

The background of the slide features a stylized, repeating pattern of yellow pipes and valves. The pipes are thick and yellow, with grey flanges and bolts at the joints. Red-handled valves are interspersed throughout the network. The pattern is symmetrical and fills the entire slide area.

Pipeline Safety Management Systems (PSMS) Benchmark Refresh

May 2023

Overview



In 2018, Mosaic conducted a PSMS benchmark study to provide insight into how companies were building and executing their Pipeline Safety Management Systems. At that time, most companies were assessing how their existing safety and asset management programs fit into the API RP 1173 framework. They were still “gap-analyzing” their programs and evaluating the results. Our 2018 benchmark dove into each of the 10 elements looking for best practices, challenges, early successes, and common themes we could share with the PSMS community.

Between 2018 and now, Mosaic has worked with some great companies continuing to develop their PSMS programs. We have grown with them in understanding the benefits, common challenges, and what are becoming commonly adopted best practices. As we reflected on the state of PSMS implementations, we felt the industry was approaching a significant milestone in maturity and believed taking a pulse reading would be helpful.

We spoke with 13 utilities to find out how their programs have matured and to answer the following high-level questions:

- Are most companies reaching a significant milestone in adoption and application?
- If so, what are the characteristics of this milestone in terms of benefits achieved so far and subsequent areas of focus?
- What new or persisting systemic challenges are operators facing and need to solve?



Participating Companies

We found that companies are still stepping into their response to this voluntary standard in many ways, at varied paces, and with different stories to tell of their successes and ongoing challenges. We talked to large operators, small publicly owned utilities, and those in between, and we are convinced the milestone is real. However, the focus is shifting from implementation and maturity to effectiveness as the new measure of success.

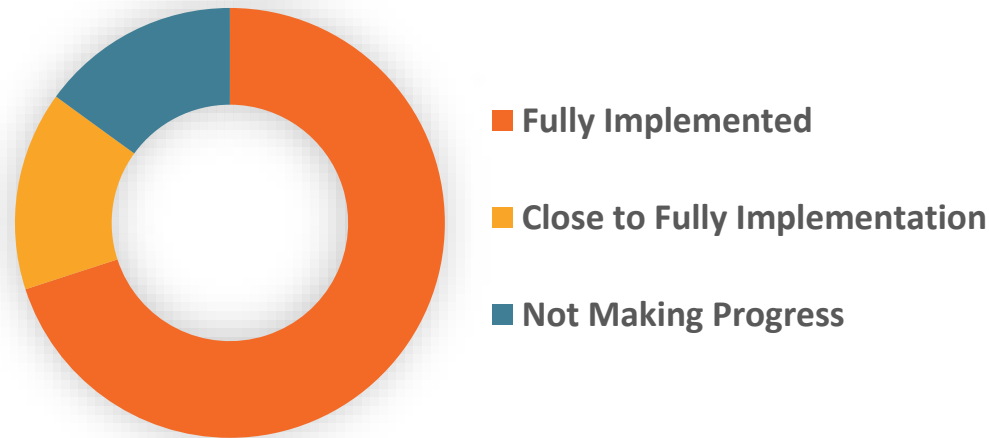


Key Findings



The majority of participating operators consider themselves fully implemented or very close to full implementation.

Those not making progress toward maturity cited a lack of executive support and funding due to the voluntary nature of RP API 1173.



Effectiveness is emerging as a new focus area. Operators are asking themselves how and what they should measure, what their effectiveness goals should be, and whether a maturity model is the best way to measure and communicate program success. API modified its maturity ranking system to a five-point scale to give credit for “effectiveness” metrics. However, half of the operators interviewed for this study are moving away from numerical maturity measurements and using terms such as “implemented” or “continuous improvement phase” to define their status.

Key Findings



The most significant benefits of the implementation journey are experienced far beyond the parameters of PSMS.

- Newly implemented corrective action programs have surfaced concerns and demonstrated a commitment to act, changing organizational cultures and increasing internal and external trust.
- The standardization of work methods, the consolidation of risk reporting and risk management practices, and better alignment with contractors have fostered improvements in consistency, efficiency, communication, and unification.
- Information flow through the organization has improved, resulting in better and more decisive action, and an improved level of transparency and tracking has strengthened status measurement, accountability, and feedback mechanisms.



Measurement is the most frequently cited area of current focus (the “C” of PDCA). Operators are focused on measuring the value of PSMS to the enterprise, defining and measuring effectiveness, determining what to measure elementally or programmatically, and determining how much and how often to measure.



Key Findings



Not all operators are centered on the 10 elements. Many operators have fewer or more than ten elements making up their PSMS programs. Sometimes the elemental requirements are embedded within existing programs; others are building new programs and goals specific to individual elements.



The biggest challenges center around gaining or sustaining momentum. Social, political, and regulatory disparities are affecting the focus and intent of PSMS programs. The industry is still all over the map on how, how much, and how many companies address the standard and its requirements. The northeast appears to be the furthest along.



There is a direct correlation between funded PSMS organizations and progress toward maturity. The fact that API RP 1173 is a voluntary program is stalling progress, and many operators expressed the desire for it to become a mandatory requirement so they can get funding, rate recovery, and action on their programs.



Effectiveness Measures

As the focus for PSMS programs changes from implementation to effectiveness, the following meaningful effectiveness measures are emerging:

Abnormal Operating Conditions (AOCs)



We train and qualify employees to identify and react to AOCs but don't often collect the valuable information these events can provide. They are a good source of indicators for where system weaknesses may reside.

Incident Rates



Measuring the number of incidents, such as leaks, third-party damage, accidents, and near misses, is now standard, and reducing incident rates and severity over time are worthwhile goals. Most organizations have programs for identifying corrective and preventative actions that can be harvested for incident-related leading indicators.

Emergency Response Effectiveness



Clearly defining goals and objectives for emergency response actions is a critical first step. Protecting/saving life and property, speeding response times, mitigating other risks, and being a valuable resource to the community in times of trouble should all be considered. Constantly measuring effectiveness and adapting to situations should be an ongoing part of emergency preparedness and not just left for after-action reviews.

Effectiveness Measures

Integrity Management



Integrity management programs are built around effectiveness indicators for how your organization identifies systems threats and manages the barriers established to keep assets safe. PSMS program effectiveness goals would be incomplete without a robust set of measurements from integrity management plans.

Compliance with Regulations



Maintaining full compliance with federal, state, and local regulations is a given in our industry. A host of compliance systems and audit processes can be tapped for effectiveness indicators.

Asset Utilization



Maximizing capacity utilization, throughput, and availability, providing reliable service at an affordable rate, and maintaining safe and reliable operations are common enterprise goals. PSMS effectiveness measures are designed to address “safety first” but should not ignore reliability, compliance, and cost-effectiveness requirements and how they affect the overall operating strategy.



Contact Us

Please reach out if you would like to speak to us about this study or connect with a peer to share knowledge on specific elements.

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