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White Paper

Strategic Perspectives on the PHMSA Mega Rule

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While the Pipeline Safety Improvement Act laid the foundation for modernizing the way natural gas utilities operate, the act's evolution into the Pipeline and Hazardous Materials Safety Administration Mega Rule (49 CFR Parts 191 and 192) holds significant implications for natural gas utilities. Emerging in response to the 2010 San Bruno pipeline explosion and other dangerous incidents, the Mega Rule requires operators to establish standards for identifying threats, potential failures, and worst-case scenarios; follow strengthened integrity management requirements; inspect pipelines within 72 hours of a weather event or other natural disaster; and report evidence of problems, such as corrosion, and the resolution.

The Mega Rule was released in three parts over the course of a decade, with Part 1 focused on maximum operating pressure and integrity management near High Consequence Areas (HCAs). Part 2 extended federal safety requirements to onshore gas gathering pipelines with large diameters and high operating pressures, and Part 3 expanded jurisdiction to onshore gas transmission pipelines. By requiring operators to change their recordkeeping, operations, and reporting procedures, the Mega Rule raises the bar for best practices across the industry.

The importance of data in this context is paramount, as accurate and comprehensive data on natural gas pipeline systems is critical for ensuring their safe and efficient operation. This shift presents natural gas utilities with an opportunity to systematically transform their operations, adopting more advanced technologies and methodologies for data collection and analysis.

Data-Driven Transformation: Smart Planning for Compliance

Successfully navigating the Mega Rule could involve a fundamental shift in how natural gas utilities collect, process, analyze and act on data over time. Compliance with the Mega Rule is not just about

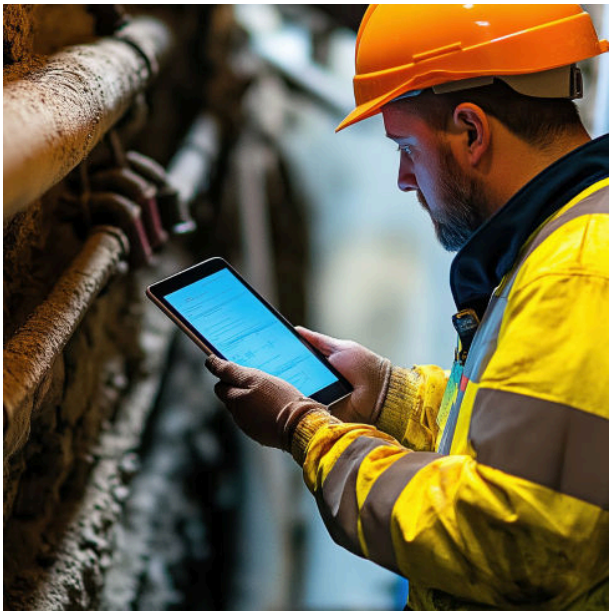
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meeting regulatory deadlines; it's about embedding these new standards into the core of the utility's operations.

As a result, many natural gas utilities may want to reassess their current operations and data-collection processes, as understanding the condition of existing assets and what's in the ground is a crucial first step. Utilities must also address any "tech debt"—the gap between current technological capabilities and what is needed to meet the new regulatory requirements. This may involve updating existing operations, such as improving processes around construction, maintenance and repair, while also planning and preparing for future needs.

To facilitate this transformation, natural gas utilities can tap into regional and national industry resources such as associations, conferences, engineering groups and other providers. These entities can offer valuable knowledge sharing and insights into the best practices for compliance and operational improvements. By leveraging these types of resources, utilities can stay informed about the latest developments in the industry and ensure they are implementing the most effective strategies for Mega Rule compliance.

Managing the People, Process and Technology Challenge



One of the biggest challenges utilities may face in complying with the Mega Rule is managing the interplay among people, processes and technology. High-quality data capture and utilization could be the key to successfully addressing this challenge. Utilities can first establish what their organization needs to achieve, and from there define the data required to enable the tools, processes and workflows to help them succeed. Identifying the data necessary to predict challenges across the system can help inform predictive analytics and optimized maintenance schedules to help prevent possible issues.

Real-time data capture is another critical component of this process. It requires technology that can quickly and accurately capture data in the field and seamlessly transfer that data to systems of record, such as relational databases, geographic information systems, or GIS, and accounting software. This real-time data can unlock a range of operational capabilities that can help improve asset utilization, boost workforce productivity, streamline onboarding, and connect and empower workers.

In parallel, natural gas utilities can ensure that their workforce—whether made up of contractors or employees—has access to an intuitive user interface that can facilitate easy data collection. By making data gathering an integral part of normal business operations, utilities can gain a data pool that is accurate, timely and comprehensive. Enabling mobile connectivity for field workers may also help them seamlessly access and update essential data and information in real time in the field, and bolster

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productivity with simplified processes, voice-command navigation and access to critical knowledge. Ultimately, this can enable stronger decision-making and higher levels of efficiency while helping utilities deliver exceptional customer service.

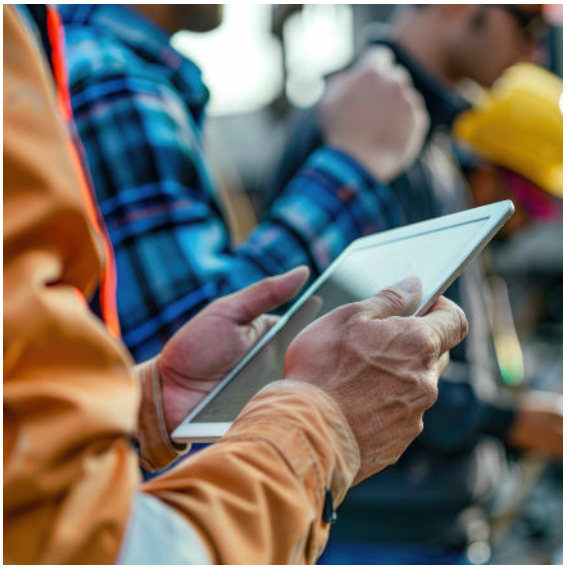
AI and Data Analytics: Optimizing Pipeline Management

The integration of artificial intelligence and machine learning technologies into utility operations offers powerful features for improving data analytics and informed decision-making. One critical example of this for natural gas utilities is the inspection, maintenance and repair of pipelines. Once the required data has been defined and the appropriate technology and processes are in place to capture it, AI and ML can be implemented to support predictive analytics. This can help organizations identify potential pipeline issues within their systems before they occur, allowing for proactive maintenance and repair cycles.

Another practical application of AI in this context is dynamic segmentation, which involves analyzing various data points, such as corrosion information and direct current voltage grading, in conjunction with traditional line inspection data and on-the-ground information. By doing so, utilities can pinpoint locations and assets that require particular attention. This level of precision is beneficial because risk factors are constantly changing, and pipeline infrastructure is continually exposed to new conditions. AI-powered analytics enable a deeper understanding of these risks, helping utilities better manage assets and mitigate potential hazards.

Key Recommendations for Building Future-Proof Operations

The PHMSA Mega Rule presents both challenges and opportunities for natural gas utilities. While the new regulations may require changes in how utilities operate, they also offer a chance for organizations to implement systematic advancements that will serve them well into the future.



With a likelihood of further regulatory evolution in the next five to 10 years, today's natural gas utilities need to be adaptable. By embracing the Mega Rule as an opportunity for change management, utilities can systematically improve their operations to ensure they are not only compliant with current regulations, but also prepared for future changes.

To support the changes required, utilities can focus on streamlining people, processes and technology across the organization. By implementing a mobile-native solution that connects and unifies their workforces and assets, natural gas utilities can unlock immediate value across their organizations while strengthening asset performance, workforce collaboration and regulatory compliance. Real-time data capture, AI-powered analytics and cross-organizational connectivity can also support improved decision-making that enables higher levels of service delivery and customer satisfaction.

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The PHMSA Mega Rule is more than just a set of new regulations; it is a catalyst for natural gas utilities to continue to modernize and optimize their operations. By approaching Mega Rule compliance as a systematic change, leveraging industry resources and adopting the right workforce and asset management solutions, utilities can not only meet regulatory requirements but also continue to enhance the safety, reliability and efficiency of their pipeline systems. The success of today's natural gas utilities lies in their ability to continuously improve and adapt to the evolving regulatory environment, and the Mega Rule provides a road map for achieving this transformation.

About KloudGin

KloudGin is a fully integrated enterprise asset management and field service management platform that provides a holistic view of operations across all work types, improving asset utilization, safety, workforce productivity and the customer experience. To learn more about how KloudGin is empowering the world's gas utilities, visit kloudgin.com

About the Author



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Michael Levi currently serves as Vice President of Marketing at KloudGin, where he oversees product marketing strategy and execution. A transformative leader in energy systems and utility operations, he has pioneered innovative approaches across power generation, renewable energy, and enterprise technology for over 25 years.

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