



OIL CONS. DIV DIST. 3

## Gas Analysis Certificate

GPA Standard 2261-13

DEC 18 2015

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 11/11/2015 9:42:22 AM

Client: BP Project #: 03143-0880  
Site Name: GCU 328 (BH) Meter ID: 3004524735 (BH)  
Sampled by: Daniel F. Date Sampled: 11-06-15  
Analyzed by: Logan Richter Date Received: 11-06-15  
Sample Pressure: 31 Date Analyzed: 11-09-15  
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         | 0.017                 | 0.030             | 0.001  |
| Nitrogen       | 0.135                 | 0.215             | 0.015  |
| Carbon Dioxide | 0.044                 | 0.110             | 0.008  |
| Methane        | 92.493                | 84.076            | 15.679 |
| Ethane         | 4.706                 | 8.019             | 1.259  |
| Propane        | 1.675                 | 4.184             | 0.461  |
| i-Butane       | 0.326                 | 1.074             | 0.107  |
| n-Butane       | 0.341                 | 1.122             | 0.107  |
| i-Pentane      | 0.115                 | 0.470             | 0.042  |
| n-Pentane      | 0.061                 | 0.251             | 0.022  |
| C6+            | 0.086                 | 0.449             | 0.038  |
|                | 100.000               | 100.000           | 17.739 |

## Calculations at Pressure Base 14.696

|                                     |         |                                     |         |
|-------------------------------------|---------|-------------------------------------|---------|
| Compressibility (Z) (Dry Gas)       | 0.99754 | C2+                                 | 2.036   |
| Density (G) (Dry Gas)               | 0.60940 | C3+                                 | 0.777   |
| Component MW Total                  | 17.65   | C5+                                 | 0.102   |
| Heating Value (Dry Ideal) Total BTU | 1092.81 | Heating Value (Sat Ideal) Total BTU | 1073.74 |
| Heating Value (Dry Real) Total BTU  | 1095.50 | Heating Value (Sat Real) Total BTU  | 1076.30 |



HPI 20-45 24735  
Casing

**Gas Analysis Certificate**

**GPA Standard 2261-13**

Acquisition Method Name au\_report\_150\_C6+  
Last calibration date 11/11/2015 9:42:22 AM

|                    |                  |                |            |
|--------------------|------------------|----------------|------------|
| Client:            | BP               | Project #:     | 03143-0880 |
| Site Name:         | GCU 328 (Tubing) | Meter ID:      | 3004524735 |
| Sampled by:        | Daniel F.        | Date Sampled   | 11-06-15   |
| Analyzed by:       | Logan Richter    | Date Received: | 11-06-15   |
| Sample Pressure:   | 128              | Date Analyzed: | 11-09-15   |
| 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         | 0.015                 | 0.025             | 0.001  |
| Nitrogen       | 0.149                 | 0.223             | 0.016  |
| Carbon Dioxide | 0.065                 | 0.153             | 0.011  |
| Methane        | 89.299                | 76.551            | 15.143 |
| Ethane         | 6.007                 | 9.651             | 1.607  |
| Propane        | 2.405                 | 5.667             | 0.663  |
| i-Butane       | 0.459                 | 1.426             | 0.150  |
| n-Butane       | 0.629                 | 1.954             | 0.198  |
| i-Pentane      | 0.236                 | 0.908             | 0.086  |
| n-Pentane      | 0.165                 | 0.638             | 0.060  |
| C6+            | 0.571                 | 2.803             | 0.249  |
|                | 100.000               | 100.000           | 18.185 |

**Calculations at Pressure Base 14.696**

|                                     |         |                                     |         |
|-------------------------------------|---------|-------------------------------------|---------|
| Compressibility (Z) (Dry Gas)       | 0.99717 | C2+                                 | 3.014   |
| Density (G) (Dry Gas)               | 0.64640 | C3+                                 | 1.407   |
| Component MW Total                  | 18.71   | C5+                                 | 0.395   |
| Heating Value (Dry Ideal) Total BTU | 1149.53 | Heating Value (Sat Ideal) Total BTU | 1129.47 |
| Heating Value (Dry Real) Total BTU  | 1152.79 | Heating Value (Sat Real) Total BTU  | 1132.56 |



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE  
1000 RIO BRAZOS ROAD  
AZTEC NM 87410  
(505) 334-6178 FAX: (505) 334-6170  
[http://emnr.state.nm.us/ocd/District III/3distric.htm](http://emnr.state.nm.us/ocd/District%20III/3distric.htm)

BRADENHEAD TEST REPORT

(submit 1 copy to above address)

OIL CONS. DIV DIST. 3

DEC 18 2015

Date of Test 11/6/15 Operator BP API #30-0 4524735

Property Name GCU Well No. 328 Location: Unit W Section 33 Township 29 Range 12

Well Status (Shut-In or Producing) Initial PSI: Tubing 128 Intermediate N/A Casing 1 Bradenhead 37

OPEN BRADENHEAD AND INTERMEDIATE TO ATMOSPHERE INDIVIDUALLY FOR 15 MINUTES EACH

| Testing | PRESSURE |     |     | INTERM |     |
|---------|----------|-----|-----|--------|-----|
|         | BH       | Int | Csg | Int    | Csg |
| TIME    |          |     |     |        |     |
| 5 min   | 0        |     | 0   |        |     |
| 10 min  | 0        |     | 0   |        |     |
| 15 min  | 0        |     | 0   |        |     |
| 20 min  | 0        |     | 0   |        |     |
| 25 min  | 0        |     | 0   |        |     |
| 30 min  | 0        |     | 0   |        |     |

| FLOW CHARACTERISTICS |              |
|----------------------|--------------|
| BRADENHEAD           | INTERMEDIATE |
| Steady Flow          |              |
| Surges               |              |
| Down to Nothing      |              |
| Nothing              |              |
| Gas                  |              |
| Gas & Water          |              |
| Water                |              |

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

CLEAR \_\_\_\_\_ FRESH \_\_\_\_\_ SALTY \_\_\_\_\_ SULFUR \_\_\_\_\_ BLACK \_\_\_\_\_

5 MINUTE SHUT-IN PRESSURE

BRADENHEAD 0

INTERMEDIATE N/A

REMARKS:

Blew from 1/2" hose. BH had a puff down to nothing

Took sample from tubing & BH.

BH sample taken bottle #250 Casing #284

By

[Signature]

Witness

[Signature]

(Position)

E-mail address \_\_\_\_\_