



UPI 30-D45-07171

bradenhead

## Gas Analysis Certificate

OIL CONS. DIV DIST. 3

GPA Standard 2261-13

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 7/10/2015 10:21:38 AM

DEC 18 2015

|                    |               |                |                  |
|--------------------|---------------|----------------|------------------|
| Client:            | BP            | Project #:     | 03143-0880       |
| Site Name:         | GCU 165       | Meter ID:      | 3004507171 (BHD) |
| Sampled by:        | Sawyer M.     | Date Sampled   | 07-13-15         |
| Analyzed by:       | Logan Richter | Date Received: | 07-14-15         |
| Sample Pressure:   | 105 psig      | Date Analyzed: | 07-15-15         |
| Sample Temperature | N/R           | Analysis Time: | Standard         |

## Component Results (14.696)

| Name           | Qty (Norm)<br>[Mol %] | Wt Percent<br>(%) | GPM    |
|----------------|-----------------------|-------------------|--------|
| Helium         | 0.010                 | 0.002             | 0.001  |
| Oxygen         | 0.006                 | 0.011             | 0.001  |
| Nitrogen       | 0.514                 | 0.783             | 0.057  |
| Carbon Dioxide | 0.000                 | 0.000             | 0.000  |
| Methane        | 89.713                | 78.258            | 15.211 |
| Ethane         | 5.814                 | 9.506             | 1.555  |
| Propane        | 2.334                 | 5.596             | 0.643  |
| i-Butane       | 0.451                 | 1.425             | 0.148  |
| n-Butane       | 0.551                 | 1.742             | 0.174  |
| i-Pentane      | 0.199                 | 0.780             | 0.073  |
| n-Pentane      | 0.136                 | 0.532             | 0.049  |
| C6+            | 0.273                 | 1.365             | 0.119  |
|                | 100.000               | 100.000           | 18.029 |

## Calculations at Pressure Base 14.696

|                                     |         |                                     |         |
|-------------------------------------|---------|-------------------------------------|---------|
| Compressibility (Z) (Dry Gas)       | 0.99732 | C2+                                 | 2.761   |
| Density (G) (Dry Gas)               | 0.63509 | C3+                                 | 1.206   |
| Component MW Total                  | 18.39   | C5+                                 | 0.241   |
| Heating Value (Dry Ideal) Total BTU | 1127.75 | Heating Value (Sat Ideal) Total BTU | 1108.07 |
| Heating Value (Dry Real) Total BTU  | 1130.79 | Heating Value (Sat Real) Total BTU  | 1110.95 |

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API 30-045-07171

Casing

## Gas Analysis Certificate

GPA Standard 2261-13

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 7/10/2015 10:21:38 AM

|                    |               |                |                  |
|--------------------|---------------|----------------|------------------|
| Client:            | BP            | Project #:     | 03143-0880       |
| Site Name:         | GCU 165       | Meter ID:      | 3004507171 (CSG) |
| Sampled by:        | Sawyer M.     | Date Sampled   | 07-13-15         |
| Analyzed by:       | Logan Richter | Date Received: | 07-14-15         |
| Sample Pressure:   | 221 psig      | Date Analyzed: | 07-15-15         |
| Sample Temperature | N/R           | Analysis Time: | Standard         |

## Component Results (14.696)

| Name           | Qty (Norm)<br>[Mol %] | Wt Percent<br>(%) | GPM    |
|----------------|-----------------------|-------------------|--------|
| Helium         | 0.043                 | 0.008             | 0.004  |
| Oxygen         | 0.009                 | 0.013             | 0.001  |
| Nitrogen       | 0.701                 | 0.895             | 0.077  |
| Carbon Dioxide | 0.390                 | 0.784             | 0.067  |
| Methane        | 76.724                | 56.135            | 13.025 |
| Ethane         | 11.126                | 15.258            | 2.980  |
| Propane        | 6.316                 | 12.701            | 1.742  |
| i-Butane       | 0.911                 | 2.415             | 0.299  |
| n-Butane       | 1.886                 | 4.999             | 0.595  |
| i-Pentane      | 0.649                 | 2.135             | 0.238  |
| n-Pentane      | 0.623                 | 2.050             | 0.226  |
| C6+            | 0.622                 | 2.608             | 0.272  |
|                | 100.000               | 100.000           | 19.526 |

## Calculations at Pressure Base 14.696

|                                     |         |                                     |         |
|-------------------------------------|---------|-------------------------------------|---------|
| Compressibility (Z) (Dry Gas)       | 0.99604 | C2+                                 | 6.352   |
| Density (G) (Dry Gas)               | 0.75734 | C3+                                 | 3.372   |
| Component MW Total                  | 21.93   | C5+                                 | 0.736   |
| Heating Value (Dry Ideal) Total BTU | 1304.72 | Heating Value (Sat Ideal) Total BTU | 1281.95 |
| Heating Value (Dry Real) Total BTU  | 1309.91 | Heating Value (Sat Real) Total BTU  | 1286.88 |

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# NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE  
1000 RIO BRAZOS ROAD  
AZTEC, NM 87410  
(505) 334-6178 FAX: (505) 334-6170  
<http://www.emnrd.state.nm.us/ocd/>

OIL CONS. DIV DIST. 3

DEC 18 2015

## BRADENHEAD TEST REPORT

(Submit 2 copies to above address)

Date of Test 5-28-15 Operator BP America Production Company API # 3004507171

Property Name GCU 165-DK Location: Unit H Section 29 Township 28 Range 12  
(Well Name and Number)

Pressure (Shut-in or Producing) Tubing 236 Intermediate N/A Casing 235 Bradenhead BP

OPEN BRADENHEAD AND INTERMEDIATE TO ATMOSPHERE INDIVIDUALLY FOR 15 MINUTES EACH

| Time        | Bradenhead  |                |                      | Intermediate          |                | Steady Flow | Surges | Down to Nothing | No Flow | Gas      | Gas and Water | Water |
|-------------|-------------|----------------|----------------------|-----------------------|----------------|-------------|--------|-----------------|---------|----------|---------------|-------|
|             | BH Blowdown | Casing Monitor | Intermediate Monitor | Intermediate Blowdown | Casing Monitor |             |        |                 |         |          |               |       |
| 5 minutes   | <u>w</u>    | <u>235</u>     |                      |                       |                |             |        |                 |         |          |               |       |
| 10 minutes  | <u>w</u>    | <u>235</u>     |                      |                       |                |             |        |                 |         |          |               |       |
| 15 minutes  | <u>w</u>    | <u>235</u>     |                      |                       |                |             |        |                 |         |          |               |       |
| 20 minutes  | <u>w</u>    | <u>235</u>     |                      |                       |                |             |        |                 |         |          |               |       |
| 25 minutes  | <u>w</u>    | <u>235</u>     |                      |                       |                |             |        |                 |         |          |               |       |
| 30 minutes  | <u>w</u>    | <u>235</u>     |                      |                       |                |             |        |                 |         |          |               |       |
| 5 minute SI |             |                |                      |                       |                |             |        |                 |         |          |               |       |
|             |             |                |                      |                       |                |             |        |                 |         | <u>x</u> |               |       |

If bradenhead flowed water, check all of the descriptions that apply below:

Clear        Fresh        Salty        Sulfur        Black       

5 Minute Shut-in Bradenhead 3 Intermediate N/A

### REMARKS:

Blew through 1" valve. BH blew to a whisper in 3sec. BH whisper  
all of 20 min test.  
Need to pull sample  
"w" = whisper

By Brandon Kennedy Witness         
73 L. J. [Signature]  
(Position)