



GCU 186 E  
30-045-25203  
Bradenhead Sample

2030 Afton Place  
Farmington, NM 87401  
(505) 325-6622

Analysis No: SO180103  
Cust No: 15950-10945

### Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT  
Well Name: GCU 186E; BHD  
County/State: SAN JUAN NM  
Location:  
Field:  
Formation: DK  
Cust. Stn. No.:  
API 3004525203

Source: BRADENHEAD  
Well Flowing: Y  
Pressure: 47 PSIA  
Flow Temp: DEG. F  
Ambient Temp: 84 DEG. F  
Flow Rate: MCF/D  
Sample Method: Purge & Fill  
Sample Date: 07/13/2018  
Sample Time: 1.29 PM  
Sampled By: E. HAMILTON  
Sampled by (CO): PESCO

Heat Trace: N  
Remarks:

NMOC  
FEB 13 2019  
DISTRICT III

### Analysis

| Component:: | Mole%:   | Unnormalized %: | **GPM:  | *BTU:   | *SP Gravity: |
|-------------|----------|-----------------|---------|---------|--------------|
| Nitrogen    | 0.7761   | 0.7583          | 0.0860  | 0.00    | 0.0075       |
| CO2         | 0.0341   | 0.0333          | 0.0060  | 0.00    | 0.0005       |
| Methane     | 89.2584  | 87.2136         | 15.1690 | 901.51  | 0.4944       |
| Ethane      | 6.0584   | 5.9196          | 1.6240  | 107.22  | 0.0629       |
| Propane     | 2.3915   | 2.3367          | 0.6600  | 60.17   | 0.0364       |
| Iso-Butane  | 0.4497   | 0.4394          | 0.1480  | 14.62   | 0.0090       |
| N-Butane    | 0.5447   | 0.5322          | 0.1720  | 17.77   | 0.0109       |
| I-Pentane   | 0.1888   | 0.1845          | 0.0690  | 7.55    | 0.0047       |
| N-Pentane   | 0.1234   | 0.1206          | 0.0450  | 4.95    | 0.0031       |
| Hexane Plus | 0.1749   | 0.1709          | 0.0780  | 9.22    | 0.0058       |
| Total       | 100.0000 | 97.7091         | 18.0570 | 1123.01 | 0.6353       |

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

\*\*@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0027  
BTU/CU.FT IDEAL: 1125.6  
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1128.7  
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1109.1  
DRY BTU @ 15.025: 1151.3  
REAL SPECIFIC GRAVITY: 0.6367

CYLINDER #: 8003  
CYLINDER PRESSURE: 31 PSIG  
ANALYSIS DATE: 07/24/2018  
ANALYSIS TIME: 09:53:49 AM  
ANALYSIS RUN BY: RICHARD WILSON

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA-2261

GC: Danalyzer Model 500

GC Method: C6+ Gas

Last Cal/Verify: 07/26/2018

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BP - SOUTH BHD PROJECT  
WELL ANALYSIS COMPARISON

Lease: GCU 186E; BHD  
Stn. No.:  
Mtr. No.: API 3004525203

BRADENHEAD  
DK

07/26/2018  
15950-10945

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Smpl Date: 07/13/2018  
Test Date: 07/24/2018  
Run No: SO180103

Nitrogen: 0.7761  
CO2: 0.0341  
Methane: 89.2584  
Ethane: 6.0584  
Propane: 2.3915  
I-Butane: 0.4497  
N-Butane: 0.5447  
I-Pentane: 0.1888  
N-Pentane: 0.1234  
Hexane+: 0.1749

BTU: 1128.7  
GPM: 18.0570  
SPG: 0.6367



GCU 186 E  
30-045-25003  
Casing Sample

2030 Afton Place  
Farmington, NM 87401  
(505) 325-6622

Analysis No: SO180104  
Cust No: 15950-10950

### Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT  
Well Name: GCU 186E; CSG  
County/State: SAN JUAN NM  
Location:  
Field:  
Formation: DK  
Cust. Str. No.:

API 3004525203

NMOC

FEB 13 2019

DISTRICT III

Source: CASING  
Well Flowing: Y  
Pressure: 141 PSIA  
Flow Temp: DEG. F  
Ambient Temp: 84 DEG. F  
Flow Rate: MCF/D  
Sample Method: Purge & Fill  
Sample Date: 07/13/2018  
Sample Time: 1.38 PM  
Sampled By: E. HAMILTON  
Sampled by (CO): PESCO

Heat Trace: N  
Remarks:

### Analysis

| Component:: | Mole%:   | Unnormalized %: | **GPM:  | *BTU:   | *SP Gravity: |
|-------------|----------|-----------------|---------|---------|--------------|
| Nitrogen    | 0.8411   | 0.8284          | 0.0930  | 0.00    | 0.0081       |
| CO2         | 0.7593   | 0.7478          | 0.1300  | 0.00    | 0.0115       |
| Methane     | 83.3714  | 82.1119         | 14.1780 | 842.05  | 0.4618       |
| Ethane      | 8.5086   | 8.3801          | 2.2830  | 150.58  | 0.0883       |
| Propane     | 3.0230   | 2.9773          | 0.8350  | 76.06   | 0.0460       |
| Iso-Butane  | 0.5448   | 0.5366          | 0.1790  | 17.72   | 0.0109       |
| N-Butane    | 0.9427   | 0.9285          | 0.2980  | 30.75   | 0.0189       |
| I-Pentane   | 0.4459   | 0.4392          | 0.1640  | 17.84   | 0.0111       |
| N-Pentane   | 0.4095   | 0.4033          | 0.1490  | 16.42   | 0.0102       |
| Hexane Plus | 1.1537   | 1.1363          | 0.5160  | 60.81   | 0.0382       |
| Total       | 100.0000 | 98.4894         | 18.8250 | 1212.23 | 0.7052       |

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

\*\*@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0034  
BTU/CU.FT IDEAL: 1215.0  
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1219.2  
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1198.0  
DRY BTU @ 15.025: 1243.6  
REAL SPECIFIC GRAVITY: 0.7073

CYLINDER #: 7033  
CYLINDER PRESSURE: 128 PSIG  
ANALYSIS DATE: 07/23/2018  
ANALYSIS TIME: 04:47:40 PM  
ANALYSIS RUN BY: PATRICIA KING

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA-2261

GC: Danalyzer Model 500

GC Method: C6+ Gas

Last Cal/Verify: 07/26/2018



BP - SOUTH BHD PROJECT  
WELL ANALYSIS COMPARISON

Lease: GCU 186E; CSG  
Stn. No.:  
Mtr. No.: API 3004525203

CASING  
DK

07/26/2018  
15950-10950

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Smpl Date: 07/13/2018  
Test Date: 07/23/2018  
Run No: SO180104  
  
Nitrogen: 0.8411  
CO2: 0.7593  
Methane: 83.3714  
Ethane: 8.5086  
Propane: 3.0230  
I-Butane: 0.5448  
N-Butane: 0.9427  
I-Pentane: 0.4459  
N-Pentane: 0.4095  
Hexane+: 1.1537  
  
BTU: 1219.2  
GPM: 18.8250  
SPG: 0.7073



GCU 186E  
30-045-25203  
Tubing Sample

2030 Afton Place  
Farmington, NM 87401  
(505) 325-6622

Analysis No: SO180105  
Cust No: 15950-10955

### Well/Lease Information

Customer Name: BP - SOUTH BHD PROJECT  
Well Name: GCU 186E; TBG  
County/State: SAN JUAN NM  
Location:  
Field:  
Formation: DK  
Cust. Stn. No.:  
API 3004525203

Source: TUBING  
Well Flowing: Y  
Pressure: 120 PSIA  
Flow Temp: DEG. F  
Ambient Temp: 84 DEG. F  
Flow Rate: MCF/D  
Sample Method: Purge & Fill  
Sample Date: 07/13/2018  
Sample Time: 1.33 PM  
Sampled By: E. HAMILTON  
Sampled by (CO): PESCO

Heat Trace: N  
Remarks:

NMOC  
FEB 13 2019  
DISTRICT III

### Analysis

| Component:  | Mole%:   | Unnormalized %: | **GPM:  | *BTU:   | *SP Gravity: |
|-------------|----------|-----------------|---------|---------|--------------|
| Nitrogen    | 0.8017   | 0.8049          | 0.0880  | 0.00    | 0.0078       |
| CO2         | 0.9280   | 0.9317          | 0.1590  | 0.00    | 0.0141       |
| Methane     | 85.2495  | 85.5912         | 14.4920 | 861.02  | 0.4722       |
| Ethane      | 8.5094   | 8.5435          | 2.2820  | 150.59  | 0.0883       |
| Propane     | 2.5116   | 2.5217          | 0.6940  | 63.19   | 0.0382       |
| Iso-Butane  | 0.3998   | 0.4014          | 0.1310  | 13.00   | 0.0080       |
| N-Butane    | 0.5738   | 0.5761          | 0.1810  | 18.72   | 0.0115       |
| I-Pentane   | 0.2211   | 0.2220          | 0.0810  | 8.85    | 0.0055       |
| N-Pentane   | 0.1642   | 0.1649          | 0.0600  | 6.58    | 0.0041       |
| Hexane Plus | 0.6409   | 0.6435          | 0.2870  | 33.78   | 0.0212       |
| Total       | 100.0000 | 100.4009        | 18.4550 | 1155.74 | 0.6710       |

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

\*\*@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.003  
BTU/CU.FT IDEAL: 1158.4  
BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1161.9  
BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1141.7  
DRY BTU @ 15.025: 1185.2  
REAL SPECIFIC GRAVITY: 0.6727

CYLINDER #: 7089  
CYLINDER PRESSURE: 115 PSIG  
ANALYSIS DATE: 07/23/2018  
ANALYSIS TIME: 03:32:13 PM  
ANALYSIS RUN BY: RICHARD WILSON

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA-2261

GC: Danalyzer Model 500

Last Cal/Verify: 07/26/2018

GC Method: C6+ Gas



BP - SOUTH BHD PROJECT  
WELL ANALYSIS COMPARISON

Lease: GCU 186E; TBG  
Stn. No.:  
Mtr. No.: API 3004525203

TUBING  
DK

07/26/2018  
15950-10955

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Smpl Date: 07/13/2018  
Test Date: 07/23/2018  
Run No: SO180105  
  
Nitrogen: 0.8017  
CO2: 0.9280  
Methane: 85.2495  
Ethane: 8.5094  
Propane: 2.5116  
I-Butane: 0.3998  
N-Butane: 0.5738  
I-Pentane: 0.2211  
N-Pentane: 0.1642  
Hexane+: 0.6409  
  
BTU: 1161.9  
GPM: 18.4550  
SPG: 0.6727