

Jeff Foote,
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T.D. Williamson, USA, looks at how
companies can comply with PHMSA's new
integrity verification process.

KNOW THE RULES

New regulations from the Pipeline Hazardous Materials Safety Administration (PHMSA) are a lot like those first grey hairs that inevitably come with age – even though you expect them, they can still sneak up on you. Take, for example, PHMSA's Advisory Bulletin 2012-06.

This bulletin was PHMSA's notice to US natural gas transmission operators about the changes they will be required to make when verifying and reporting operating specifications for maximum allowable operating pressure (MAOP) and maximum operating pressure (MOP). Part of the

agency's proposed integrity verification process (IVP), the pending regulation means that all gas transmission operators will eventually have to integrate new methodologies into their integrity management programmes and be ready for agency audits.

Although the bulletin was issued more than two years ago, the timetable for compliance remains unknown. No one can say with certainty when IVP will go into effect. Even the comment period, originally expected for early 2015, has turned into a moving target.

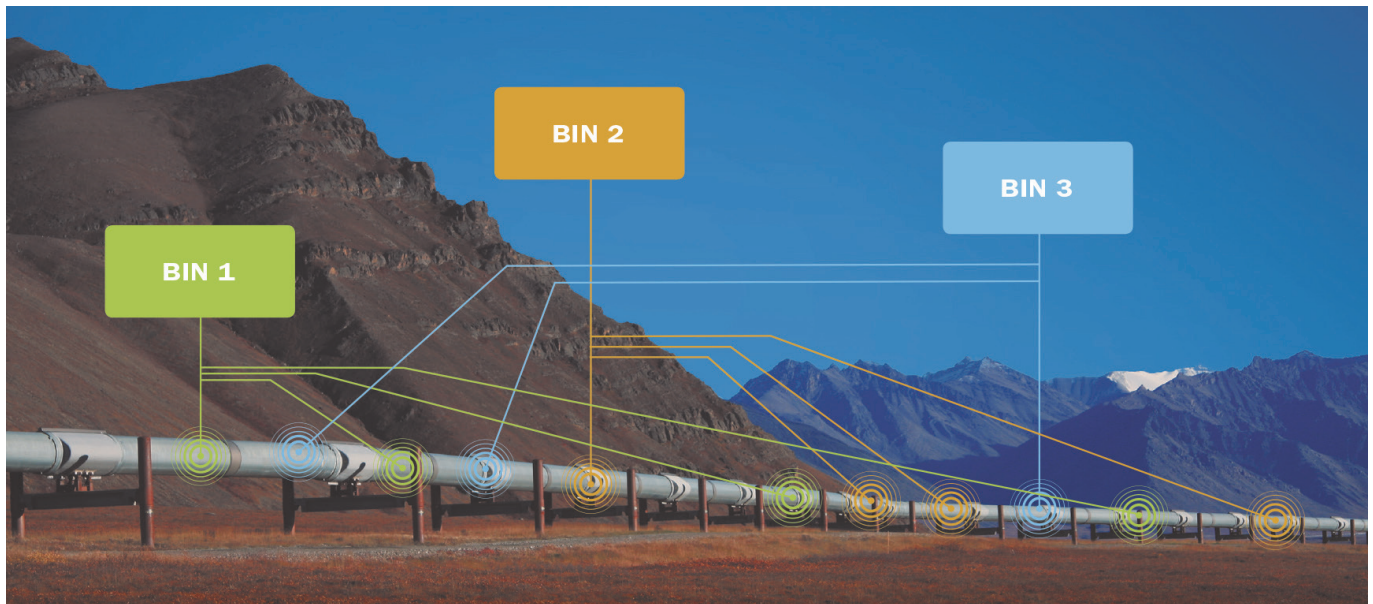


Figure 1. Representation of pipe joints with similar characteristics.

None of this, however, absolves operators from their future responsibility. IVP is on its way. So while the expectation is clear, the possibility still exists that the proposed rule could catch operators off-guard.

The best bet to avoid a sneak attack is through advanced planning and preparation. That is why even though the regulation is not a reality yet, many operators are looking to get a head start.

All pipe joints are not created equal

Among the requirements of PHMSA's ADB-2012-06 is the validation of material records. In many cases, however, those records are either insufficient, have been lost over time, or were never kept in the first place.

So this leaves operators asking two questions: Is it possible for me to satisfy the IVP requirements without incurring all of the associated costs of extensive excavations and laboratory testing? And, if so, can I accomplish the same results through non-destructive methods alone?

The answer to both questions is yes. "The solution is twofold," says Chuck Harris, Manager, Strategic Commercialisation at T.D. Williamson (TDW). "First, inline inspection (ILI) with a comprehensive technology like the multiple dataset platform, (MDS) to classify pipe joints by their characteristics. Second, following the integrity report, verification of materials through the positive materials identification (PMI) process."

As the market's most comprehensive inspection platform, MDS is comprised of a robust combination of complementary technologies. When specifically applied to IVP requirements, MDS provides the following:

- Low field magnetic flux leakage (LFM), the foundational dataset for grouping pipe joints. LFM reveals mechanical characteristics related to manufacturing and milling through background gauss levels and microstructure changes.

- Deformation or geometry inspection (DEF), which identifies bore and long seam trim characteristics.
- High field axial magnetic flux leakage (MFL), used to confirm magnetic properties.
- SpirALL® MFL, which distinguishes differences in long seam characteristics.
- Radial/IDOD (internal/external discrimination) used to identify additional characteristics related to the internal pipe wall.

In a certain sense, MDS allows operators to go back in time: The platform can identify carbon steel pipe joint characteristics based on the manufacturing or milling process, information that can unlock the mystery of what a large section or even an entire pipeline is made of.

As Harris explains, pipe joints with similar manufacturing or milling should share certain similar material properties. MDS can be used to identify common characteristics of a representative sample of pipe joints, producing information that can be validated by the PMI process and then applied more broadly.

"Let's say MDS has allowed you to identify 1000 similar joints that are grouped together in what we'll call a bin," Harris says. "It would be possible, and it's our objective, to allow a subset of those 1000 joints to be validated by PMI and apply the findings to all 1000."

"This could then be used as the basis for identifying material characteristics for all of the joints in an entire bin. In other words, by validating a subset of joints, we could determine the characteristics of all of them," Harris adds.

The result is the foundation for establishing complete material records where none exist. And not only will that fulfil future PHMSA rules, it can keep operators from looking over their shoulders for surprises – and maybe stave off a few grey hairs in the process. 