



OIL CONS. DIV DIST. 3

API 30-045-24645  
Bradenhead  
Gas Analysis Certificate

GPA Standard 2261-13

DEC 18 2015

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 9/28/2015 10:07:06 AM

|                    |               |                |                  |
|--------------------|---------------|----------------|------------------|
| Client:            | BP            | Project #:     | 03143-0880       |
| Site Name:         | GCU 217E      | Meter ID:      | 3004524645 (BHD) |
| Sampled by:        | Brandon K.    | Date Sampled   | 10-16-15         |
| Analyzed by:       | Logan Richter | Date Received: | 10-19-15         |
| Sample Pressure:   | 162 psig      | Date Analyzed: | 10-26-15         |
| Sample Temperature | NA            | Analysis Time: | Standard         |

## Component Results (14.696)

| Name           | Qty (Norm)<br>[Mol %] | Wt Percent<br>(%) | GPM    |
|----------------|-----------------------|-------------------|--------|
| Helium         | 0.000                 | 0.000             | 0.000  |
| Oxygen         | 0.008                 | 0.013             | 0.001  |
| Nitrogen       | 0.248                 | 0.378             | 0.027  |
| Carbon Dioxide | 0.000                 | 0.000             | 0.000  |
| Methane        | 89.470                | 78.188            | 15.170 |
| Ethane         | 6.419                 | 10.514            | 1.717  |
| Propane        | 2.415                 | 5.801             | 0.665  |
| i-Butane       | 0.485                 | 1.535             | 0.159  |
| n-Butane       | 0.512                 | 1.621             | 0.161  |
| i-Pentane      | 0.156                 | 0.614             | 0.057  |
| n-Pentane      | 0.100                 | 0.392             | 0.036  |
| C6+            | 0.188                 | 0.944             | 0.082  |
|                | 100.000               | 100.000           | 18.076 |

## Calculations at Pressure Base 14.696

|                                     |         |                                     |         |
|-------------------------------------|---------|-------------------------------------|---------|
| Compressibility (Z) (Dry Gas)       | 0.99731 | C2+                                 | 2.878   |
| Density (G) (Dry Gas)               | 0.63390 | C3+                                 | 1.161   |
| Component MW Total                  | 18.36   | C5+                                 | 0.176   |
| Heating Value (Dry Ideal) Total BTU | 1130.38 | Heating Value (Sat Ideal) Total BTU | 1110.66 |
| Heating Value (Dry Real) Total BTU  | 1133.43 | Heating Value (Sat Real) Total BTU  | 1113.55 |



API 30-045-24645  
Casing  
Gas Analysis Certificate

GPA Standard 2261-13

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 9/28/2015 10:07:06 AM

|                    |               |                |                  |
|--------------------|---------------|----------------|------------------|
| Client:            | BP            | Project #:     | 03143-0880       |
| Site Name:         | GCU 217E      | Meter ID:      | 3004524645 (CSG) |
| Sampled by:        | Brandon K.    | Date Sampled   | 10-16-15         |
| Analyzed by:       | Logan Richter | Date Received: | 10-19-15         |
| Sample Pressure:   | 68 psig       | Date Analyzed: | 10-26-15         |
| Sample Temperature | NA            | Analysis Time: | Standard         |

Component Results (14.696)

| Name           | Qty (Norm)<br>[Mol %] | Wt Percent<br>(%) | GPM    |
|----------------|-----------------------|-------------------|--------|
| Helium         | 0.000                 | 0.000             | 0.000  |
| Oxygen         | 0.014                 | 0.020             | 0.001  |
| Nitrogen       | 0.818                 | 1.048             | 0.090  |
| Carbon Dioxide | 0.790                 | 1.589             | 0.135  |
| Methane        | 77.084                | 56.538            | 13.086 |
| Ethane         | 11.153                | 15.333            | 2.987  |
| Propane        | 5.772                 | 11.637            | 1.592  |
| i-Butane       | 0.636                 | 1.689             | 0.208  |
| n-Butane       | 1.756                 | 4.666             | 0.554  |
| i-Pentane      | 0.431                 | 1.423             | 0.158  |
| n-Pentane      | 0.486                 | 1.604             | 0.177  |
| C6+            | 1.060                 | 4.453             | 0.463  |
|                | 100.000               | 100.000           | 19.452 |

Calculations at Pressure Base 14.696

|                                     |         |                                     |         |
|-------------------------------------|---------|-------------------------------------|---------|
| Compressibility (Z) (Dry Gas)       | 0.99607 | C2+                                 | 6.139   |
| Density (G) (Dry Gas)               | 0.75566 | C3+                                 | 3.153   |
| Component MW Total                  | 21.87   | C5+                                 | 0.798   |
| Heating Value (Dry Ideal) Total BTU | 1290.22 | Heating Value (Sat Ideal) Total BTU | 1267.71 |
| Heating Value (Dry Real) Total BTU  | 1295.31 | Heating Value (Sat Real) Total BTU  | 1272.53 |

05.11.2015 12:49:44

11/8/2015

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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/>

BRADENHEAD TEST REPORT  
(Submit 2 copies to above address)

OIL CONS. DIV DIST. 3

DEC 18 2015

Date of Test 6/12/15 Operator BP America Production Company API # 3004524645  
Property Name GCU 217E-GP/DK Location: Unit D Section 13 Township 28 Range 12  
(Well Name and Number)  
Pressure (Shut-in or Producing) 17 Tubing 17 Intermediate N/A Casing 17 Bradenhead 186

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<br>Blowdown | Casing<br>Monitor | Intermediate<br>Monitor | Intermediate<br>Blowdown | Casing<br>Monitor |             |        |                 |         |     |               |       |
| 5 minutes   | W              | 16                |                         |                          |                   |             |        |                 |         |     |               |       |
| 10 minutes  | W              | 15                |                         |                          |                   |             |        |                 |         |     |               |       |
| 15 minutes  | W              | 14                |                         |                          |                   |             |        |                 |         |     |               |       |
| 20 minutes  | W              | 15                |                         |                          |                   |             |        |                 |         |     |               |       |
| 25 minutes  | W              | 14                |                         |                          |                   |             |        |                 |         |     |               |       |
| 30 minutes  | W              | 15                |                         |                          |                   |             |        |                 |         |     |               |       |
| 5 minute SI | .8             | 15                |                         |                          |                   |             |        |                 |         |     |               |       |

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

Clear \_\_\_\_\_ Fresh \_\_\_\_\_ Salty \_\_\_\_\_ Sulfur \_\_\_\_\_ Black \_\_\_\_\_

5 Minute Shut-in Bradenhead .8 Intermediate N/A

REMARKS:

BH blew to a whisper in 4.5 sec. Blew from 1" valve

By [Signature] Witness \_\_\_\_\_

(Position)