

## **ANALYTICAL TABLE**

**TABLE 1**  
**STATE 6525 13-32 TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

| Sample ID  | Date Sampled | Depth (feet bgs) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Naphthalene (mg/kg) | TPH <sup>(2)</sup> (mg/kg) |
|--|--------------|------------------|-----------------|-----------------|----------------------|-----------------------|---------------------|----------------------------|
| <b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b> |              |                  | <b>0.17</b>     | <b>85</b>       | <b>100</b>           | <b>175</b>            | <b>23</b>           | <b>500</b>                 |
| SB01 @ 6'  | 11/9/2016    | 6                | <0.0020         | <0.0050         | <0.0050              | <0.010                | <0.010              | <50                        |
| SB02 @ 6'  | 11/9/2016    | 6                | <0.0020         | <0.0050         | <0.0050              | <0.010                | <0.010              | <50                        |
| SB03 @ 6'  | 11/9/2016    | 6                | <0.0020         | <0.0050         | <0.0050              | <0.010                | <0.010              | <50                        |
| SB04 @ 6'  | 11/9/2016    | 6                | <0.0020         | <0.0050         | <0.0050              | <0.010                | <0.010              | <50                        |
| SB05 @ 6'  | 11/9/2016    | 6                | <0.0020         | <0.0050         | <0.0050              | <0.010                | <0.010              | <50                        |

**Notes:**

- Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 30, 2015.
  - TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
- COGCC = Colorado Oil and Gas Conservation Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
GRO = Total volatile petroleum hydrocarbons - gasoline range organics  
DRO = Total extractable petroleum hydrocarbons - diesel range organics  
mg/kg = Milligrams per kilogram  
bgs = Below ground surface  
**BOLD** = Analytical result is in exceedance of COGCC soil standards.

## **LABORATORY ANALYTICAL REPORT**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 15, 2016

Mark Longhurst  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: State 6525 13-32

Enclosed are the results of analyses for samples received by Summit Scientific on 11/09/16 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury  
President



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/15/16 08:02

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| SB01@6'   | 1611076-01    | Soil   | 11/09/16 10:21 | 11/09/16 16:30 |
| SB02@6'   | 1611076-02    | Soil   | 11/09/16 10:39 | 11/09/16 16:30 |
| SB03@6'   | 1611076-03    | Soil   | 11/09/16 10:54 | 11/09/16 16:30 |
| SB04@6'   | 1611076-04    | Soil   | 11/09/16 11:10 | 11/09/16 16:30 |
| SB05@6'   | 1611076-05    | Soil   | 11/09/16 11:28 | 11/09/16 16:30 |

Summit Scientific

*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.*



PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
 Project Manager: Mark Longhurst

Reported:  
 11/15/16 08:02

# Summit Scientific

1611076

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
 303-277-9310 • 303-374-5933 Fax

Client: PDC Energy Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_ Project Manager: Mark Longhurst  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-Mail: mark.longhurst@pdce.com  
 Sampler Name: Tyler Bickins Project Name: State 6525 13-32  
 Project Number: \_\_\_\_\_

Page 1 of 1

| Sample Description  | Date Sampled | Time Sampled | Number of Containers | Preservative |                  |      | Matrix          |             |      | Analyze For:            |                 |           | Special Instructions |              |
|---------------------|--------------|--------------|----------------------|--------------|------------------|------|-----------------|-------------|------|-------------------------|-----------------|-----------|----------------------|--------------|
|                     |              |              |                      | HCl          | HNO <sub>3</sub> | None | Other (Specify) | Groundwater | Soil | Air - Canister Serial # | Other (Specify) | BTEX 8260 |                      | 6 BTX (8260) |
| S80206 <sup>1</sup> | 11/9/16      | 10:21        | 1                    |              |                  | X    |                 |             |      |                         |                 |           |                      |              |
| S80206 <sup>1</sup> | 11/9/16      | 10:39        | 1                    |              |                  | X    |                 |             |      |                         |                 |           |                      |              |
| S80306 <sup>1</sup> | 11/9/16      | 10:54        | 1                    |              |                  | X    |                 |             |      |                         |                 |           |                      |              |
| S80406 <sup>1</sup> | 11/9/16      | 11:10        | 1                    |              |                  | X    |                 |             |      |                         |                 |           |                      |              |
| S80506 <sup>1</sup> | 11/9/16      | 11:28        | 1                    |              |                  | X    |                 |             |      |                         |                 |           |                      |              |

Relinquished by: ICC Date/Time: 11/9/16 16:30 Received by: MA Date/Time: 11/9/16 16:30  
 Relinquished by: MA Date/Time: 11/9/16 17:00 Received by: MA Date/Time: 11-9-16 17:00  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received in Lab by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Turn Around Time (Check)  
 Same Day  72 Hours   
 24 Hours  Standard   
 48 Hours

Sample Integrity:  
 Temperature Upon Receipt: 4.5°C  
 Intact: Yes  No

Notes: on ice

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PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
 Project Manager: Mark Longhurst

Reported:  
 11/15/16 08:02

**Sample Receipt Checklist**

S2 Work Order: 1611076

Client: PDC Energy Client Project ID: State 652513-32

Shipped Via: P/U (UPS, FedEx, Hand Delivered, Pick-up, etc.) Airbill #: \_\_\_\_\_

Matrix (check all that apply):  Air  Soil/Solid  Water  Other: \_\_\_\_\_ (Describe)

|           |            |  |  |  |  |
|-----------|------------|--|--|--|--|
| Cooler ID |            |  |  |  |  |
| Temp (°C) | <u>4.5</u> |  |  |  |  |

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 <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| NOTE: if samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun. |                                     |                          |                                     |                   |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| If custody seals are present, are they intact <sup>(1)</sup> ?  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| Are short holding time analytes or samples with HTs due within 48 hours present?  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| Is a chain of custody (COC) form present and filled out completely?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| Is the COC properly relinquished by the client w/ date and time received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |
| For volatile analytes – is there headspace present? If yes, contact client and note in narrative.   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| Note type of preservative in the Comments column – HCl, H <sub>2</sub> O <sub>2</sub> , NaOH, HNO <sub>3</sub> , ect                        | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| If samples are preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| If distalv. filters were requested, were samples field filtered?  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |
| Add any Comments (if any):  |                                     |                          |                                     |                   |

<sup>(1)</sup> If "No", the client must be notified the client before proceeding with analysis and note in case narrative.

Nakita  
 Custodian Printed Name

[Signature]  
 Signature or Initials of Custodian

11/16/16 1700  
 Date/Time

[Signature]



PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/15/16 08:02

**SB01@6'**  
**1611076-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/09/16 10:21**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1611111 | 11/10/16 | 11/10/16 | 8015M  |       |

Date Sampled: **11/09/16 10:21**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 111 %           | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/09/16 10:21**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1611112 | "        | 11/10/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **11/09/16 10:21**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 99.4 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 106 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.9 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/15/16 08:02

**SB02@6'**  
**1611076-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/09/16 10:39**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1611111 | 11/10/16 | 11/11/16 | 8015M  |       |

Date Sampled: **11/09/16 10:39**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 117 %           | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/09/16 10:39**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1611112 | "        | 11/11/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **11/09/16 10:39**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 95.8 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 99.8 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/15/16 08:02

**SB03@6'**  
**1611076-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/09/16 10:54**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1611111 | 11/10/16 | 11/11/16 | 8015M  |       |

Date Sampled: **11/09/16 10:54**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 112 %           | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/09/16 10:54**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1611112 | "        | 11/11/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **11/09/16 10:54**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 129 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 87.8 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 96.4 %          | 21-167 |          | "     | "        | "        | "      |       |

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
11/15/16 08:02

**SB04@6'**  
**1611076-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/09/16 11:10**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1611111 | 11/10/16 | 11/11/16 | 8015M  |       |

Date Sampled: **11/09/16 11:10**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 113 %           | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/09/16 11:10**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1611112 | "        | 11/11/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **11/09/16 11:10**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 99.8 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 89.8 %          | 21-167 |          | "     | "        | "        | "      |       |

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/15/16 08:02

**SB05@6'**  
**1611076-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **11/09/16 11:28**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 1611111 | 11/10/16 | 11/11/16 | 8015M  |       |

Date Sampled: **11/09/16 11:28**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 117 %           | 30-150 |          | "     | "        | "        | "      |       |

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **11/09/16 11:28**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 1611112 | "        | 11/11/16 | EPA 8260B |       |
| Benzene                     | ND     | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **11/09/16 11:28**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 101 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 93.4 %          | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 11/15/16 08:02

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1611111 - EPA 3550A**

|  |      |    |       |                               |      |                               |        |      |  |    |  |
|--|------|----|-------|-------------------------------|------|-------------------------------|--------|------|--|----|--|
| <b>Blank (1611111-BLK1)</b>            |      |    |       | Prepared & Analyzed: 11/10/16 |      |                               |        |      |  |    |  |
| C10-C28 (DRO)                          | ND   | 50 | mg/kg |                               |      |                               |        |      |  |    |  |
| <i>Surrogate: o-Terphenyl</i>          | 13.4 |    | "     | 12.5                          |      | 107                           | 30-150 |      |  |    |  |
| <b>LCS (1611111-BS1)</b>               |      |    |       | Prepared & Analyzed: 11/10/16 |      |                               |        |      |  |    |  |
| C10-C28 (DRO)                          | 669  | 50 | mg/kg | 499                           |      | 134                           | 73-134 |      |  |    |  |
| <i>Surrogate: o-Terphenyl</i>          | 14.9 |    | "     | 12.5                          |      | 119                           | 30-150 |      |  |    |  |
| <b>Matrix Spike (1611111-MS1)</b>      |      |    |       | Source: 1611076-01            |      | Prepared & Analyzed: 11/10/16 |        |      |  |    |  |
| C10-C28 (DRO)                          | 571  | 50 | mg/kg | 499                           | 8.77 | 113                           | 50-148 |      |  |    |  |
| <i>Surrogate: o-Terphenyl</i>          | 13.8 |    | "     | 12.5                          |      | 111                           | 30-150 |      |  |    |  |
| <b>Matrix Spike Dup (1611111-MSD1)</b> |      |    |       | Source: 1611076-01            |      | Prepared & Analyzed: 11/10/16 |        |      |  |    |  |
| C10-C28 (DRO)                          | 543  | 50 | mg/kg | 499                           | 8.77 | 107                           | 50-148 | 4.90 |  | 20 |  |
| <i>Surrogate: o-Terphenyl</i>          | 12.8 |    | "     | 12.5                          |      | 102                           | 30-150 |      |  |    |  |

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

Reported:  
11/15/16 08:02

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

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

**Batch 1611112 - EPA 5030 Soil MS**

**Blank (1611112-BLK1)**

Prepared & Analyzed: 11/10/16

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               |  |             |               |  |  |  |
| Benzene                                 | ND            | 0.0020 | "        |               |  |             |               |  |  |  |
| Toluene                                 | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Ethylbenzene                            | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| Xylenes (total)                         | ND            | 0.010  | "        |               |  |             |               |  |  |  |
| Gasoline Range Hydrocarbons             | ND            | 0.50   | "        |               |  |             |               |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0459</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>115</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0415</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>104</i>  | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0394</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>98.6</i> | <i>21-167</i> |  |  |  |

**LCS (1611112-BS1)**

Prepared & Analyzed: 11/10/16

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               |  |             | 66-138        |  |  |  |
| Benzene                                 | 0.0713        | 0.0020 | "        | 0.100         |  | 71.3        | 58-130        |  |  |  |
| Toluene                                 | 0.0826        | 0.0050 | "        | 0.100         |  | 82.6        | 61-134        |  |  |  |
| Ethylbenzene                            | 0.101         | 0.0050 | "        | 0.0992        |  | 102         | 74-139        |  |  |  |
| m,p-Xylene                              | 0.190         | 0.010  | "        | 0.200         |  | 95.4        | 73-137        |  |  |  |
| o-Xylene                                | 0.0948        | 0.0050 | "        | 0.0980        |  | 96.8        | 73-141        |  |  |  |
| Xylenes (total)                         | 0.285         | 0.010  | "        |               |  |             | 0-200         |  |  |  |
| Gasoline Range Hydrocarbons             | 3.20          | 0.50   | "        |               |  |             | 30-150        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0431</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>108</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0421</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>105</i>  | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0365</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>91.3</i> | <i>21-167</i> |  |  |  |

**Matrix Spike (1611112-MS1)**

Source: 1611076-01

Prepared & Analyzed: 11/10/16

|   |               |        |          |               |    |             |               |  |  |  |
|---|---------------|--------|----------|---------------|----|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.010  | mg/kg    |               | ND |             | 10-158        |  |  |  |
| Benzene                                 | 0.0724        | 0.0020 | "        | 0.100         | ND | 72.4        | 30-131        |  |  |  |
| Toluene                                 | 0.0787        | 0.0050 | "        | 0.100         | ND | 78.7        | 30-134        |  |  |  |
| Ethylbenzene                            | 0.101         | 0.0050 | "        | 0.0992        | ND | 102         | 22-153        |  |  |  |
| m,p-Xylene                              | 0.184         | 0.010  | "        | 0.200         | ND | 92.1        | 10-159        |  |  |  |
| o-Xylene                                | 0.0937        | 0.0050 | "        | 0.0980        | ND | 95.6        | 31-151        |  |  |  |
| Xylenes (total)                         | 0.277         | 0.010  | "        |               | ND |             | 30-160        |  |  |  |
| Gasoline Range Hydrocarbons             | 2.70          | 0.50   | "        |               | ND |             | 30-160        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0414</i> |        | <i>"</i> | <i>0.0400</i> |    | <i>103</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0396</i> |        | <i>"</i> | <i>0.0400</i> |    | <i>98.9</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0366</i> |        | <i>"</i> | <i>0.0400</i> |    | <i>91.6</i> | <i>21-167</i> |  |  |  |

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PDC Energy  
 1775 Sherman St. STE. 3000  
 Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
 Project Manager: Mark Longhurst

**Reported:**  
 11/15/16 08:02

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

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

**Batch 1611112 - EPA 5030 Soil MS**

| <b>Matrix Spike Dup (1611112-MSD1)</b>  | <b>Source: 1611076-01</b> |        |          | <b>Prepared &amp; Analyzed: 11/10/16</b> |    |            |               |       |    |  |
|---|---------------------------|--------|----------|--|----|------------|---------------|-------|----|--|
| Naphthalene                             | ND                        | 0.010  | mg/kg    | ND                                       | ND | 10-158     |               |       | 42 |  |
| Benzene                                 | 0.0728                    | 0.0020 | "        | 0.100                                    | ND | 72.8       | 30-131        | 0.496 | 34 |  |
| Toluene                                 | 0.0808                    | 0.0050 | "        | 0.100                                    | ND | 80.8       | 30-134        | 2.60  | 30 |  |
| Ethylbenzene                            | 0.103                     | 0.0050 | "        | 0.0992                                   | ND | 104        | 22-153        | 1.91  | 24 |  |
| m,p-Xylene                              | 0.192                     | 0.010  | "        | 0.200                                    | ND | 96.0       | 10-159        | 4.14  | 68 |  |
| o-Xylene                                | 0.100                     | 0.0050 | "        | 0.0980                                   | ND | 102        | 31-151        | 6.65  | 38 |  |
| Xylenes (total)                         | 0.292                     | 0.010  | "        |  | ND |            | 30-160        | 5.00  | 30 |  |
| Gasoline Range Hydrocarbons             | 2.57                      | 0.50   | "        |  | ND |            | 30-160        | 4.85  | 30 |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0457</i>             |        | <i>"</i> | <i>0.0400</i>                            |    | <i>114</i> | <i>23-173</i> |       |    |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0404</i>             |        | <i>"</i> | <i>0.0400</i>                            |    | <i>101</i> | <i>20-170</i> |       |    |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0401</i>             |        | <i>"</i> | <i>0.0400</i>                            |    | <i>100</i> | <i>21-167</i> |       |    |  |

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PDC Energy  
1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: State 6525 13-32

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
11/15/16 08:02

### 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