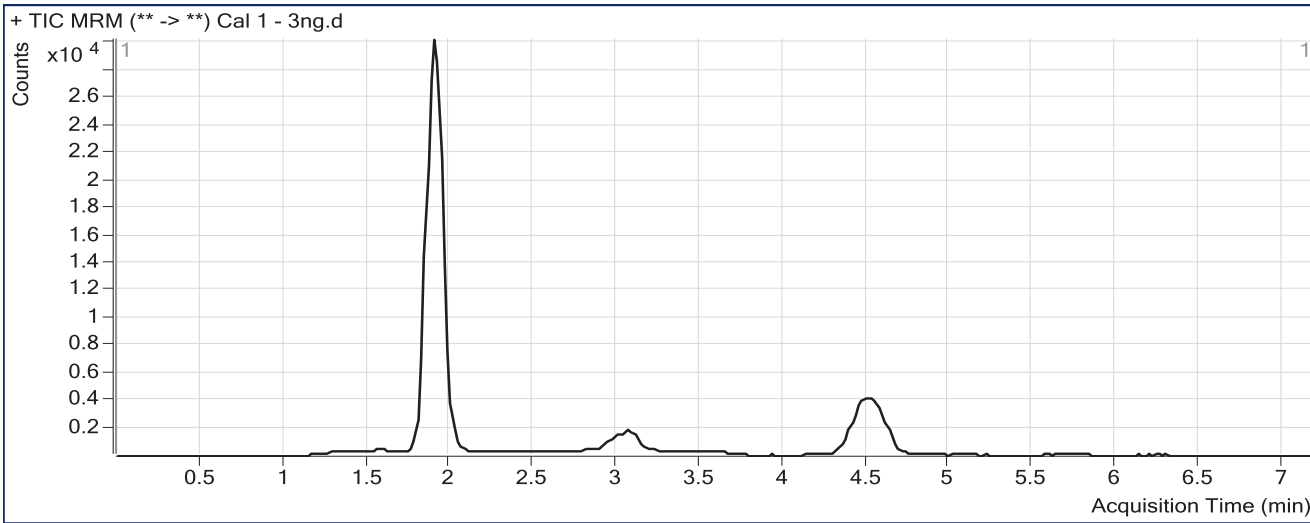
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:25 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

**Analysis Info**

<b>Acq Time</b>	2019-03-01 14:52	<b>Data File</b>	Cal 1 - 3ng.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 1 - 3ng
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-B1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

**Sample Chromatogram**



**Results**

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.915	3772	150572	0.0250	3.1659
THC-COOH	THC-COOH-d9	1.965	2852	55749	0.0512	3.0881
THC	THC-d3	4.532	1871	54065	0.0346	2.9521

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

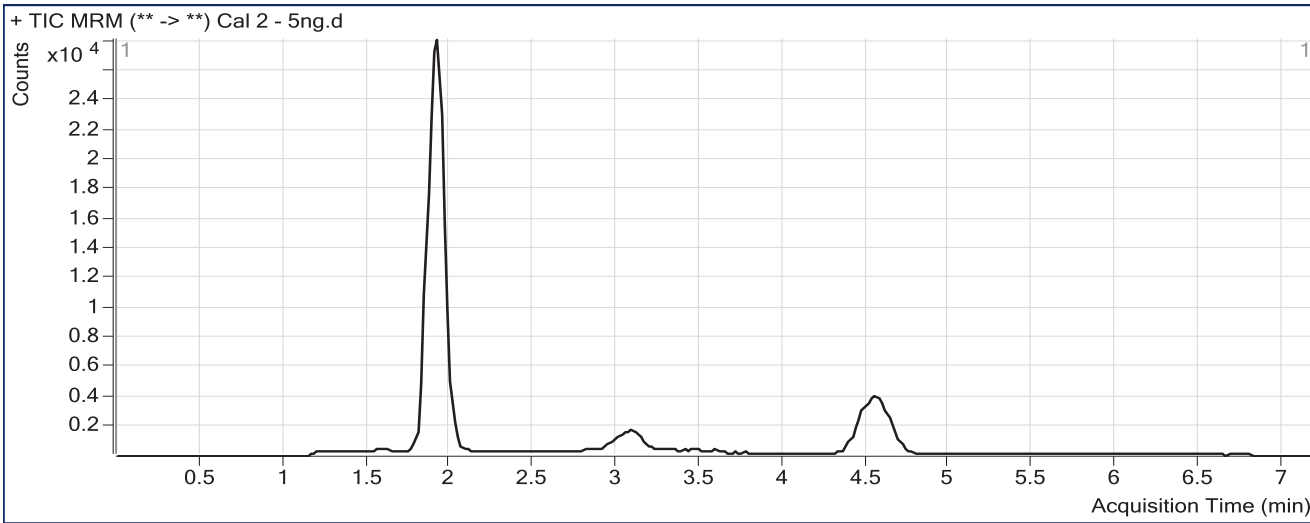
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:25 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2019-03-01 15:04	<b>Data File</b>	Cal 2 - 5ng.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 2 - 5ng
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-C1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.915	5508	137803	0.0400	4.9844
THC-COOH	THC-COOH-d9	1.965	4327	51440	0.0841	5.1916
THC	THC-d3	4.572	2712	49030	0.0553	5.0454

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

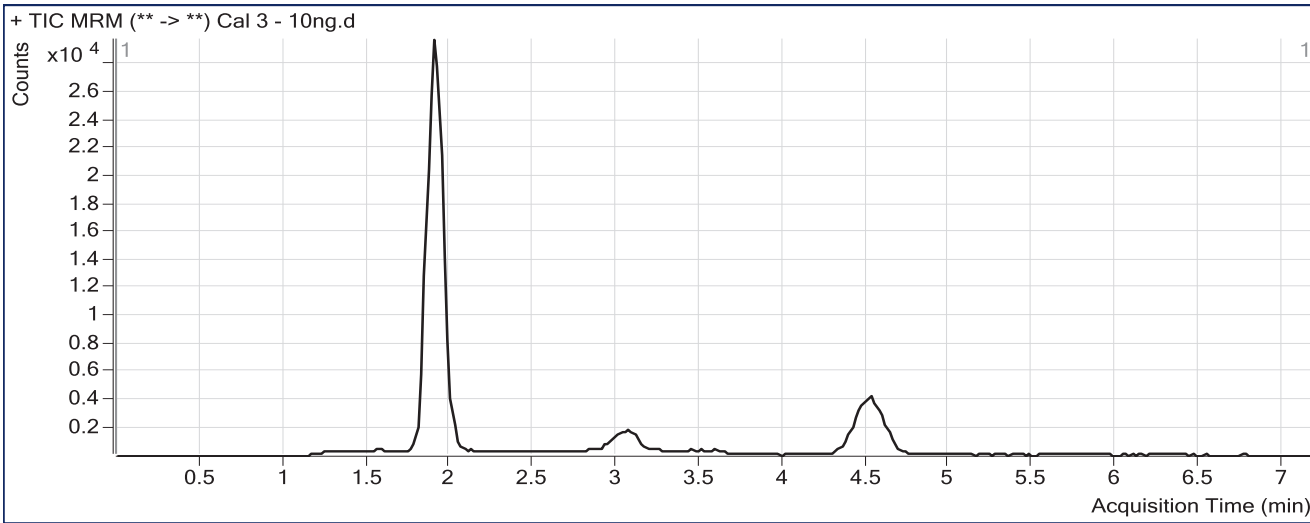
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:25 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2019-03-01 15:16	<b>Data File</b>	Cal 3 - 10ng.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 3 - 10ng
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-D1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.915	10729	133380	0.0804	9.9157
THC-COOH	THC-COOH-d9	1.965	7794	51041	0.1527	9.5688
THC	THC-d3	4.552	4865	45771	0.1063	10.2000

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

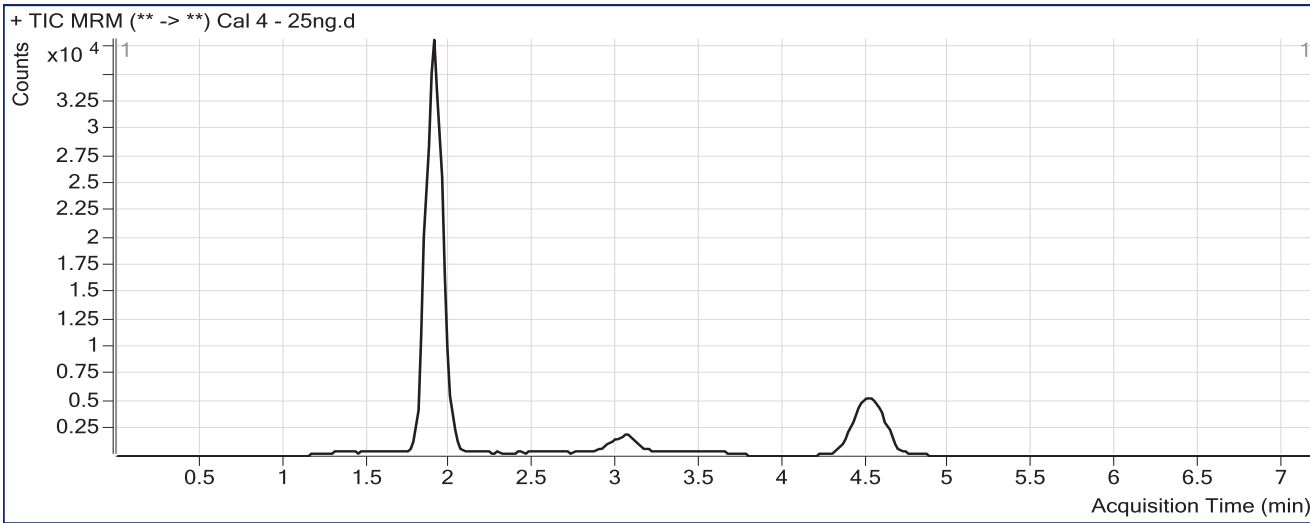
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:26 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2019-03-01 15:28	<b>Data File</b>	Cal 4 - 25ng.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 4 - 25ng
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-E1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.915	30271	154733	0.1956	23.9535
THC-COOH	THC-COOH-d9	1.965	21190	55397	0.3825	24.2363
THC	THC-d3	4.552	13249	53245	0.2488	24.6149

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

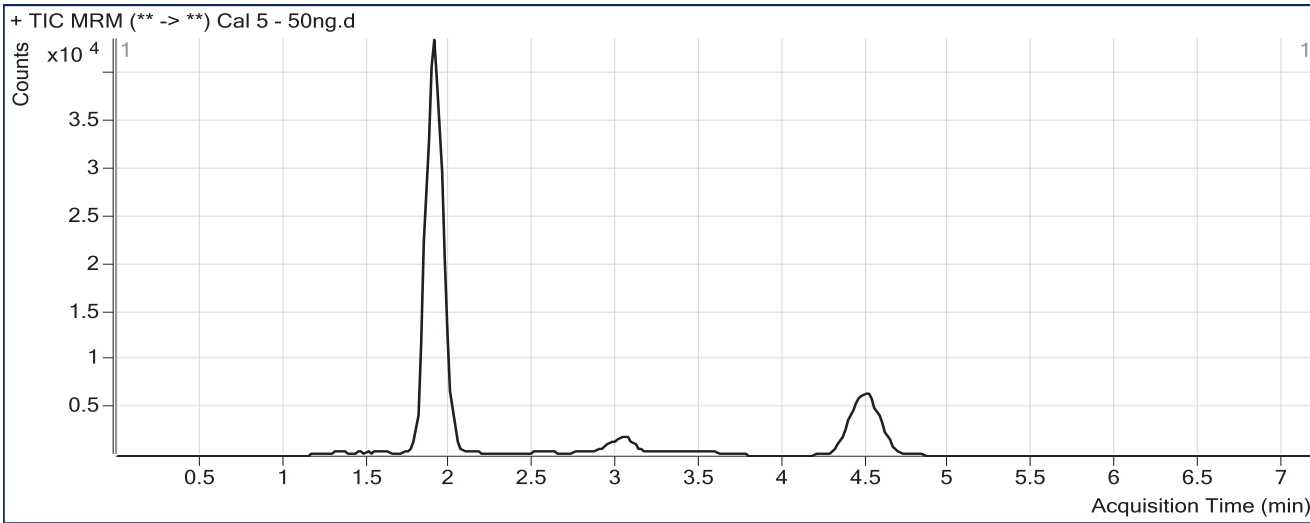
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:26 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2019-03-01 15:39	<b>Data File</b>	Cal 5 - 50ng.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 5 - 50ng
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-F1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

### Sample Chromatogram



### Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.895	57389	143556	0.3998	48.8296
THC-COOH	THC-COOH-d9	1.965	40330	51625	0.7812	49.6830
THC	THC-d3	4.512	25419	50814	0.5002	50.0403

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

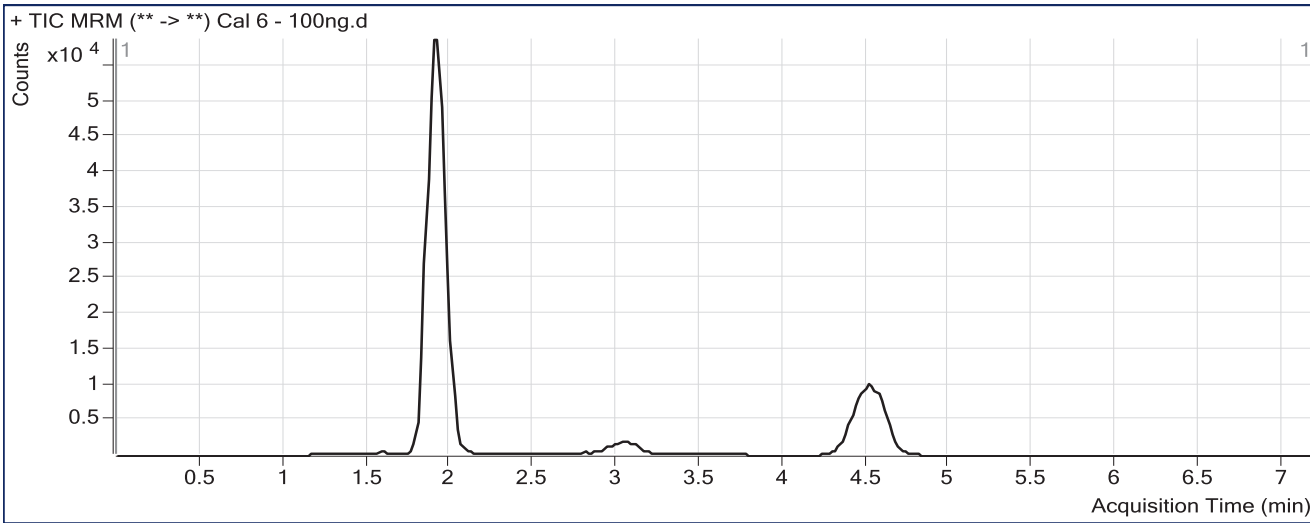
*BW*

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:26 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

**Analysis Info**

<b>Acq Time</b>	2019-03-01 15:51	<b>Data File</b>	Cal 6 - 100ng.d
<b>Sample Type</b>	Calibration	<b>Sample Name</b>	Cal 6 - 100ng
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	P1-G1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

**Sample Chromatogram**



**Results**

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-d3	1.915	128462	153420	0.8373	102.1509
THC-COOH	THC-COOH-d9	1.965	80713	50799	1.5889	101.2322
THC	THC-d3	4.532	57560	57807	0.9957	100.1472

# ISP FORENSICS - Cd'A Instrument # 62340

## Cannabinoids Analysis Report

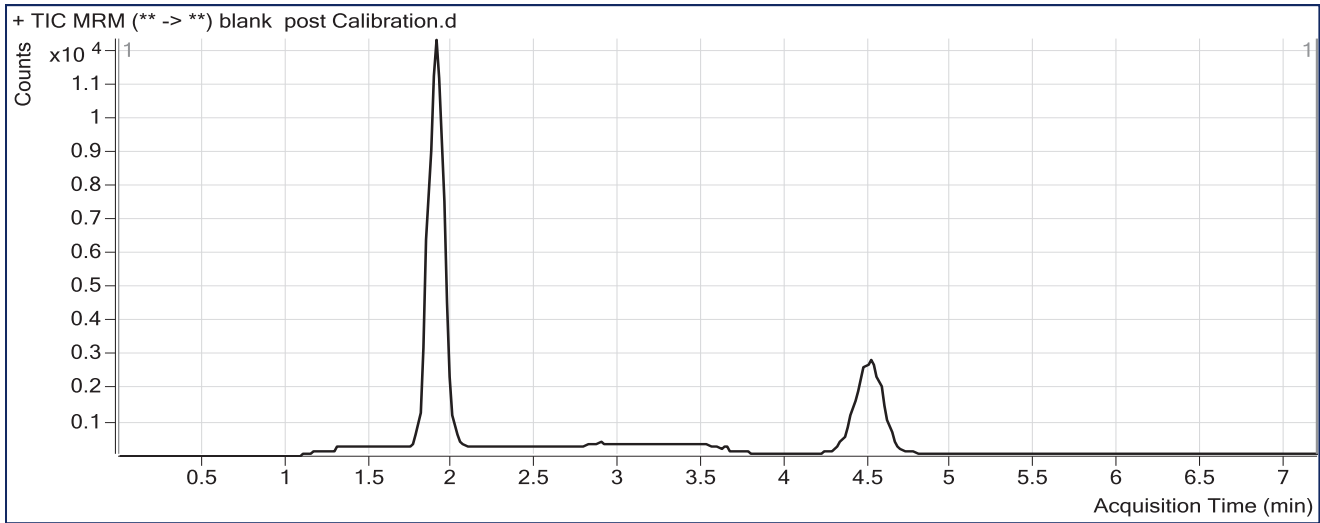
BW

<b>Batch Data Path</b>	D:\2019 Data\AM 27\03012019\QuantResults\cann quant 022719.batch.bin		
<b>Analysis Time</b>	3/1/2019 8:22 PM	<b>Analyst Name</b>	ISP Tox
<b>Report Time</b>	3/1/2019 8:26 PM	<b>Reporter Name</b>	ISP Tox
<b>Last Calib Update</b>	3/1/2019 8:22 PM	<b>Batch State</b>	Processed

### Analysis Info

<b>Acq Time</b>	2019-03-01 16:03	<b>Data File</b>	blank post Calibration.d
<b>Sample Type</b>	Sample	<b>Sample Name</b>	blank post Calibration
<b>Dilution</b>	1	<b>Acq Method</b>	AM 27 Quant THC 7-2017.m
<b>Position</b>	Vial 1	<b>Sample Info</b>	
<b>Inj Vol</b>	-1	<b>Comment</b>	AM 27 Cannabinoid Confirmation

### Sample Chromatogram





**Idaho State Police  
Forensic Services  
Toxicology Discipline**

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**Request for Departure from an Analytical Method**

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Date of Request

03/04/2019

Forensic Scientist

Britany Wylie

Analytical Method

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

Request

I am formally requesting a deviation to report the results from this run qualitatively due to the external control concentrations of THC and metabolites being above the 10ng/mL limit. A new control will be made for the next run. It is believed that the methanolic control had evaporated, causing the concentration to increase. To demonstrate this, the methanolic control was run with internal standard and the approximate concentration was calculated. The methanolic control was significantly higher than it should have been. That, along with the fact that the QC on the plate worked well, and the fact that the values obtained in the quant. run were very similar to what was seen in the screen run shows that the run was fine and that the high control was not from a problem with the run but the control itself.

**Discipline Leader Review**

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Departure approved

Comments:

Departure Not Approved

Comments:

*Celena Shrum*

Date: 03/04/19

Celena Shrum  
Toxicology Discipline Lead