



Gas Meters and Safety Valve Testing and Recalibration

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Role of the Utility

- Provide viable, cost-effective, and safe service
- Meet the needs of its consumers
- Be allowed an opportunity to earn a fair return on investment to its shareholders





Role of the Utility (continued)

- Develop and maintain an effective management organization & operational performance through the utilization of best practices
- Seek continuous improvement in all areas, including safety





Role of the Regulatory Agency

- Act in place of a natural market where none exists (a monopoly)
- Balance the interests of the monopoly (the utility) and its consumers (the users of its services)





Role of the Regulatory Agency (continued)

- Review of utility management & performance to promote utilization of best practices
- Provide recommendations for improvement
- Order adjustments in rates or to customers' bills for management or operational deficiencies





Utility Management & Performance

- Is Its Organization ...
 - Streamlined for efficiency?
 - Sufficiently robust for service but not a bloated bureaucracy?
 - Best organized to achieve the desired outcomes?
 - Seeking continuous improvement?





Utility Management & Performance

- Operations & Maintenance
 - Are the utility's operations in line with best practices?
 - What are the industry standards?
 - How often does the utility evaluate its effectiveness and efficiency?
 - What are done with the results of those evaluations?





Utility Management & Performance

- Procurement practices
 - Gas supply
 - Commodity
 - Capacity
 - Other goods & services
 - Equipment (including meters)
 - Laboratory services (if none exists within the company)





Unaccounted-for gas: What is it?

UFG = >

 The difference between the total gas available for all sources, and the total gas accounted-for as sales, net interchange, and company use.

American Gas Association





Unaccounted-for gas: What is it?

Said another way, UFG is:

• The difference between the volumes of gas which the utility has purchased and the measured volumes of gas for which there is a record of its disposition.





Unaccounted-for gas: What is it?

UFG = >

 This includes gas sold to customers as well as gas used by the utility to enable the provision of gas service; for example, gas used for compressors, heating company facilities, and for use by the company's motor vehicle fleet





Unaccounted-For Gas (UFG)

- What is considered a reasonable level of UFG?
 - Is UFG reasonable if >3%?
 - Should UFG be questionable if >3% and <5%?
 - Should UFG be denied if >5%?
- Ohio experience





What Are The Various Components?

- Leakage
- Other gas losses
- Effects of metering inaccuracies
- Temperature and pressure variations
- Company Use
- Accounting/timing differences





Leakage

- Leakage issues may result from
 - Improper pipe/equipment
 - Aging pipe/equipment
- Does the company maintain a comprehensive leak survey and leak control program?
- What are the most recent 5-year trends?





Other Gas Losses

- Fraud and theft
- Third party dig-ins (unauthorized persons disturbing pipeline infrastructure and/or the surrounding area and not reporting to authorities)
- Does the company maintain a vigorous program to detect and stop unmetered consumption?
 - Some companies provide monetary rewards up to a certain amount for uncovering and reporting





Effects of Metering Inaccuracies

- Measurement Differences
 - Purchase meters
 - Sales meters
- Does the company utilize a comprehensive meter and instrument testing program?
- Does the company maintain check-meters at any point in its system?
- Does the company observe or audit the testing of upstream supplier purchase meters?





Temperature and Pressure Differences

- Are measurements pressure and temperature corrected by the equipment (meters)?
- If not, are calculations made to adjust to standard temperature and pressure?
- Largest effects observed by outdoor meters with wide-ranging ambient temperatures





Company Use

- Is all Company Use gas measured?
- What about gas used in normal pipeline operations?
 - For example, is all of the gas used in compressor operations measured at all facilities?





Accounting/Timing Differences

- All gas meters are not read on the same day of each month for purchases and sales
- Necessarily, there are timing differences between the measurement of the volumes coming into the system versus the measurement of the volumes going out of the system





Regulatory Review

- Ensure that the company is addressing all components: leakage, other gas losses, metering inaccuracies, temperature and/or pressure variations, and timing
 - Via periodic reviews
 - Independent analysis
 - With regulatory oversight





GAS METERS AND

SAFETY VALVE TESTING

AND RECALIBRATION





GAS METERS

- Does the company maintain a comprehensive meter and instrument testing program for its sales meters?
- What are the various types of meters in use by the company?





Some Meter and Instrument Types

- Positive displacement diaphragm [residential, commercial]
- Turbine
- Rotary
- Orifice
- Instruments
- Transfer provers





Positive Displacement Diaphragm (an example utility's program)

Residential meters

15 years

- Larger volume
 - 501-1,500 cfh
 - 1,501 10,000 cfh

10 years 5 years





Other Meters & Instruments (an example utility's program)

- Turbine
- Rotary
- Orifice

annually annually annually

Instruments
3, 6 or 12 months

(depending on meter capacity) s maximum 24 months

• Transfer provers





Meter Test Results (an example utility's program)

TESTING RESULT	>3% fast	<3% fast to <3% slow	>3% slow	TOTAL
NUMBER TESTED	199	12,766	368	13,333
PERCENT TESTED	1.5%	95.7%	2.8%	100%





Other Meters & Instruments (an example utility's program)

- The utility further identified age and manufacturer
 - As a result of its meter testing program, the utility identified problems with a particular brand of meter manufactured
 - It established a meter change-out program replacing those meters with more accurate meters





Other Considerations

- Does the company conduct its meter and equipment testing in house?
- How does the company ascertain the accuracy of the meter prover?
- How does the company ascertain the accuracy of the meter prover and the reliability of the testing methodology if utilizing an outside vendor?
- What process does the regulator have in place to review these issues?





Questions?

Merci!