Testimony of Michael Bellamy

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Good afternoon. My name is Michael Bellamy and I am the General Manager of PII Pipeline Solutions. PII is part of General Electric's, Measurement and Control business, headquartered in Billerica, MA. We inspect oil & gas pipelines, and in the 35 years since the business was founded have inspected over 1,000,000 miles of pipelines worldwide. Over 40% of that work has been carried out in the United States.

I appreciate the opportunity to speak to you today about pipeline inspection technology, which is also referred to as in-line inspection, carried out using high technology robotic devices, often called "smart pigs". These devices travel along the inside of the pipeline at speeds up to 9 miles per hour, propelled by the pressure of the product flowing through the line. Equipped with sensors of various types, pigs collect millions of measurements of the pipe wall as they travel, covering every inch of both the internal and external surface of the pipe steel, recording the data on board for subsequent download when recovered at the end of the inspection run.

To help understand the role of in-line inspection tools in ensuring pipeline safety, perhaps a medical analogy will help. In human medicine, data provided by MRI scanners, CT scanners, x-ray machines and ultrasound devices is used by medical specialists to develop a diagnosis and prescribe a course of treatment.

In the same way, pipeline operators use the diagnostic capability afforded by in-line inspection tools to design integrity management programs that take into account the age of the line, the way in which it is operated, and the environment in which it is situated, all of which determine the potential for threats to pipeline safety.

Moreover, just as medical diagnostic technologies are used to identify medical issues at their earliest stages in our bodies, in-line inspection tools can identify potential problems in pipelines early enough to prevent them from developing into a leak or rupture.

By means of in-line inspection, cracks the size of a match stick and corrosion ½ the diameter of a penny can be identified and measured with confidence.

In-line inspection tools were first introduced in the 1970's and have evolved tremendously since. As yet there is no one tool that can find all threats. Nevertheless pipeline operators today have access to a range of modern high technology tools covering all the major threats to pipeline safety including dents, corrosion, cracking and land movement, in both gas and liquid pipelines.

The in-line inspection industry is now deploying its 4th generation of metal loss tools, 4th generation of geometry tools and 3rd generation of crack detection tools. Our understanding of the physics of these tools continues to evolve, and coupled with advances in algorithmic search and data manipulation techniques, the inspection tools available today are providing ever improving results.

Once a smart pig run is complete, the data recorded, which is equivalent to looking at 70 football fields in grids of 1/8" x 1/8", is processed to highlight suspected anomalies. The resulting output is then reviewed by a trained data analyst, who verifies the assessment and compiles a report on the condition of the pipeline to submit to the operator.

With this information and in the context of the PHMSA approved integrity management program for the pipeline, the pipeline operator can prioritize the issues that need immediate attention.

In this way, in-line inspection tools make a material contribution to pipeline safety.

For example, corrosion tools have been in use for more than 45 years. Data gathered in the US continue show a reduction in corrosion–related incidents by 36% over the past 12 years.

Crack inspection tools have been around for less time than corrosion tools. Nevertheless, a recent Pipeline Research Council study compared over 40,000 cracks found by in-line inspection tools with actual measurements from field excavations. The results gave a clear validation of the published tool specifications.

Additionally, the soon to be published API 1176 industry recommended practiced document, developed with PHMSA involvement, will provide guidance to operators on how to use the results from in-line inspection tools as part of a comprehensive crack management program. We look forward to seeing continued improvement in pipeline safety vis a vis cracks as this technology continues to mature and becomes more widely adopted by pipeline operators.

We consider ourselves partners with our customers and PHMSA in working to enhance pipeline safety. We support rules that are clear and interpreted in such a way as to encourage competition and innovation.

However the current US rules don't recognize the differences between in-line inspection tool technologies or in tool performance, nor do they encourage operators to use the best available technology.

PHMSA has done a great job in stimulating the pipeline industry to use in-line inspection tools for dents and general corrosion; the next step is to encourage the use of a broader range of tool technologies capable of finding and characterizing a broader range of pipeline anomalies.

I'd like to also mention risk management and risk models as an accepted approach adopted by pipeline regulators globally. Such models take in-line inspection data and combine it with contextual information about the pipeline, its construction and operation to help operators make a better informed diagnosis concerning the ongoing health of their pipeline. We are encouraged that PHMSA intends to put risk management at the core of its proposed new pipeline integrity rules. We hope that they will consider the kind of goal setting approaches that we see working effectively in Europe and Canada.

Before I conclude, I would like to emphasize that in-line inspection tools are very good at identifying features that they have seen before, but they can't know what they don't know. We can only learn what a specific signal represents by comparing that signal with the real defect.

The creation of a "no-fault" environment, in which operators can share dig verification data with their in-line inspection vendors, without fear of regulatory penalty, would allow the entire industry to grow more effective in identifying threats.

So, in summary, we believe that pipeline safety in the US can be enhanced by regulations that embody the following principles:

- Pipeline operators are best positioned to determine the appropriate method to verify the ongoing integrity of their pipeline

- In-line inspection provides the clearest assessment of the condition of a pipeline and can be used to prioritize those features that need immediate attention and those that require monitoring over time
- Regulations should encourage the development and adoption of new technology that can further enhance pipeline safety
- Finding an effective way to share dig verification data, in a no-fault environment, will enhance tool learning and make in-line inspection even more effective.
- Regulations should move operators toward a risk based, goal setting approach.

At PII Pipeline Solutions we are committed to pipeline safety and will continue to work with PHMSA and our customers to advance the state of the art for in-line inspection.

Thank you for your attention.