



Sample Matrix: Gas
 Sample Type: Spot
 Preservative: none
 Sample Container: 500 ml Cylinder

Client: Gas Analysis
 Project Location: Kinder Morgan
 Sample Id.: DC 13

Method(s): ASTM D 1945
 Gas Analysis by Gas
 Chromatography
 GPA 2145-09 - Calculations/
 Physical Constants
 GPA 2172 - Calculation of
 Gross Heating Value

Sample Temp.: N/A
 Atmospheric Temp.: N/A
 Pressure: 440 psig
 Field Data: N/A
 Sample Date: 06/27/17 Time: N/A
 Sampled By: Rick
 Analysis Date: 07/07/17
 Analysis By: Danny McDowell

Lab #: 1722:170706R006
 Quality Control Report: 4747

Analytical Results

| <u>Gas Composition</u> | | |
|--------------------------------|-----------------|----------------|
| | <u>Mol %</u> | <u>GPM</u> |
| Nitrogen (N2): | 3.6772 | 0.4066 |
| Carbon Dioxide (CO2): | 95.4064 | 16.3641 |
| | | |
| | | |
| | | |
| <u>Hydrocarbon Composition</u> | <u>Mol %</u> | <u>GPM</u> |
| Methane (CH4): | 0.8584 | 0.1463 |
| Ethane (C2H6): | 0.0101 | 0.0027 |
| Propane (C3H8): | 0.0074 | 0.0020 |
| Iso-Butane (C4H10): | 0.0133 | 0.0044 |
| N-Butane (C4H10): | 0.0099 | 0.0032 |
| Iso-Pentane (C5H12): | 0.0049 | 0.0018 |
| N-Pentane (C5H12): | 0.0061 | 0.0022 |
| Hexane+ (C6H14): | 0.0062 | 0.0027 |
| Totals | 100.0000 | 16.9360 |

Comments - Additional Data

| | | | |
|---|--------|----------------------------------|---------|
| BTU -dry (BTU/ft ³): | 10.6 | Z-Comp. Factor-dry: | 0.99474 |
| BTU -water vapor sat.(BTU/ft ³): | 10.4 | Z-Comp. Factor-water vapor sat.: | 0.99429 |
| Specific Gravity -dry: | 1.4984 | 14.73 psi Pressure Base | |
| Specific Gravity-water vapor sat.: | 1.4838 | | |
| | | | |
| <u>Gasoline Content (GPM)</u> | | | |
| Ethane & Heavier | 0.0190 | Butane & Heavier | 0.0142 |
| Propane & Heavier | 0.0163 | Pentane & Heavier | 0.0067 |



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Analytical Results (cont.)

| <u>Gas Composition</u> | <u>ppm vol.</u> | <u>Grains/100 ft³</u> |
|-------------------------------|------------------------|---|
| Hydrogen Sulfide | 7.33 | 0.467 |
| Carbonyl Sulfide | 0.18 | 0.012 |
| Methyl Mercaptan | 0.29 | 0.018 |
| Ethyl Mercaptan | 0.03 | 0.002 |
| Dimethyl Sulfide | 0.07 | 0.004 |
| Carbon Disulfide | 0.01 | 0.000 |
| 2-Propanethiol | 0.09 | 0.006 |
| Tert-butyl Mercaptan | 0.04 | 0.003 |
| 1-Propanethiol | 0.00 | 0.000 |
| Thiophene | 0.00 | 0.000 |
| N-Butanethiol+Diethyl Sulfide | 0.09 | 0.006 |
| Methyl Ethyl Sulfide | 0.36 | 0.023 |
| 2-Methyl-1-Propanethiol | 0.06 | 0.004 |
| 1-Methyl-1-Propanethiol | 0.21 | 0.013 |
| Total Sulfur | 8.77 | 0.558 |