

Title: Flow Metering Standards

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Introduction

The custody transfer of hydrocarbon fluids from crude oil, to refined products and natural gas has always referenced standards in contracts. The standards are written under the guidance of The American Petroleum Institute (API) and The American Gas Association (AGA) by operating company personnel. The Standards are based on research data and experience in flow meter usage over the years. These standards have given the industry the ability to conduct business on an equitable and fair basis for the interested parties.

Changing Requirements

As the flow measurement requirements change and knowledge is gained, changes are required to assure that the standards are current and represent the best knowledge in the business. Standards are the basis for the exchange of money and have been responsible for keeping the parties from running to the courthouse when disagreements arise. The last place to settle a measurement dispute is in the courthouse. Having spent several tours of duty as an expert witness in these proceedings, the settlement and the facts were not always in agreement in my judgement.

The way to settle measurement arguments is between reasonable people who settle based on the standards requirements and the knowledge of their application.

Reduced Participation

In the last decade the operating companies have cut back on their representation on the Standards writing groups. In an effort to "reduce costs" by cutting travel expenses and allocation of work time, the representation has been severely reduced. Is this a wise decision?

As mentioned earlier, the standards are in constant review and revision as needed. The American National Standards Institute (ANSI) requires its documents be reviewed every five years so there is plenty of work to be done. These cutbacks have depleted knowledge and effort on the committees to where it is much more difficult to carry out the standards writing efforts.

Committees Do Hard Work

To many companies, the standards meetings are considered to be a perk and reward employees with a "nice trip" rather than an assignment that requires effort in the continuing work of the committee. To become knowledgeable about how these committees operate and how to be an effective member requires a long-term commitment on the part of the company and the employee chosen.

If membership is properly assigned and carried out it is anything but a perk for the employee chosen.

New Flow Meters

There are a number of innovations in flow measurement coming on the scene. Multiphase metering at producing wells, ultrasonic meters for natural gas, coriolis and vortex shedding meters in the products area that are in various stages of standardization development for custody transfer metering. An operating company that waits for others to do their work is missing a great learning experience that is second to none for analyzing and determining the application of the meters to their operations. Simply reading a standard that has been written is not the best way to get a full understanding of what is written, but also the research, data and experiences that are behind what is in the standard.

Agendas

On some occasions, parties with agendas have had to be redirected so that the standards are as factual as possible and represent the best information to the industry. Feelings of "what is right" are of no value compared to data from several sources that established data based for standard statements.

Bad Standards

Bad standards can lead to bad flow measurement, which leads to bad lawsuits, and nobody gets ahead with that. A rush to publish a standard on any new meter does a disservice to the industry until a sufficient database of research and use in custody transfer type metering is submitted. Any less weakens the present standards and misleads users. There has been a "need to publish something by the end of the year" when inadequate data is available on which to make a decision. Adding to this problem is the reduction in funds available for research and development within the industry as a whole, whether it is from individual companies or industry sponsored organization research. This reduction in funds discourages new products or upgrading of products by the manufacturers if there is no way to get their devices tested and a standard written. Test facilities are available but funds to run them have been reduced.

American and International Standards

At one time a number of the standards of the world for the Oil and Gas Industry originated in the American industry, but recently the International Industry has been more active in doing research and producing standards. To a degree, this may represent a more mature American than International industry. In a growing booming industry, both the wherewithal and the desire to do the work is easier to find. Considerable expenditure of money has been made in the past ten years by International companies and their governments in developing world class facilities to do this research and development.

Summary

What the foregoing leads to is:

- A slowdown in the production of Standards
- Less knowledge of their contents
- A slowdown and use of new type flow meters

- The potential of more disagreement on flow measurement becoming court cases
- Less dedicated and qualified committee membership
- Less research and development of flow meters
- An acceptance by management that these problems don't really affect their companies.

The Oil and Gas Industry has an economic responsibility to itself to have a fair basis for which custody transfer of their products can be accomplished. This is best done by the production of factual, accurate and current standards that give an equitable basis for the exchange of products for money. This is not being accomplished today.