REVIEWED
By Sarah Pickle at 9:07 am, Jan 07, 2019

TS

12/27/2018

Worklist: 2857

LAB_CASE	ITEM	TASK_ID	DESCRIPTION
M2018-5592	2	135380	AM 27 Blood THC Quant by LC-QQQ
M2018-6243	2	135372	AM 27 Blood THC Quant by LC-QQQ
P2018-3281	2	135373	AM 27 Blood THC Quant by LC-QQQ
P2018-3284	1	135374	AM 27 Blood THC Quant by LC-QQQ
P2018-3310	1	135375	AM 27 Blood THC Quant by LC-QQQ
P2018-3442	1	135376	AM 27 Blood THC Quant by LC-QQQ
P2018-3444	1	135377	AM 27 Blood THC Quant by LC-QQQ
P2018-3491	1	135378	AM 27 Blood THC Quant by LC-QQQ
P2018-3492	1	135379	AM 27 Blood THC Quant by LC-QQQ

TS

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

Extraction Date: 12/27/18 Analyst: Tamara Salazar
Plate lot#: 0539904 Plate Expiration: 09/10/19

Mobile phase A: 0.1% Formic Acid in LCMS Water **Mobile phase B:** 0.1% Formic acid in Acetonitrile
MTBE 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/urine (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 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\122718 THCQ wklst 2857 TS
Batch Name: THCQ 122718 TS
☒ 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: *Curves limited: THC-COOH 5-100*

TS

Idaho State Police Forensic Services

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

Analyst: Tamara Salazar
Extraction Date: 12/27/18
Worklist Number: 2857

Reagent	*Lot Number*	*Expiration Date*	*Date in Service*	*Date Out of Service*	*Initials*
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)	121418		12/14/18		
0.1% Formic Acid in Acetonitrile (Mobile Phase B)	181692		12/14/18		
Needle Rinse--75% LCMS MeOH in LCMS Water	122618		12/26/18		

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

Component	*Source*	*Source Lot Number*	*Expiration Date*
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:	02/08/19		

Blood External Control Solution (Lot: 102418)
100 ul of methanol external control solution was added to 9900 ul of blood.

Component	*Source*	*Source Lot Number*
Negative Blood	Lampire	18G207D7
Methanol External Control Solution		WS102418
Prepared:	10/24/18	
Prepared by:	Sarah Pickle	
Expires:	02/08/19	

0.1% Formic Acid in LCMS Water (Mobile Phase A) (Lot: 121418)

Component	*Source*	*Source Lot Number*
Formic Acid (LCMS Grade)	Fisher	095180B
Water (LCMS Grade)	Fisher	183905
Prepared:	12/14/18	
Prepared By:	Tamara Salzar	

0.1% Formic Acid in LCMS Water (Lot: 122718)
Used to add to the blood during the extraction process. Premade solvents in the lab were contaminated.

Component	*Source*	*Source Lot Number*
Formic Acid (LCMS Grade)	Fisher	095180B
Water (LCMS Grade)	Fisher	183905
Prepared:	12/27/18	
Prepared By:	Tamara Salzar	

Needle Rinse (75% LCMS MeOH in LCMS Water) (Lot: 122618)

Component	*Source*	*Source Lot Number*
MeOH (LCMS Grade)	Fisher	177145
Water (LCMS Grade)	Fisher	183905
Prepared:	12/26/18	
Prepared By:	Tamara Salazar	

TS

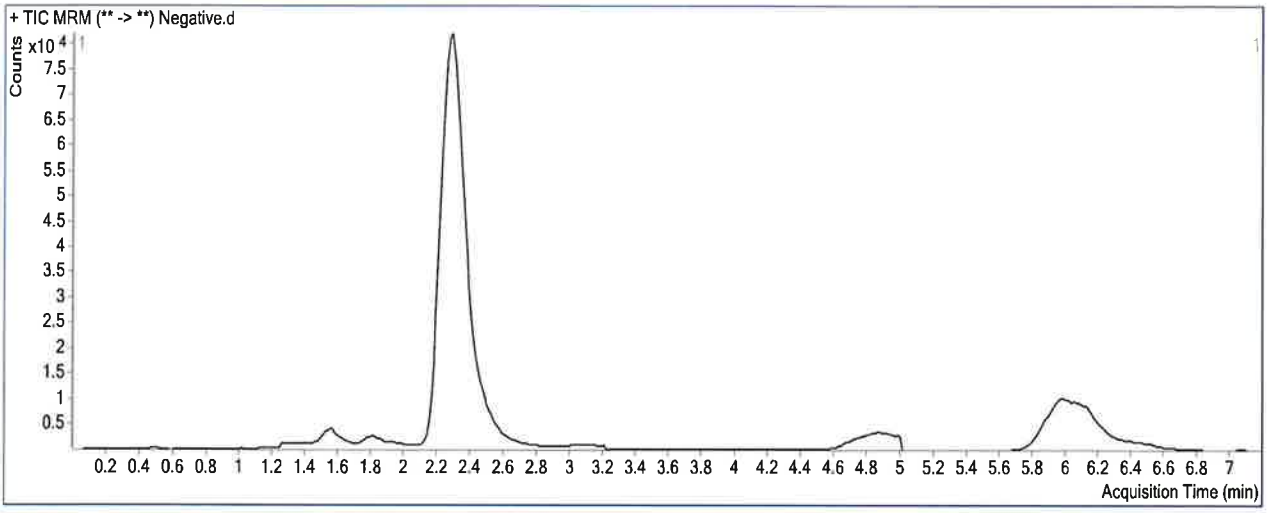
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:18 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 14:10	**Data File**	Negative.d
Sample Type	Sample	**Sample Name**	Negative
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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-COOH	THC-COOH-D9	2.259	7632	221035	0.0345	0.0752

TS

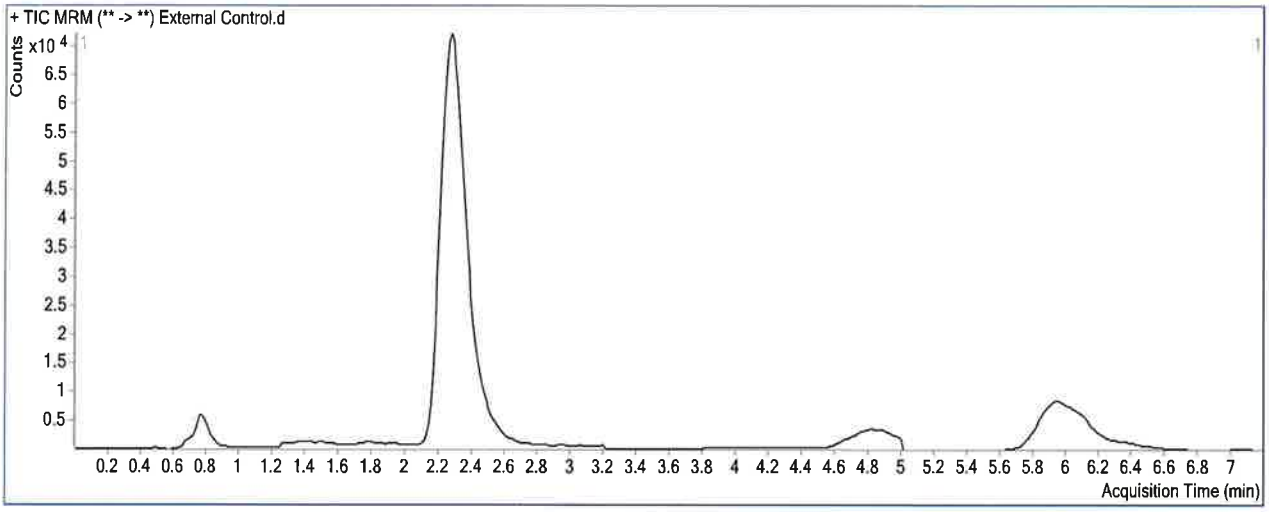
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:18 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 14:57	**Data File**	External Control.d
Sample Type	Sample	**Sample Name**	External Control
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-B2	**Sample Info**	
Inj Vol	-1	**Comment**	Lampire 18G207D7 + WS 102418

Sample Chromatogram



Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.279	50672	511668	0.0990	9.2716
THC-COOH	THC-COOH-D9	2.365	33463	185476	0.1804	7.9839
THC	THC-D3	6.025	12409	158766	0.0782	9.2328

TS

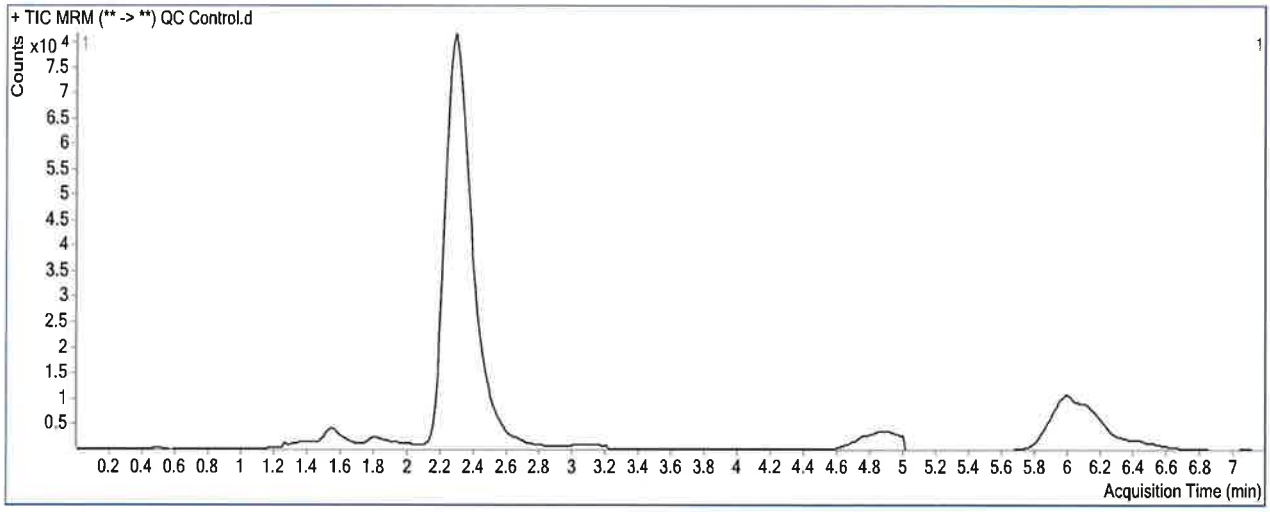
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:18 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 13:46	**Data File**	QC Control.d
Sample Type	Sample	**Sample Name**	QC Control
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-H1	**Sample Info**	
Inj Vol	-1	**Comment**	

Sample Chromatogram



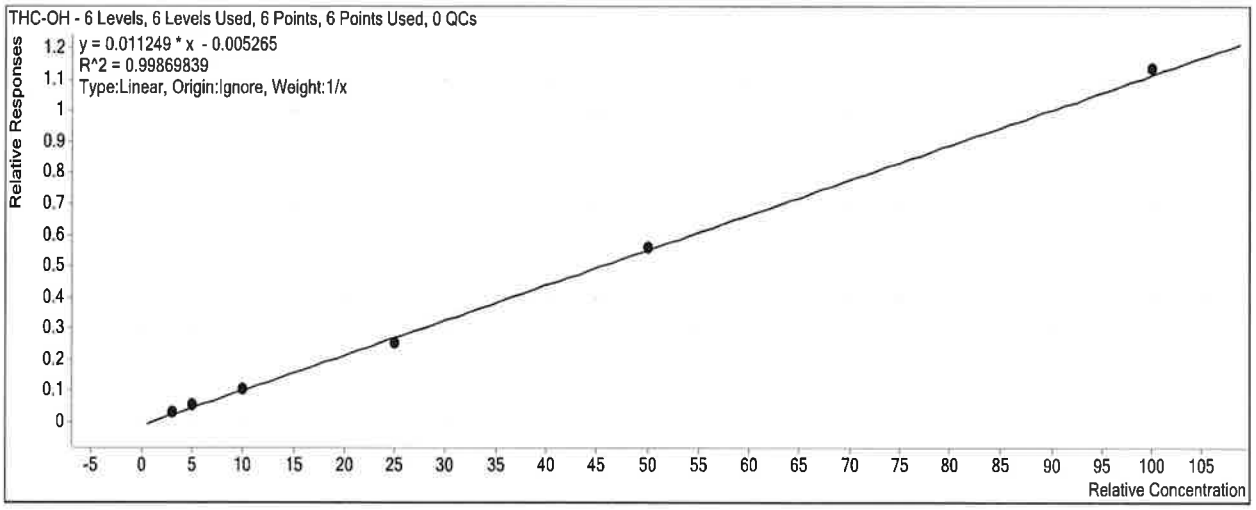
Results

Compound	ISTD Compound	RT	Response	ISTD Resp	Resp Ratio	Final Conc
THC-OH	THC-OH-D3	2.292	32026	617645	0.0519	5.0774
THC-COOH	THC-COOH-D9	2.392	45805	206071	0.2223	10.2531
THC	THC-D3	6.092	9222	228311	0.0404	4.6404

ISP Forensics
Calibration Curve Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Last Calib Update	1/7/2019 8:56 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	☑	3	3.1	104.5
Cal 2-5ng	2	☑	5	5.2	104.0
Cal 3-10ng	3	☑	10	9.7	96.9
Cal 4-25ng	4	☑	25	23.2	92.7
Cal 5-50ng	5	☑	50	50.2	100.4
Cal 6-100ng	6	☑	100	101.6	101.6

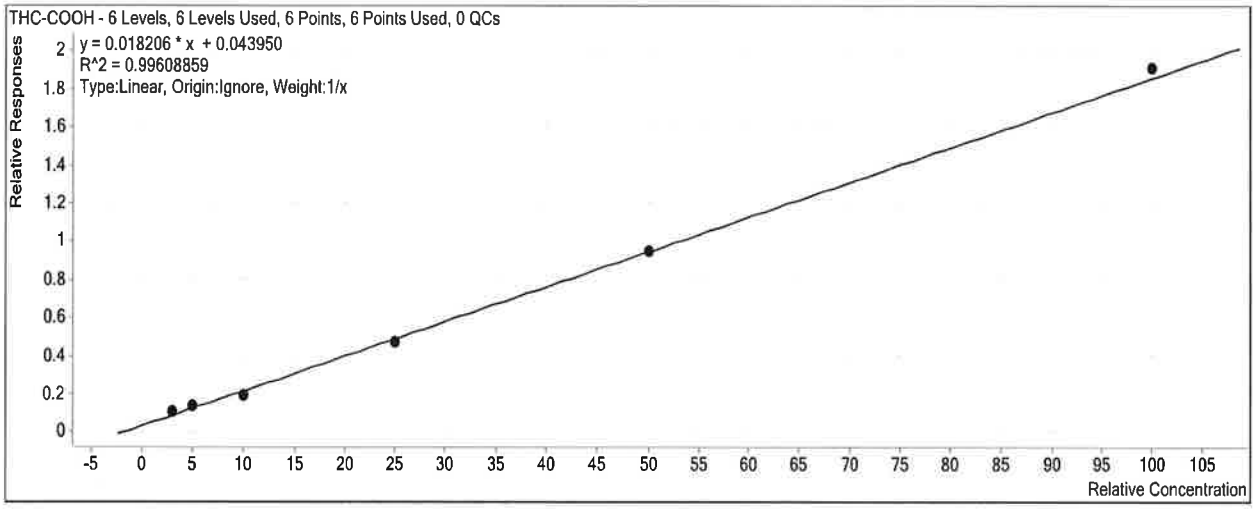
ISP Forensics
Calibration Curve Report

TS

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Last Calib Update	1/7/2019 8:56 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	☑	3	3.5	115.4
Cal 2-5ng	2	☑	5	5.3	105.9
Cal 3-10ng	3	☑	10	8.2	82.0
Cal 4-25ng	4	☑	25	23.7	94.7
Cal 5-50ng	5	☑	50	49.7	99.4
Cal 6-100ng	6	☑	100	102.7	102.7

TS

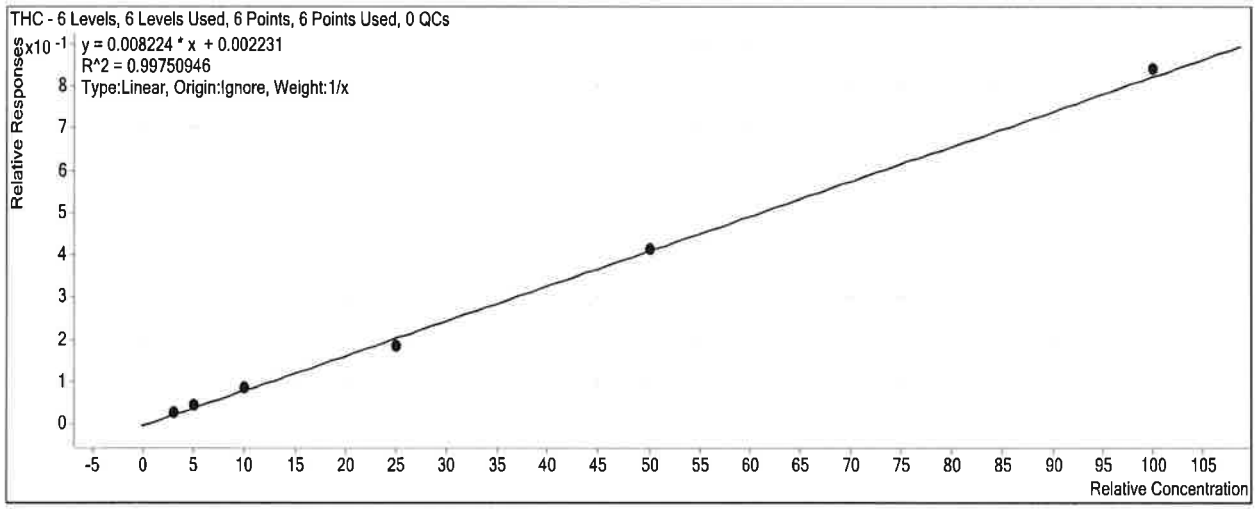
ISP Forensics
Calibration Curve Report

Batch Data Path C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin

Last Calib Update 1/7/2019 8:56 AM **Analyst Name** ISP TOX

Target Compound *THC*

Internal Standard *THC-D3*



Sample	Level	Enabled	Exp Conc	Final Conc	Accuracy
Cal 1-3ng	1	☑	3	3.1	103.9
Cal 2-5ng	2	☑	5	5.1	102.4
Cal 3-10ng	3	☑	10	10.2	102.1
Cal 4-25ng	4	☑	25	22.3	89.0
Cal 5-50ng	5	☑	50	50.3	100.5
Cal 6-100ng	6	☑	100	102.0	102.0

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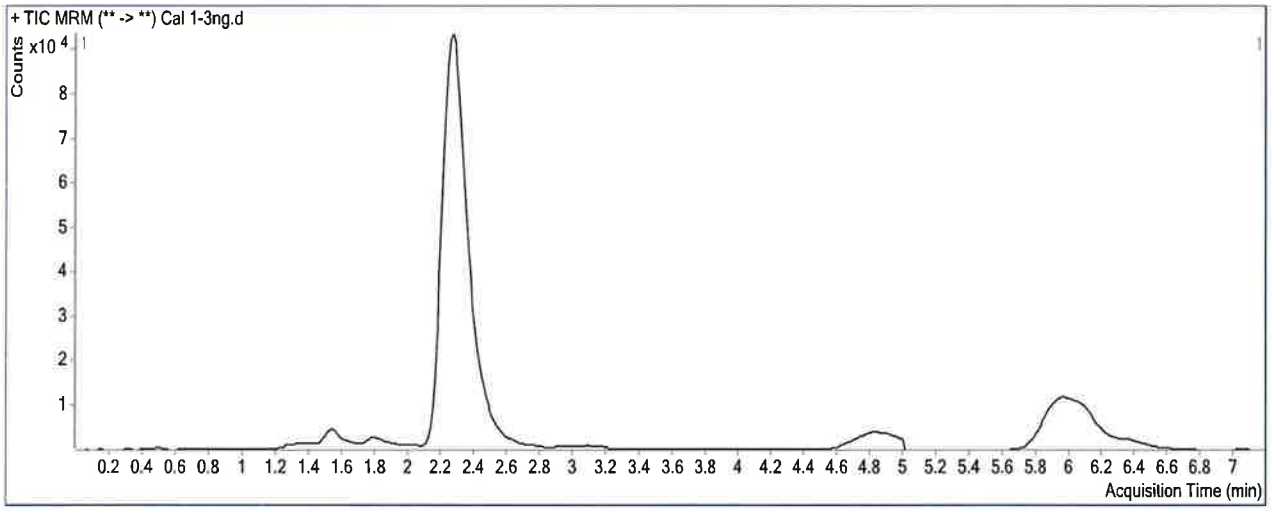
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:17 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 12:23	**Data File**	Cal 1-3ng.d
Sample Type	Calibration	**Sample Name**	Cal 1-3ng
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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	2.265	22002	733635	0.0300	3.1340
THC-COOH	THC-COOH-D9	2.365	25119	234843	0.1070	4.0017
THC	THC-D3	6.079	7052	253066	0.0279	3.1173

TS

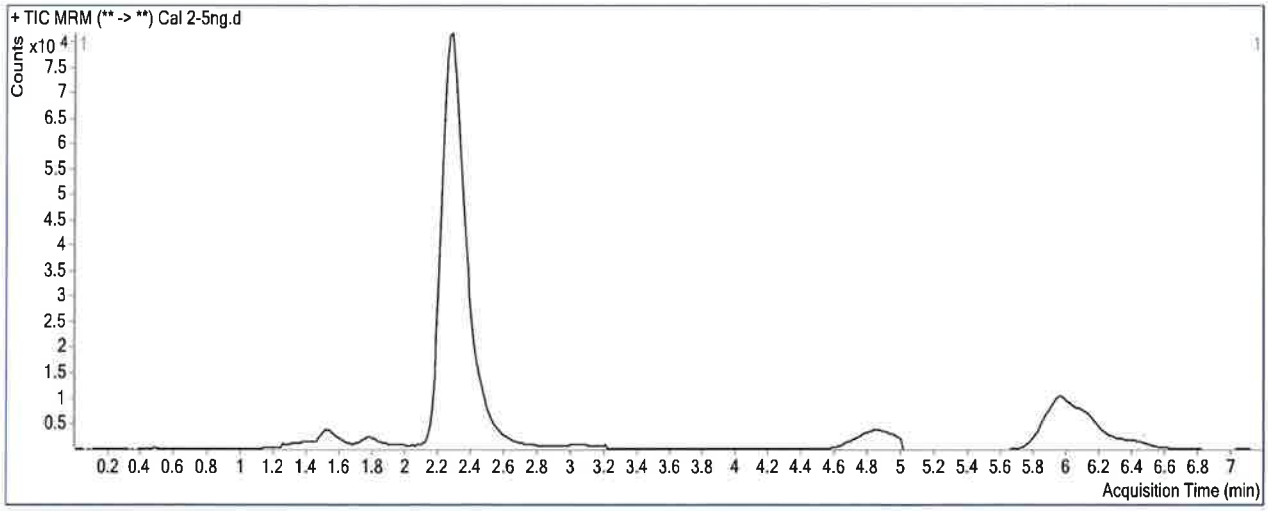
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:17 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 12:35	**Data File**	Cal 2-5ng.d
Sample Type	Calibration	**Sample Name**	Cal 2-5ng
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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	2.279	31387	589862	0.0532	5.1981
THC-COOH	THC-COOH-D9	2.379	26652	189907	0.1403	5.8114
THC	THC-D3	6.079	8985	202625	0.0443	5.1212

TS

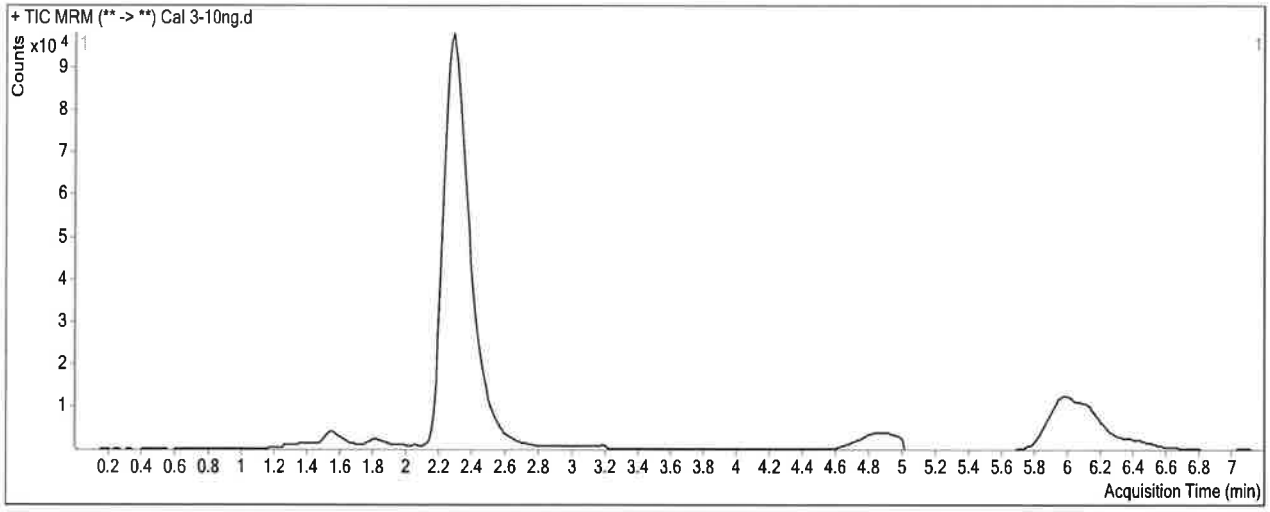
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:17 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 12:47	**Data File**	Cal 3-10ng.d
Sample Type	Calibration	**Sample Name**	Cal 3-10ng
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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	2.292	73848	712013	0.1037	9.6880
THC-COOH	THC-COOH-D9	2.392	44793	231811	0.1932	8.6783
THC	THC-D3	6.106	20658	239770	0.0862	10.2057

TS

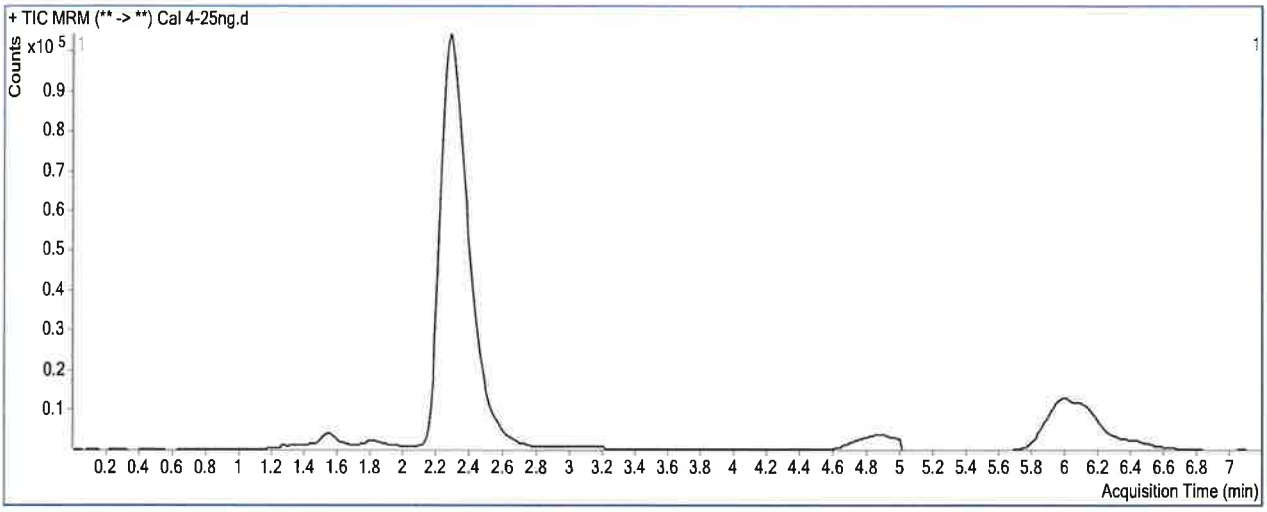
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:17 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 12:59	**Data File**	Cal 4-25ng.d
Sample Type	Calibration	**Sample Name**	Cal 4-25ng
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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	2.292	170115	666293	0.2553	23.1643
THC-COOH	THC-COOH-D9	2.392	102292	215382	0.4749	23.9497
THC	THC-D3	6.092	44827	241911	0.1853	22.2620

TS

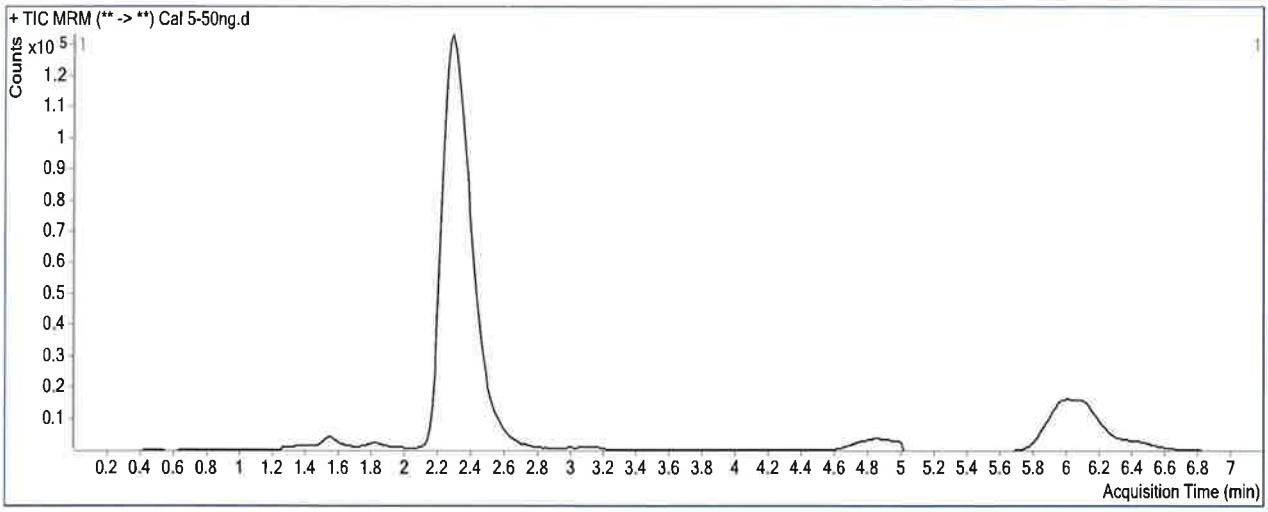
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:17 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 13:11	**Data File**	Cal 5-50ng.d
Sample Type	Calibration	**Sample Name**	Cal 5-50ng
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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	2.292	380907	680616	0.5597	50.2181
THC-COOH	THC-COOH-D9	2.379	207559	218799	0.9486	49.6287
THC	THC-D3	6.092	104092	250448	0.4156	50.2689

TS

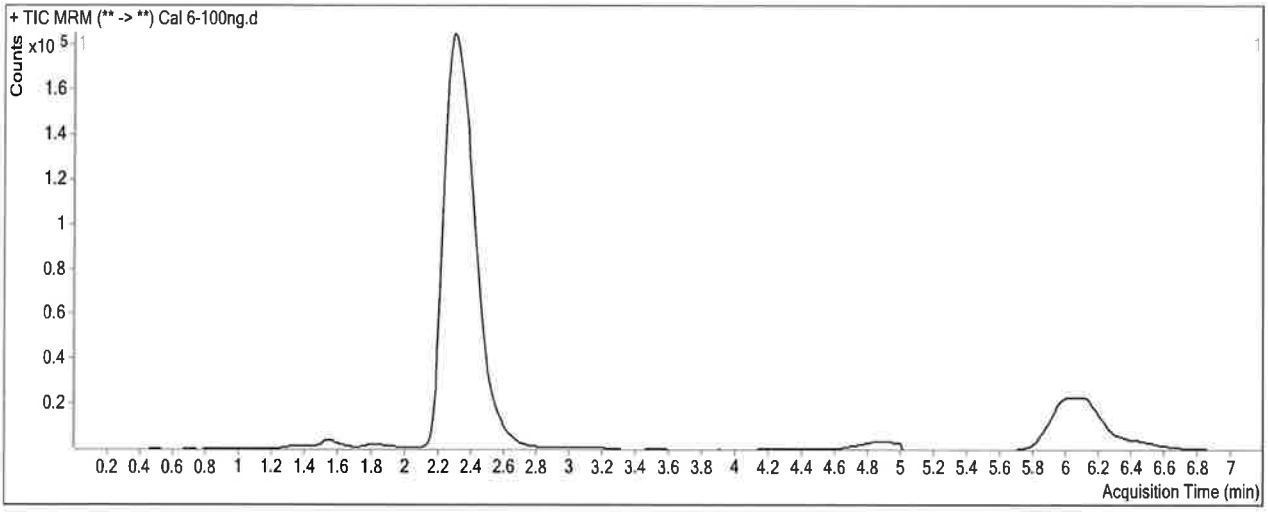
ISP FORENSICS - Pocatello Instrument # 59740
Cannabinoids Analysis Report

Batch Data Path	C:\MassHunter\Data\2018\THC Quant\122718 THCQ wklst 2857 TS\QuantResults\THCQ 122718 TS.batch.bin		
Analysis Time	1/4/2019 9:16 AM	**Analyst Name**	ISPUser
Report Time	1/4/2019 9:17 AM	**Reporter Name**	ISPUser
Last Calib Update	1/4/2019 9:16 AM	**Batch State**	Processed

Analysis Info

Acq Time	2018-12-27 13:22	**Data File**	Cal 6-100ng.d
Sample Type	Calibration	**Sample Name**	Cal 6-100ng
Dilution	1	**Acq Method**	THC Quant 051517 workingmm.m
Position	P1-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	2.292	775220	681436	1.1376	101.5975
THC-COOH	THC-COOH-D9	2.392	417828	218365	1.9134	101.9318
THC	THC-D3	6.119	209717	249293	0.8412	102.0250