

## R03035-Attachment

### DRAFT COMPARISON OF PIPELINE NATURAL GAS QUALITY SPECIFICATIONS

[REVISED 12/15/03]

PIPELINE	HOW HV DETERMINED	HEAT VALUE (HV) [BTU/SCF]	WATER (H <sub>2</sub> O) [lbs/million cf]	HYDROGEN SULFIDE (H <sub>2</sub> S) [grains/100 cuft]	MERCAPTAN [grains/100 cuft]	TOTAL SULFUR (S) [grains/100 cuft]	OXYGEN (O) [% by volume]	NITROGEN (N) [% by volume]	CARBON DIOXIDE (CO <sub>2</sub> ) [% by volume]
<b>A</b>	Industry Practice	≥960	≤7	<1	No Spec	≤20 <i>NOTE 1.c</i>	No Spec	No Spec	No Spec
<b>B</b>	Standard Instrument	967-1200	≤7	≤¼ - Mainline ≤1 - SE & SW	No Spec	≤20 <i>NOTE 1.b &amp; 1.d</i>	≤1	≤3	≤2
<b>C</b>	Not Defined	≥978	≤7	≤1	No Spec	≤20	≤1	4 less % by volume of CO <sub>2</sub>	≤3
<b>D</b>	AGA Rpt#5 -or- Other	967-1100	≤7	≤1/4	No Spec	≤20	≤.2 <i>NOTE 2.a</i>	≤4 + <i>NOTE 2.a</i>	≤3 + <i>NOTE 2.a</i>
<b>E</b>	Continuous Sampling AGA Rpts	≥967	≤7	≤0.25	≤0.75	≤5 Includes all forms of sulfur	≤.2 <i>NOTE 2.b</i>	<i>NOTE 2.b</i>	≤2 + <i>NOTE 2.b</i>
<b>F</b>	GPA Std 2172	≤1000	≤7	≤1/4	No Spec	≤10	≤1/4	<i>NOTE 2.c</i>	<i>NOTE 2.c</i>
<b>G</b>	Continuous Sampling -or- Other	No Spec	≤7	≤0.25	No Spec	≤20	≤.2	<i>NOTE 2.c</i>	2 + <i>NOTE 2.c</i>
<b>H</b>	Standard Methods	1000-1075	≤7	≤1/4	No Spec	≤10 <i>NOTE 1.b &amp; 1.d</i>	≤.25	<i>NOTE 2.c</i>	<i>NOTE 2.c</i>
<b>I</b>	AGA Rpt#3	950-1175	≤7	16 PPM	No Spec	320 PPM	≤.2	≤3	≤3
<b>J</b>	Not Defined	≥950	≤4	≤1	No Spec	≤20	≤.2	4 less % by volume of CO <sub>2</sub>	≤3
<b>K</b>	Not Defined	≥950	≤7	≤1/4	≤1/4	≤1/2	10 PPM	≤3	≤2
<b>L</b>	Not Defined	≥950							

PIPELINE	HOW HV DETERMINED	HEAT VALUE (HV) [BTU/SCF]	WATER (H <sub>2</sub> O) [lbs/million cf]	HYDROGEN SULFIDE (H <sub>2</sub> S) [grains/100 cuft]	MERCAPTAN [grains/100 cuft]	TOTAL SULFUR (S) [grains/100 cuft]	OXYGEN (O) [% by volume]	NITROGEN (N) [% by volume]	CARBON DIOXIDE (CO <sub>2</sub> ) [% by volume]
<b>M</b>	Standard Instrument	≥970	≤7	≤1/4	≤1/4	≤5	≤.2	NOTE 2.c	NOTE 2.c
<b>N</b>	Not Defined	≥950	≤7	≤10	No Spec	200 total	≤1	3 total (combined with CO <sub>2</sub> )	3 total (combined with N)
<b>O</b>	Not Defined	≥967	No Spec	≤0.25	No Spec	≤20	No Spec	No Spec	No Spec
<b>P</b>	Not Defined	≥967	≤7	≤.5 -or- 8PPM	No Spec	≤10	No Spec	4 less % by volume of CO <sub>2</sub>	≤3
<b>Q</b>	Not Defined	≥967	≤7	≤1/4	No Spec	≤20	No Spec	4 less % by volume of CO <sub>2</sub>	≤3
<b>R</b>	Not Defined	980-1100	≤7	≤.3	No Spec	≤20	No Spec	No Spec	No Spec
<b>S</b>	Not Defined	950-1100	≤7	≤1/4	1	≤5	≤.05	No Spec	≤2

**NOTES:**

<b>1</b>	<p><b>Total Sulfur Content Notes</b></p> <p>1.a Total Sulfur content not specified.</p> <p>1.b Total Sulfur includes mercaptan.</p> <p>1.c Total Sulfur excludes mercaptan.</p> <p>1.d Total Sulfur includes H<sub>2</sub>S.</p> <p>1.e Total Sulfur excludes H<sub>2</sub>S.</p>
<b>2</b>	<p><b>Nonhydrocarbon Gases Notes</b></p> <p>2.a Gas shall not contain more than 5% by volume of nonhydrocarbon gases including, but not limited to, carbon dioxide, nitrogen, oxygen.</p> <p>2.b Gas shall not contain more than 3% by volume of nonhydrocarbon gases including, but not limited to, carbon dioxide, nitrogen, oxygen, helium.</p> <p>2.c Gas shall not contain more than 3% by volume of carbon dioxide + nitrogen..</p>
<b>3</b>	
<b>4</b>	
<b>5</b>	