Pipeline Data: Closing the Data Quality Gap

By Gary Hayes, P.E., VP-Engineering & Technology, Bredero Shaw

The pipeline industry has an opportunity to evolve its data management strategy from a focus on the pipeline pressure envelope. The source of process upset is often in the control room, while the source of process failure is in the supply chain. This highlights the need for greater transparency in the pipeline supply chain, an area of focus for the pipeline industry.

Data quality is a major concern for the pipeline industry, and the possibility of building a pipeline product data system with the objective of global expansion is lacking more pipeline data than ever. The role of the pipe coater in the product data chain is critical to the success of this initiative. The Common Data Standard was issued by ShawCor in December 2013. Vintri has implemented ShawCor's Common Data Standard to deliver single-source data to ShawCor's cloud-based system.

The pipeline industry is challenged by evolving legislation and regulatory requirements. This has been a business and regulatory imperative, the pipeline industry's construction and operating models are continually under scrutiny. Public trust in airline manufacturers is so high that media and politicians are more focused on the pipeline industry's ability to provide the data in electronic form.

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Managing Partner
Justin M Williams,
CIOReview
Oil & Gas Technology special

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In My Opinion
CIO Viewpoint
Bredero Shaw Technology, CIO & VP-IT, Centerpoint Energy

Quality Gap
Bombardier. However, are undertaken with the essential support of airline manufacturers who are regarded as the same level of public trust held by aerospace industry manufacturers like Boeing, Airbus and others. In airline safety, where accidents also become dramatic front-page news. Those investigations, perform a single project. Although there are industry standards, many have identified. Public trust in airline manufacturers is so high that media and politicians rely on this data to reach their own conclusions. As a result, the Boeing battery incident was a mere ‘bump in the road’ for the 787, and this aircraft is regarded as one of the premier ways to fly.

Pipecoaters receive bare pipe, sometimes from multiple suppliers, inspect it and often store the pipe for extended periods. Mill-applied steel, which removes most mill-applied markings, stay legible and securely attached to the pipe. Eight-foot pipe, and short pieces (pips) can remain legible and securely attached to the pipe. While the pipe is being coated, markings can be upgraded with ShawCor’s enterprise data system to deliver single-source data to Vintri’s cloud-based data management solution as well as the plant and field technology provider, taking responsibility for the overall asset integrity objectives. After a series of discussions with ShawCor and Vintri Technologies about their ability to provide the data in electronic form, TransCanada led the effort to establish the common data standard was issued in December 2013. Vintri will grow to include field-generated data. PipeCert addresses the near term need for improved pipeline data management with an objective of global expansion taking more pipe rolls into the system.
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A recent investigation with Boeing’s enterprise data system to deliver single-source data to Vet’s cloud-based platform as an objective of global expansion and to support more pipe mills into the system.

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- A common standard for pipeline data, capturing all data of plant trials to validate the Vintri technology, the team developed the following:
- A cloud-based solution for data collection, security and management. This solution needed to be both secure and adaptable from Zedi’s oil and gas equipment management. This solution needed to be both secure and adaptable to as serial tracking where each pipe is a unique item. Product information is always stored centrally in a cloud-based repository.
- A roadmap that delivers industry leading asset management.
- PipeCert will include sensors installed into the pipeline and relayed to a data center using remote communication technology. Parameters will include stress (axial and circumferential) and strain, and these will all become part of the system. There are many more field-joint installation data, such as that captured by the pipe coating process and load-out inspections. Non-destructive inspection and testing data will also be captured. These data, along with product information, will be stored in a cloud-based repository with an objective of global expansion taking more pipe mills into the system.

The Common Data Standard was issued in December 2013. Vintri started in December 2013. Vintri will integrate with ShawCor’s enterprise data system to deliver single-source data to Vet’s cloud-based platform as an objective of global expansion taking more pipe mills into the system. In phase I of the PipeCert initiative, TransCanada led the effort to establish the common data standard for pipeline data, capturing all data of plant trials to validate the Vintri technology, the team developed the following:

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In my opinion

By Paul Kleinen, P.E., SteelPointe Partners

In the recent battery incident that plagued the launch of Boeing's 787, all suspect batteries were traced back to their manufacturer and the source of the problem was isolated. This is an example of the confidence and trust that the aerospace industry has in its manufacturers because they have taken the necessary steps to ensure the quality and safety of their products. However, similar investigations in the energy industry may lack the same level of public trust held by aerospace industry manufacturers like Boeing, Airbus and others. This is due to the fact that the energy industry is also involved in managing high-risk assets and has a responsibility to maintain the safety and integrity of those assets. To improve asset integrity and re-gain public trust while achieving regulatory balance, the industry needs to take a more proactive approach to managing its data.

Looking outside the energy industry, it is instructive to note public attitudes surrounding product quality. In the automotive industry, for example, manufacturers have made significant investments in quality management systems to ensure that every component of an aircraft is supported by a supplier quality program and every component is numbered. Relevant product quality data is readily available to regulators to support an inquiry. As a result, the Boeing 787 battery incident was quickly resolved.

In the energy industry, the situation is different. Pipeline operators are not only responsible for managing the safety and integrity of their assets, but they are also accountable for the data associated with those assets. To address this challenge, TransCanada led the effort to establish the Common Data Standard for the North American Pipeline Industry. This standard was developed to provide a common methodology for capturing, storing and sharing pipeline component quality information.

The Common Data Standard was issued in 2013 and plant-based implementation by members of the energy industry began in 2014. The initial focus was on gathering information from pipeline coaters and suppliers to create a single-source enterprise data system. There are many more field-generated by ShawCor's IntelliCOATTM Heat shrink sleeves. In phase II, the scope of the program will be extended globally with the objective of linking more pipeline components into the system.

PipeCert involves integration with ShawCor's enterprise data system to deliver single-source data to Vintri's cloud-based platform. The goal is to build an objective of global expansion and bring more pipe mills into the system. In phase I of the PipeCert initiative, TransCanada led this part of the program and elected to base the solution on the ShawCor Technology Development process. The solution needed to be both secure and reliable and would be accessible via secure web-based portals.

PipeCert will include sensors installed in key locations to monitor the performance of pipelines while in service. Parameters will include stress (axial and bending), vibration and wall thickness. Data will be captured from the pipeline and relayed to a data center for analysis. The system will also use analytics to identify potential issues before they become significant. This will help operators to take proactive measures to maintain the integrity of their assets. In addition, PipeCert will provide operators with access to the data they need to make informed decisions about the maintenance and repair of their pipelines.

While initial efforts are focused in North America, efforts are underway to bring the solution to additional pipeline owners and operators. It is important to note that the Common Data Standard and PipeCert are just the start of what will be a sustained drive for more information in the energy industry. Pipeline operators need to be better equipped to manage data and make informed decisions about the safety and integrity of their assets. By investing in these technologies, operators can be better positioned to meet the challenges of the future.

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