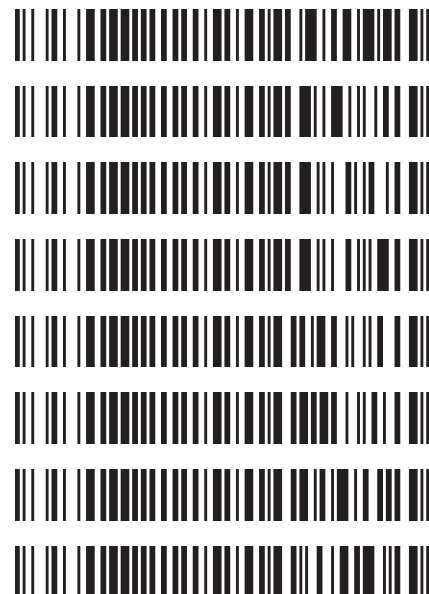


Worklist: 3022

| <u>LAB_CASE</u> | <u>ITEM</u> | <u>TASK_ID</u> | <u>DESCRIPTION</u> |
|-----------------|-------------|----------------|---------------------------------|
| P2019-0553 | 1 | 143951 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0600 | 2 | 143952 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0604 | 2 | 143953 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0605 | 1 | 143954 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0642 | 1 | 143955 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0669 | 1 | 143956 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0696 | 1 | 143957 | AM 27 Blood THC Quant by LC-QQQ |
| P2019-0697 | 1 | 143958 | AM 27 Blood THC Quant by LC-QQQ |



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

Extraction Date: 03/08/2019

Analyst: Celena Shrum

Plate lot#: 0539904

Plate Expiration: 09/10/2019

Mobile phase A: 0.1% Formic Acid in LCMS Water
MTBE

Mobile phase B: 0.1% Formic acid in Acetonitrile
Hexane

Blank Blood Lot: 445283-1

Column: UCT Selectra DA 100 x 2.1mm 3um

LCMS-QQQ ID: ~~069910~~ 59740_{CS}

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.

Analytic:

- 1. Remove standards, plate, controls, and samples from cold storage. Allow to reach room temperature.
- 2. Pipette **1000 µL 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 **500 µL 0.1% formic acid in LCMS water** in wells of analytical plate.
- 5. Place on shaking incubator at ambient temp., 900rpm for 15 minutes.
- 6. Transfer **800 µL 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 85-95 PSI- Selector to the right) Manifold ID: 067104
- 8. Wait 5 minutes.
- 9. Add **2.25 mL MTBE. (Add in 3 increments of 750 µL)**
- 10. Wait 5 minutes.
- 11. Apply positive pressure for approx. 15 seconds. *(12-15 PSI- Selector to the left).*
- 12. Add **2.25 mL Hexane. (Add in 3 increments of 750 µL)**
- 13. Wait 5 minutes.
- 14. Apply positive pressure for approx. 15 seconds. *(12-15 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 **100 µL 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\2019\AM 27\030819 worklist 3022 CS reinject
Batch Name: am 27 worklist 3022
- 2. Make any necessary integration changes, Curve weighting of Linear 1/x with r² 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: Samples were injected on 03/08/19 but there was a leak in the column end and it caused the retention times to shift. The leak was discovered and fixed on 03/11/19 and the samples were all reinjected with no further issues.

Carboxy-THC curve range limited to 10-100 ng/mL.



Idaho State Police Forensic Services

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

Analyst: Celena Shrum
Extraction Date: 03/08/2019
Worklist Number: 3022

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 1 ug/mL

| Component | Source | Source Lot Number | Expiration Date |
|-----------------|----------------|-------------------|-----------------|
| Methanol (LCMS) | Fisher | 184782 | |
| THC | Cerilliant | FE04231406 | 04/30/2019 |
| C-THC | Cerilliant | FE07171501 | 09/31/2020 |
| THC-OH | Cerilliant | FN01121503 | 01/31/2020 |
| Prepared: | 02/04/2019 | | |
| Prepared By: | Tamara Salazar | | |
| Expires: | 04/30/19 | | |

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.

| Component | Source | Source Lot Number |
|------------------------------------|----------------|-------------------|
| Negative Blood | Hemostat | 445283-1 |
| Methanol External Control Solution | - | WS020419 |
| Prepared: | 02/04/19 | |
| Prepared by: | Tamara Salazar | |
| Expires: | 04/30/19 | |

ISP FORENSICS - Pocatello Instrument # 59740

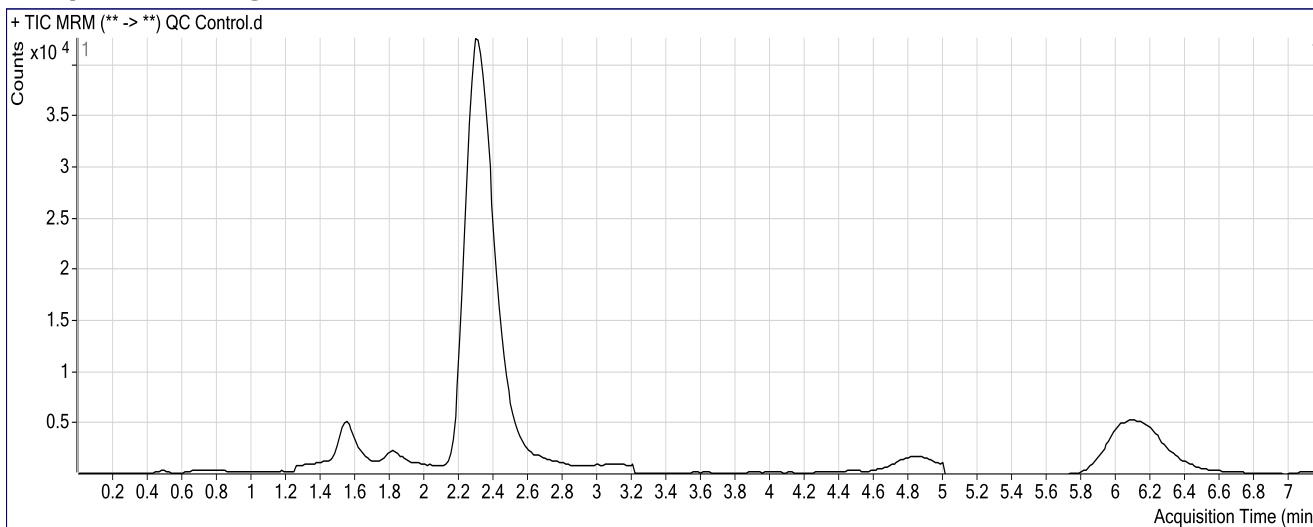
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:58 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 15:10 | Data File | QC Control.d |
| Sample Type | QC | Sample Name | QC Control |
| 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 | 2.305 | 16451 | 315275 | 0.0522 | 5.5600 |
| THC-COOH | THC-COOH-D9 | 2.406 | 29863 | 124917 | 0.2391 | 10.8821 |
| THC | THC-D3 | 6.132 | 4315 | 110046 | 0.0392 | 4.8124 |

ISP FORENSICS - Pocatello Instrument # 59740

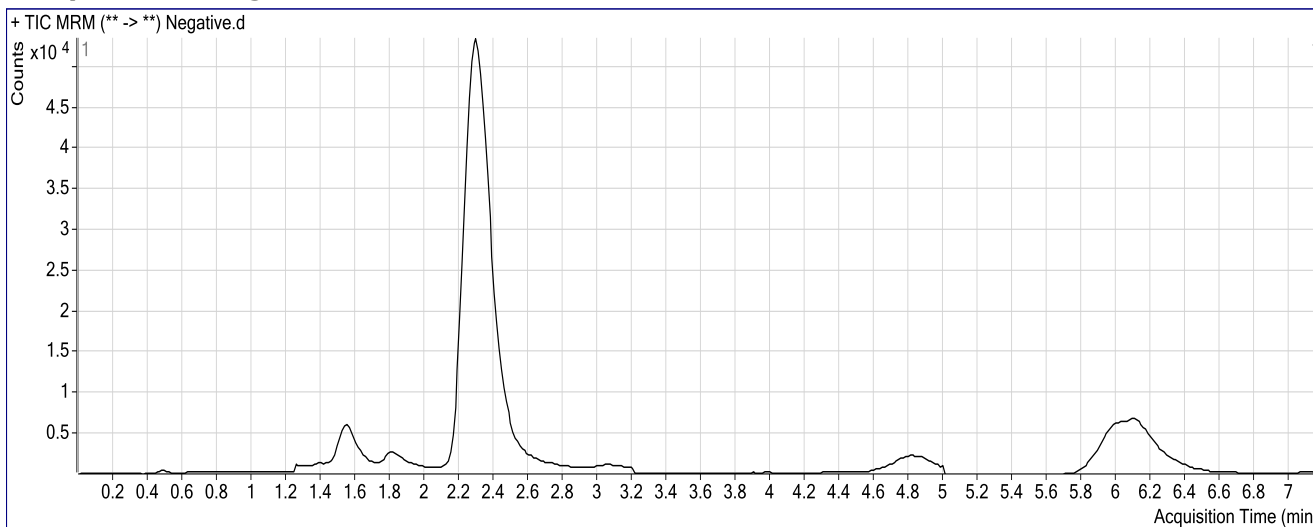
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:58 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 15:33 | Data File | Negative.d |
| Sample Type | Sample | Sample Name | Negative |
| Dilution | 1 | Acq Method | THC Quant 051517 workingmm.m |
| Position | P1-A8 | 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 | 2.446 | 11134 | 161143 | 0.0691 | 1.4686 <10 _{CS} |

ISP FORENSICS - Pocatello Instrument # 59740

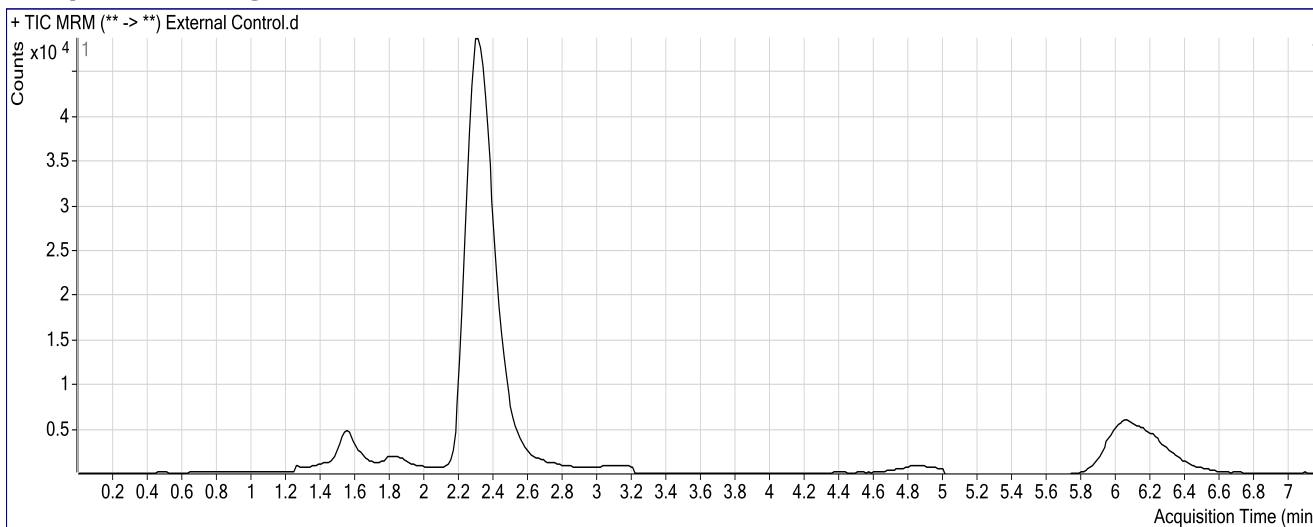
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:58 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|-------------------------------|
| Acq Time | 2019-03-11 15:57 | Data File | External Control.d |
| Sample Type | Sample | Sample Name | External Control |
| Dilution | 1 | Acq Method | THC Quant 051517 workingmm.m |
| Position | P1-B8 | Sample Info | |
| Inj Vol | -1 | Comment | Hemostate 445283-1 + WS020419 |

Sample Chromatogram



Results

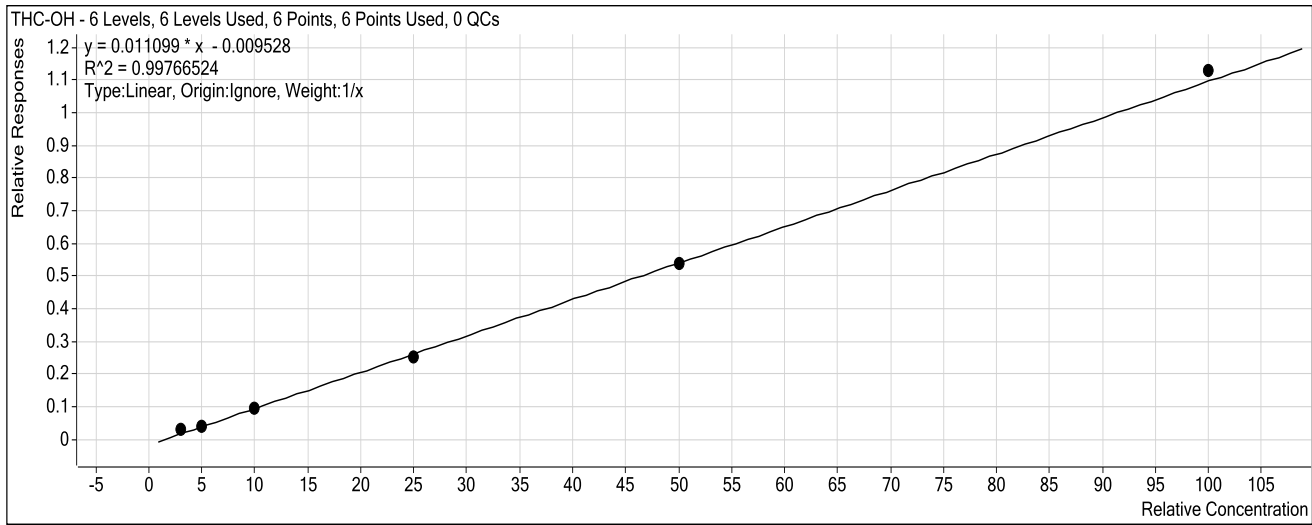
| Compound | ISTD Compound | RT | Response | ISTD Resp | Resp Ratio | Final Conc |
|----------|---------------|-------|----------|-----------|------------|------------|
| THC-OH | THC-OH-D3 | 2.305 | 31380 | 347370 | 0.0903 | 8.9978 |
| THC-COOH | THC-COOH-D9 | 2.406 | 30379 | 141302 | 0.2150 | 9.5493 |
| THC | THC-D3 | 6.132 | 8408 | 118647 | 0.0709 | 8.3695 |

cg

ISP Forensics Calibration Curve Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.bin
Last Calib Update 3/12/2019 8:55 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 | 3.5 | 118.3 |
| Cal 2-5ng | 2 | <input checked="" type="checkbox"/> | 5 | 4.6 | 92.7 |
| Cal 3-10ng | 3 | <input checked="" type="checkbox"/> | 10 | 9.4 | 93.7 |
| Cal 4-25ng | 4 | <input checked="" type="checkbox"/> | 25 | 23.6 | 94.2 |
| Cal 5-50ng | 5 | <input checked="" type="checkbox"/> | 50 | 49.2 | 98.5 |
| Cal 6-100ng | 6 | <input checked="" type="checkbox"/> | 100 | 102.7 | 102.7 |

CS

ISP Forensics Calibration Curve Report

Batch Data Path

C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.bin

Last Calib Update

3/12/2019 8:55 AM

Analyst Name

ISP TOX

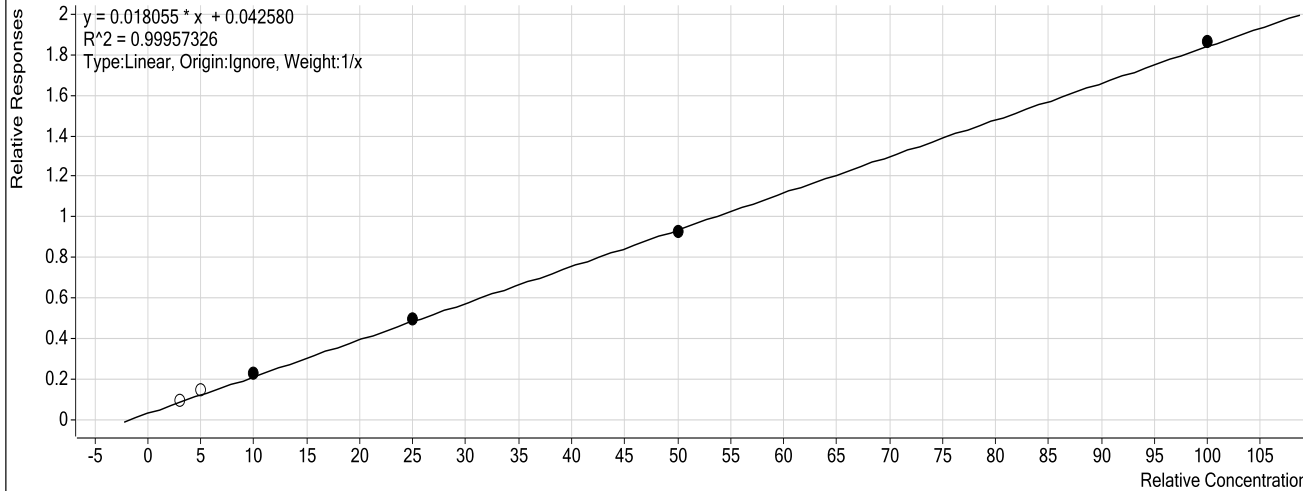
Target Compound

THC-COOH

Internal Standard

THC-COOH-D9

THC-COOH - 6 Levels, 4 Levels Used, 6 Points, 4 Points Used, 0 QCs

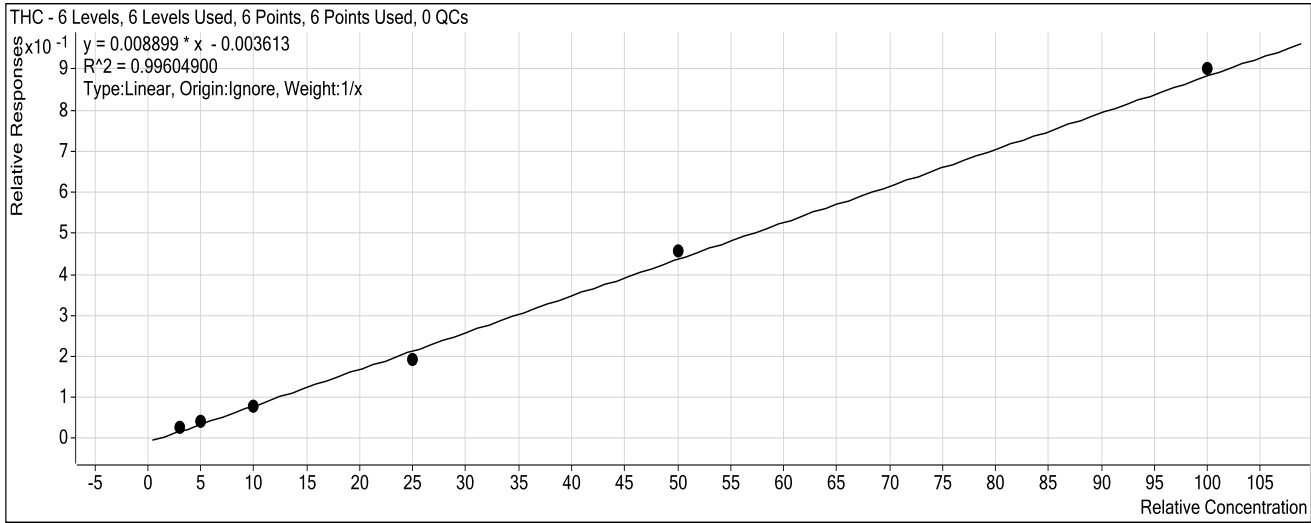


| Sample | Level | Enabled | Exp Conc | Final Conc | Accuracy |
|-------------|-------|-------------------------------------|----------|------------|----------|
| Cal 1-3ng | 1 | <input type="checkbox"/> | 3 | 2.8 | 93.8 |
| Cal 2-5ng | 2 | <input type="checkbox"/> | 5 | 5.6 | 112.2 |
| Cal 3-10ng | 3 | <input checked="" type="checkbox"/> | 10 | 10.1 | 101.5 |
| Cal 4-25ng | 4 | <input checked="" type="checkbox"/> | 25 | 24.9 | 99.8 |
| Cal 5-50ng | 5 | <input checked="" type="checkbox"/> | 50 | 48.9 | 97.7 |
| Cal 6-100ng | 6 | <input checked="" type="checkbox"/> | 100 | 101.0 | 101.0 |

ISP Forensics Calibration Curve Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.bin
Last Calib Update 3/12/2019 8:55 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 | 3.4 | 114.4 |
| Cal 2-5ng | 2 | <input checked="" type="checkbox"/> | 5 | 5.0 | 100.1 |
| Cal 3-10ng | 3 | <input checked="" type="checkbox"/> | 10 | 9.3 | 92.7 |
| Cal 4-25ng | 4 | <input checked="" type="checkbox"/> | 25 | 22.0 | 87.9 |
| Cal 5-50ng | 5 | <input checked="" type="checkbox"/> | 50 | 51.6 | 103.1 |
| Cal 6-100ng | 6 | <input checked="" type="checkbox"/> | 100 | 101.8 | 101.8 |

ISP FORENSICS - Pocatello Instrument # 59740

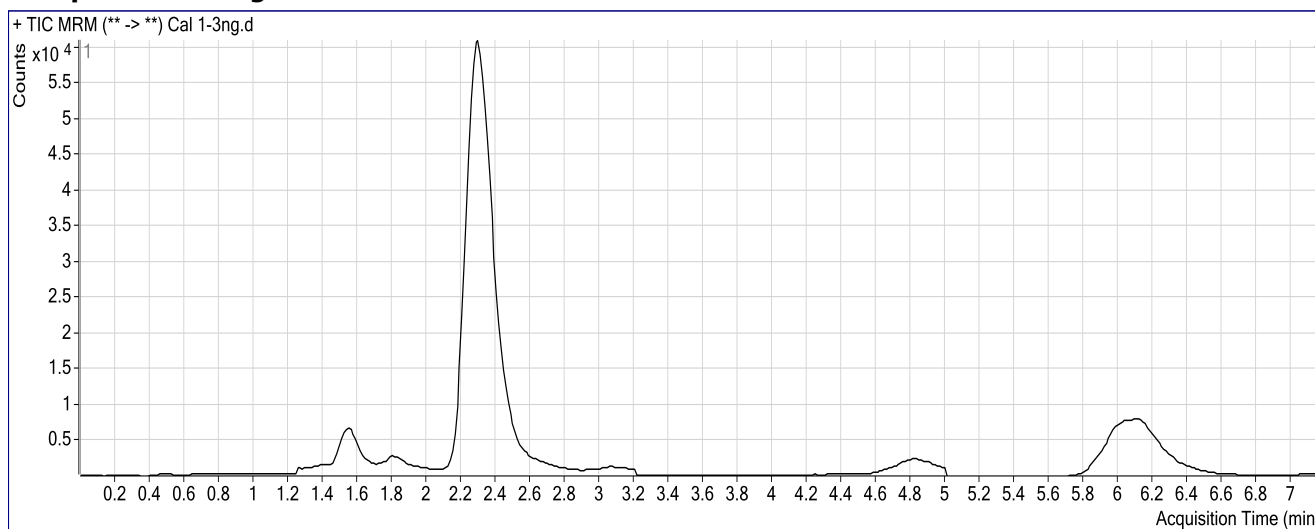
Cannabinoids Analysis Report

Batch Data Path C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b
Analysis Time 3/12/2019 8:55 AM **Analyst Name** datastor
Report Time 3/12/2019 8:57 AM **Reporter Name** datastor
Last Calib Update 3/12/2019 8:55 AM **Batch State** Processed

Analysis Info

Acq Time 2019-03-11 13:47 **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-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 | 2.292 | 13679 | 458120 | 0.0299 | 3.5488 |
| THC-COOH | THC-COOH-D9 | 2.406 | 17099 | 183132 | 0.0934 | 2.8131 |
| THC | THC-D3 | 6.172 | 4520 | 167898 | 0.0269 | 3.4312 |

ISP FORENSICS - Pocatello Instrument # 59740

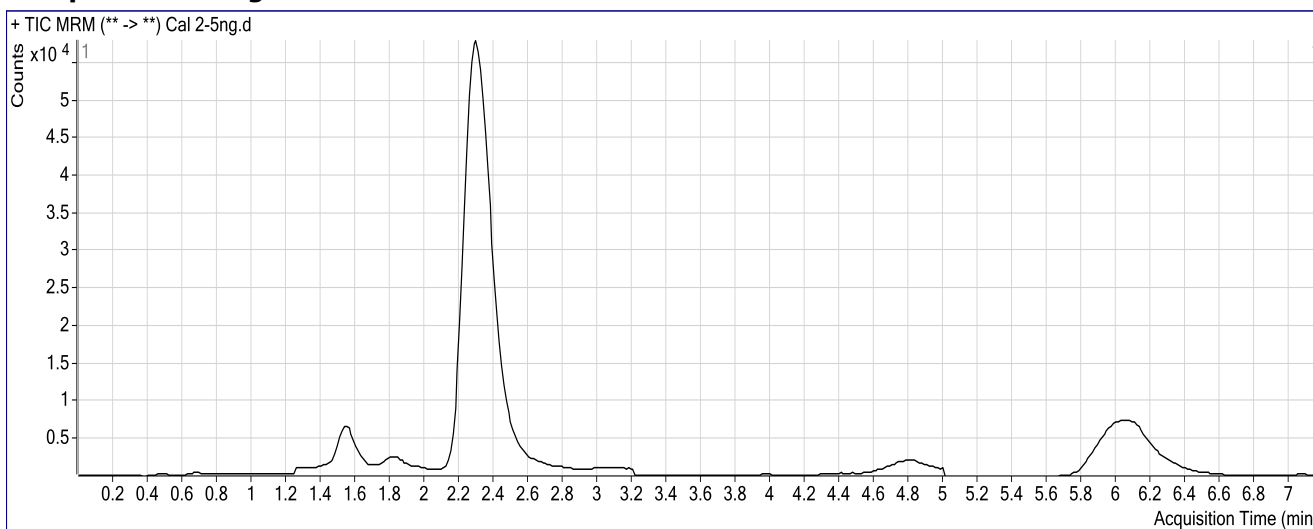
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:57 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 13:59 | 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-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 | 2.292 | 18083 | 431704 | 0.0419 | 4.6325 |
| THC-COOH | THC-COOH-D9 | 2.392 | 24829 | 172536 | 0.1439 | 5.6119 |
| THC | THC-D3 | 6.092 | 6253 | 152739 | 0.0409 | 5.0062 |

ISP FORENSICS - Pocatello Instrument # 59740

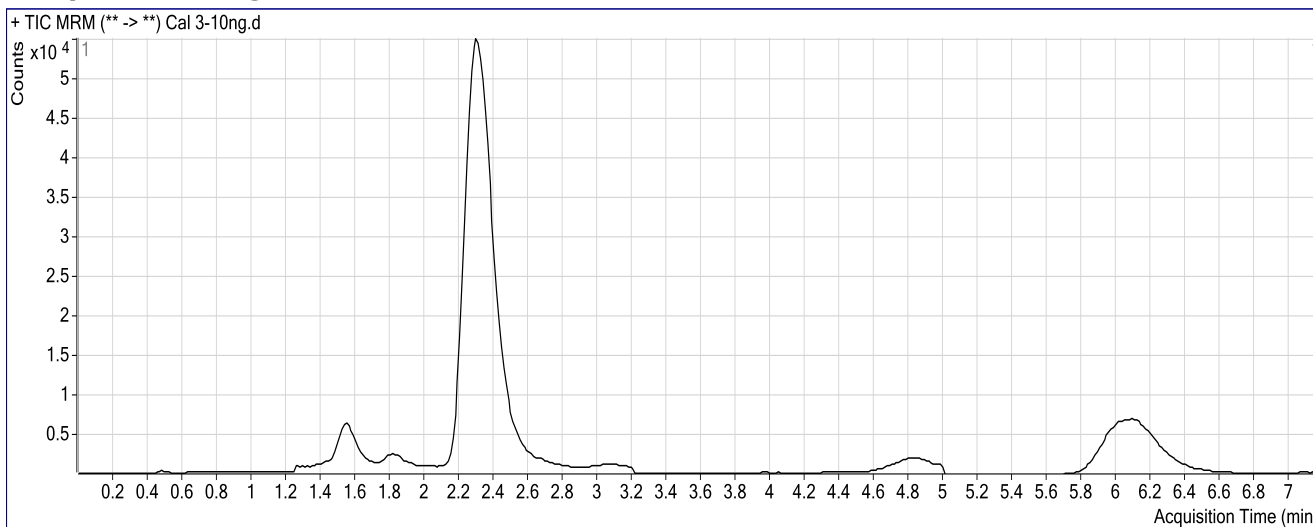
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:57 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 14:11 | 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-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 | 2.292 | 36858 | 390261 | 0.0944 | 9.3681 |
| THC-COOH | THC-COOH-D9 | 2.392 | 35553 | 157476 | 0.2258 | 10.1462 |
| THC | THC-D3 | 6.119 | 11111 | 140780 | 0.0789 | 9.2750 |

ISP FORENSICS - Pocatello Instrument # 59740

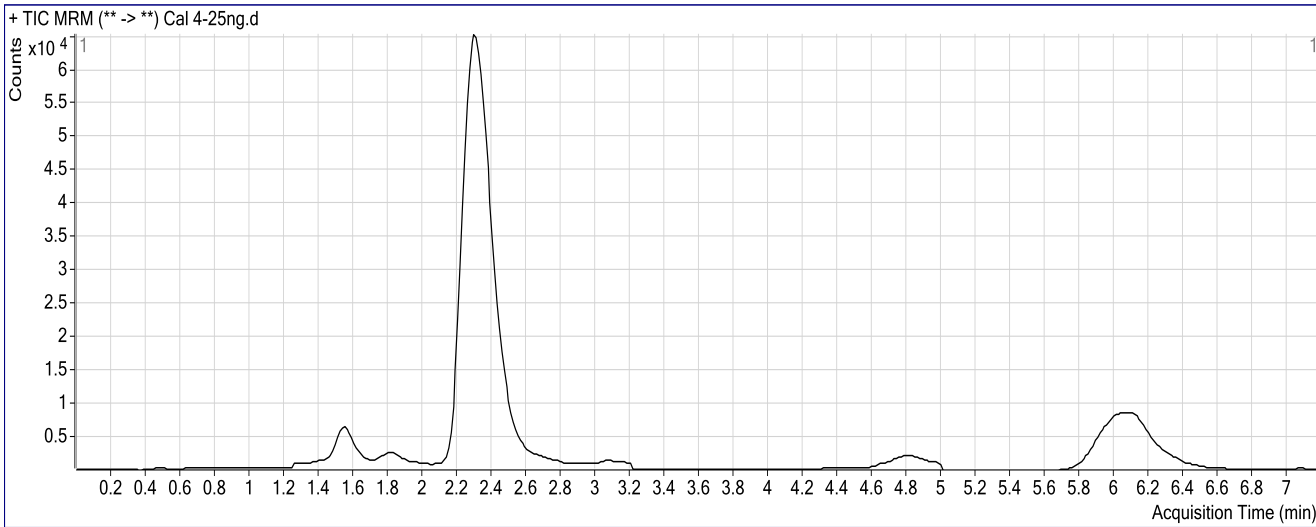
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:57 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 14:22 | 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-E7 | 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 | 101208 | 401648 | 0.2520 | 23.5624 |
| THC-COOH | THC-COOH-D9 | 2.392 | 77336 | 156917 | 0.4928 | 24.9384 |
| THC | THC-D3 | 6.106 | 28604 | 149081 | 0.1919 | 21.9664 |

ISP FORENSICS - Pocatello Instrument # 59740

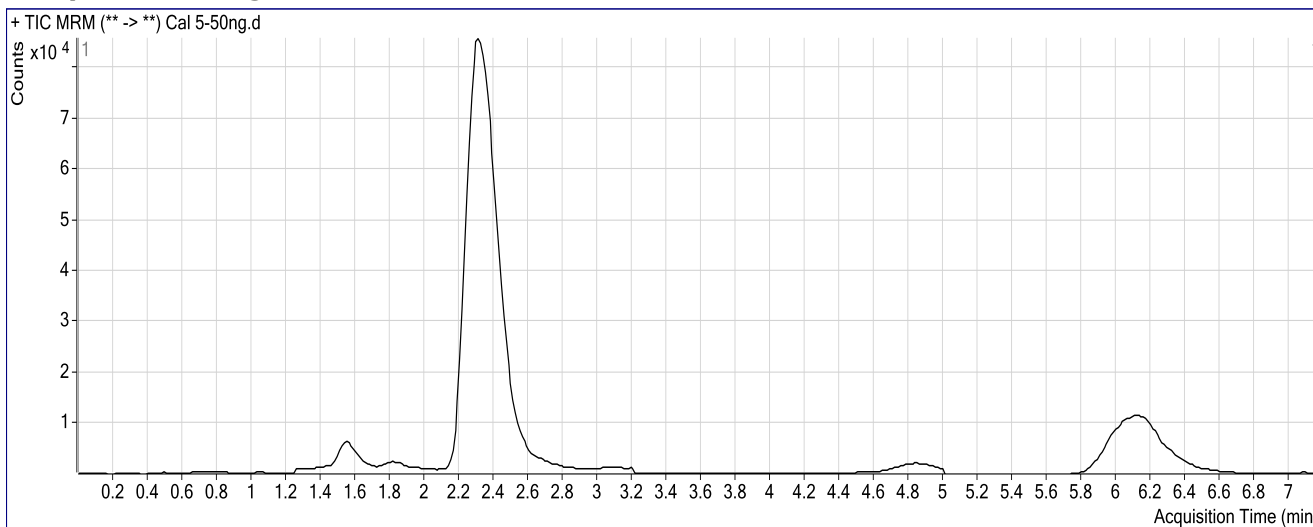
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:57 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 14:34 | 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-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 | 2.305 | 228312 | 425207 | 0.5369 | 49.2375 |
| THC-COOH | THC-COOH-D9 | 2.406 | 151814 | 164137 | 0.9249 | 48.8693 |
| THC | THC-D3 | 6.172 | 67827 | 148975 | 0.4553 | 51.5672 |

ISP FORENSICS - Pocatello Instrument # 59740

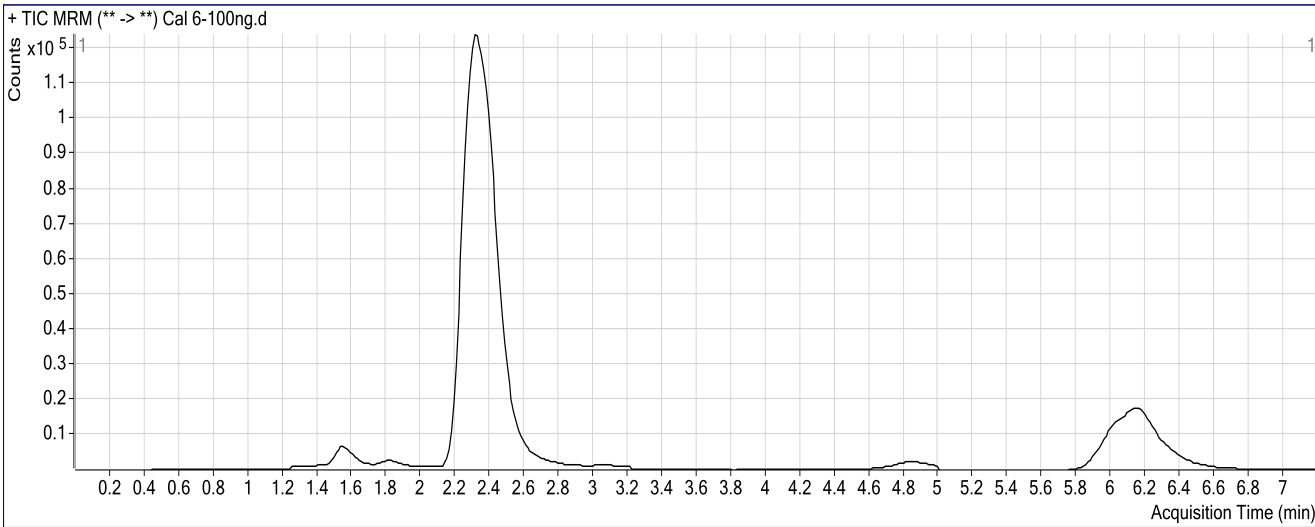
Cannabinoids Analysis Report

| | | | |
|--------------------------|---|----------------------|-----------|
| Batch Data Path | C:\MassHunter\Data\2019\AM 27\030819 worklist 3022 CS reinject\QuantResults\am 27 worklist 3022.batch.b | | |
| Analysis Time | 3/12/2019 8:55 AM | Analyst Name | datastor |
| Report Time | 3/12/2019 8:58 AM | Reporter Name | datastor |
| Last Calib Update | 3/12/2019 8:55 AM | Batch State | Processed |

Analysis Info

| | | | |
|--------------------|------------------|--------------------|------------------------------|
| Acq Time | 2019-03-11 14:46 | 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-G7 | 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 | 490357 | 434038 | 1.1298 | 102.6506 |
| THC-COOH | THC-COOH-D9 | 2.406 | 314170 | 168277 | 1.8670 | 101.0461 |
| THC | THC-D3 | 6.146 | 145517 | 161344 | 0.9019 | 101.7540 |