

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



RECEIVED 12/11/2013

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

1. OGCC Operator Number: 69175 2. Name of Operator: PDC Energy, Inc. 3. Address: 1775 Sherman Street, Suite 300 City Denver State: CO Zip 80203 4. Contact Name: Brandon Bruns Phone: (303) 831-3971 Fax: (303) 860-5838 5. API Number 05-123-13483 OGCC Facility ID Number 6. Well/Facility Name: Lundvall 2-19 7. Well/Facility Number Lundvall 2-19 8. Location (Qtr/Qtr, Sec, Twp, Rng, Meridian): NWNE S19 T5N R66W 6th PM 9. County: Weld 10. Field Name: Wattenberg 11. Federal, Indian or State Lease Number: Complete the Attachment Checklist OP OGCC Survey Plat Directional Survey Surface Eqpmt Diagram Technical Info Page Other

General Notice

CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit) Change of Surface Footage from Exterior Section Lines: Change of Surface Footage to Exterior Section Lines: Change of Bottomhole Footage from Exterior Section Lines: Change of Bottomhole Footage to Exterior Section Lines: Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer Latitude Distance to nearest property line Distance to nearest bldg, public rd, utility or RR Longitude Distance to nearest lease line Is location in a High Density Area (rule 603b)? Yes/No Ground Elevation Distance to nearest well same formation Surface owner consultation date: GPS DATA: Date of Measurement PDOP Reading Instrument Operator's Name CHANGE SPACING UNIT Formation Formation Code Spacing order number Unit Acreage Unit configuration Remove from surface bond Signed surface use agreement attached CHANGE OF OPERATOR (prior to drilling): Effective Date: Plugging Bond: Blanket Individual CHANGE WELL NAME NUMBER From: To: Effective Date: ABANDONED LOCATION: Was location ever built? Yes No Is site ready for inspection? Yes No Date Ready for Inspection: NOTICE OF CONTINUED SHUT IN STATUS Date well shut in or temporarily abandoned: Has Production Equipment been removed from site? Yes No MIT required if shut in longer than two years. Date of last MIT SPUD DATE: REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set) SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK Method used Cementing tool setting/perf depth Cement volume Cement top Cement bottom Date RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004. Final reclamation will commence on approximately Final reclamation is completed and site is ready for inspection.

Technical Engineering/Environmental Notice

Notice of Intent Approximate Start Date: Report of Work Done Date Work Completed: 9/27/2013 Details of work must be described in full on Technical Information Page (Page 2 must be submitted.) Intent to Recomplete (submit form 2) Request to Vent or Flare E&P Waste Disposal Change Drilling Plans Repair Well Beneficial Reuse of E&P Waste Gross Interval Changed? Rule 502 variance requested Status Update/Change of Remediation Plans Casing/Cementing Program Change Other: Remediation Complete for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Brandon Bruns Date: 11-25-13 Email: brandon.brunns@pdce.com Print Name: Brandon Bruns Title: EHS Professional

COGCC Approved: Title Date:

CONDITIONS OF APPROVAL, IF ANY:

**TECHNICAL INFORMATION PAGE**



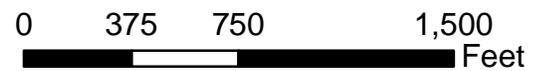
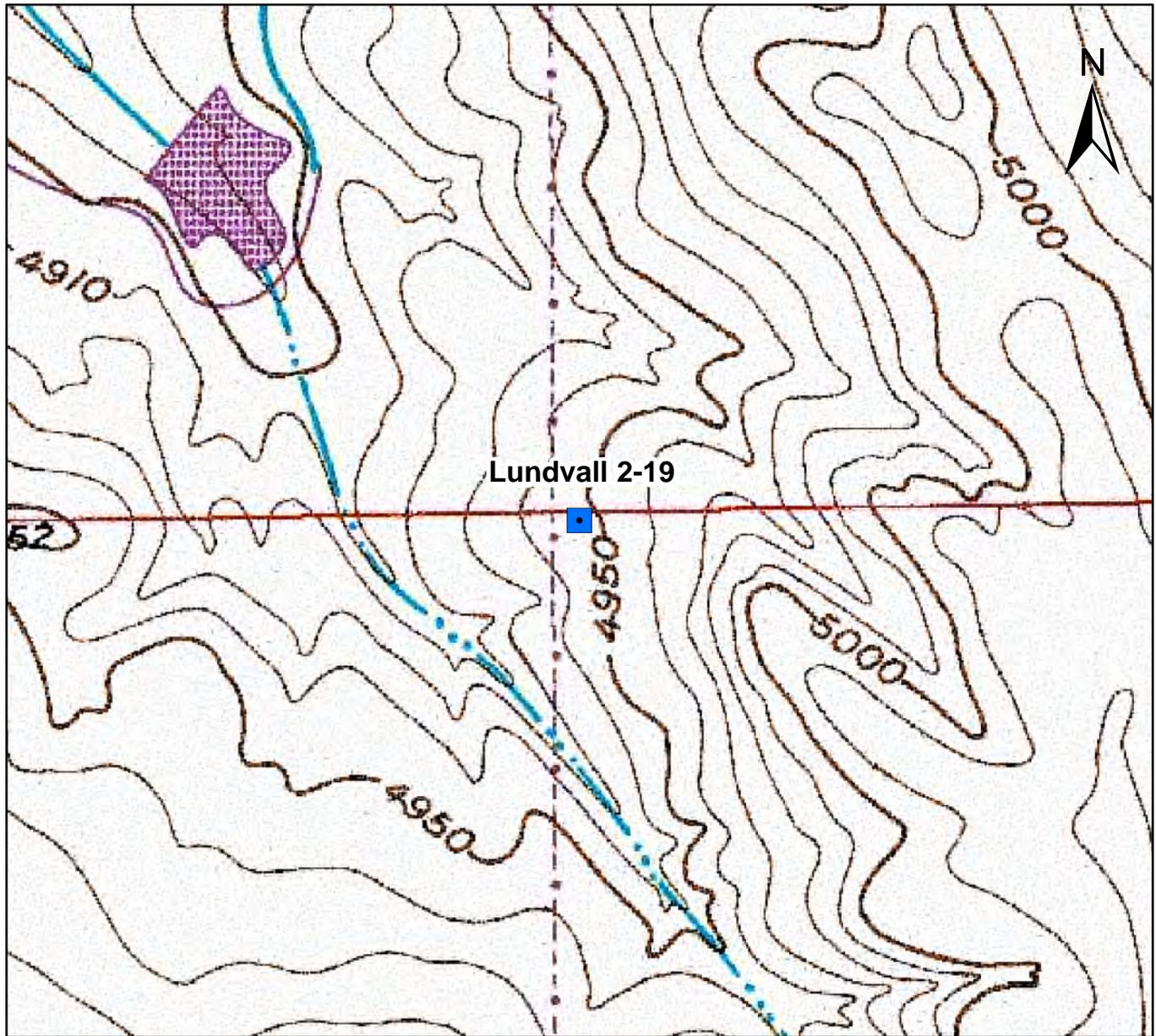
FOR OGCC USE ONLY

|  |                          |                       |              |
|--|--------------------------|-----------------------|--------------|
| 1. OGCC Operator Number:                       | 69175                    | API Number:           | 05-123-13483 |
| 2. Name of Operator:                           | PDC Energy, Inc.         | OGCC Facility ID #    |              |
| 3. Well/Facility Name:                         | Lundvall 2-19            | Well/Facility Number: | 05-123-13483 |
| 4. Location (QtrQtr, Sec, Twp, Rng, Meridian): | NWNE S19 T5N R66W 6th PM |                       |              |

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

**5. DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

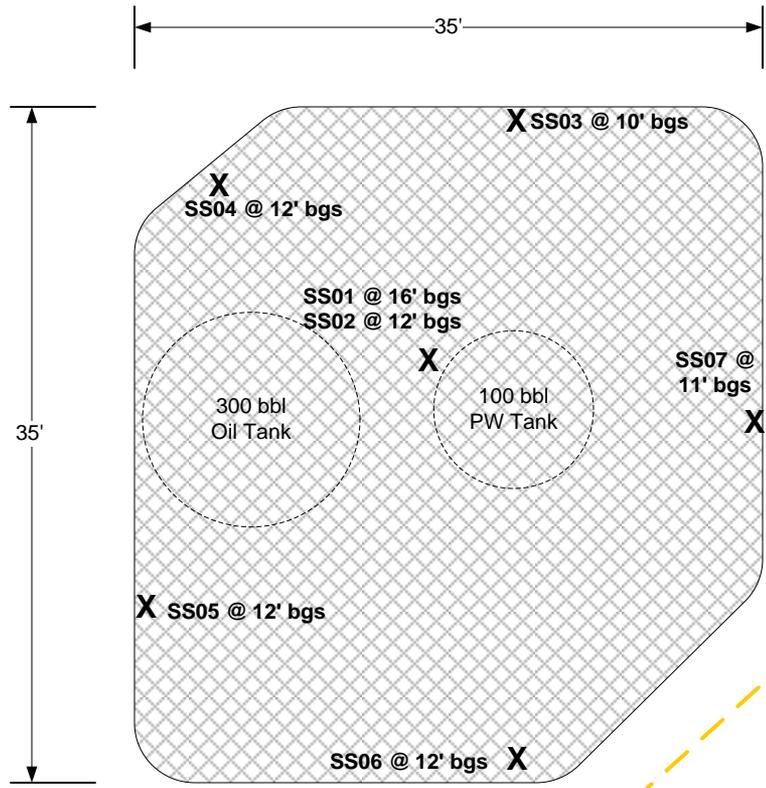
Between March 20, 2013 and March 22, 2013, PDC conducted excavation activities at the Lundvall 2-19 (API # 05-123-13483, COGC Spill Tracking # 2145966, COGCC Remediation # 7953) tank battery located in the NWNE Quarter of Section 19, Township 5 North, Range 66 West, as illustrated on Figure 1. Approximately 340 cubic yards of impacted soil were removed and transported to the Waste Management Facility in Ault, Colorado under PDC waste manifests. Analytical results from excavation activities indicated petroleum hydrocarbon impacts were present in soil sample SS02 collected at 12 feet below ground surface (bgs) at concentrations above COGCC Table 910-1 soil standards. Soil sample locations from excavation activities are illustrated on Figure 2. Prior to backfilling, chemical oxidant (chemox) mixing activities were conducted at the base of the excavation area (between 13-15 feet bgs) to address residual impacted material. On March 25, 2013, a subsequent soil sample (SS09) was collected adjacent to SS02 from the treated depth and exhibited elevated benzene and total petroleum hydrocarbon (TPH) concentrations. An immediate decrease in constituent concentrations was not expected as chemox persists within the soil matrix. Following a 6-month period where continued oxidation occurred of impacted soil within the treatment zone, two boreholes (BH01 and BH02) were installed on September 27, 2013 to confirm remedial activities successfully mitigated residual impacts. Soil samples were collected from each borehole at a composite depth of 13 to 15 feet bgs which coincided with previously detected soil impacts. Soil analytical results indicated constituent concentrations were below COGCC regulatory standards at both borehole locations. Soil analytical data is summarized in Table 1 and the soil boring locations relative to the excavation area are illustrated on Figure 3. Based on the soil analytical results from the confirmation soil samples collected within the treatment zone, PDC is requesting a No Further Action determination from the COGCC. Groundwater was not impacted as a result of this release.



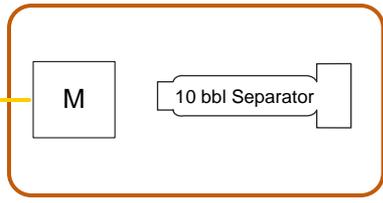
**Figure 1**  
 Site Location Map  
 Lundvall 2-19  
 NWNE S19 T5N R66W  
 Weld County, Colorado

Drawn By: ESS  
 Date: 04/09/2013





Surface  
Drainage



Note: Surface drainage is estimated based on site topography and is not related to regional topography.

DRAWN BY: ESS  
DATE: 9/30/2013

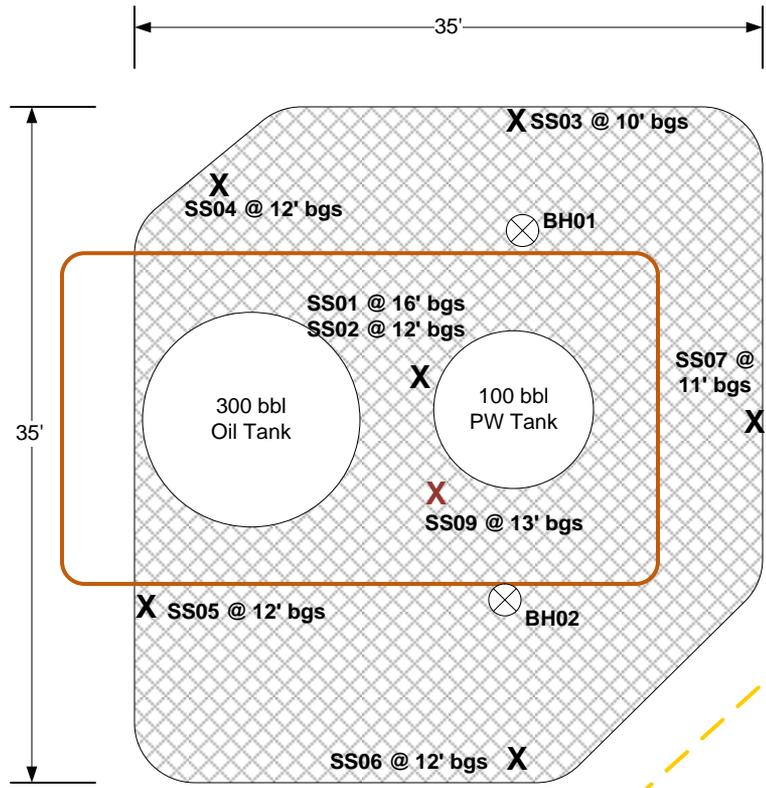
**Facility Diagram**  
PDC Energy – DJ Basin  
Lundvall 2-19  
NWNE S19 T5N R66W  
Weld County, CO



6899 Pecos Street  
Unit C  
Denver, CO 80221

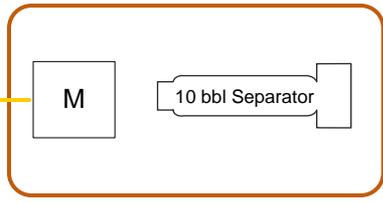
- LEGEND**
- Approximate Area of Excavation
  - Soil Sample Location
  - Underground Gas Line
  - Meter House

FIGURE 2  
EXCAVATION SITE MAP  
Not to Scale



Surface  
Drainage

Test Pit  
X SS08 @ 10' bgs



Site Access Rd

Note: Surface drainage is estimated based on site topography and is not related to regional topography.

DRAWN BY: ESS

DATE: 9/30/2013

**Facility Diagram**  
 PDC Energy – DJ Basin  
 Lundvall 2-19  
 NWNE S19 T5N R66W  
 Weld County, CO



6899 Pecos Street  
 Unit C  
 Denver, CO 80221

**LEGEND**

|          |   |
|----------|---|
|          | Approximate Area of Excavation                              |
| <b>X</b> | Soil Sample Location Collected During Excavation Activities |
| <b>X</b> | Soil Sample Location Collected Following ChemOx Activities  |
|          | Soil Boring Sample Location                                 |
|          | Underground Gas Line  |
|          | Meter House   |

**FIGURE 3**  
 SOIL SAMPLE  
 LOCATION MAP  
 Not to Scale

**TABLE 1**  
**LUNDVALL 2-19**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**

| Sample ID  | Date Sampled | Depth (Feet bgs) | PID Readings (ppm) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylenes (mg/kg) | Naphthalene (mg/kg) | TPH <sup>(2)</sup> (mg/kg) |
|--|--------------|------------------|--------------------|-----------------|-----------------|----------------------|-----------------------|---------------------|----------------------------|
| SS01   | 3/20/2013    | 16               | 1,242              | <0.005          | 0.055           | 0.072                | 0.55                  | 0.11                | 288                        |
| SS02   | 3/20/2013    | 12               | 1,822              | 0.85            | 15              | 4.6                  | 67                    | 1.5                 | <b>2,750</b>               |
| SS03   | 3/21/2013    | 10               | 0.0                | <0.005          | <0.005          | <0.005               | <0.01                 | <0.005              | <50                        |
| SS04   | 3/22/2013    | 12               | 12.6               | <0.005          | <0.005          | <0.005               | <0.01                 | <0.005              | <50                        |
| SS05   | 3/22/2013    | 12               | 3.5                | <0.005          | <0.005          | <0.005               | <0.01                 | <0.005              | <50                        |
| SS06   | 3/22/2013    | 12               | 5.8                | <0.005          | <0.005          | <0.005               | <0.01                 | <0.005              | <50                        |
| SS07   | 3/22/2013    | 11               | 14.7               | <0.005          | <0.005          | <0.005               | <0.01                 | <0.005              | <50                        |
| SS08   | 3/22/2013    | 10               | 5.6                | <0.005          | <0.005          | <0.005               | <0.01                 | <0.005              | <50                        |
| <b>Post Chemical Oxidant Remediation Activities</b>    |              |                  |                    |                 |                 |                      |                       |                     |                            |
| SS09   | 3/25/2013    | 13               | 7.4                | <b>0.27</b>     | 1.1             | 0.51                 | 9.2                   | 0.21                | <b>2,100</b>               |
| BH01 13-15   | 9/27/2013    | 13-15            | 28.2               | 0.0073          | <0.005          | <0.005               | <0.010                | <0.010              | <50                        |
| BH02 13-15   | 9/27/2013    | 13-15            | 5.8                | <0.002          | <0.005          | <0.005               | <0.010                | <0.010              | <50                        |
| <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>                 |

Notes:

1). Standards for Soil are taken from 2 CCR 404-1, Table 910-1, effective April 1, 2009.

2). TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

GRO - Gasoline range organics.

DRO - Diesel range organics

mg/kg - Milligrams per kilogram.

bgs - Below ground surface.

ppm - Parts per million

**Bold** red values indicate an exceedance of the COGCC soil standards for the Site.

**ATTACHMENT A**

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 21, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Lundvall 2-19

Enclosed are the results of analyses for samples received by Summit Scientific on 03/20/13 17:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury  
President / Laboratory Manager



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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/21/13 06:43

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| SS01@16'  | R303143-01    | Soil   | 03/20/13 15:15 | 03/20/13 17:35 |
| SS02@12'  | R303143-02    | Soil   | 03/20/13 15:30 | 03/20/13 17:35 |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
03/21/13 06:43

**SS01@16'**  
**R303143-01 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/20/13 15:15**

| Analyte              | Result     | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|----------------------|------------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| <b>C10-C28 (DRO)</b> | <b>270</b> | 50              | mg/kg | 1        | 3032014 | 03/20/13 | 03/20/13 | 8015 DRO |       |

Date Sampled: **03/20/13 15:15**

| Analyte                       | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: o-Terphenyl</i> |        | 103 %           | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/20/13 15:15**

| Analyte                            | Result       | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------|--------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Naphthalene</b>                 | <b>0.11</b>  | 0.050           | mg/kg | 10       | 3032013 | 03/20/13 | 03/20/13 | EPA 8260B |       |
| Benzene                            | ND           | 0.050           | "     | "        | "       | "        | "        | "         |       |
| <b>Toluene</b>                     | <b>0.055</b> | 0.050           | "     | "        | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>                | <b>0.072</b> | 0.050           | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b>             | <b>0.55</b>  | 0.10            | "     | "        | "       | "        | "        | "         |       |
| <b>Gasoline Range Hydrocarbons</b> | <b>18</b>    | 5.0             | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/20/13 15:15**

| Analyte                                 | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 119 %           | 23-173 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 102 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/21/13 06:43

**SS02@12'**  
**R303143-02 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/20/13 15:30**

| Analyte              | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|----------------------|-------------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| <b>C10-C28 (DRO)</b> | <b>1900</b> | 50              | mg/kg | 1        | 3032014 | 03/20/13 | 03/20/13 | 8015 DRO |       |

Date Sampled: **03/20/13 15:30**

| Analyte                       | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|-------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: o-Terphenyl</i> |        | 118 %           | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/20/13 15:30**

| Analyte                            | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------|-------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Naphthalene</b>                 | <b>1.5</b>  | 0.050           | mg/kg | 10       | 3032013 | 03/20/13 | 03/20/13 | EPA 8260B |       |
| <b>Benzene</b>                     | <b>0.85</b> | 0.050           | "     | "        | "       | "        | "        | "         |       |
| <b>Toluene</b>                     | <b>15</b>   | 0.050           | "     | "        | "       | "        | "        | "         | E     |
| <b>Ethylbenzene</b>                | <b>4.6</b>  | 0.050           | "     | "        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b>             | <b>67</b>   | 0.10            | "     | "        | "       | "        | "        | "         |       |
| <b>Gasoline Range Hydrocarbons</b> | <b>850</b>  | 5.0             | "     | "        | "       | "        | "        | "         | E     |

Date Sampled: **03/20/13 15:30**

| Analyte                                 | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 117 %           | 23-173 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 143 %           | 20-170 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 110 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 03/21/13 06:43

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

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

**Batch 3032014 - EPA 3550A**

|  |     |    |                                       |     |     |                                       |        |      |  |    |  |
|--|-----|----|---------------------------------------|-----|-----|---------------------------------------|--------|------|--|----|--|
| <b>Blank (3032014-BLK1)</b>            |     |    | Prepared: 03/20/13 Analyzed: 03/21/13 |     |     |                                       |        |      |  |    |  |
| C10-C28 (DRO)                          | ND  | 50 | mg/kg                                 |     |     |                                       |        |      |  |    |  |
| <b>LCS (3032014-BS1)</b>               |     |    | Prepared: 03/20/13 Analyzed: 03/21/13 |     |     |                                       |        |      |  |    |  |
| C10-C28 (DRO)                          | 599 | 50 | mg/kg                                 | 501 | 120 | 73-134                                |        |      |  |    |  |
| <b>LCS Dup (3032014-BSD1)</b>          |     |    | Prepared: 03/20/13 Analyzed: 03/21/13 |     |     |                                       |        |      |  |    |  |
| C10-C28 (DRO)                          | 612 | 50 | mg/kg                                 | 501 | 122 | 73-134                                | 2.10   |      |  | 11 |  |
| <b>Matrix Spike (3032014-MS1)</b>      |     |    | <b>Source: R303144-01</b>             |     |     | Prepared: 03/20/13 Analyzed: 03/21/13 |        |      |  |    |  |
| C10-C28 (DRO)                          | 647 | 50 | mg/kg                                 | 501 | ND  | 129                                   | 50-148 |      |  |    |  |
| <b>Matrix Spike Dup (3032014-MSD1)</b> |     |    | <b>Source: R303144-01</b>             |     |     | Prepared: 03/20/13 Analyzed: 03/21/13 |        |      |  |    |  |
| C10-C28 (DRO)                          | 654 | 50 | mg/kg                                 | 501 | ND  | 131                                   | 50-148 | 1.10 |  | 13 |  |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/21/13 06:43

**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 3032013 - EPA 5030 Soil MS**

**Blank (3032013-BLK1)**

Prepared: 03/20/13 Analyzed: 03/21/13

|   |               |        |          |               |  |            |               |  |  |  |
|---|---------------|--------|----------|---------------|--|------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |  |            |               |  |  |  |
| Benzene                                 | ND            | 0.0050 | "        |               |  |            |               |  |  |  |
| 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>0.0425</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>107</i> | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0410</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>102</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0409</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>102</i> | <i>21-167</i> |  |  |  |

**LCS (3032013-BS1)**

Prepared: 03/20/13 Analyzed: 03/21/13

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |  |             | 66-138        |  |  |  |
| Benzene                                 | 0.109         | 0.0050 | "        | 0.100         |  | 109         | 58-130        |  |  |  |
| Toluene                                 | 0.115         | 0.0050 | "        | 0.100         |  | 115         | 61-134        |  |  |  |
| Ethylbenzene                            | 0.134         | 0.0050 | "        | 0.100         |  | 134         | 74-139        |  |  |  |
| m,p-Xylene                              | 0.259         | 0.010  | "        | 0.200         |  | 129         | 73-137        |  |  |  |
| o-Xylene                                | 0.128         | 0.0050 | "        | 0.100         |  | 128         | 73-141        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0398</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>100</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>0.0391</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>97.7</i> | <i>21-167</i> |  |  |  |

**LCS Dup (3032013-BSD1)**

Prepared: 03/20/13 Analyzed: 03/21/13

|   |               |        |          |               |  |             |               |       |    |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|-------|----|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |  |             | 66-138        |       | 12 |  |
| Benzene                                 | 0.110         | 0.0050 | "        | 0.100         |  | 110         | 58-130        | 1.10  | 13 |  |
| Toluene                                 | 0.118         | 0.0050 | "        | 0.100         |  | 118         | 61-134        | 2.96  | 16 |  |
| Ethylbenzene                            | 0.137         | 0.0050 | "        | 0.100         |  | 137         | 74-139        | 1.93  | 12 |  |
| m,p-Xylene                              | 0.264         | 0.010  | "        | 0.200         |  | 132         | 73-137        | 1.84  | 14 |  |
| o-Xylene                                | 0.128         | 0.0050 | "        | 0.100         |  | 128         | 73-141        | 0.469 | 12 |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0419</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>106</i>  | <i>23-173</i> |       |    |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0409</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>102</i>  | <i>20-170</i> |       |    |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0392</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>98.0</i> | <i>21-167</i> |       |    |  |

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*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: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Bruns

**Reported:**  
 03/21/13 06:43

**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 3032013 - EPA 5030 Soil MS**

**Matrix Spike (3032013-MS1)**

**Source: R303144-01**

Prepared: 03/20/13

Analyzed: 03/21/13

|                                  |        |        |       |        |      |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        | ND   |      | 10-158 |  |  |  |
| Benzene                          | 0.108  | 0.0050 | "     | 0.100  | 0.00 | 108  | 30-131 |  |  |  |
| Toluene                          | 0.117  | 0.0050 | "     | 0.100  | 0.00 | 117  | 30-134 |  |  |  |
| Ethylbenzene                     | 0.129  | 0.0050 | "     | 0.100  | 0.00 | 129  | 22-153 |  |  |  |
| m,p-Xylene                       | 0.249  | 0.010  | "     | 0.200  | 0.00 | 125  | 10-159 |  |  |  |
| o-Xylene                         | 0.124  | 0.0050 | "     | 0.100  | 0.00 | 124  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0472 |        | "     | 0.0397 |      | 119  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0416 |        | "     | 0.0400 |      | 104  | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0392 |        | "     | 0.0400 |      | 98.0 | 21-167 |  |  |  |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/21/13 06:43

### Notes and Definitions

- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- 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

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Summit Scientific

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# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 25, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Lundvall 2-19

Enclosed are the results of analyses for samples received by Summit Scientific on 03/21/13 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
03/25/13 13:25

**SS03@10'**  
**R303153-01 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/21/13 13:00**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3032108 | 03/21/13 | 03/21/13 | 8015 DRO |       |

Date Sampled: **03/21/13 13:00**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 93.8 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/21/13 13:00**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.0050          | mg/kg | 1        | 3032107 | 03/21/13 | 03/21/13 | EPA 8260B |       |
| Benzene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/21/13 13:00**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 99.4 %          | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 94.8 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 89.8 %          | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/25/13 13:25

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

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

**Batch 3032108 - EPA 3550A**

|  |     |    |       |  |    |     |        |       |    |  |
|--|-----|----|-------|--|----|-----|--------|-------|----|--|
| <b>Blank (3032108-BLK1)</b>            |     |    |       | Prepared: 03/21/13 Analyzed: 03/23/13                    |    |     |        |       |    |  |
| C10-C28 (DRO)                          | ND  | 50 | mg/kg |  |    |     |        |       |    |  |
| <b>Blank (3032108-BLK2)</b>            |     |    |       | Prepared: 03/21/13 Analyzed: 03/23/13                    |    |     |        |       |    |  |
| C10-C28 (DRO)                          | ND  | 50 | mg/kg |  |    |     |        |       |    |  |
| <b>LCS (3032108-BS1)</b>               |     |    |       | Prepared: 03/21/13 Analyzed: 03/23/13                    |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 553 | 50 | mg/kg | 501  |    | 110 | 73-134 |       |    |  |
| <b>LCS (3032108-BS2)</b>               |     |    |       | Prepared: 03/21/13 Analyzed: 03/23/13                    |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 565 | 50 | mg/kg | 501  |    | 113 | 73-134 |       |    |  |
| <b>LCS Dup (3032108-BSD1)</b>          |     |    |       | Prepared: 03/21/13 Analyzed: 03/23/13                    |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 583 | 50 | mg/kg | 501  |    | 116 | 73-134 | 5.28  | 11 |  |
| <b>LCS Dup (3032108-BSD2)</b>          |     |    |       | Prepared: 03/21/13 Analyzed: 03/23/13                    |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 569 | 50 | mg/kg | 501  |    | 113 | 73-134 | 0.573 | 11 |  |
| <b>Matrix Spike (3032108-MS1)</b>      |     |    |       | Source: R303152-03 Prepared: 03/21/13 Analyzed: 03/23/13 |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 568 | 50 | mg/kg | 501  | ND | 113 | 50-148 |       |    |  |
| <b>Matrix Spike (3032108-MS2)</b>      |     |    |       | Source: R303152-02 Prepared: 03/21/13 Analyzed: 03/23/13 |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 544 | 50 | mg/kg | 501  | ND | 109 | 50-148 |       |    |  |
| <b>Matrix Spike Dup (3032108-MSD1)</b> |     |    |       | Source: R303152-03 Prepared: 03/21/13 Analyzed: 03/23/13 |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 569 | 50 | mg/kg | 501  | ND | 114 | 50-148 | 0.140 | 13 |  |
| <b>Matrix Spike Dup (3032108-MSD2)</b> |     |    |       | Source: R303152-02 Prepared: 03/21/13 Analyzed: 03/23/13 |    |     |        |       |    |  |
| C10-C28 (DRO)                          | 557 | 50 | mg/kg | 501  | ND | 111 | 50-148 | 2.26  | 13 |  |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/25/13 13:25

**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 |     |       |

**Batch 3032107 - EPA 5030 Soil MS**

**Blank (3032107-BLK1)**

Prepared: 03/21/13 Analyzed: 03/22/13

|                                  |        |        |       |        |      |        |  |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |      |        |  |  |  |  |
| Benzene                          | ND     | 0.0050 | "     |        |      |        |  |  |  |  |
| Toluene                          | ND     | 0.0050 | "     |        |      |        |  |  |  |  |
| Ethylbenzene                     | ND     | 0.0050 | "     |        |      |        |  |  |  |  |
| Xylenes (total)                  | ND     | 0.010  | "     |        |      |        |  |  |  |  |
| Gasoline Range Hydrocarbons      | ND     | 0.50   | "     |        |      |        |  |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0379 |        | "     | 0.0397 | 95.4 | 23-173 |  |  |  |  |
| Surrogate: Toluene-d8            | 0.0382 |        | "     | 0.0400 | 95.6 | 20-170 |  |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0367 |        | "     | 0.0400 | 91.6 | 21-167 |  |  |  |  |

**Blank (3032107-BLK2)**

Prepared: 03/21/13 Analyzed: 03/22/13

|                                  |        |        |       |        |      |        |  |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |      |        |  |  |  |  |
| Benzene                          | ND     | 0.0050 | "     |        |      |        |  |  |  |  |
| Toluene                          | ND     | 0.0050 | "     |        |      |        |  |  |  |  |
| Ethylbenzene                     | ND     | 0.0050 | "     |        |      |        |  |  |  |  |
| Xylenes (total)                  | ND     | 0.010  | "     |        |      |        |  |  |  |  |
| Gasoline Range Hydrocarbons      | ND     | 0.50   | "     |        |      |        |  |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0389 |        | "     | 0.0397 | 98.1 | 23-173 |  |  |  |  |
| Surrogate: Toluene-d8            | 0.0385 |        | "     | 0.0400 | 96.2 | 20-170 |  |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0368 |        | "     | 0.0400 | 92.0 | 21-167 |  |  |  |  |

**LCS (3032107-BS1)**

Prepared: 03/21/13 Analyzed: 03/22/13

|                                  |        |        |       |        |      |        |  |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |      | 66-138 |  |  |  |  |
| Benzene                          | 0.108  | 0.0050 | "     | 0.100  | 108  | 58-130 |  |  |  |  |
| Toluene                          | 0.110  | 0.0050 | "     | 0.100  | 110  | 61-134 |  |  |  |  |
| Ethylbenzene                     | 0.110  | 0.0050 | "     | 0.100  | 110  | 74-139 |  |  |  |  |
| m,p-Xylene                       | 0.219  | 0.010  | "     | 0.200  | 110  | 73-137 |  |  |  |  |
| o-Xylene                         | 0.111  | 0.0050 | "     | 0.100  | 111  | 73-141 |  |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0363 |        | "     | 0.0397 | 91.4 | 23-173 |  |  |  |  |
| Surrogate: Toluene-d8            | 0.0384 |        | "     | 0.0400 | 95.9 | 20-170 |  |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0368 |        | "     | 0.0400 | 92.0 | 21-167 |  |  |  |  |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/25/13 13:25

**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 |     |       |

**Batch 3032107 - EPA 5030 Soil MS**

**LCS (3032107-BS2)**

Prepared: 03/21/13 Analyzed: 03/22/13

|                                  |        |        |       |        |  |      |        |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |  |      | 66-138 |  |  |
| Benzene                          | 0.105  | 0.0050 | "     | 0.100  |  | 105  | 58-130 |  |  |
| Toluene                          | 0.109  | 0.0050 | "     | 0.100  |  | 109  | 61-134 |  |  |
| Ethylbenzene                     | 0.105  | 0.0050 | "     | 0.100  |  | 105  | 74-139 |  |  |
| m,p-Xylene                       | 0.209  | 0.010  | "     | 0.200  |  | 104  | 73-137 |  |  |
| o-Xylene                         | 0.105  | 0.0050 | "     | 0.100  |  | 105  | 73-141 |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0386 |        | "     | 0.0397 |  | 97.1 | 23-173 |  |  |
| Surrogate: Toluene-d8            | 0.0394 |        | "     | 0.0400 |  | 98.6 | 20-170 |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0356 |        | "     | 0.0400 |  | 89.1 | 21-167 |  |  |

**LCS Dup (3032107-BSD1)**

Prepared: 03/21/13 Analyzed: 03/22/13

|                                  |        |        |       |        |  |      |        |      |    |
|----------------------------------|--------|--------|-------|--------|--|------|--------|------|----|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |  |      | 66-138 |      | 12 |
| Benzene                          | 0.0986 | 0.0050 | "     | 0.100  |  | 98.6 | 58-130 | 9.28 | 13 |
| Toluene                          | 0.103  | 0.0050 | "     | 0.100  |  | 103  | 61-134 | 6.09 | 16 |
| Ethylbenzene                     | 0.105  | 0.0050 | "     | 0.100  |  | 105  | 74-139 | 4.62 | 12 |
| m,p-Xylene                       | 0.208  | 0.010  | "     | 0.200  |  | 104  | 73-137 | 5.10 | 14 |
| o-Xylene                         | 0.107  | 0.0050 | "     | 0.100  |  | 107  | 73-141 | 3.89 | 12 |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0375 |        | "     | 0.0397 |  | 94.5 | 23-173 |      |    |
| Surrogate: Toluene-d8            | 0.0377 |        | "     | 0.0400 |  | 94.3 | 20-170 |      |    |
| Surrogate: 4-Bromofluorobenzene  | 0.0367 |        | "     | 0.0400 |  | 91.7 | 21-167 |      |    |

**LCS Dup (3032107-BSD2)**

Prepared: 03/21/13 Analyzed: 03/22/13

|                                  |        |        |       |        |  |      |        |      |    |
|----------------------------------|--------|--------|-------|--------|--|------|--------|------|----|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |  |      | 66-138 |      | 12 |
| Benzene                          | 0.0975 | 0.0050 | "     | 0.100  |  | 97.5 | 58-130 | 7.66 | 13 |
| Toluene                          | 0.0992 | 0.0050 | "     | 0.100  |  | 99.2 | 61-134 | 9.64 | 16 |
| Ethylbenzene                     | 0.0997 | 0.0050 | "     | 0.100  |  | 99.7 | 74-139 | 4.93 | 12 |
| m,p-Xylene                       | 0.200  | 0.010  | "     | 0.200  |  | 100  | 73-137 | 4.01 | 14 |
| o-Xylene                         | 0.0995 | 0.0050 | "     | 0.100  |  | 99.5 | 73-141 | 5.80 | 12 |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0370 |        | "     | 0.0397 |  | 93.3 | 23-173 |      |    |
| Surrogate: Toluene-d8            | 0.0388 |        | "     | 0.0400 |  | 97.1 | 20-170 |      |    |
| Surrogate: 4-Bromofluorobenzene  | 0.0370 |        | "     | 0.0400 |  | 92.6 | 21-167 |      |    |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/25/13 13:25

**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 3032107 - EPA 5030 Soil MS**

| <b>Matrix Spike (3032107-MS1)</b> | <b>Source: R303152-01</b> |        |       | Prepared: 03/21/13 | Analyzed: 03/22/13 |
|-----------------------------------|---------------------------|--------|-------|--------------------|--------------------|
| Naphthalene                       | ND                        | 0.0050 | mg/kg | 0.00384            | 10-158             |
| Benzene                           | 0.0994                    | 0.0050 | "     | 0.100 0.00         | 99.4 30-131        |
| Toluene                           | 0.101                     | 0.0050 | "     | 0.100 0.00         | 101 30-134         |
| Ethylbenzene                      | 0.0967                    | 0.0050 | "     | 0.100 0.00         | 96.7 22-153        |
| m,p-Xylene                        | 0.193                     | 0.010  | "     | 0.200 0.00         | 96.5 10-159        |
| o-Xylene                          | 0.0990                    | 0.0050 | "     | 0.100 0.00         | 99.0 31-151        |
| Surrogate: 1,2-Dichloroethane-d4  | 0.0411                    |        | "     | 0.0397             | 104 23-173         |
| Surrogate: Toluene-d8             | 0.0382                    |        | "     | 0.0400             | 95.4 20-170        |
| Surrogate: 4-Bromofluorobenzene   | 0.0359                    |        | "     | 0.0400             | 89.8 21-167        |

| <b>Matrix Spike (3032107-MS2)</b> | <b>Source: R303152-02</b> |        |       | Prepared: 03/21/13 | Analyzed: 03/22/13 |
|-----------------------------------|---------------------------|--------|-------|--------------------|--------------------|
| Naphthalene                       | ND                        | 0.0050 | mg/kg | ND                 | 10-158             |
| Benzene                           | 0.0917                    | 0.0050 | "     | 0.100 0.00         | 91.7 30-131        |
| Toluene                           | 0.0908                    | 0.0050 | "     | 0.100 0.00         | 90.8 30-134        |
| Ethylbenzene                      | 0.0881                    | 0.0050 | "     | 0.100 0.00         | 88.1 22-153        |
| m,p-Xylene                        | 0.174                     | 0.010  | "     | 0.200 0.00         | 87.0 10-159        |
| o-Xylene                          | 0.0914                    | 0.0050 | "     | 0.100 0.00         | 91.4 31-151        |
| Surrogate: 1,2-Dichloroethane-d4  | 0.0427                    |        | "     | 0.0397             | 108 23-173         |
| Surrogate: Toluene-d8             | 0.0391                    |        | "     | 0.0400             | 97.6 20-170        |
| Surrogate: 4-Bromofluorobenzene   | 0.0368                    |        | "     | 0.0400             | 92.1 21-167        |

| <b>Matrix Spike Dup (3032107-MSD1)</b> | <b>Source: R303152-01</b> |        |       | Prepared: 03/21/13 | Analyzed: 03/22/13   |
|--|---------------------------|--------|-------|--------------------|----------------------|
| Naphthalene                            | ND                        | 0.0050 | mg/kg | 0.00384            | 10-158 42            |
| Benzene                                | 0.0997                    | 0.0050 | "     | 0.100 0.00         | 99.7 30-131 0.271 34 |
| Toluene                                | 0.102                     | 0.0050 | "     | 0.100 0.00         | 102 30-134 0.914 30  |
| Ethylbenzene                           | 0.100                     | 0.0050 | "     | 0.100 0.00         | 100 22-153 3.56 24   |
| m,p-Xylene                             | 0.199                     | 0.010  | "     | 0.200 0.00         | 99.5 10-159 3.08 68  |
| o-Xylene                               | 0.104                     | 0.0050 | "     | 0.100 0.00         | 104 31-151 5.14 38   |
| Surrogate: 1,2-Dichloroethane-d4       | 0.0401                    |        | "     | 0.0397             | 101 23-173           |
| Surrogate: Toluene-d8                  | 0.0388                    |        | "     | 0.0400             | 96.9 20-170          |
| Surrogate: 4-Bromofluorobenzene        | 0.0365                    |        | "     | 0.0400             | 91.3 21-167          |

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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: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Brunns

Reported:  
 03/25/13 13:25

**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 3032107 - EPA 5030 Soil MS**

| <b>Matrix Spike Dup (3032107-MSD2)</b> | <b>Source: R303152-02</b> |        |       | Prepared: 03/21/13 | Analyzed: 03/22/13 |      |        |      |  |    |
|--|---------------------------|--------|-------|--------------------|--------------------|------|--------|------|--|----|
| Naphthalene                            | ND                        | 0.0050 | mg/kg | ND                 | 10-158             |      |        |      |  | 42 |
| Benzene                                | 0.0941                    | 0.0050 | "     | 0.100              | 0.00               | 94.1 | 30-131 | 2.62 |  | 34 |
| Toluene                                | 0.0931                    | 0.0050 | "     | 0.100              | 0.00               | 93.1 | 30-134 | 2.48 |  | 30 |
| Ethylbenzene                           | 0.0925                    | 0.0050 | "     | 0.100              | 0.00               | 92.5 | 22-153 | 4.92 |  | 24 |
| m,p-Xylene                             | 0.182                     | 0.010  | "     | 0.200              | 0.00               | 91.0 | 10-159 | 4.52 |  | 68 |
| o-Xylene                               | 0.0955                    | 0.0050 | "     | 0.100              | 0.00               | 95.5 | 31-151 | 4.40 |  | 38 |
| Surrogate: 1,2-Dichloroethane-d4       | 0.0405                    |        | "     | 0.0397             |                    | 102  | 23-173 |      |  |    |
| Surrogate: Toluene-d8                  | 0.0386                    |        | "     | 0.0400             |                    | 96.5 | 20-170 |      |  |    |
| Surrogate: 4-Bromofluorobenzene        | 0.0372                    |        | "     | 0.0400             |                    | 92.9 | 21-167 |      |  |    |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/25/13 13:25

### 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 27, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Lundvall 2-19

Enclosed are the results of analyses for samples received by Summit Scientific on 03/25/13 08:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/27/13 09:17

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| SS04@12'  | R303164-01    | Soil   | 03/22/13 08:30 | 03/25/13 08:45 |
| SS05@12'  | R303164-02    | Soil   | 03/22/13 10:30 | 03/25/13 08:45 |
| SS06@12'  | R303164-03    | Soil   | 03/22/13 11:15 | 03/25/13 08:45 |
| SS07@11'  | R303164-04    | Soil   | 03/22/13 12:30 | 03/25/13 08:45 |
| SS08@10'  | R303164-05    | Soil   | 03/22/13 12:30 | 03/25/13 08:45 |

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*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: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
03/27/13 09:17

**SS04@12'**  
**R303164-01 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/22/13 08:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3032506 | 03/25/13 | 03/25/13 | 8015 DRO |       |

Date Sampled: **03/22/13 08:30**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 90.9 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/22/13 08:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.0050          | mg/kg | 1        | 3032507 | 03/25/13 | 03/25/13 | EPA 8260B |       |
| Benzene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/22/13 08:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 123 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 102 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 106 %           | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
03/27/13 09:17

**SS05@12'**  
**R303164-02 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/22/13 10:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3032506 | 03/25/13 | 03/25/13 | 8015 DRO |       |

Date Sampled: **03/22/13 10:30**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 92.1 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/22/13 10:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.0050          | mg/kg | 1        | 3032507 | 03/25/13 | 03/25/13 | EPA 8260B |       |
| Benzene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/22/13 10:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 128 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 103 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 111 %           | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
03/27/13 09:17

**SS06@12'**  
**R303164-03 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/22/13 11:15**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3032506 | 03/25/13 | 03/25/13 | 8015 DRO |       |

Date Sampled: **03/22/13 11:15**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 86.9 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/22/13 11:15**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.0050          | mg/kg | 1        | 3032507 | 03/25/13 | 03/25/13 | EPA 8260B |       |
| Benzene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/22/13 11:15**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 122 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 106 %           | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 104 %           | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
03/27/13 09:17

**SS07@11'**  
**R303164-04 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/22/13 12:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3032506 | 03/25/13 | 03/25/13 | 8015 DRO |       |

Date Sampled: **03/22/13 12:30**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 84.2 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/22/13 12:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.0050          | mg/kg | 1        | 3032507 | 03/25/13 | 03/25/13 | EPA 8260B |       |
| Benzene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/22/13 12:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 119 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 98.2 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 108 %           | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/27/13 09:17

**SS08@10'**  
**R303164-05 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/22/13 12:30**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3032506 | 03/25/13 | 03/25/13 | 8015 DRO |       |

Date Sampled: **03/22/13 12:30**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 83.7 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **03/22/13 12:30**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.0050          | mg/kg | 1        | 3032507 | 03/25/13 | 03/25/13 | EPA 8260B |       |
| Benzene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND     | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND     | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND     | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/22/13 12:30**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 111 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 97.4 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 108 %           | 21-167 |          | "     | "        | "        | "      |       |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 03/27/13 09:17

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

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

**Batch 3032506 - EPA 3550A**

|  |      |    |       |  |      |        |      |    |  |       |
|--|------|----|-------|--|------|--------|------|----|--|-------|
| <b>Blank (3032506-BLK1)</b>            |      |    |       | Prepared & Analyzed: 03/25/13                    |      |        |      |    |  |       |
| C10-C28 (DRO)                          | ND   | 50 | mg/kg |  |      |        |      |    |  |       |
| <b>LCS (3032506-BS1)</b>               |      |    |       | Prepared & Analyzed: 03/25/13                    |      |        |      |    |  |       |
| C10-C28 (DRO)                          | 541  | 50 | mg/kg | 501  | 108  | 73-134 |      |    |  |       |
| <b>LCS Dup (3032506-BSD1)</b>          |      |    |       | Prepared & Analyzed: 03/25/13                    |      |        |      |    |  |       |
| C10-C28 (DRO)                          | 489  | 50 | mg/kg | 501  | 97.6 | 73-134 | 10.1 | 11 |  |       |
| <b>Matrix Spike (3032506-MS1)</b>      |      |    |       | Source: R303159-29 Prepared & Analyzed: 03/25/13 |      |        |      |    |  |       |
| C10-C28 (DRO)                          | 4230 | 50 | mg/kg | 501  | 843  | 50-148 |      |    |  | QM-4X |
| <b>Matrix Spike Dup (3032506-MSD1)</b> |      |    |       | Source: R303159-29 Prepared & Analyzed: 03/25/13 |      |        |      |    |  |       |
| C10-C28 (DRO)                          | 3390 | 50 | mg/kg | 501  | 676  | 50-148 | 22.0 | 13 |  | QM-4X |

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: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/27/13 09:17

**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 3032507 - EPA 5030 Soil MS**

**Blank (3032507-BLK1)**

Prepared & Analyzed: 03/25/13

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |  |             |               |  |  |  |
| Benzene                                 | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| 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>0.0416</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>105</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0394</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>98.4</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0372</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>93.0</i> | <i>21-167</i> |  |  |  |

**Blank (3032507-BLK2)**

Prepared & Analyzed: 03/25/13

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |  |             |               |  |  |  |
| Benzene                                 | ND            | 0.0050 | "        |               |  |             |               |  |  |  |
| 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>0.0384</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>96.8</i> | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0384</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>96.1</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0364</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>91.0</i> | <i>21-167</i> |  |  |  |

**LCS (3032507-BS1)**

Prepared & Analyzed: 03/25/13

|   |               |        |          |               |  |             |               |  |  |  |
|---|---------------|--------|----------|---------------|--|-------------|---------------|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |  |             | 66-138        |  |  |  |
| Benzene                                 | 0.101         | 0.0050 | "        | 0.100         |  | 101         | 58-130        |  |  |  |
| Toluene                                 | 0.105         | 0.0050 | "        | 0.100         |  | 105         | 61-134        |  |  |  |
| Ethylbenzene                            | 0.101         | 0.0050 | "        | 0.100         |  | 101         | 74-139        |  |  |  |
| m,p-Xylene                              | 0.202         | 0.010  | "        | 0.200         |  | 101         | 73-137        |  |  |  |
| o-Xylene                                | 0.102         | 0.0050 | "        | 0.100         |  | 102         | 73-141        |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0413</i> |        | <i>"</i> | <i>0.0397</i> |  | <i>104</i>  | <i>23-173</i> |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0385</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>96.2</i> | <i>20-170</i> |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0377</i> |        | <i>"</i> | <i>0.0400</i> |  | <i>94.3</i> | <i>21-167</i> |  |  |  |

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: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/27/13 09:17

**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 3032507 - EPA 5030 Soil MS**

**LCS (3032507-BS2)**

Prepared & Analyzed: 03/25/13

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |  |      | 66-138 |  |  |  |
| Benzene                          | 0.103  | 0.0050 | "     | 0.100  |  | 103  | 58-130 |  |  |  |
| Toluene                          | 0.108  | 0.0050 | "     | 0.100  |  | 108  | 61-134 |  |  |  |
| Ethylbenzene                     | 0.107  | 0.0050 | "     | 0.100  |  | 107  | 74-139 |  |  |  |
| m,p-Xylene                       | 0.214  | 0.010  | "     | 0.200  |  | 107  | 73-137 |  |  |  |
| o-Xylene                         | 0.106  | 0.0050 | "     | 0.100  |  | 106  | 73-141 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0370 |        | "     | 0.0397 |  | 93.1 | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0387 |        | "     | 0.0400 |  | 96.7 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0368 |        | "     | 0.0400 |  | 91.9 | 21-167 |  |  |  |

**LCS Dup (3032507-BSD1)**

Prepared & Analyzed: 03/25/13

|                                  |        |        |       |        |  |      |        |      |    |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|------|----|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |  |      | 66-138 |      | 12 |  |
| Benzene                          | 0.106  | 0.0050 | "     | 0.100  |  | 106  | 58-130 | 5.56 | 13 |  |
| Toluene                          | 0.111  | 0.0050 | "     | 0.100  |  | 111  | 61-134 | 5.36 | 16 |  |
| Ethylbenzene                     | 0.109  | 0.0050 | "     | 0.100  |  | 109  | 74-139 | 7.37 | 12 |  |
| m,p-Xylene                       | 0.216  | 0.010  | "     | 0.200  |  | 108  | 73-137 | 6.71 | 14 |  |
| o-Xylene                         | 0.110  | 0.0050 | "     | 0.100  |  | 110  | 73-141 | 7.40 | 12 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0403 |        | "     | 0.0397 |  | 102  | 23-173 |      |    |  |
| Surrogate: Toluene-d8            | 0.0393 |        | "     | 0.0400 |  | 98.3 | 20-170 |      |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0365 |        | "     | 0.0400 |  | 91.2 | 21-167 |      |    |  |

**LCS Dup (3032507-BSD2)**

Prepared & Analyzed: 03/25/13

|                                  |        |        |       |        |  |      |        |      |    |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|------|----|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        |  |      | 66-138 |      | 12 |  |
| Benzene                          | 0.109  | 0.0050 | "     | 0.100  |  | 109  | 58-130 | 5.88 | 13 |  |
| Toluene                          | 0.115  | 0.0050 | "     | 0.100  |  | 115  | 61-134 | 5.74 | 16 |  |
| Ethylbenzene                     | 0.114  | 0.0050 | "     | 0.100  |  | 114  | 74-139 | 6.17 | 12 |  |
| m,p-Xylene                       | 0.227  | 0.010  | "     | 0.200  |  | 113  | 73-137 | 5.48 | 14 |  |
| o-Xylene                         | 0.113  | 0.0050 | "     | 0.100  |  | 113  | 73-141 | 6.20 | 12 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0391 |        | "     | 0.0397 |  | 98.5 | 23-173 |      |    |  |
| Surrogate: Toluene-d8            | 0.0387 |        | "     | 0.0400 |  | 96.7 | 20-170 |      |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0363 |        | "     | 0.0400 |  | 90.8 | 21-167 |      |    |  |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/27/13 09:17

**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 3032507 - EPA 5030 Soil MS**

**Matrix Spike (3032507-MS1)**

**Source: R303164-01**

Prepared & Analyzed: 03/25/13

|                                  |        |        |       |        |      |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        | ND   |      | 10-158 |  |  |  |
| Benzene                          | 0.0969 | 0.0050 | "     | 0.100  | 0.00 | 96.9 | 30-131 |  |  |  |
| Toluene                          | 0.102  | 0.0050 | "     | 0.100  | 0.00 | 102  | 30-134 |  |  |  |
| Ethylbenzene                     | 0.0993 | 0.0050 | "     | 0.100  | 0.00 | 99.3 | 22-153 |  |  |  |
| m,p-Xylene                       | 0.198  | 0.010  | "     | 0.200  | 0.00 | 99.1 | 10-159 |  |  |  |
| o-Xylene                         | 0.100  | 0.0050 | "     | 0.100  | 0.00 | 100  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0413 |        | "     | 0.0397 |      | 104  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0386 |        | "     | 0.0400 |      | 96.6 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0373 |        | "     | 0.0400 |      | 93.3 | 21-167 |  |  |  |

**Matrix Spike (3032507-MS2)**

**Source: R303164-02**

Prepared & Analyzed: 03/25/13

|                                  |        |        |       |        |      |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        | ND   |      | 10-158 |  |  |  |
| Benzene                          | 0.101  | 0.0050 | "     | 0.100  | 0.00 | 101  | 30-131 |  |  |  |
| Toluene                          | 0.107  | 0.0050 | "     | 0.100  | 0.00 | 107  | 30-134 |  |  |  |
| Ethylbenzene                     | 0.103  | 0.0050 | "     | 0.100  | 0.00 | 103  | 22-153 |  |  |  |
| m,p-Xylene                       | 0.205  | 0.010  | "     | 0.200  | 0.00 | 102  | 10-159 |  |  |  |
| o-Xylene                         | 0.107  | 0.0050 | "     | 0.100  | 0.00 | 107  | 31-151 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0401 |        | "     | 0.0397 |      | 101  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0382 |        | "     | 0.0400 |      | 95.4 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0352 |        | "     | 0.0400 |      | 88.1 | 21-167 |  |  |  |

**Matrix Spike Dup (3032507-MSD1)**

**Source: R303164-01**

Prepared & Analyzed: 03/25/13

|                                  |        |        |       |        |      |      |        |       |  |    |
|----------------------------------|--------|--------|-------|--------|------|------|--------|-------|--|----|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        | ND   |      | 10-158 |       |  | 42 |
| Benzene                          | 0.0958 | 0.0050 | "     | 0.100  | 0.00 | 95.8 | 30-131 | 1.06  |  | 34 |
| Toluene                          | 0.101  | 0.0050 | "     | 0.100  | 0.00 | 101  | 30-134 | 1.65  |  | 30 |
| Ethylbenzene                     | 0.100  | 0.0050 | "     | 0.100  | 0.00 | 100  | 22-153 | 0.662 |  | 24 |
| m,p-Xylene                       | 0.199  | 0.010  | "     | 0.200  | 0.00 | 99.4 | 10-159 | 0.333 |  | 68 |
| o-Xylene                         | 0.101  | 0.0050 | "     | 0.100  | 0.00 | 101  | 31-151 | 0.387 |  | 38 |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0414 |        | "     | 0.0397 |      | 104  | 23-173 |       |  |    |
| Surrogate: Toluene-d8            | 0.0387 |        | "     | 0.0400 |      | 96.7 | 20-170 |       |  |    |
| Surrogate: 4-Bromofluorobenzene  | 0.0370 |        | "     | 0.0400 |      | 92.5 | 21-167 |       |  |    |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Bruns

Reported:  
 03/27/13 09:17

**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 3032507 - EPA 5030 Soil MS**

| <b>Matrix Spike Dup (3032507-MSD2)</b>  | <b>Source: R303164-02</b> |        |          | <b>Prepared &amp; Analyzed: 03/25/13</b> |      |             |               |      |  |    |
|---|---------------------------|--------|----------|--|------|-------------|---------------|------|--|----|
| Naphthalene                             | ND                        | 0.0050 | mg/kg    | ND                                       |      |             | 10-158        |      |  | 42 |
| Benzene                                 | 0.0982                    | 0.0050 | "        | 0.100                                    | 0.00 | 98.2        | 30-131        | 2.77 |  | 34 |
| Toluene                                 | 0.103                     | 0.0050 | "        | 0.100                                    | 0.00 | 103         | 30-134        | 3.90 |  | 30 |
| Ethylbenzene                            | 0.0998                    | 0.0050 | "        | 0.100                                    | 0.00 | 99.8        | 22-153        | 3.40 |  | 24 |
| m,p-Xylene                              | 0.200                     | 0.010  | "        | 0.200                                    | 0.00 | 99.8        | 10-159        | 2.57 |  | 68 |
| o-Xylene                                | 0.101                     | 0.0050 | "        | 0.100                                    | 0.00 | 101         | 31-151        | 5.10 |  | 38 |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0406</i>             |        | <i>"</i> | <i>0.0397</i>                            |      | <i>102</i>  | <i>23-173</i> |      |  |    |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0390</i>             |        | <i>"</i> | <i>0.0400</i>                            |      | <i>97.6</i> | <i>20-170</i> |      |  |    |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0363</i>             |        | <i>"</i> | <i>0.0400</i>                            |      | <i>90.8</i> | <i>21-167</i> |      |  |    |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/27/13 09:17

### Notes and Definitions

- QM-4X The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
- 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 27, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Lundvall 2-19

Enclosed are the results of analyses for samples received by Summit Scientific on 03/26/13 10:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
03/27/13 10:42

**SS09**  
**R303175-01 (Soil)**

**Summit Scientific**

**Total Petroleum Hydrocarbons by 8015**

Date Sampled: **03/25/13 09:15**

| Analyte              | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method   | Notes |
|----------------------|-------------|-----------------|-------|----------|---------|----------|----------|----------|-------|
| <b>C10-C28 (DRO)</b> | <b>1100</b> | 50              | mg/kg | 1        | 3032610 | 03/26/13 | 03/27/13 | 8015 DRO |       |

Date Sampled: **03/25/13 09:15**

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

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

Date Sampled: **03/25/13 09:15**

| Analyte                            | Result      | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------|-------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| <b>Naphthalene</b>                 | <b>0.21</b> | 0.0050          | mg/kg | 1        | 3032609 | 03/26/13 | 03/27/13 | EPA 8260B |       |
| <b>Benzene</b>                     | <b>0.27</b> | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| <b>Toluene</b>                     | <b>1.1</b>  | 0.050           | "     | 10       | "       | "        | "        | "         |       |
| <b>Ethylbenzene</b>                | <b>0.51</b> | 0.0050          | "     | 1        | "       | "        | "        | "         |       |
| <b>Xylenes (total)</b>             | <b>9.2</b>  | 0.10            | "     | 10       | "       | "        | "        | "         |       |
| <b>Gasoline Range Hydrocarbons</b> | <b>1000</b> | 5.0             | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **03/25/13 09:15**

| Analyte                                 | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| <i>Surrogate: 1,2-Dichloroethane-d4</i> |        | 106 %           | 23-173 |          | "     | "        | "        | "      |       |
| <i>Surrogate: Toluene-d8</i>            |        | 92.6 %          | 20-170 |          | "     | "        | "        | "      |       |
| <i>Surrogate: 4-Bromofluorobenzene</i>  |        | 74.9 %          | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Brunns

**Reported:**  
 03/27/13 10:42

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

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

**Batch 3032610 - EPA 3550A**

|  |     |    |       |                               |    |                                       |        |       |    |  |
|--|-----|----|-------|-------------------------------|----|---------------------------------------|--------|-------|----|--|
| <b>Blank (3032610-BLK1)</b>            |     |    |       | Prepared & Analyzed: 03/26/13 |    |                                       |        |       |    |  |
| C10-C28 (DRO)                          | ND  | 50 | mg/kg |                               |    |                                       |        |       |    |  |
| <b>LCS (3032610-BS1)</b>               |     |    |       | Prepared & Analyzed: 03/26/13 |    |                                       |        |       |    |  |
| C10-C28 (DRO)                          | 638 | 50 | mg/kg | 501                           |    | 127                                   | 73-134 |       |    |  |
| <b>LCS Dup (3032610-BSD1)</b>          |     |    |       | Prepared & Analyzed: 03/26/13 |    |                                       |        |       |    |  |
| C10-C28 (DRO)                          | 635 | 50 | mg/kg | 501                           |    | 127                                   | 73-134 | 0.480 | 11 |  |
| <b>Matrix Spike (3032610-MS1)</b>      |     |    |       | <b>Source: R303176-01</b>     |    | Prepared: 03/26/13 Analyzed: 03/27/13 |        |       |    |  |
| C10-C28 (DRO)                          | 665 | 50 | mg/kg | 501                           | ND | 133                                   | 50-148 |       |    |  |
| <b>Matrix Spike Dup (3032610-MSD1)</b> |     |    |       | <b>Source: R303176-01</b>     |    | Prepared: 03/26/13 Analyzed: 03/27/13 |        |       |    |  |
| C10-C28 (DRO)                          | 671 | 50 | mg/kg | 501                           | ND | 134                                   | 50-148 | 0.926 | 13 |  |

Summit Scientific

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/27/13 10:42

**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 |     |       |

**Batch 3032609 - EPA 5030 Soil MS**

**Blank (3032609-BLK1)**

Prepared & Analyzed: 03/26/13

|   |               |        |          |               |             |               |  |  |  |  |
|---|---------------|--------|----------|---------------|-------------|---------------|--|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |             |               |  |  |  |  |
| Benzene                                 | ND            | 0.0050 | "        |               |             |               |  |  |  |  |
| 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>0.0399</i> |        | <i>"</i> | <i>0.0397</i> | <i>101</i>  | <i>23-173</i> |  |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0383</i> |        | <i>"</i> | <i>0.0400</i> | <i>95.8</i> | <i>20-170</i> |  |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0360</i> |        | <i>"</i> | <i>0.0400</i> | <i>90.0</i> | <i>21-167</i> |  |  |  |  |

**LCS (3032609-BS1)**

Prepared & Analyzed: 03/26/13

|   |               |        |          |               |             |               |  |  |  |  |
|---|---------------|--------|----------|---------------|-------------|---------------|--|--|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |             | 66-138        |  |  |  |  |
| Benzene                                 | 0.102         | 0.0050 | "        | 0.100         | 102         | 58-130        |  |  |  |  |
| Toluene                                 | 0.107         | 0.0050 | "        | 0.100         | 107         | 61-134        |  |  |  |  |
| Ethylbenzene                            | 0.104         | 0.0050 | "        | 0.100         | 104         | 74-139        |  |  |  |  |
| m,p-Xylene                              | 0.207         | 0.010  | "        | 0.200         | 104         | 73-137        |  |  |  |  |
| o-Xylene                                | 0.107         | 0.0050 | "        | 0.100         | 107         | 73-141        |  |  |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0403</i> |        | <i>"</i> | <i>0.0397</i> | <i>102</i>  | <i>23-173</i> |  |  |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0390</i> |        | <i>"</i> | <i>0.0400</i> | <i>97.6</i> | <i>20-170</i> |  |  |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0368</i> |        | <i>"</i> | <i>0.0400</i> | <i>91.9</i> | <i>21-167</i> |  |  |  |  |

**LCS Dup (3032609-BSD1)**

Prepared & Analyzed: 03/26/13

|   |               |        |          |               |             |               |      |    |  |  |
|---|---------------|--------|----------|---------------|-------------|---------------|------|----|--|--|
| Naphthalene                             | ND            | 0.0050 | mg/kg    |               |             | 66-138        |      | 12 |  |  |
| Benzene                                 | 0.0988        | 0.0050 | "        | 0.100         | 98.8        | 58-130        | 3.46 | 13 |  |  |
| Toluene                                 | 0.104         | 0.0050 | "        | 0.100         | 104         | 61-134        | 3.33 | 16 |  |  |
| Ethylbenzene                            | 0.102         | 0.0050 | "        | 0.100         | 102         | 74-139        | 2.80 | 12 |  |  |
| m,p-Xylene                              | 0.201         | 0.010  | "        | 0.200         | 101         | 73-137        | 2.97 | 14 |  |  |
| o-Xylene                                | 0.103         | 0.0050 | "        | 0.100         | 103         | 73-141        | 3.92 | 12 |  |  |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | <i>0.0397</i> |        | <i>"</i> | <i>0.0397</i> | <i>99.9</i> | <i>23-173</i> |      |    |  |  |
| <i>Surrogate: Toluene-d8</i>            | <i>0.0386</i> |        | <i>"</i> | <i>0.0400</i> | <i>96.5</i> | <i>20-170</i> |      |    |  |  |
| <i>Surrogate: 4-Bromofluorobenzene</i>  | <i>0.0374</i> |        | <i>"</i> | <i>0.0400</i> | <i>93.5</i> | <i>21-167</i> |      |    |  |  |

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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: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
03/27/13 10:42

**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 |     |       |

**Batch 3032609 - EPA 5030 Soil MS**

**Matrix Spike (3032609-MS1)**

Source: R303176-01

Prepared & Analyzed: 03/26/13

|                                  |        |        |       |        |      |      |        |  |  |
|----------------------------------|--------|--------|-------|--------|------|------|--------|--|--|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        | ND   |      | 10-158 |  |  |
| Benzene                          | 0.0913 | 0.0050 | "     | 0.100  | 0.00 | 91.3 | 30-131 |  |  |
| Toluene                          | 0.0949 | 0.0050 | "     | 0.100  | 0.00 | 94.9 | 30-134 |  |  |
| Ethylbenzene                     | 0.0836 | 0.0050 | "     | 0.100  | 0.00 | 83.6 | 22-153 |  |  |
| m,p-Xylene                       | 0.168  | 0.010  | "     | 0.200  | 0.00 | 84.1 | 10-159 |  |  |
| o-Xylene                         | 0.0859 | 0.0050 | "     | 0.100  | 0.00 | 85.9 | 31-151 |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0419 |        | "     | 0.0397 |      | 105  | 23-173 |  |  |
| Surrogate: Toluene-d8            | 0.0386 |        | "     | 0.0400 |      | 96.4 | 20-170 |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0350 |        | "     | 0.0400 |      | 87.4 | 21-167 |  |  |

**Matrix Spike Dup (3032609-MSD1)**

Source: R303176-01

Prepared & Analyzed: 03/26/13

|                                  |        |        |       |        |      |      |        |       |    |
|----------------------------------|--------|--------|-------|--------|------|------|--------|-------|----|
| Naphthalene                      | ND     | 0.0050 | mg/kg |        | ND   |      | 10-158 |       | 42 |
| Benzene                          | 0.0930 | 0.0050 | "     | 0.100  | 0.00 | 93.0 | 30-131 | 1.92  | 34 |
| Toluene                          | 0.0954 | 0.0050 | "     | 0.100  | 0.00 | 95.4 | 30-134 | 0.536 | 30 |
| Ethylbenzene                     | 0.0867 | 0.0050 | "     | 0.100  | 0.00 | 86.7 | 22-153 | 3.66  | 24 |
| m,p-Xylene                       | 0.172  | 0.010  | "     | 0.200  | 0.00 | 85.8 | 10-159 | 2.08  | 68 |
| o-Xylene                         | 0.0883 | 0.0050 | "     | 0.100  | 0.00 | 88.3 | 31-151 | 2.72  | 38 |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0425 |        | "     | 0.0397 |      | 107  | 23-173 |       |    |
| Surrogate: Toluene-d8            | 0.0393 |        | "     | 0.0400 |      | 98.2 | 20-170 |       |    |
| Surrogate: 4-Bromofluorobenzene  | 0.0353 |        | "     | 0.0400 |      | 88.4 | 21-167 |       |    |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/27/13 10:42

### 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 03, 2013

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Lundvall 2-19

Enclosed are the results of analyses for samples received by Summit Scientific on 09/27/13 16:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/03/13 15:54

**ANALYTICAL REPORT FOR SAMPLES**

| Sample ID  | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|------------|---------------|--------|----------------|----------------|
| BH01-13-15 | R309253-01    | Soil   | 09/27/13 10:40 | 09/27/13 16:55 |
| BH02-13-15 | R309253-02    | Soil   | 09/27/13 11:20 | 09/27/13 16:55 |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/03/13 15:54

**BH01-13-15**  
**R309253-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/27/13 10:40**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3093015 | 09/30/13 | 10/02/13 | 8015M  |       |

Date Sampled: **09/27/13 10:40**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 83.7 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **09/27/13 10:40**

| Analyte                     | Result        | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|---------------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND            | 0.010           | mg/kg | 1        | 3093014 | 09/30/13 | 10/03/13 | EPA 8260B |       |
| <b>Benzene</b>              | <b>0.0073</b> | 0.0020          | "     | "        | "       | "        | "        | "         |       |
| Toluene                     | ND            | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Ethylbenzene                | ND            | 0.0050          | "     | "        | "       | "        | "        | "         |       |
| Xylenes (total)             | ND            | 0.010           | "     | "        | "       | "        | "        | "         |       |
| Gasoline Range Hydrocarbons | ND            | 0.50            | "     | "        | "       | "        | "        | "         |       |

Date Sampled: **09/27/13 10:40**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 119 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.2 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 105 %           | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/03/13 15:54

**BH02-13-15**  
**R309253-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/27/13 11:20**

| Analyte       | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method | Notes |
|---------------|--------|-----------------|-------|----------|---------|----------|----------|--------|-------|
| C10-C28 (DRO) | ND     | 50              | mg/kg | 1        | 3093015 | 09/30/13 | 10/02/13 | 8015M  |       |

Date Sampled: **09/27/13 11:20**

| Analyte                        | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|--------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: <i>o</i> -Terphenyl |        | 96.0 %          | 30-150 |          | "     | "        | "        | "      |       |

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

Date Sampled: **09/27/13 11:20**

| Analyte                     | Result | Reporting Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|-----------------------------|--------|-----------------|-------|----------|---------|----------|----------|-----------|-------|
| Naphthalene                 | ND     | 0.010           | mg/kg | 1        | 3093014 | 09/30/13 | 10/03/13 | 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: **09/27/13 11:20**

| Analyte                          | Result | Reporting Limit | Units  | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|----------------------------------|--------|-----------------|--------|----------|-------|----------|----------|--------|-------|
| Surrogate: 1,2-Dichloroethane-d4 |        | 120 %           | 23-173 |          | "     | "        | "        | "      |       |
| Surrogate: Toluene-d8            |        | 99.3 %          | 20-170 |          | "     | "        | "        | "      |       |
| Surrogate: 4-Bromofluorobenzene  |        | 105 %           | 21-167 |          | "     | "        | "        | "      |       |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
10/03/13 15:54

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

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

**Batch 3093015 - EPA 3550A**

|  |     |    |       |                           |                                       |      |        |      |    |  |
|--|-----|----|-------|---------------------------|---------------------------------------|------|--------|------|----|--|
| <b>Blank (3093015-BLK1)</b>            |     |    |       |                           | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | ND  | 50 | mg/kg |                           |                                       |      |        |      |    |  |
| <b>LCS (3093015-BS1)</b>               |     |    |       |                           | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 474 | 50 | mg/kg | 501                       |                                       | 94.6 | 73-134 |      |    |  |
| <b>LCS (3093015-BS2)</b>               |     |    |       |                           | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 504 | 50 | mg/kg | 501                       |                                       | 101  | 73-134 |      |    |  |
| <b>LCS Dup (3093015-BSD1)</b>          |     |    |       |                           | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 484 | 50 | mg/kg | 501                       |                                       | 96.6 | 73-134 | 2.12 | 11 |  |
| <b>LCS Dup (3093015-BSD2)</b>          |     |    |       |                           | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 478 | 50 | mg/kg | 501                       |                                       | 95.4 | 73-134 | 5.30 | 11 |  |
| <b>Matrix Spike (3093015-MS1)</b>      |     |    |       | <b>Source: R309251-02</b> | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 580 | 50 | mg/kg | 498                       | ND                                    | 116  | 50-148 |      |    |  |
| <b>Matrix Spike (3093015-MS2)</b>      |     |    |       | <b>Source: R309251-03</b> | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 465 | 50 | mg/kg | 430                       | ND                                    | 108  | 50-148 |      |    |  |
| <b>Matrix Spike Dup (3093015-MSD1)</b> |     |    |       | <b>Source: R309251-02</b> | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 544 | 50 | mg/kg | 474                       | ND                                    | 115  | 50-148 | 6.37 | 13 |  |
| <b>Matrix Spike Dup (3093015-MSD2)</b> |     |    |       | <b>Source: R309251-03</b> | Prepared: 09/30/13 Analyzed: 10/02/13 |      |        |      |    |  |
| C10-C28 (DRO)                          | 524 | 50 | mg/kg | 487                       | ND                                    | 107  | 50-148 | 11.9 | 13 |  |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
10/03/13 15:54

**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 |     |       |

**Batch 3093014 - EPA 5030 Soil MS**

**Blank (3093014-BLK1)**

Prepared: 09/30/13 Analyzed: 10/01/13

|                                  |        |        |       |        |      |        |  |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| 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   | "     |        |      |        |  |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0445 |        | "     | 0.0397 | 112  | 23-173 |  |  |  |  |
| Surrogate: Toluene-d8            | 0.0383 |        | "     | 0.0400 | 95.8 | 20-170 |  |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0411 |        | "     | 0.0400 | 103  | 21-167 |  |  |  |  |

**Blank (3093014-BLK2)**

Prepared: 09/30/13 Analyzed: 10/01/13

|                                  |        |        |       |        |      |        |  |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| 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   | "     |        |      |        |  |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0457 |        | "     | 0.0397 | 115  | 23-173 |  |  |  |  |
| Surrogate: Toluene-d8            | 0.0388 |        | "     | 0.0400 | 97.0 | 20-170 |  |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0411 |        | "     | 0.0400 | 103  | 21-167 |  |  |  |  |

**LCS (3093014-BS1)**

Prepared: 09/30/13 Analyzed: 10/01/13

|                                  |        |        |       |        |      |        |  |  |  |  |
|----------------------------------|--------|--------|-------|--------|------|--------|--|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |      | 66-138 |  |  |  |  |
| Benzene                          | 0.0742 | 0.0020 | "     | 0.100  | 74.2 | 58-130 |  |  |  |  |
| Toluene                          | 0.0885 | 0.0050 | "     | 0.100  | 88.5 | 61-134 |  |  |  |  |
| Ethylbenzene                     | 0.120  | 0.0050 | "     | 0.100  | 120  | 74-139 |  |  |  |  |
| m,p-Xylene                       | 0.229  | 0.010  | "     | 0.200  | 114  | 73-137 |  |  |  |  |
| o-Xylene                         | 0.118  | 0.0050 | "     | 0.100  | 118  | 73-141 |  |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0449 |        | "     | 0.0397 | 113  | 23-173 |  |  |  |  |
| Surrogate: Toluene-d8            | 0.0387 |        | "     | 0.0400 | 96.8 | 20-170 |  |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0401 |        | "     | 0.0400 | 100  | 21-167 |  |  |  |  |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
10/03/13 15:54

**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 3093014 - EPA 5030 Soil MS**

**LCS (3093014-BS2)**

Prepared: 09/30/13 Analyzed: 10/01/13

|                                  |        |        |       |        |  |      |        |  |  |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|--|--|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      | 66-138 |  |  |  |
| Benzene                          | 0.0738 | 0.0020 | "     | 0.100  |  | 73.8 | 58-130 |  |  |  |
| Toluene                          | 0.0873 | 0.0050 | "     | 0.100  |  | 87.3 | 61-134 |  |  |  |
| Ethylbenzene                     | 0.119  | 0.0050 | "     | 0.100  |  | 119  | 74-139 |  |  |  |
| m,p-Xylene                       | 0.228  | 0.010  | "     | 0.200  |  | 114  | 73-137 |  |  |  |
| o-Xylene                         | 0.119  | 0.0050 | "     | 0.100  |  | 119  | 73-141 |  |  |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0470 |        | "     | 0.0397 |  | 118  | 23-173 |  |  |  |
| Surrogate: Toluene-d8            | 0.0384 |        | "     | 0.0400 |  | 96.0 | 20-170 |  |  |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0397 |        | "     | 0.0400 |  | 99.3 | 21-167 |  |  |  |

**LCS Dup (3093014-BSD1)**

Prepared: 09/30/13 Analyzed: 10/01/13

|                                  |        |        |       |        |  |      |        |       |    |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|-------|----|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      | 66-138 |       | 12 |  |
| Benzene                          | 0.0754 | 0.0020 | "     | 0.100  |  | 75.4 | 58-130 | 1.52  | 13 |  |
| Toluene                          | 0.0880 | 0.0050 | "     | 0.100  |  | 88.0 | 61-134 | 0.476 | 16 |  |
| Ethylbenzene                     | 0.119  | 0.0050 | "     | 0.100  |  | 119  | 74-139 | 0.777 | 12 |  |
| m,p-Xylene                       | 0.230  | 0.010  | "     | 0.200  |  | 115  | 73-137 | 0.340 | 14 |  |
| o-Xylene                         | 0.119  | 0.0050 | "     | 0.100  |  | 119  | 73-141 | 0.455 | 12 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0453 |        | "     | 0.0397 |  | 114  | 23-173 |       |    |  |
| Surrogate: Toluene-d8            | 0.0383 |        | "     | 0.0400 |  | 95.8 | 20-170 |       |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0399 |        | "     | 0.0400 |  | 99.8 | 21-167 |       |    |  |

**LCS Dup (3093014-BSD2)**

Prepared: 09/30/13 Analyzed: 10/01/13

|                                  |        |        |       |        |  |      |        |       |    |  |
|----------------------------------|--------|--------|-------|--------|--|------|--------|-------|----|--|
| Naphthalene                      | ND     | 0.010  | mg/kg |        |  |      | 66-138 |       | 12 |  |
| Benzene                          | 0.0729 | 0.0020 | "     | 0.100  |  | 72.9 | 58-130 | 1.19  | 13 |  |
| Toluene                          | 0.0860 | 0.0050 | "     | 0.100  |  | 86.0 | 61-134 | 1.52  | 16 |  |
| Ethylbenzene                     | 0.121  | 0.0050 | "     | 0.100  |  | 121  | 74-139 | 2.02  | 12 |  |
| m,p-Xylene                       | 0.234  | 0.010  | "     | 0.200  |  | 117  | 73-137 | 2.78  | 14 |  |
| o-Xylene                         | 0.120  | 0.0050 | "     | 0.100  |  | 120  | 73-141 | 0.552 | 12 |  |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0458 |        | "     | 0.0397 |  | 115  | 23-173 |       |    |  |
| Surrogate: Toluene-d8            | 0.0384 |        | "     | 0.0400 |  | 95.9 | 20-170 |       |    |  |
| Surrogate: 4-Bromofluorobenzene  | 0.0394 |        | "     | 0.0400 |  | 98.5 | 21-167 |       |    |  |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
10/03/13 15:54

**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 3093014 - EPA 5030 Soil MS**

| <b>Matrix Spike (3093014-MS1)</b> |        | <b>Source: R309255-01</b> |       |        | Prepared: 09/30/13 | Analyzed: 10/02/13 |
|-----------------------------------|--------|---------------------------|-------|--------|--------------------|--------------------|
| Naphthalene                       | ND     | 0.010                     | mg/kg | ND     | 10-158             |                    |
| Benzene                           | 0.0906 | 0.0020                    | "     | 0.0926 | ND                 | 97.9 30-131        |
| Toluene                           | 0.0928 | 0.0050                    | "     | 0.0926 | ND                 | 100 30-134         |
| Ethylbenzene                      | 0.102  | 0.0050                    | "     | 0.0926 | ND                 | 111 22-153         |
| m,p-Xylene                        | 0.203  | 0.010                     | "     | 0.185  | ND                 | 109 10-159         |
| o-Xylene                          | 0.101  | 0.0050                    | "     | 0.0926 | ND                 | 109 31-151         |
| Surrogate: 1,2-Dichloroethane-d4  | 0.0395 |                           | "     | 0.0368 |                    | 107 23-173         |
| Surrogate: Toluene-d8             | 0.0349 |                           | "     | 0.0370 |                    | 94.3 20-170        |
| Surrogate: 4-Bromofluorobenzene   | 0.0375 |                           | "     | 0.0370 |                    | 101 21-167         |

| <b>Matrix Spike (3093014-MS2)</b> |        | <b>Source: R309255-02</b> |       |        | Prepared: 09/30/13 | Analyzed: 10/02/13 |
|-----------------------------------|--------|---------------------------|-------|--------|--------------------|--------------------|
| Naphthalene                       | ND     | 0.010                     | mg/kg | ND     | 10-158             |                    |
| Benzene                           | 0.0920 | 0.0020                    | "     | 0.0909 | ND                 | 101 30-131         |
| Toluene                           | 0.103  | 0.0050                    | "     | 0.0909 | ND                 | 113 30-134         |
| Ethylbenzene                      | 0.105  | 0.0050                    | "     | 0.0909 | ND                 | 115 22-153         |
| m,p-Xylene                        | 0.205  | 0.010                     | "     | 0.182  | ND                 | 113 10-159         |
| o-Xylene                          | 0.105  | 0.0050                    | "     | 0.0909 | ND                 | 115 31-151         |
| Surrogate: 1,2-Dichloroethane-d4  | 0.0261 |                           | "     | 0.0361 |                    | 72.4 23-173        |
| Surrogate: Toluene-d8             | 0.0373 |                           | "     | 0.0364 |                    | 103 20-170         |
| Surrogate: 4-Bromofluorobenzene   | 0.0338 |                           | "     | 0.0364 |                    | 93.1 21-167        |

| <b>Matrix Spike Dup (3093014-MSD1)</b> |        | <b>Source: R309255-01</b> |       |        | Prepared: 09/30/13 | Analyzed: 10/02/13  |
|--|--------|---------------------------|-------|--------|--------------------|---------------------|
| Naphthalene                            | ND     | 0.010                     | mg/kg | ND     | 10-158             | 42                  |
| Benzene                                | 0.0868 | 0.0020                    | "     | 0.0870 | ND                 | 99.8 30-131 4.37 34 |
| Toluene                                | 0.0940 | 0.0050                    | "     | 0.0870 | ND                 | 108 30-134 1.27 30  |
| Ethylbenzene                           | 0.0979 | 0.0050                    | "     | 0.0870 | ND                 | 113 22-153 4.61 24  |
| m,p-Xylene                             | 0.194  | 0.010                     | "     | 0.174  | ND                 | 112 10-159 4.20 68  |
| o-Xylene                               | 0.0978 | 0.0050                    | "     | 0.0870 | ND                 | 112 31-151 2.75 38  |
| Surrogate: 1,2-Dichloroethane-d4       | 0.0368 |                           | "     | 0.0345 |                    | 107 23-173          |
| Surrogate: Toluene-d8                  | 0.0346 |                           | "     | 0.0348 |                    | 99.5 20-170         |
| Surrogate: 4-Bromofluorobenzene        | 0.0332 |                           | "     | 0.0348 |                    | 95.3 21-167         |

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

Project: Lundvall 2-19

Project Number: [none]  
 Project Manager: Brandon Bruns

Reported:  
 10/03/13 15:54

**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 3093014 - EPA 5030 Soil MS**

| <b>Matrix Spike Dup (3093014-MSD2)</b> | <b>Source: R309255-02</b> |        |       | Prepared: 09/30/13 | Analyzed: 10/02/13 |      |        |      |  |    |  |
|--|---------------------------|--------|-------|--------------------|--------------------|------|--------|------|--|----|--|
| Naphthalene                            | ND                        | 0.010  | mg/kg | ND                 | 10-158             |      |        |      |  | 42 |  |
| Benzene                                | 0.0895                    | 0.0020 | "     | 0.0907             | ND                 | 98.6 | 30-131 | 2.73 |  | 34 |  |
| Toluene                                | 0.0957                    | 0.0050 | "     | 0.0907             | ND                 | 105  | 30-134 | 7.29 |  | 30 |  |
| Ethylbenzene                           | 0.0988                    | 0.0050 | "     | 0.0907             | ND                 | 109  | 22-153 | 5.83 |  | 24 |  |
| m,p-Xylene                             | 0.195                     | 0.010  | "     | 0.181              | ND                 | 107  | 10-159 | 5.19 |  | 68 |  |
| o-Xylene                               | 0.0973                    | 0.0050 | "     | 0.0907             | ND                 | 107  | 31-151 | 7.41 |  | 38 |  |
| Surrogate: 1,2-Dichloroethane-d4       | 0.0411                    |        | "     | 0.0360             |                    | 114  | 23-173 |      |  |    |  |
| Surrogate: Toluene-d8                  | 0.0371                    |        | "     | 0.0363             |                    | 102  | 20-170 |      |  |    |  |
| Surrogate: 4-Bromofluorobenzene        | 0.0365                    |        | "     | 0.0363             |                    | 100  | 21-167 |      |  |    |  |

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

Project: Lundvall 2-19

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
10/03/13 15:54

### 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