



Gallegos Canyon Unit 241  
API 30-045-26335  
Bradenhead

## Analysis Certificate

Analysis Requested: GPA Standard 2261-13

|                     |                 |                |            |
|---------------------|-----------------|----------------|------------|
| Client:             | BP              | Project #:     | 03143-0880 |
| Site Name:          | GCU 247E (BHD)  | Lab #          | P704012-02 |
| Meter ID:           | 3004526335(BHD) | Date Reported: | 5/2/2017   |
| Sampled by:         | Jerry Mckenzie  | Date Sampled:  | 4/11/2017  |
| Analyzed by:        | Irene Yazzie    | Date Received: | 4/12/2017  |
| Sample Pressure:    | 22 psi          | Date Analyzed: | 4/28/2017  |
| Sample Temperature: | N/R             | Analysis Time: | Standard   |

| Components     | Mol %   | Wt %    | GPM Total | (gal/ideal MCF) |
|----------------|---------|---------|-----------|-----------------|
| Nitrogen       | 6.365   | 9.488   |           |                 |
| Carbon Dioxide | 0.022   | 0.052   |           |                 |
| Methane        | 84.705  | 72.311  |           |                 |
| Ethane         | 5.549   | 8.879   | GPM C2+   | 2.5374          |
| Propane        | 2.055   | 4.822   | GPM C3+   | 1.0413          |
| Iso-Butane     | 0.443   | 1.37    |           |                 |
| N-Butane       | 0.476   | 1.472   |           |                 |
| Iso-Pentane    | 0.17    | 0.653   | GPM iC5+  | 0.1608          |
| N-Pentane      | 0.101   | 0.388   |           |                 |
| Hexane Plus    | 0.114   | 0.565   |           |                 |
| Totals         | 100.000 | 100.000 |           |                 |

OIL CONS. DIV DIST. 3  
AUG 09 2017

### GPA Standard 2172-09 Calculations

|                             |                  |                   |           |
|-----------------------------|------------------|-------------------|-----------|
| Compressibility Factor:     | 0.998            | Base Pressure:    | 14.73 psi |
| Ideal Gas Relative Density: | 0.65             | Base Temperature: | 60 F      |
| Dry Molecular Weight:       | 18.792 g/mol     |                   |           |
| Real Gas Dry BTU per ft3:   | 1057.063 BTU/ft3 |                   |           |

ND = Parameter below the method/instrument detection limit.

N/R = Parameter not recorded

*Irene Yazzie*

Reviewer

5/2/2017

Date

PO#: N/R

Comments: No comments

Note: The above analyses are performed in compliance with GPA Standard 2261-13 quality assurance procedures.

References: GPA Standard 2261-13 and GPA Standard 2172-09



Gallegos Canyon Unit 247E  
API 30-045-26335  
Casing

## Analysis Certificate

Analysis Requested: GPA Standard 2261-13

|                     |                 |                |            |
|---------------------|-----------------|----------------|------------|
| Client:             | BP              | Project #:     | 03143-0880 |
| Site Name:          | GCU 247E (CSG)  | Lab #          | P704012-03 |
| Meter ID:           | 3004526335(CSG) | Date Reported: | 5/2/2017   |
| Sampled by:         | Jerry Mckenzie  | Date Sampled:  | 4/11/2017  |
| Analyzed by:        | Irene Yazzie    | Date Received: | 4/12/2017  |
| Sample Pressure:    | N/R             | Date Analyzed: | 4/28/2017  |
| Sample Temperature: | N/R             | Analysis Time: | Standard   |

| Components     | Mol %   | Wt %    | GPM Total | (gal/ideal MCF) |
|----------------|---------|---------|-----------|-----------------|
| Nitrogen       | 32.258  | 43.657  |           |                 |
| Carbon Dioxide | 0.057   | 0.121   |           |                 |
| Methane        | 65.722  | 50.937  |           |                 |
| Ethane         | 0.528   | 0.767   | GPM C2+   | 0.6689          |
| Propane        | 0.452   | 0.963   | GPM C3+   | 0.5265          |
| Iso-Butane     | 0.121   | 0.34    |           |                 |
| N-Butane       | 0.254   | 0.713   |           |                 |
| Iso-Pentane    | 0.128   | 0.446   | GPM iC5+  | 0.2763          |
| N-Pentane      | 0.103   | 0.359   |           |                 |
| Hexane Plus    | 0.377   | 1.697   |           |                 |
| Totals         | 100.000 | 100.000 |           |                 |

### GPA Standard 2172-09 Calculations

|                             |         |                   |           |
|-----------------------------|---------|-------------------|-----------|
| Compressibility Factor:     | 0.999   | Base Pressure:    | 14.73 psi |
| Ideal Gas Relative Density: | 0.715   | Base Temperature: | 60 F      |
| Dry Molecular Weight:       | 20.699  | g/mol             |           |
| Real Gas Dry BTU per ft3:   | 728.072 | BTU/ft3           |           |

ND = Parameter below the method/instrument detection limit.

N/R = Parameter not recorded

*Irene Yazzie*

Reviewer

5/2/2017

Date

PO#: N/R

Comments: Low Pressure

Note: The above analyses are performed in compliance with GPA Standard 2261-13 quality assurance procedures.

References: GPA Standard 2261-13 and GPA Standard 2172-09



Gallegos Canyon Unit 2  
api 30-045-26335  
Tubing  
**Analysis Certificate**

Analysis Requested: **GPA Standard 2261-13**

|                     |                 |                |            |
|---------------------|-----------------|----------------|------------|
| Client:             | BP              | Project #:     | 03143-0880 |
| Site Name:          | GCU 247E (TUB)  | Lab #          | P704012-01 |
| Meter ID:           | 3004526335(TUB) | Date Reported: | 5/2/2017   |
| Sampled by:         | Jerry Mckenzie  | Date Sampled:  | 4/11/2017  |
| Analyzed by:        | Irene Yazzie    | Date Received: | 4/12/2017  |
| Sample Pressure:    | N/R             | Date Analyzed: | 4/28/2017  |
| Sample Temperature: | N/R             | Analysis Time: | Standard   |

| Components     | Mol %   | Wt %    | GPM Total | (gal/ideal MCF) |
|----------------|---------|---------|-----------|-----------------|
| Nitrogen       | 32.373  | 43.544  |           |                 |
| Carbon Dioxide | 0.028   | 0.059   |           |                 |
| Methane        | 65.438  | 50.407  |           |                 |
| Ethane         | 0.505   | 0.729   | GPM C2+   | 0.7499          |
| Propane        | 0.469   | 0.993   | GPM C3+   | 0.6138          |
| Iso-Butane     | 0.13    | 0.363   |           |                 |
| N-Butane       | 0.294   | 0.82    |           |                 |
| Iso-Pentane    | 0.171   | 0.592   | GPM iC5+  | 0.3427          |
| N-Pentane      | 0.154   | 0.533   |           |                 |
| Hexane Plus    | 0.438   | 1.96    |           |                 |
| Totals         | 100.000 | 100.000 |           |                 |

#### GPA Standard 2172-09 Calculations

|                             |        |                   |           |
|-----------------------------|--------|-------------------|-----------|
| Compressibility Factor:     | 0.998  | Base Pressure:    | 14.73 psi |
| Ideal Gas Relative Density: | 0.72   | Base Temperature: | 60 F      |
| Dry Molecular Weight:       | 20.827 | g/mol             |           |
| Real Gas Dry BTU per ft3:   | 733.76 | BTU/ft3           |           |

ND = Parameter below the method/instrument detection limit.

N/R = Parameter not recorded

*Irene Yazzie*

Reviewer

5/2/2017

Date

PO#: N/R

Comments: Low Pressure. Pressurized Cylinder with Helium.

Note: The above analyses are performed in compliance with GPA Standard 2261-13 quality assurance procedures.

References: GPA Standard 2261-13 and GPA Standard 2172-09