

**Gas Quality Analytical and Calculation Methods and Procedures for
the following pipelines operated by Questar Pipeline Company:**

**Questar Pipeline Company,
Questar Overthrust Pipeline Company,
Questar Southern Trails Pipeline Company and
White River Hub, LLC**

Questar uses values obtained from online gas chromatograph compositional analysis through C₉ to determine gas quality. Calculations for Specific Gravity and BTU are determined using compositions and physical constants for the individual gas components.

Questar uses the following GPA and API standards for compositional analysis:

GPA-2166, Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography (latest version) is used to determine the compositional makeup of the gas stream using gas chromatography.

GPA- 2172, Calculation of Gross Heating Value, Relative Density and Compressibility Factor for Natural Gas Mixtures from Compositional Analysis (latest version) is used to calculate gross heating value and relative density.

GPA-2145, Table of Physical Constants for Hydrocarbons and Other Compounds of Interest to the National Gas Industry (latest version) is used as the source for the physical constants for each gas component. These values are used to calculate the properties of the combined gas stream.

API 14.1, Manual of Petroleum Measurement Standards (latest version) is used for Collecting and Handling of Natural Gas Samples for Custody Transfer.

Cricondentherm Hydrocarbon Dew Point (CHDP) values are calculated from compositional analysis through C₉ using the Peng-Robinson equation of state.

At sites where an online chromatograph is not available, gas is sampled for analysis using either a continuous sampling bottle or a spot sample is taken. Gas samples are collected on a monthly basis and the compositional makeup of the gas is determined using chromatographic analysis that is performed using the standards described above.