



Well Name: ZACHRY 55; BHD  
 API #: 3004525650  
 Source: BRADENHEAD  
 Sample Type: GAS  
 Analysis No: HS2021251  
 Cust No: 35825-10575

### Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)  
 Well Name: ZACHRY 55; BHD  
 County/State: SAN JUAN NM  
 Location:  
 Lease/PA/CA: AREA 7 / RUN 0707  
 Formation:  
 Cust. Stn. No.: 3004525650

Source: BRADENHEAD  
 Well Flowing: N  
 Pressure: 68 PSIG  
 Flow Temp: 71 DEG. F  
 Ambient Temp: 54 DEG. F  
 Flow Rate: 0 MCF/D  
 Sample Method: Purge & Fill  
 Sample Date: 09/28/2021  
 Sample Time: 10.56 AM  
 Sampled By: ANDREW HARRIS  
 Sampled by (CO):

Heat Trace: N  
 Remarks:

### Analysis

| Component:: | Mole%:   | Unnormalized %: | **GPM:  | *BTU:   | *SP Gravity: |
|-------------|----------|-----------------|---------|---------|--------------|
| Nitrogen    | 0.4762   | 0.4748          | 0.0530  | 0.00    | 0.0046       |
| CO2         | 0.9568   | 0.9540          | 0.1640  | 0.00    | 0.0145       |
| Methane     | 79.7272  | 79.4906         | 13.5610 | 805.24  | 0.4416       |
| Ethane      | 10.8731  | 10.8409         | 2.9180  | 192.42  | 0.1129       |
| Propane     | 4.5292   | 4.5158          | 1.2520  | 113.96  | 0.0690       |
| Iso-Butane  | 0.4745   | 0.4731          | 0.1560  | 15.43   | 0.0095       |
| N-Butane    | 1.3084   | 1.3045          | 0.4140  | 42.68   | 0.0263       |
| I-Pentane   | 0.3814   | 0.3803          | 0.1400  | 15.26   | 0.0095       |
| N-Pentane   | 0.3822   | 0.3811          | 0.1390  | 15.32   | 0.0095       |
| Hexane Plus | 0.8910   | 0.8884          | 0.3990  | 46.97   | 0.0295       |
| Total       | 100.0000 | 99.7035         | 19.1960 | 1247.29 | 0.7269       |

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

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

COMPRESSIBILITY FACTOR (1/Z): 1.0036  
 BTU/CU.FT IDEAL: 1250.2  
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1254.7  
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1232.9  
 DRY BTU @ 15.025: 1279.8  
 REAL SPECIFIC GRAVITY: 0.7292

CYLINDER #: 6086  
 CYLINDER PRESSURE: 58 PSIG  
 ANALYSIS DATE: 10/01/2021  
 ANALYSIS TIME: 02:30:00 AM  
 ANALYSIS RUN BY: KERRA GONZALEZ

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: 10/05/2021

GC Method: C6+ Gas



HILCORP (BHD PROJECT)  
WELL ANALYSIS COMPARISON

|                  |                |            |             |
|------------------|----------------|------------|-------------|
| <b>Lease:</b>    | ZACHRY 55; BHD | BRADENHEAD | 10/05/2021  |
| <b>Stn. No.:</b> | 3004525650     |            | 35825-10575 |
| <b>Mtr. No.:</b> |                |            |             |

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|                   |            |            |
|-------------------|------------|------------|
| <b>Smpl Date:</b> | 09/28/2021 | 08/28/2018 |
| <b>Test Date:</b> | 10/01/2021 | 08/29/2018 |
| <b>Run No:</b>    | HS2021251  | HS180150   |
| <b>Nitrogen:</b>  | 0.4762     | 0.6979     |
| <b>CO2:</b>       | 0.9568     | 0.0148     |
| <b>Methane:</b>   | 79.7272    | 81.6895    |
| <b>Ethane:</b>    | 10.8731    | 9.5223     |
| <b>Propane:</b>   | 4.5292     | 4.1837     |
| <b>I-Butane:</b>  | 0.4745     | 0.4709     |
| <b>N-Butane:</b>  | 1.3084     | 1.3171     |
| <b>I-Pentane:</b> | 0.3814     | 0.3908     |
| <b>N-Pentane:</b> | 0.3822     | 0.4295     |
| <b>Hexane+:</b>   | 0.8910     | 1.2835     |
| <b>BTU:</b>       | 1254.7     | 1265.1     |
| <b>GPM:</b>       | 19.1960    | 19.1310    |
| <b>SPG:</b>       | 0.7292     | 0.7231     |



Well Name: ZACHRY 55; CSG

API #: 3004525650

Source: CASING

Sample Type: GAS

Analysis No: HS2021255

Cust No: 35825-14095

### Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)  
 Well Name: ZACHRY 55; CSG  
 County/State: SAN JUAN NM  
 Location:  
 Lease/PA/CA: AREA 7 / RUN 0707  
 Formation:  
 Cust. Stn. No.: 3004525650

Source: CASING  
 Well Flowing: N  
 Pressure: 68 PSIG  
 Flow Temp: 71 DEG. F  
 Ambient Temp: 54 DEG. F  
 Flow Rate: 0 MCF/D  
 Sample Method: Purge & Fill  
 Sample Date: 09/28/2021  
 Sample Time: 10.46 AM  
 Sampled By: ANDREW HARRIS  
 Sampled by (CO): HILCORP

Heat Trace: N

Remarks:

### Analysis

| Component:: | Mole%:   | Unnormalized %: | **GPM:  | *BTU:   | *SP Gravity: |
|-------------|----------|-----------------|---------|---------|--------------|
| Nitrogen    | 0.4901   | 0.4897          | 0.0540  | 0.00    | 0.0047       |
| CO2         | 0.9661   | 0.9653          | 0.1650  | 0.00    | 0.0147       |
| Methane     | 79.7127  | 79.6448         | 13.5590 | 805.10  | 0.4415       |
| Ethane      | 10.8798  | 10.8705         | 2.9190  | 192.54  | 0.1130       |
| Propane     | 4.5335   | 4.5296          | 1.2530  | 114.07  | 0.0690       |
| Iso-Butane  | 0.4741   | 0.4737          | 0.1560  | 15.42   | 0.0095       |
| N-Butane    | 1.3087   | 1.3076          | 0.4140  | 42.69   | 0.0263       |
| I-Pentane   | 0.3822   | 0.3819          | 0.1400  | 15.29   | 0.0095       |
| N-Pentane   | 0.3840   | 0.3837          | 0.1400  | 15.39   | 0.0096       |
| Hexane Plus | 0.8688   | 0.8681          | 0.3890  | 45.80   | 0.0288       |
| Total       | 100.0000 | 99.9149         | 19.1890 | 1246.30 | 0.7265       |

\* @ 14.730 PSIA DRY &amp; UNCORRECTED FOR COMPRESSIBILITY

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

COMPRESSIBILITY FACTOR (1/Z): 1.0036  
 BTU/CU.FT IDEAL: 1249.2  
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1253.7  
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1231.9  
 DRY BTU @ 15.025: 1278.8  
 REAL SPECIFIC GRAVITY: 0.7289

CYLINDER #: 4243  
 CYLINDER PRESSURE: 66 PSIG  
 ANALYSIS DATE: 10/01/2021  
 ANALYSIS TIME: 10:57:57 AM  
 ANALYSIS RUN BY: KERRA GONZALEZ

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: 10/05/2021

GC Method: C6+ Gas



HILCORP (BHD PROJECT)  
WELL ANALYSIS COMPARISON

|           |                |        |             |
|-----------|----------------|--------|-------------|
| Lease:    | ZACHRY 55; CSG | CASING | 10/05/2021  |
| Stn. No.: | 3004525650     |        | 35825-14095 |
| Mtr. No.: |                |        |             |

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|            |            |
|------------|------------|
| Smpl Date: | 09/28/2021 |
| Test Date: | 10/01/2021 |
| Run No:    | HS2021255  |
| Nitrogen:  | 0.4901     |
| CO2:       | 0.9661     |
| Methane:   | 79.7127    |
| Ethane:    | 10.8798    |
| Propane:   | 4.5335     |
| I-Butane:  | 0.4741     |
| N-Butane:  | 1.3087     |
| I-Pentane: | 0.3822     |
| N-Pentane: | 0.3840     |
| Hexane+:   | 0.8688     |
| BTU:       | 1253.7     |
| GPM:       | 19.1890    |
| SPG:       | 0.7289     |



Well Name: ZACHRY 55; TBG  
 API #: 3004525650  
 Source: TUBING  
 Sample Type: GAS  
 Analysis No: HS2021256  
 Cust No: 35825-14115

### Well/Lease Information

Customer Name: HILCORP (BHD PROJECT)  
 Well Name: ZACHRY 55; TBG  
 County/State: SAN JUAN NM  
 Location:  
 Lease/PA/CA: AREA 7 / RUN 0707  
 Formation:  
 Cust. Stn. No.: 3004525650

Source: TUBING  
 Well Flowing: N  
 Pressure: 62 PSIG  
 Flow Temp: 71 DEG. F  
 Ambient Temp: 54 DEG. F  
 Flow Rate: 0 MCF/D  
 Sample Method: Purge & Fill  
 Sample Date: 09/29/2021  
 Sample Time: 10.35 AM  
 Sampled By: ANDREW HARRIS  
 Sampled by (CO): HILCORP

Heat Trace: N  
 Remarks:

### Analysis

| Component:: | Mole%:   | Unnormalized %: | **GPM:  | *BTU:   | *SP Gravity: |
|-------------|----------|-----------------|---------|---------|--------------|
| Nitrogen    | 0.3970   | 0.3956          | 0.0440  | 0.00    | 0.0038       |
| CO2         | 1.3314   | 1.3267          | 0.2280  | 0.00    | 0.0202       |
| Methane     | 78.1087  | 77.8310         | 13.2890 | 788.90  | 0.4326       |
| Ethane      | 11.7223  | 11.6806         | 3.1460  | 207.45  | 0.1217       |
| Propane     | 4.7654   | 4.7485          | 1.3180  | 119.90  | 0.0726       |
| Iso-Butane  | 0.5231   | 0.5212          | 0.1720  | 17.01   | 0.0105       |
| N-Butane    | 1.3353   | 1.3306          | 0.4220  | 43.56   | 0.0268       |
| I-Pentane   | 0.3676   | 0.3663          | 0.1350  | 14.71   | 0.0092       |
| N-Pentane   | 0.3499   | 0.3487          | 0.1270  | 14.03   | 0.0087       |
| Hexane Plus | 1.0993   | 1.0954          | 0.4920  | 57.94   | 0.0364       |
| Total       | 100.0000 | 99.6446         | 19.3730 | 1263.50 | 0.7425       |

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

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

COMPRESSIBILITY FACTOR (1/Z): 1.0038  
 BTU/CU.FT IDEAL: 1266.4  
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1271.3  
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1249.2  
 DRY BTU @ 15.025: 1296.8  
 REAL SPECIFIC GRAVITY: 0.7451

CYLINDER #: 7047  
 CYLINDER PRESSURE: 65 PSIG  
 ANALYSIS DATE: 10/01/2021  
 ANALYSIS TIME: 10:59:00 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 Last Cal/Verify: 10/05/2021

GC Method: C6+ Gas



HILCORP (BHD PROJECT)  
WELL ANALYSIS COMPARISON

|           |                |        |             |
|-----------|----------------|--------|-------------|
| Lease:    | ZACHRY 55; TBG | TUBING | 10/05/2021  |
| Stn. No.: | 3004525650     |        | 35825-14115 |
| Mtr. No.: |                |        |             |

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Smpl Date: 09/29/2021  
Test Date: 10/01/2021  
Run No: HS2021256

Nitrogen: 0.3970  
CO2: 1.3314  
Methane: 78.1087  
Ethane: 11.7223  
Propane: 4.7654  
I-Butane: 0.5231  
N-Butane: 1.3353  
I-Pentane: 0.3676  
N-Pentane: 0.3499  
Hexane+: 1.0993

BTU: 1271.3  
GPM: 19.3730  
SPG: 0.7451

**District I**

1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**

811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 56326

**CONDITIONS**

|                                                                                |                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------|
| Operator:<br>HILCORP ENERGY COMPANY<br>1111 Travis Street<br>Houston, TX 77002 | OGRID:<br>372171                                    |
|                                                                                | Action Number:<br>56326                             |
|                                                                                | Action Type:<br>[UF-GA] Gas Analysis (GAS ANALYSIS) |

**CONDITIONS**

| Created By | Condition                                                  | Condition Date |
|------------|------------------------------------------------------------|----------------|
| mkuehling  | bradenhead and production casing appear to be the same gas | 12/21/2021     |