

JUN 22 2016

## Analysis Certificate

Analysis Requested: GPA Standard 2261-13

|                     |                            |          |                |            |
|---------------------|----------------------------|----------|----------------|------------|
| Client:             | API: 30-039-29700          | McElvain | Project #:     | 06039-0058 |
| Site Name:          | Howard Fed 43-15 #1A (BHD) |          | Laboratory #:  | P605096-06 |
| Meter ID:           | Howard Fed 43-15 #1A (BHD) |          | Date Reported: | 6/8/2016   |
| Sampled by:         | Glenn Hise                 |          | Date Sampled:  | 5/26/2016  |
| Analyzed by:        | Alanna Yazzie              |          | Date Received: | 5/27/2016  |
| Sample Pressure:    | 5 psi                      |          | Date Analyzed: | 6/1/2016   |
| Sample Temperature: | 60 F                       |          | Analysis Time: | Standard   |

| Components     | Mol %   | Wt %    | GPM Total | (gal/ideal MCF) |
|----------------|---------|---------|-----------|-----------------|
| Nitrogen       | 10.752  | 13.63   |           |                 |
| Carbon Dioxide | 0.579   | 1.153   |           |                 |
| Methane        | 72.318  | 52.498  |           |                 |
| Ethane         | 7.739   | 10.53   | GPM C2+   | 4.9444          |
| Propane        | 4.341   | 8.662   | GPM C3+   | 2.8578          |
| Iso-Butane     | 0.947   | 2.491   |           |                 |
| N-Butane       | 1.342   | 3.53    |           |                 |
| Iso-Pentane    | 0.493   | 1.61    | GPM iC5+  | 0.8845          |
| N-Pentane      | 0.402   | 1.312   |           |                 |
| Hexane Plus    | 1.087   | 4.584   |           |                 |
| Totals         | 100.000 | 100.000 |           |                 |

## GPA Standard 2172-09 Calculations

|                             |                  |                   |           |
|-----------------------------|------------------|-------------------|-----------|
| Compressibility Factor:     | 0.997            | Base Pressure:    | 14.73 psi |
| Ideal Gas Relative Density: | 0.765            | Base Temperature: | 60 F      |
| Dry Molecular Weight:       | 22.099 g/mol     |                   |           |
| Real Gas Dry BTU per ft3:   | 1149.178 BTU/ft3 |                   |           |

ND = Parameter below the instrument/method detection limit.

N/R = Parameter not recorded



Reviewer

6/8/2016

Date

Comments: P605096-06

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

# Analysis Certificate

Analysis Requested: GPA Standard 2261-13

API: 30-039-29700

|                     |                            |                |            |
|---------------------|----------------------------|----------------|------------|
| Client:             | McElvain                   | Project #:     | 06039-0058 |
| Site Name:          | Howard Fed 43-15 #1A (CSG) | Laboratory #:  | P605096-07 |
| Meter ID:           | Howard Fed 43-15 #1A (CSG) | Date Reported: | 6/8/2016   |
| Sampled by:         | Glenn Hise                 | Date Sampled:  | 5/26/2016  |
| Analyzed by:        | Alanna Yazzie              | Date Received: | 5/27/2016  |
| Sample Pressure:    | 130 psi                    | Date Analyzed: | 6/1/2016   |
| Sample Temperature: | 60 F                       | Analysis Time: | Standard   |

| Components     | Mol %   | Wt %    | GPM Total | (gal/ideal MCF) |
|----------------|---------|---------|-----------|-----------------|
| Nitrogen       | 0.377   | 0.533   |           |                 |
| Carbon Dioxide | 0.429   | 0.952   |           |                 |
| Methane        | 84.546  | 68.413  |           |                 |
| Ethane         | 7.968   | 12.085  | GPM C2+   | 4.2657          |
| Propane        | 3.878   | 8.625   | GPM C3+   | 2.1174          |
| Iso-Butane     | 0.815   | 2.389   |           |                 |
| N-Butane       | 0.969   | 2.841   |           |                 |
| Iso-Pentane    | 0.338   | 1.23    | GPM iC5+  | 0.4398          |
| N-Pentane      | 0.249   | 0.906   |           |                 |
| Hexane Plus    | 0.431   | 2.026   |           |                 |
| Totals         | 100.000 | 100.000 |           |                 |

## GPA Standard 2172-09 Calculations

|                             |                  |                   |           |
|-----------------------------|------------------|-------------------|-----------|
| Compressibility Factor:     | 0.997            | Base Pressure:    | 14.73 psi |
| Ideal Gas Relative Density: | 0.686            | Base Temperature: | 60 F      |
| Dry Molecular Weight:       | 19.826 g/mol     |                   |           |
| Real Gas Dry BTU per ft3:   | 1202.836 BTU/ft3 |                   |           |

ND = Parameter below the instrument/method detection limit.

N/R = Parameter not recorded

*BGP*  
*6/8/16*

Reviewer

Date

6/8/2016

Comments: P605096-07

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

## Analysis Certificate

Analysis Requested: GPA Standard 2261-13

API: 30-039-29700

|                     |                            |                |            |
|---------------------|----------------------------|----------------|------------|
| Client:             | McElvain                   | Project #:     | 06039-0058 |
| Site Name:          | Howard Fed 43-15 #1A (TBG) | Laboratory #:  | P605096-08 |
| Meter ID:           | Howard Fed 43-15 #1A (TBG) | Date Reported: | 6/8/2016   |
| Sampled by:         | Glenn Hise                 | Date Sampled:  | 5/26/2016  |
| Analyzed by:        | Alanna Yazzie              | Date Received: | 5/27/2016  |
| Sample Pressure:    | 140 psi                    | Date Analyzed: | 6/1/2016   |
| Sample Temperature: | 60 F                       | Analysis Time: | Standard   |

| Components     | Mol %   | Wt %    | GPM Total | (gal/ideal MCF) |
|----------------|---------|---------|-----------|-----------------|
| Nitrogen       | 0.385   | 0.56    |           |                 |
| Carbon Dioxide | 0.404   | 0.923   |           |                 |
| Methane        | 85.204  | 70.987  |           |                 |
| Ethane         | 8.601   | 13.431  | GPM C2+   | 3.961           |
| Propane        | 3.712   | 8.5     | GPM C3+   | 1.642           |
| Iso-Butane     | 0.555   | 1.675   |           |                 |
| N-Butane       | 0.717   | 2.164   |           |                 |
| Iso-Pentane    | 0.145   | 0.543   | GPM iC5+  | 0.1806          |
| N-Pentane      | 0.113   | 0.423   |           |                 |
| Hexane Plus    | 0.164   | 0.794   |           |                 |
| Totals         | 100.000 | 100.000 |           |                 |

### GPA Standard 2172-09 Calculations

|                             |                  |                   |           |
|-----------------------------|------------------|-------------------|-----------|
| Compressibility Factor:     | 0.997            | Base Pressure:    | 14.73 psi |
| Ideal Gas Relative Density: | 0.667            | Base Temperature: | 60 F      |
| Dry Molecular Weight:       | 19.256 g/mol     |                   |           |
| Real Gas Dry BTU per ft3:   | 1172.542 BTU/ft3 |                   |           |

ND = Parameter below the instrument/method detection limit.

N/R = Parameter not recorded

*BGB*  
*6/8/2016*

Reviewer

Date

6/8/2016

Comments: P605096-08

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