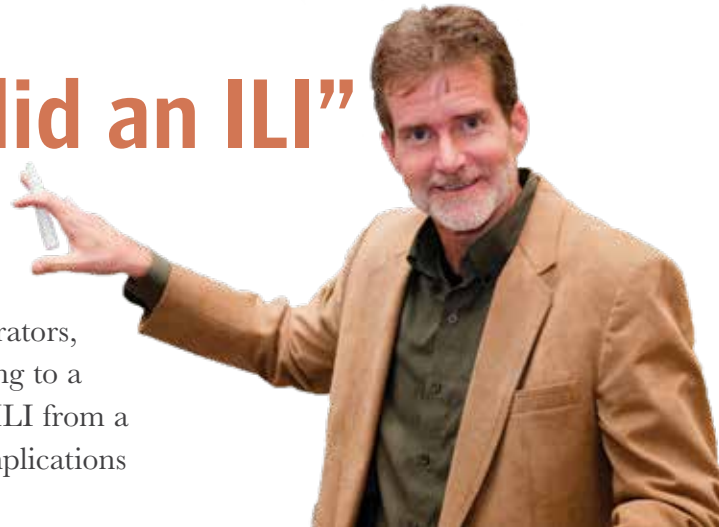


## “Don’t worry, we did an ILI”

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With ILI now a mainstream tool for most pipeline operators, the risk reduction benefits of the method may be leading to a problematic mindset. This article discusses the role of ILI from a risk perspective, offering insight into the concerning implications of not properly characterising that role.



This is a timely topic, given the record attendance at the recent Pipeline Pigging and Integrity Management Conference and Exhibition, which took place in Houston, US on 18–22 February 2019.

The conference showcases all the great advances in inline inspection (ILI) technologies and related activities including non-destructive evaluation, imaging, mapping and many others. Seeing the high-tech equipment and listening to the discussions of the complex analyses improvements, it is natural that we continue to gain confidence and raise expectations around this relative newcomer to our industry.

Now, the phrase ‘relative newcomer’ might raise some eyebrows. Many newbies in our industry have never been without the ability to use ILI on a pipeline and the process is now considered a normal and essential part of owning and operating many pipelines; however, we should take a moment to make sure we are not losing perspective.

Let’s recall our origins. When ILI first became a

practical tool, it was generally considered a final confirmation that damage was indeed being prevented. It was the last chance to interrupt a failure sequence – finding and halting damage before it progressed to failure.

It was a useful tool, but also recognised as the last chance to interrupt a failure sequence.

There are now some troubling notions emerging, as evidenced by academic and expert discussions, as well as general conversations among pipeline operators. In some minds, ILI is now no longer the last chance but rather the primary way to prevent failure.

Let’s examine that idea. ILI does not prevent damage – it is not a mitigation; it only allows us to intervene. As valuable as that is, it does nothing to protect the pipeline from any damage mechanism.

Even if it was a perfect tool – one that does not miss nor missize any defect – ILI is still problematic as the primary failure prevention strategy. The ‘pig and dig’ approach for avoiding failure can be seen as ‘let it degrade, I can fix it before it fails’. This philosophy is essentially relying

on the monitoring of damage as it progresses so that intervention can be performed before the damage becomes critical.

So, those who adopt the ‘I can pig and dig my way out of trouble’ philosophy are suggesting that allowing their assets to deteriorate is no longer troubling. They will naturally rebut with “oh, sure, we do x, y, z to prevent damage too”, but the inclination to view ILI as the primary failure avoidance action is a concern.

A good risk assessment helps us regain perspective on the role ILI plays in risk reductions. It shows exactly the benefits and limitations of ILI.

An ILI can directly tell us about the strength of the inspected pipeline and its ability to resist various failure mechanisms. Indirectly, it also tells us some things about exposure to and mitigation of certain failure mechanisms.

For instance, at every external metal loss location, we know that at some point in the past there was sufficient electrolyte to cause corrosion and that all of our mitigations (coating and cathodic protection) failed.

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We don’t know how ‘strong’ the electrolyte was or is, when the mitigation failed, if all mitigation failed simultaneously, if mitigation is intermittently effective, and many other questions that a good risk assessment seeks answers to.

However, the new knowledge of resistance (strength) gained from an ILI often makes a dramatic difference in risk. In a nutshell, here is what modern risk assessment gets from an ILI:

- Indications of reduced resistance to certain failure mechanisms. Risk increases at these locations.

- ‘Resetting the clock’ for previously assumed degradations, when absence of such degradations is confirmed. Perceived risk is reduced with this confirmation of ‘no damage’.
- Indirect information regarding exposure to and mitigation from certain failure mechanisms. This supplements other inputs to the risk assessment.

All ILI indications must be adjusted for run-specific detection and sizing accuracies. This includes the often hard to quantify effects of

excursions from the ILI’s run specifications, such as speed excursions, magnetisation excursions, loss of sensors, and more.

A sound risk assessment shows us the great value of ILI but keeps its role in perspective.

It is always preferable to prevent damage, rather than monitor damage and then intervene before it becomes critical.

Let’s keep our focus on protection of pipeline assets and recognise that ‘pig and dig’ is among our last opportunities to avoid failure. **P**

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