

# Natural Gas Analysis Report SAN JUAN DIVISION

OIL CONS. DIV DIST. 3  
FEB 16 2017

## Sample Information

30-045-24693

| Sample Information |                     |
|--------------------|---------------------|
| Sample Name        | FEE 8A CASING       |
| TECH               | Tim Doering         |
| GC Serial          | GC1008B621          |
| Report Date        | 2015-04-02 12:18:44 |

## Component Results

| Component Name   | Norm%    | Gross HV (Dry)<br>(BTU / Ideal cu.ft.) | Relative Gas<br>Density (Dry) | GPM (Dry)<br>(Gal. / 1000 cu.ft.) |
|------------------|----------|----------------------------------------|-------------------------------|-----------------------------------|
| Nitrogen         | 0.4963   | 0.0                                    | 0.00480                       | 0.055                             |
| Oxygen           | 0.0107   | 0.0                                    | 0.00012                       | 0.001                             |
| Methane          | 89.5311  | 906.4                                  | 0.49591                       | 15.216                            |
| Carbon Dioxide   | 0.0971   | 0.0                                    | 0.00148                       | 0.017                             |
| Ethane           | 5.1529   | 91.4                                   | 0.05350                       | 1.382                             |
| Propane          | 2.6100   | 65.8                                   | 0.03974                       | 0.721                             |
| I-Butane         | 0.6216   | 20.3                                   | 0.01247                       | 0.204                             |
| N-Butane         | 0.7537   | 24.6                                   | 0.01513                       | 0.238                             |
| I-Pentane        | 0.3089   | 12.4                                   | 0.00770                       | 0.113                             |
| N-Pentane        | 0.2749   | 11.0                                   | 0.00685                       | 0.100                             |
| Hexanes          | 0.0932   | 4.4                                    | 0.00277                       | 0.038                             |
| Heptanes         | 0.0185   | 1.0                                    | 0.00064                       | 0.009                             |
| Octanes          | 0.0204   | 1.3                                    | 0.00080                       | 0.010                             |
| Nonanes          | 0.0107   | 0.8                                    | 0.00047                       | 0.006                             |
| Hydrogen Sulfide | 0.0000   | 0.0                                    | 0.00000                       | 0.000                             |
| Water            | 0.0000   | 0.0                                    | 0.00000                       | 0.000                             |
| Total:           | 100.0000 | 1139.4                                 | 0.64238                       | 18.110                            |

## Results Summary

| Result                                  | Dry      | Sat.     |
|-----------------------------------------|----------|----------|
| Total Normalized Mole%                  | 100.0000 | 100.0000 |
| Pressure Base (psia)                    | 14.730   |          |
| Flowing Temperature (Deg. F)            | 70.0     |          |
| Flowing Pressure (psia)                 | 250.0    |          |
| Gross Heating Value (BTU / Real cu.ft.) | 1142.5   | 1123.1   |
| Relative Density (G), Real              | 0.6439   | 0.6438   |
| Compressibility (Z) Factor              | 0.9973   | 0.9969   |
| Total GPM                               | 18.110   | 17.901   |

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|--------------------|---------------------|
| Sample Name        | FEE 8A BH           |
| TECH               | Tim Doering         |
| GC Serial          | GC1008B621          |
| Report Date        | 2015-04-01 13:00:46 |

## Component Results

| Component Name   | Norm%    | Gross HV (Dry)<br>(BTU / Ideal cu.ft.) | Relative Gas<br>Density (Dry) | GPM (Dry)<br>(Gal. / 1000 cu.ft.) |  |
|------------------|----------|----------------------------------------|-------------------------------|-----------------------------------|--|
| Nitrogen         | 0.5556   | 0.0                                    | 0.00537                       | 0.061                             |  |
| Oxygen           | 0.0035   | 0.0                                    | 0.00004                       | 0.000                             |  |
| Methane          | 90.3298  | 914.4                                  | 0.50034                       | 15.352                            |  |
| Carbon Dioxide   | 0.0382   | 0.0                                    | 0.00058                       | 0.007                             |  |
| Ethane           | 4.6333   | 82.2                                   | 0.04810                       | 1.242                             |  |
| Propane          | 2.3379   | 59.0                                   | 0.03559                       | 0.646                             |  |
| I-Butane         | 0.5131   | 16.7                                   | 0.01030                       | 0.168                             |  |
| N-Butane         | 0.5955   | 19.5                                   | 0.01195                       | 0.188                             |  |
| I-Pentane        | 0.2526   | 10.1                                   | 0.00629                       | 0.093                             |  |
| N-Pentane        | 0.1832   | 7.4                                    | 0.00456                       | 0.067                             |  |
| Hexanes          | 0.2049   | 9.8                                    | 0.00610                       | 0.084                             |  |
| Heptanes         | 0.1406   | 7.8                                    | 0.00486                       | 0.065                             |  |
| Octanes          | 0.1927   | 12.1                                   | 0.00760                       | 0.099                             |  |
| Nonanes          | 0.0191   | 1.3                                    | 0.00085                       | 0.011                             |  |
| Hydrogen Sulfide | 0.0000   | 0.0                                    | 0.00000                       | 0.000                             |  |
| Water            | 0.0000   | 0.0                                    | 0.00000                       | 0.000                             |  |
| Total:           | 100.0000 | 1140.2                                 | 0.64254                       | 18.083                            |  |

## Results Summary

| Result                                  | Dry      | Sat.     |  |
|-----------------------------------------|----------|----------|--|
| Total Normalized Mole%                  | 100.0000 | 100.0000 |  |
| Pressure Base (psia)                    | 14.730   |          |  |
| Flowing Temperature (Deg. F)            | 70.0     |          |  |
| Flowing Pressure (psia)                 | 50.0     |          |  |
| Gross Heating Value (BTU / Real cu.ft.) | 1143.4   | 1123.9   |  |
| Relative Density (G), Real              | 0.6441   | 0.6439   |  |
| Compressibility (Z) Factor              | 0.9972   | 0.9969   |  |
| Total GPM                               | 18.083   | 17.875   |  |

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FEB 16 2017

## Sample Information

| Sample Information |                     |
|--------------------|---------------------|
| Sample Name        | FEE 8A TUBING       |
| TECH               | Tim Doering         |
| GC Serial          | GC1008B621          |
| Report Date        | 2015-04-01 12:52:22 |

## Component Results

| Component Name   | Norm%    | Gross HV (Dry)<br>(BTU / Ideal cu.ft.) | Relative Gas<br>Density (Dry) | GPM (Dry)<br>(Gal. / 1000 cu.ft.) |  |
|------------------|----------|----------------------------------------|-------------------------------|-----------------------------------|--|
| Nitrogen         | 0.1395   | 0.0                                    | 0.00135                       | 0.015                             |  |
| Oxygen           | 0.0048   | 0.0                                    | 0.00005                       | 0.000                             |  |
| Methane          | 82.7011  | 837.2                                  | 0.45808                       | 14.065                            |  |
| Carbon Dioxide   | 0.5892   | 0.0                                    | 0.00895                       | 0.101                             |  |
| Ethane           | 8.1591   | 144.7                                  | 0.08471                       | 2.189                             |  |
| Propane          | 5.5263   | 139.4                                  | 0.08414                       | 1.527                             |  |
| I-Butane         | 0.7045   | 23.0                                   | 0.01414                       | 0.231                             |  |
| N-Butane         | 1.0204   | 33.4                                   | 0.02048                       | 0.323                             |  |
| I-Pentane        | 0.3750   | 15.0                                   | 0.00934                       | 0.138                             |  |
| N-Pentane        | 0.3295   | 13.2                                   | 0.00821                       | 0.120                             |  |
| Hexanes          | 0.2248   | 10.7                                   | 0.00669                       | 0.093                             |  |
| Heptanes         | 0.1424   | 7.9                                    | 0.00493                       | 0.066                             |  |
| Octanes          | 0.0795   | 5.0                                    | 0.00314                       | 0.041                             |  |
| Nonanes          | 0.0039   | 0.3                                    | 0.00017                       | 0.002                             |  |
| Hydrogen Sulfide | 0.0000   | 0.0                                    | 0.00000                       | 0.000                             |  |
| Water            | 0.0000   | 0.0                                    | 0.00000                       | 0.000                             |  |
| Total:           | 100.0000 | 1229.7                                 | 0.70437                       | 18.911                            |  |

## Results Summary

| Result                                  | Dry      | Sat.     |  |
|-----------------------------------------|----------|----------|--|
| Total Normalized Mole%                  | 100.0000 | 100.0000 |  |
| Pressure Base (psia)                    | 14.730   |          |  |
| Flowing Temperature (Deg. F)            | 70.0     |          |  |
| Flowing Pressure (psia)                 | 150.0    |          |  |
| Gross Heating Value (BTU / Real cu.ft.) | 1233.9   | 1212.9   |  |
| Relative Density (G), Real              | 0.7065   | 0.7053   |  |
| Compressibility (Z) Factor              | 0.9966   | 0.9962   |  |
| Total GPM                               | 18.911   | 18.689   |  |