AGA Report No. 6

Field Proving of Gas Meters Using Transfer Methods

Prepared by

Transmission Measurement Committee

First Edition, March 2013

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Purpose

The purpose of this document is to provide operating personnel with methods to prove gas flow meters in the field. The methods presented will include both current technology and previously presented technology that is still in use.

1. Scope

This report includes methods for proving gas flow meters and/or metering systems in the field using either critical flow or other transfer metering techniques. It is intended for use by both technicians and engineers to enable them to apply principles of engineering, physics, and mathematics to the process of proving, verifying or checking a working meter or metering system by utilizing a calibrated, traceable master metering system with a documented uncertainty across the range over which the master metering system is applied.

This document is intended as an informational guide and not as a prescriptive document. It is the responsibility of those using the methods described to establish error limits, required operating test range, and other criteria for determining the acceptability of a meter proof and the situations in which these proving methods can be applied.

2. Terminology

For the purposes of this report, the following terms are defined:

Actual volume	a quantity of gas that occupies a specified physical volume at some specified pressure and temperature. This typically refers to the actual volume at operating conditions. *Contrasting term: standard volume.*
Actual volume flow rate	the rate of flow in units of actual volume per unit time. *Contrasting term: standard volume flow rate.*
Accuracy	a qualitative concept of the closeness in agreement of a measured value and an accepted reference value. *Contrasting term: "meter accuracy" that has a specific quantitative definition provided in this document.*
Adjustment	the mechanical or electronic operations required to create agreement between the test device output and the reference device as the result of information gathered during a calibration.
Beta	a dimensionless ratio of the measured throat diameter to the measured inlet diameter.
Boundary layer	the layer of slower flow adjacent to the boundary surface of a body containing a flowing fluid.
Calibration	the process of determining, under specified conditions, the relationship between the output (or response) of a

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