

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 23, 2017

Blake Ford

Extraction Oil & Gas

570 17th St. Suite 550

Denver, CO 80202

RE: TC Mosier Hill 2-9-11 Release

Enclosed are the results of analyses for samples received by Summit Scientific on 10/16/17 14:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
Laboratory Manager



Extraction Oil & Gas
570 17th St. Suite 550
Denver CO, 80202

Project: TC Mosier Hill 2-9-11 Release

Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------------------|---------------|--------|----------------|----------------|
| TC Mosier - Spill Area | 1710170-01 | Soil | 10/16/17 11:30 | 10/16/17 14:50 |

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Summit Scientific

1710170

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933

Page 1 of 1

| | | | | |
|-----------------|-----------------------------|------|------------------|-------------------------------|
| Client: | Extraction Oil & Gas | | Project Manager: | Blake Ford |
| Address: | 370 17th Street, Suite 5300 | | E-Mail: | bford@extractionog.com |
| City/State/Zip: | Denver, CO 80202 | | Project Name: | TC Mosier Hill 2-9-11 Release |
| Phone: | 970-778-5956 | Fax: | | |
| Sampler Name: | Blake Ford | | Project Number: | |

| ID | Sample Description | Date Sampled | Time Sampled | Depth of Sample | # of containers | Preservative | | | | Matrix | | | | Analysis Requested | | | | | | | | Special Instructions | | |
|----|----------------------|--------------|--------------|-----------------|-----------------|--------------|------|------|-----------------|-------------|------|----------------|-----------------|--------------------|-----|------|--------|-----------|------|--|--|----------------------|--|--|
| | | | | | | HCl | HNO3 | None | Other (Specify) | Groundwater | Soil | Air-Canister # | Other (Specify) | BTEX/GRO | DRO | PAHs | Metals | EC/SAR/pH | BTEX | | | | | |
| 1 | TC Mosier-Spill Area | 10/16/17 | 1130 | 1" | 2 | | | x | | | x | | | | x | | | | x | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|------------------|------------|--------------|------------|---|--------|
| Relinquished by: | Date/Time: | Received by: | Date/Time: | Turn Around Time (Check) Same Day — 72 hours — 24 hours — Standard <input checked="" type="checkbox"/> 48 hours — Sample Integrity: Temperature Upon Receipt: 6.7 Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No | Notes: |
| Relinquished by: | Date/Time: | Received by: | Date/Time: | | |
| Relinquished by: | Date/Time: | Received by: | Date/Time: | | |

1710170

Sample Receipt Checklist

S2 Work Order: _____

Client: EXTRACTION OUG Client Project ID: TL MOSIER HILL 2-9-11 RELEASEShipped Via: P.U.
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: _____

Matrix (check all that apply): Air X Soil/Solid Water Other: _____
(Describe)

| | | | | | |
|-----------|-----|--|--|--|--|
| Cooler ID | | | | | |
| Temp (°C) | 6.7 | | | | |

Thermometer ID: 61857155-K

| | Yes | No | N/A | Comments (if any) |
|---|-----|----|-----|-------------------|
| If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ? | | | | |
| NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. | X | | | |
| Were all samples received intact ⁽¹⁾ ? | Y | | | |
| Was adequate sample volume provided ⁽¹⁾ ? | Y | | | |
| If custody seals are present, are they intact ⁽¹⁾ ? | | | Y | |
| Are short holding time analytes or samples with HTs due within 48 hours present? | | | Y | |
| Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ? | X | | | |
| Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ? | X | | | |
| Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ? | X | | | |
| Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ? | X | | | |
| For volatiles in water – is there headspace present? If yes, contact client and note in narrative. | | | X | |
| Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? | | | X | |
| Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect | | | | |
| If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? | | | X | |
| Record the pH in Comments. | | | | |
| If dissolved metals are requested, were samples field filtered? | | | X | |
| Additional Comments (if any): | | | | |

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.Muri P.
Custodian Printed Name10-16-17
Signature or Initials of Custodian16:45
Date/Time



Extraction Oil & Gas
570 17th St. Suite 550
Denver CO, 80202

Project: TC Mosier Hill 2-9-11 Release
Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

TC Mosier - Spill Area
1710170-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/16/17 11:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Benzene | ND | 0.0020 | mg/kg | 1 | 1710175 | 10/17/17 | 10/18/17 | EPA 8260B | |
| Toluene | ND | 0.0050 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.0050 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.0050 | " | " | " | " | " | " | |
| Gasoline Range Hydrocarbons | ND | 0.50 | " | " | " | " | " | " | |

Date Sampled: **10/16/17 11:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 | | 114 % | 23-173 | | " | " | " | " | |
| Surrogate: Toluene-d8 | | 97.4 % | 20-170 | | " | " | " | " | |
| Surrogate: 4-Bromofluorobenzene | | 103 % | 21-167 | | " | " | " | " | |

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **10/16/17 11:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|-------------|-----------------|-----------|----------|---------|----------|----------|-------------------------------|-------|
| Calcium | 604 | 10.5 | mg/kg dry | 1 | 1710165 | 10/19/17 | 10/19/17 | EPA 6020/Mod. USDA60 6(2, 3A) | |
| Magnesium | 135 | 5.27 | " | " | " | " | " | " | |
| Sodium | 370 | 5.27 | " | " | " | " | " | " | |
| Sodium Adsorption Ratio | 3.54 | | units | " | 1710225 | 10/20/17 | 10/20/17 | " | |

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/16/17 11:30**

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|-------------|-----------------|----------|----------|---------|----------|----------|---------------|-------|
| % Solids | 94.9 | | % | 1 | 1710162 | 10/17/17 | 10/18/17 | % calculation | |
| pH | 9.61 | 0.100 | pH Units | " | 1710163 | 10/17/17 | 10/17/17 | EPA 9045 | |
| Specific Conductance (EC) | 1.54 | 0.0100 | mmhos/cm | " | 1710164 | 10/17/17 | 10/19/17 | SM 2510B | |

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Extraction Oil & Gas
570 17th St. Suite 550
Denver CO, 80202

Project: TC Mosier Hill 2-9-11 Release
Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

| Analyte | Reporting | | | Spike Level | Source | | %REC | | RPD | |
|---------|-----------|-------|-------|-------------|--------|------|--------|-----|-------|-------|
| | Result | Limit | Units | | Result | %REC | Limits | RPD | Limit | Notes |

Batch 1710175 - EPA 5030 Soil MS

Blank (1710175-BLK1)

Prepared: 10/17/17 Analyzed: 10/18/17

| | | | |
|-----------------------------|----|--------|-------|
| Benzene | ND | 0.0020 | mg/kg |
| Toluene | ND | 0.0050 | " |
| Ethylbenzene | ND | 0.0050 | " |
| Xylenes (total) | ND | 0.0050 | " |
| Gasoline Range Hydrocarbons | ND | 0.50 | " |

| | | | | | | |
|----------------------------------|--------|--|---|--------|------|--------|
| Surrogate: 1,2-Dichloroethane-d4 | 0.0436 | | " | 0.0400 | 109 | 23-173 |
| Surrogate: Toluene-d8 | 0.0402 | | " | 0.0400 | 101 | 20-170 |
| Surrogate: 4-Bromofluorobenzene | 0.0399 | | " | 0.0400 | 99.8 | 21-167 |

LCS (1710175-BS1)

Prepared: 10/17/17 Analyzed: 10/18/17

| | | | | | | |
|-----------------------------|-------|--------|-------|-------|------|--------|
| Benzene | 0.147 | 0.0020 | mg/kg | 0.150 | 97.9 | 58-130 |
| Toluene | 0.140 | 0.0050 | " | 0.150 | 93.1 | 61-134 |
| Ethylbenzene | 0.143 | 0.0050 | " | 0.150 | 95.0 | 74-139 |
| m,p-Xylene | 0.278 | 0.010 | " | 0.300 | 92.7 | 73-137 |
| o-Xylene | 0.146 | 0.0050 | " | 0.150 | 97.3 | 73-141 |
| Xylenes (total) | 0.424 | 0.0050 | " | | | 30-150 |
| Gasoline Range Hydrocarbons | 21.0 | 0.50 | " | | | 30-150 |

| | | | | | | |
|----------------------------------|--------|--|---|--------|-----|--------|
| Surrogate: 1,2-Dichloroethane-d4 | 0.0542 | | " | 0.0400 | 135 | 23-173 |
| Surrogate: Toluene-d8 | 0.0407 | | " | 0.0400 | 102 | 20-170 |
| Surrogate: 4-Bromofluorobenzene | 0.0406 | | " | 0.0400 | 101 | 21-167 |

Matrix Spike (1710175-MS1)

Source: 1710177-01

Prepared: 10/17/17 Analyzed: 10/18/17

| | | | | | | | |
|-----------------------------|-------|--------|-------|-------|----|------|--------|
| Benzene | 0.131 | 0.0020 | mg/kg | 0.150 | ND | 87.3 | 30-131 |
| Toluene | 0.126 | 0.0050 | " | 0.150 | ND | 84.3 | 30-134 |
| Ethylbenzene | 0.129 | 0.0050 | " | 0.150 | ND | 86.1 | 22-153 |
| m,p-Xylene | 0.252 | 0.010 | " | 0.300 | ND | 83.9 | 10-159 |
| o-Xylene | 0.132 | 0.0050 | " | 0.150 | ND | 87.7 | 31-151 |
| Xylenes (total) | 0.383 | 0.0050 | " | | ND | | 30-150 |
| Gasoline Range Hydrocarbons | 21.1 | 0.50 | " | | ND | | 30-150 |

| | | | | | | |
|----------------------------------|--------|--|---|--------|------|--------|
| Surrogate: 1,2-Dichloroethane-d4 | 0.0458 | | " | 0.0400 | 115 | 23-173 |
| Surrogate: Toluene-d8 | 0.0397 | | " | 0.0400 | 99.2 | 20-170 |
| Surrogate: 4-Bromofluorobenzene | 0.0406 | | " | 0.0400 | 102 | 21-167 |

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Extraction Oil & Gas
570 17th St. Suite 550
Denver CO, 80202

Project: TC Mosier Hill 2-9-11 Release

Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

| Analyte | Reporting | | | Spike | Source | | %REC | | RPD | |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
| | Result | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

Batch 1710175 - EPA 5030 Soil MS

| Matrix Spike Dup (1710175-MSD1) | | Source: 1710177-01 | | | Prepared: 10/17/17 Analyzed: 10/18/17 | | | | | |
|----------------------------------|--------|--------------------|-------|--------|---------------------------------------|------|--------|------|----|--|
| Benzene | 0.121 | 0.0020 | mg/kg | 0.150 | ND | 80.7 | 30-131 | 7.88 | 34 | |
| Toluene | 0.120 | 0.0050 | " | 0.150 | ND | 80.1 | 30-134 | 5.13 | 30 | |
| Ethylbenzene | 0.123 | 0.0050 | " | 0.150 | ND | 82.1 | 22-153 | 4.83 | 24 | |
| m,p-Xylene | 0.241 | 0.010 | " | 0.300 | ND | 80.3 | 10-159 | 4.34 | 68 | |
| o-Xylene | 0.126 | 0.0050 | " | 0.150 | ND | 84.0 | 31-151 | 4.38 | 38 | |
| Xylenes (total) | 0.367 | 0.0050 | " | | ND | | 30-150 | 4.35 | 20 | |
| Gasoline Range Hydrocarbons | 20.2 | 0.50 | " | | ND | | 30-150 | 4.28 | 20 | |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0451 | | " | 0.0400 | | 113 | 23-173 | | | |
| Surrogate: Toluene-d8 | 0.0392 | | " | 0.0400 | | 98.0 | 20-170 | | | |
| Surrogate: 4-Bromofluorobenzene | 0.0427 | | " | 0.0400 | | 107 | 21-167 | | | |

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Extraction Oil & Gas
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Project: TC Mosier Hill 2-9-11 Release
Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control
Summit Scientific

| Reporting | | | | Spike | Source | | %REC | | RPD | |
|-----------|--------|-------|-------|-------|--------|------|--------|-----|-------|-------|
| Analyte | Result | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

Batch 1710165 - General Preparation

Blank (1710165-BLK1)

Prepared & Analyzed: 10/19/17

| | | | |
|-----------|----|------|-----------|
| Calcium | ND | 10.0 | mg/kg wet |
| Magnesium | ND | 5.00 | " |
| Sodium | ND | 5.00 | " |

LCS (1710165-BS1)

Prepared & Analyzed: 10/19/17

| | | | | | | |
|-----------|-----|------|-----------|-----|-----|----------|
| Calcium | 544 | 10.0 | mg/kg wet | 500 | 109 | 82.9-118 |
| Magnesium | 538 | 5.00 | " | 500 | 108 | 77.1-123 |
| Sodium | 526 | 5.00 | " | 500 | 105 | 71-129 |

Duplicate (1710165-DUP1)

Source: 1710162-05

Prepared & Analyzed: 10/19/17

| | | | | | | |
|-----------|-----|------|-----------|-----|------|-----|
| Calcium | 605 | 12.0 | mg/kg dry | 578 | 4.42 | 200 |
| Magnesium | 840 | 6.00 | " | 950 | 12.3 | 200 |
| Sodium | 375 | 6.00 | " | 383 | 2.01 | 200 |

Matrix Spike (1710165-MS1)

Source: 1710162-05

Prepared & Analyzed: 10/19/17

| | | | | | | | |
|-----------|------|------|-----------|-----|-----|-----|--------|
| Calcium | 1180 | 12.0 | mg/kg dry | 600 | 578 | 100 | 75-125 |
| Magnesium | 1620 | 6.00 | " | 600 | 950 | 112 | 75-125 |
| Sodium | 1070 | 6.00 | " | 600 | 383 | 115 | 75-125 |

Matrix Spike Dup (1710165-MSD1)

Source: 1710162-05

Prepared & Analyzed: 10/19/17

| | | | | | | | | | |
|-----------|------|------|-----------|-----|-----|------|--------|-------|----|
| Calcium | 1220 | 12.0 | mg/kg dry | 600 | 578 | 107 | 75-125 | 3.44 | 25 |
| Magnesium | 1440 | 6.00 | " | 600 | 950 | 81.4 | 75-125 | 12.2 | 25 |
| Sodium | 1080 | 6.00 | " | 600 | 383 | 116 | 75-125 | 0.127 | 25 |

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Extraction Oil & Gas
570 17th St. Suite 550
Denver CO, 80202

Project: TC Mosier Hill 2-9-11 Release

Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

| Analyte | Reporting | | | Spike | Source | | %REC | | RPD | |
|---------|-----------|-------|-------|-------|--------|------|--------|-----|-------|-------|
| | Result | Limit | Units | Level | Result | %REC | Limits | RPD | Limit | Notes |

Batch 1710162 - General Preparation

Duplicate (1710162-DUP1) **Source: 1710130-01** Prepared: 10/17/17 Analyzed: 10/18/17

| | | | | | | | | | | |
|----------|------|--|---|--|------|--|--|-------|----|--|
| % Solids | 52.9 | | % | | 52.4 | | | 0.950 | 20 | |
|----------|------|--|---|--|------|--|--|-------|----|--|

Batch 1710163 - General Preparation

LCS (1710163-BS1) Prepared & Analyzed: 10/17/17

| | | | | | | | | | | |
|----|------|-------|----------|------|-----|--------|--|--|--|--|
| pH | 9.21 | 0.100 | pH Units | 9.16 | 101 | 95-105 | | | | |
|----|------|-------|----------|------|-----|--------|--|--|--|--|

Duplicate (1710163-DUP1) **Source: 1710170-01** Prepared & Analyzed: 10/17/17

| | | | | | | | | | | |
|----|------|-------|----------|--|------|--|--|-------|----|--|
| pH | 9.59 | 0.100 | pH Units | | 9.61 | | | 0.208 | 20 | |
|----|------|-------|----------|--|------|--|--|-------|----|--|

Batch 1710164 - General Preparation

Blank (1710164-BLK1) Prepared: 10/17/17 Analyzed: 10/19/17

| | | | | | | | | | | |
|---------------------------|----|--------|----------|--|--|--|--|--|--|--|
| Specific Conductance (EC) | ND | 0.0100 | mmhos/cm | | | | | | | |
|---------------------------|----|--------|----------|--|--|--|--|--|--|--|

LCS (1710164-BS1) Prepared: 10/17/17 Analyzed: 10/19/17

| | | | | | | | | | | |
|---------------------------|-------|--------|----------|-------|-----|--------|--|--|--|--|
| Specific Conductance (EC) | 0.750 | 0.0100 | mmhos/cm | 0.750 | 100 | 90-110 | | | | |
|---------------------------|-------|--------|----------|-------|-----|--------|--|--|--|--|

Duplicate (1710164-DUP1) **Source: 1710170-01** Prepared: 10/17/17 Analyzed: 10/19/17

| | | | | | | | | | | |
|---------------------------|------|--------|----------|--|------|--|--|-------|----|--|
| Specific Conductance (EC) | 1.54 | 0.0100 | mmhos/cm | | 1.54 | | | 0.162 | 20 | |
|---------------------------|------|--------|----------|--|------|--|--|-------|----|--|

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Extraction Oil & Gas
570 17th St. Suite 550
Denver CO, 80202

Project: TC Mosier Hill 2-9-11 Release

Project Number: [none]
Project Manager: Blake Ford

Reported:
10/23/17 10:11

Notes and Definitions

| | |
|-----|--|
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |