



# Bradley B Bean PE

Engineering And Software For The Natural Gas Industry

September 2019

## B3PE Conference Update

We will be appearing at the following conferences in the next month:

- [APGA Operations Conference](#), October 29 to 31, Huntsville, Alabama
- [Kansas Pipeline Safety Seminar](#), November 6 to 7, Manhattan, Kansas

If you are attending one of these conferences, we invite you to visit our booth to learn more about our innovative design and analytic solutions, and see demos of GASWorkS™, GASCalc™, and GASPurge™.

Stay tuned to the newsletter for future announcements of events where B3PE will be exhibiting.

## Working With Base Conditions

Typically, this newsletter offers some sort of useful tip or trick for our Users.

This month, we will discuss an important topic that affects hydraulic and volumetric calculations in all of our products - *Base Pressure* and *Base Temperature*. The following discussion is based on common practices in the US natural gas industry. Practices may differ elsewhere, but the concepts are universally valid.

Base Pressure and Temperature are used to establish the basis for a "standard cubic foot" of gas. Although a cubic foot is a measure of volume, we are actually referring to the quantity of gas contained in the space of a cubic foot. Because natural gas is compressible, the pressure and temperature affect the quantity of gas contained in that cubic foot.

In 1963, the American Gas Association endorsed values of 14.73 Psia for Base Pressure and 60 Fahrenheit for Base Temperature. Although common, these values are not consistently used throughout the United States, nor are they valid for every calculation.

So what values should you use?

A Base Temperature value of 60 Fahrenheit is generally used for all types of applications and is mostly appropriate. As for Base Pressure, the correct value depends on the calculation being performed. For most sizing calculations - pipe, regulators, meters, relief valves, etc - you will generally use a Base Pressure value of 14.73 Psia. Why? Because appliance and equipment ratings, as well as capacity tables for regulators, meters, and relief valves, are most often reported at that value.

For reports or capacity tables, the Base Pressure and Temperature values used should be listed somewhere in the document - use the listed values.

If you are using measured flow rates, use the Base Pressure value associated with the meter. Distribution systems in the United States commonly establish a Base Pressure for measurement based on the average local atmospheric pressure plus 0.25 Psig - this closely represents the absolute pressure in the meter. For metering at custody transfer locations, or town gate or border stations, Base Pressure and Temperature values can be found in the "tariff" governing the associated transaction.

When preparing reports for the US Federal government, a Base Pressure value of 14.73 Psia is required.

The Base Pressure and Temperature can be set in GASCalc 5.0 and newer by selecting the *Base Conditions* command button at the bottom of a calculation screen. In GASWorkS 9.0 and newer, the Base Pressure and Temperature are found on the Other Settings tab of the Solution Data screen.

We will have more to say on this subject in the future.

## **GASWorkS 10 - Updates**

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It has been more than two years since the release of GASWorkS 10.0. In that time, we have highlighted many of the great [features](#) of the software.

Our work did not stop on Release Day. Make sure your software is up-to-date by visiting our [Updates](#) page to download the latest revision, posted on **September 4**.

If you have not already tried GASWorkS 10, click [here](#) to request a 30-day evaluation copy. To upgrade today, fill out an [order form](#) and return it to [sales@b3pe.com](mailto:sales@b3pe.com).

## **Training Update**

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September marks the end of our scheduled Basic GASCalc 5.0 and GASWorkS 10.0 training for 2019. Thank you to everyone who attended one of our training courses this year at the world headquarters in Colorado Springs, or any of the various on-site courses we conducted.

Additional courses can be held at our site or at yours upon request. Please contact us at [training@b3pe.com](mailto:training@b3pe.com) to discuss your specific training needs.

More information can be found on the [Training Information](#) page of our website, including an [overview](#) of our training courses and details on travel and accommodations.

## Applications Portal

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Check out our new Applications [Portal](#), where you will find links to GASPurge and the free GASCalc Web App.

## Our Products

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[GASWorkS™](#) - Affordable and robust network modeling.

[GASCalc™](#) - Suite of gas system design and analytical tools.

[GASPurge™](#) - Natural gas pipeline purging calculator.

[StationManager™](#) - Regulator and relief valve station management solution.

[WaterCalc™](#) - Suite of water system design and analytical tools.

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