HOW SARBANES OXLEY HAS AFFECTED GAS MEASUREMENT IN DISTRIBUTION AND PIPELINE SYSTEMS

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What is Sarbanes-Oxley?

Also known as the Public Accounting Reform and Investor Protection Act, Sarbanes-Oxley (SOX) is a name of the piece of U.S. compliance legislation which was signed off in 2002. It's designed to prevent financial malpractice and accounting scandals such as the Enron debacle.

The most relevant, Section 404 of SOX (Management Assessment of Internal Controls) determines the company's internal system of checks and balances. Any public company with stock worth more than $75 million must issue such information in their annual reports. By providing transparency to financial reporting, this overhaul legislation will reduce the string of corporate implosions, earnings restatements and subsequent criminal probes that put thousands of workers out on the street, cost billions of dollars and has led to more than 300 convictions and guilty pleas (according to Justice Department).

The Act covers a whole range of governance issues, many covering the types of trades that are allowed within a company, with an emphasis on keeping everything above board. For example, SOX forbids personal loans to officers and directors. Other parts of the Act regulate the responsibilities of the audit committees sent in to check the health of companies' compliance.

Compliance Guidelines – The Magic Seventeen

The U.S. District Courts and legal counsel have been provided with a comprehensive set of high-level guidelines in order to adjudicate cases brought forward for their review under the Sarbanes-Oxley Act in 2005.

1. **Establish Procedures** - companies must establish compliance standards and procedures to be followed by all employees.
2. **High-Level Oversight** - at least one "high-level" individual must be assigned overall responsibility for compliance.
3. **Use Due Care** - organizations must not delegate "substantial discretionary authority" to individuals who have engaged in illegal activities.
4. **Communicate Standards** - organizations must communicate standards and procedures to all employees.
5. **Monitor** - organizations must take "reasonable steps to achieve compliance" with their own standards.
6. **Enforce Consistently** - standards must be enforced consistently through disciplinary mechanisms.
7. **Response and Prevention** - organizations must take "all reasonable steps" to respond appropriately to violations, and must act to prevent similar offenses.
8. **Tone at the Top** - an organizational culture that encourages a commitment to compliance with the law.

9. **Conduct and Internal Control** - standards of conduct and internal control systems that are reasonably capable of "reducing the likelihood of violations of law".
10. **Leadership Accountability** - responsibilities of an organization's governing authority and organizational leadership for compliance.
11. **Resources and Authority** - resources and authority for individuals with the responsibility for implementation of the program.
12. **History of Violations** - objective requirement for determining if there is a "history of engaging in violations of law"
13. **Conduct Training** - training and the dissemination of training materials and information within the definition of an "effective program"
14. **Evaluate Programs** - "periodic evaluation of the effectiveness of a program" to the requirement for monitoring and auditing systems
15. **Whistleblower System** - a mechanism for anonymous reporting
16. **Encourage Employees** - system for employees not only to report actual violations, but to "seek guidance about potential" violations, in order to more specifically encourage prevention and deterrence of violations
17. **Risk Assessment** - ongoing risk assessments as part of the implementation of an "effective program."

The challenge of SOX is ensuring it is observed and that compliance can be demonstrated and accurately monitored and reported. The most common area of focus is the archiving of all communications and the creation of transparent and auditable correspondence.

How Various Measurement Departments Have Addressed SOX

Pipelines- Both Transmission and Gathering companies have put in place a process to document implementing and new process that affects practices related to measurement production volume, gas quality and delivery transactions, which play a crucial role in accurately recording revenue and reporting financial results. Implementation of a new system includes:

* Testing
* Document Testing
* Detailed Testing
* Provide an Implementation Process
* Identify who in the company can test and approve
* Identify the business owners – who can provide permissions and User ID's
* Process to implement System
* Verification process – Prove through business guidelines (e.g. emails, help desk, etc) that you have followed established process of new implementations

Pipelines and Gatherers face another challenge: further ensuring they are in compliance with Sarbanes Oxley in regards to their gas measurement. Items that all gas companies are more closely examining in their gas measurements operations include:

* Is the data accurate? Are their any gaps in the data?
* Explain your implementation of security controls?
* What is your ability to provide critical reports across organization lines?
* How near-real time is your balancing?
* Can you quickly identify sources of lost and unaccounted for gas and accurately assess amount lost?

- Provide active records for auditing purposes, as well as inactive records?
- Provide a central database of both gas volumes and editing (for audit reasons)
- Provide detail audit tracking on both configuration and volume data
- Provide ability to automatically recalculate upon identifying operational discrepancies.
- Provide ability to identify anomalies in data, and ability to provide against a wide variety of historical data.

Section 409 of the Sarbanes Oxley Act requires companies to disclose information to the public "on a rapid and current basis." Systems are being implemented in organizations that can provide summaries of gas measurement daily during the month, instead of waiting until 5-10 days after close. Pipelines are providing access to this data all the way down the field level.

Besides tightening internal systems, the need for expertise in gas measurement is essential to provide an auditable set of parameters for data and to ensure accounting accuracy. Certification, training and standard operating procedures implemented properly provide adherence to the standards of Sarbanes Oxley.

Local Distribution Gas Companies (LDC) has addressed SOX in their checks and balances in regards to their residential customers and commercial contracts/customers. SOX have reinforced many of their practices by promoting accurate meter reading in their meter sampling. Several of the statistical analysis implemented included:

- High Checks on Volume
- Low Checks on Volume
- Algorithms on Usage Volume
- Algorithms on Weather and Usage in regards to Volume
- Reading Meters allows another level of analysis including:
- Meter Reads Against Know Comparatives
- Meter Reads Against Variations in Customer Billing
- Usage Pattern Coupled with Weather Conditions
- Usage Pattern Coupled with Usage Trends (across subdivisions, etc)

In the pipeline business, validations can be performed to provide "proof positive" for checks and balances in regards to volume, pressure and temperature of gas. Since it is an unaffordable to provide the most accurate measurement device at every level, in LDC's, checks and balances are better determined under the definition of "plausibility checks" – the realm of being right. The plausibility check factor is an estimate, which can still serve the purpose of providing checks and balances for SOX compliance.

Commercial customers represent a different challenge in regards to checks and balances. Since it is more difficult to accumulate trends or usage patterns for commercial entities, this LDC deploys more electronics. As a result, electronic flow meters, electronic correctors, and telephone communications are utilized as data collection devices. The LDC can implement validations as hourly data arrives in regards to high/low pressure, temperature and volumes.

LDC's are also addressing SOX by reviewing their entire revenue process and sub processes, including records, usage and customer information. The focus in this review is to verify data accuracy, and identified best practices were examined in regards to meter testing:

- Residential Meters: Random sampling
- Light Commercial Meters: Random sampling unless mandated by rate order
- Heavy Commercial Meters: Instrumentation Sites are visited once a year; Big Companies, Quarterly

Another LDC has addressed SOX by their implementation of AMR, Automatic Meter Reading. By implementing AMR throughout both their residential and commercial accounts, (about 130,000 customers) several benefits have immediately been documented:

- Eliminates access problems
- Improved operations
- Cost reductions
- Improved Employee Safety
- Improved accuracy
- Foundation for advanced reads
- Theft identification
- Improved reliability
- Improved distribution system planning
- Improved leak identification
- Improved customer satisfaction

AMR provides a system of checks and balances to this utility by identifying the following:
- No meter reads – need to investigate any problems with meter
- Meter Reads but no customer record – identify the meter and get it into the customer information system

This utility recognized that their processes worked fine in most cases, but sometimes a field issued meter work order would not necessarily make it into the system, and the AMR would pick that up. Also the utility continues to process comparisons of electronic meter data versus manual meter data.

As with all Best Practices, the most troubling question that was asked during SOX review in regards to gas measurement was ***"How do you know that every customer is getting a bill?"***

This leads the utilities to review the methods of tracking meters and inventory. In one investigation, it was determined that the information system that generated a work order for a new service meter, was not the same system that assured an active customer account was open for that meter (customer information system). In regards to large commercial meters, there was a "catch-safe" system in place to determine that a new meter could not be issued without an active customer account, but in small commercial and residential meters, there was no complete process of creating a work order and then tracking it all the way to an active account.

The challenge that faced the utility was not only the "seamless integration" of the work order and customer information system, but the numerous legacy systems still in place on both the electrical and gas side of the various owned utilities. An upgrade of any legacy system on the gas side could provide heartache for the remaining electrical work order or customer information system.

Solution: This LDC has taken action by implementing a pilot program at selected locations to determine how many meters are being put through the system, for example, in meter storage, in technician vans, replacement meters, etc. The results of this pilot can provide statistics to identify what the losses are, and identify what the LDC is buying, measuring, billing accurately, verifying and managing in their inventory tracking. This pilot will provide a standard of practices that will address the SOX issue *of "every customer getting a meter is also getting a bill."*

Conclusion

As each of these companies have outlined, their checks and balances in their measurement practices provides a transparency to their operation practices. Each of these organizations recognize to have accurate insight into their measurement business, they have to have accurate data to analyze. The possibility of poor data quality can hamper their measurement operations processes. These companies continue to implement business intelligence-oriented data structures such as data warehouses for their gas measurement data. The strategic importance of applications built on data warehouses continues to grow, especially in the face of SOX and the inability to tolerate poor data quality.