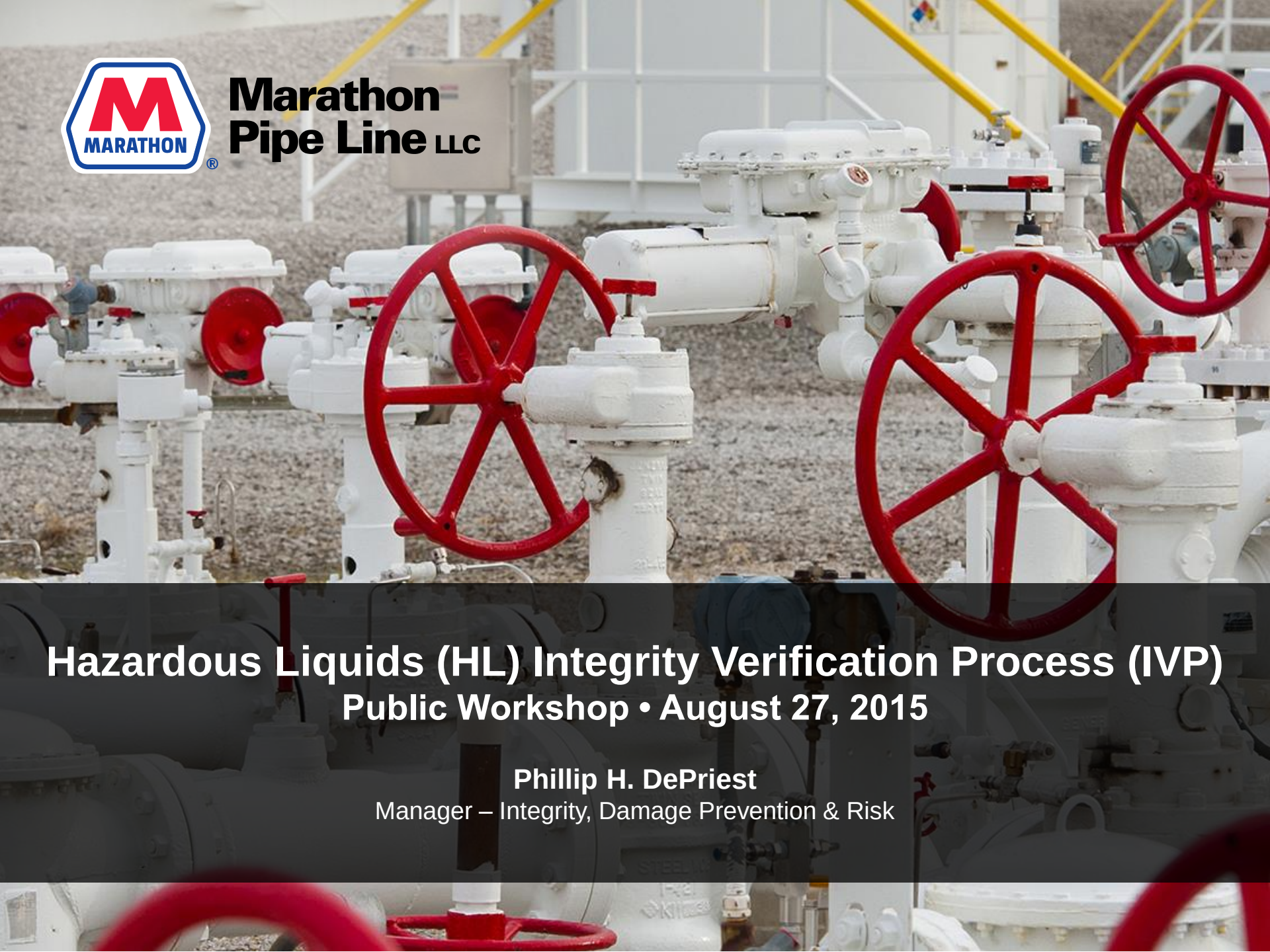


Marathon Pipe Line LLC

Hazardous Liquids (HL) Integrity Verification Process (IVP)

Public Workshop • August 27, 2015

Phillip H. DePriest
Manager – Integrity, Damage Prevention & Risk

Marathon Pipe Line LLC Operations

- One of the largest U.S. petroleum pipeline systems, *based on total volumes delivered*
- Operates more than **6,000 miles** of pipelines in **14 states** (Midwest, Gulf Coast, Wyoming)
- Safely controls the movement and delivery of an average of **120 million gallons of crude oil and petroleum products daily**
- Operates **205** aboveground petroleum storage tanks at **39** different U.S. locations
- Operates **11** active storage caverns at **3** cavern facilities

PHMSA's MISSION / VISION

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

Our mission **is to protect people and the environment from the risks of hazardous materials transportation**

Our vision **is that no harm results from hazardous material transportation**

Source: http://phmsa.dot.gov/about/mission

API-AOPL Shared Pipeline Safety Principles

Zero Incidents

Organization-Wide Commitment to Safety

Safety Culture

Continuous Improvement

Learn from Experience

Safety Systems for Success

Employ Technology

Communicate with Stakeholders

Source: http://www.aopl.org/wp-content/uploads/2014/04/PSE-Safety-Principles1.pdf

Marathon Pipe Line LLC – Guiding Principles

The safety of the public, our employees and contractors is our top priority

Exceptional planning leads the way

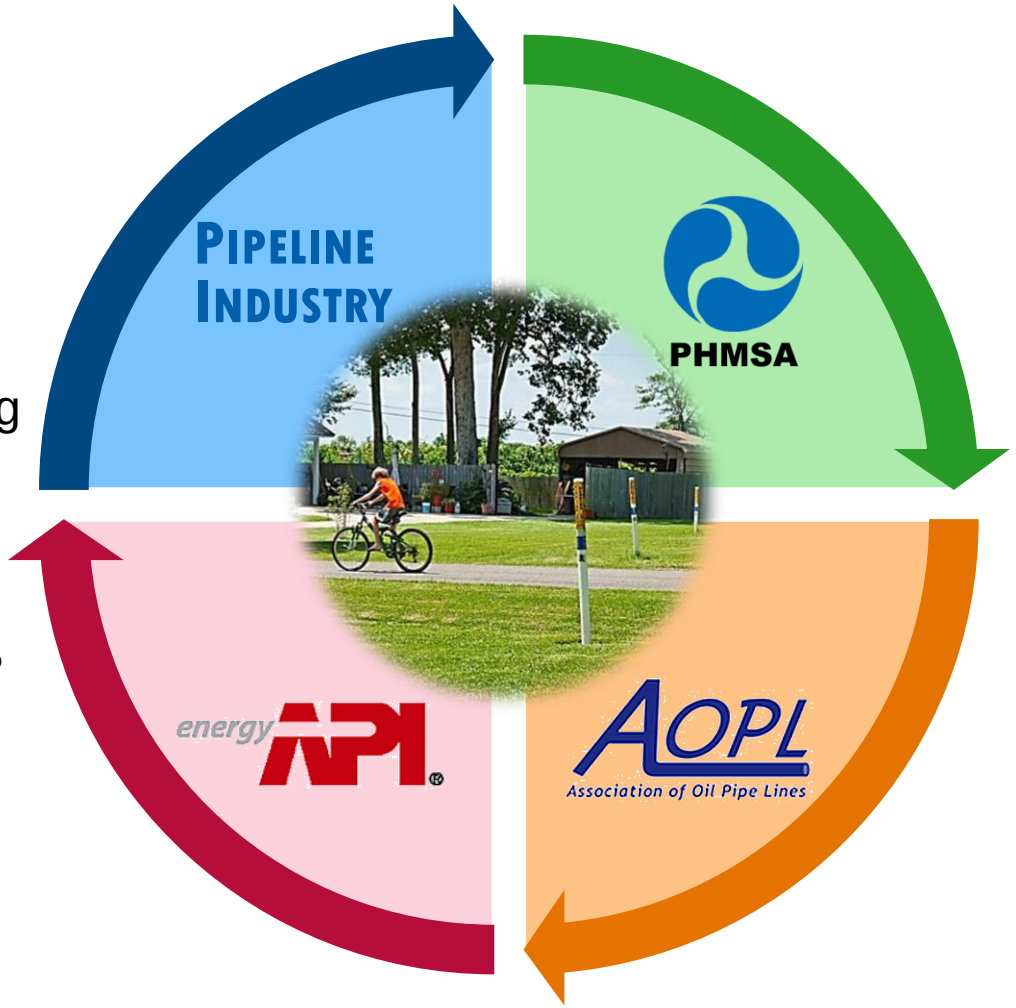
An intense business focus enables business success

Everyone is fully engaged in achieving our vision

Operational Excellence is the driving force toward flawless performance

Alignment of Objectives

- PHMSA and the hazardous liquids pipeline industry, including Marathon Pipe Line LLC (MPL), **all share similar aspirations**
- Does the proposed IVP **effectively help achieve them**?



Spike Pressure Testing

What is it?

- An integrity assessment method to **identify/eliminate particular critical defects**
- Not a tool for establishing or verifying Maximum Operating Pressure (MOP)

Benefits

- Incrementally higher spike test pressure above MOP provides longer fatigue life

Image is for illustrative purposes only.

Spike Pressure Testing (continued)

Damage

- Can cause otherwise stable/benign flaws to begin to grow through fatigue

Limitations

- Does not provide insight on other potential sub-critical flaws
- No reason to pursue for most lines operating at lower stress level

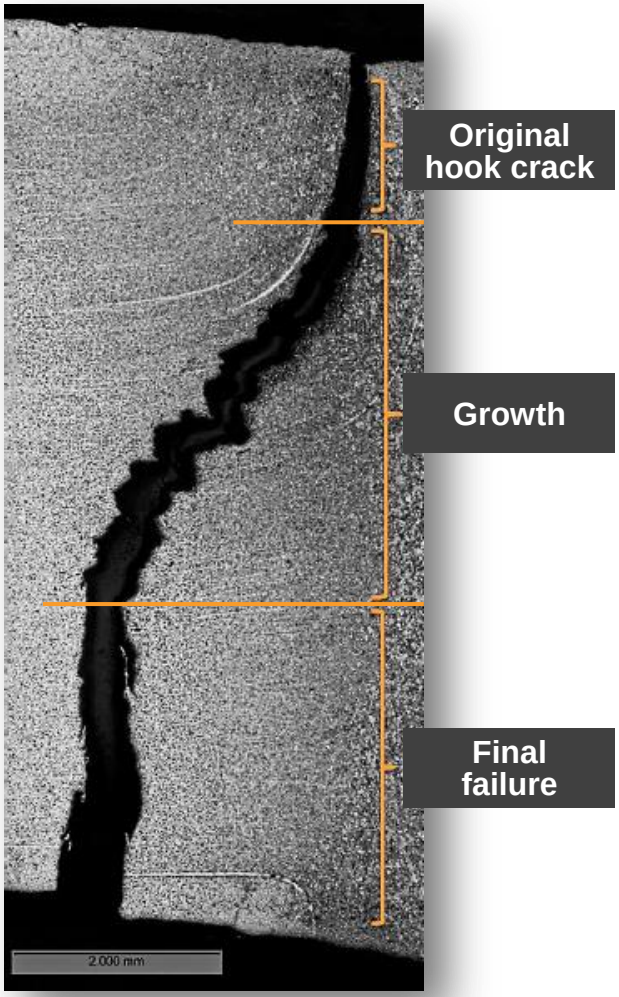


Image is for illustrative purposes only.

MOP Profile Example

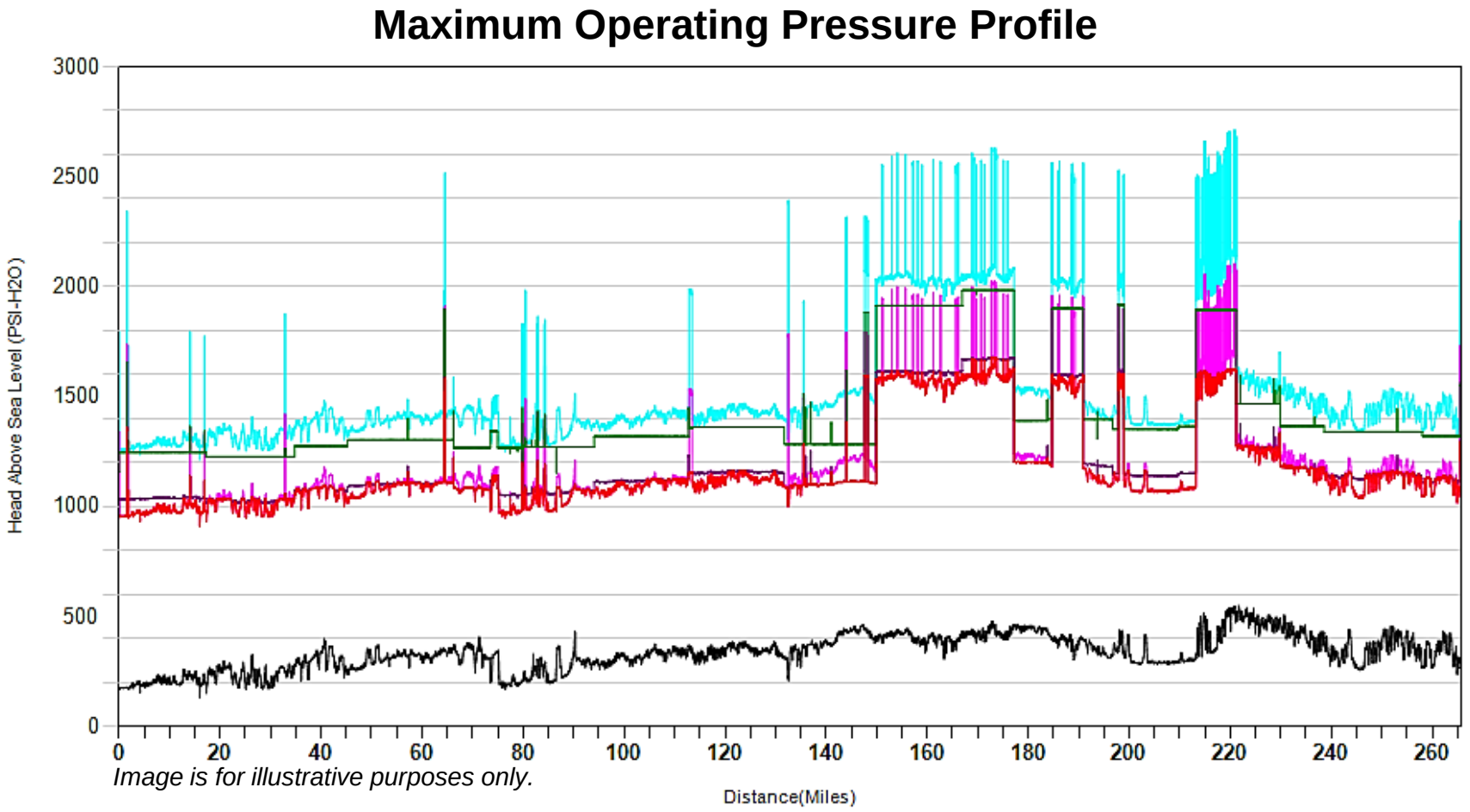
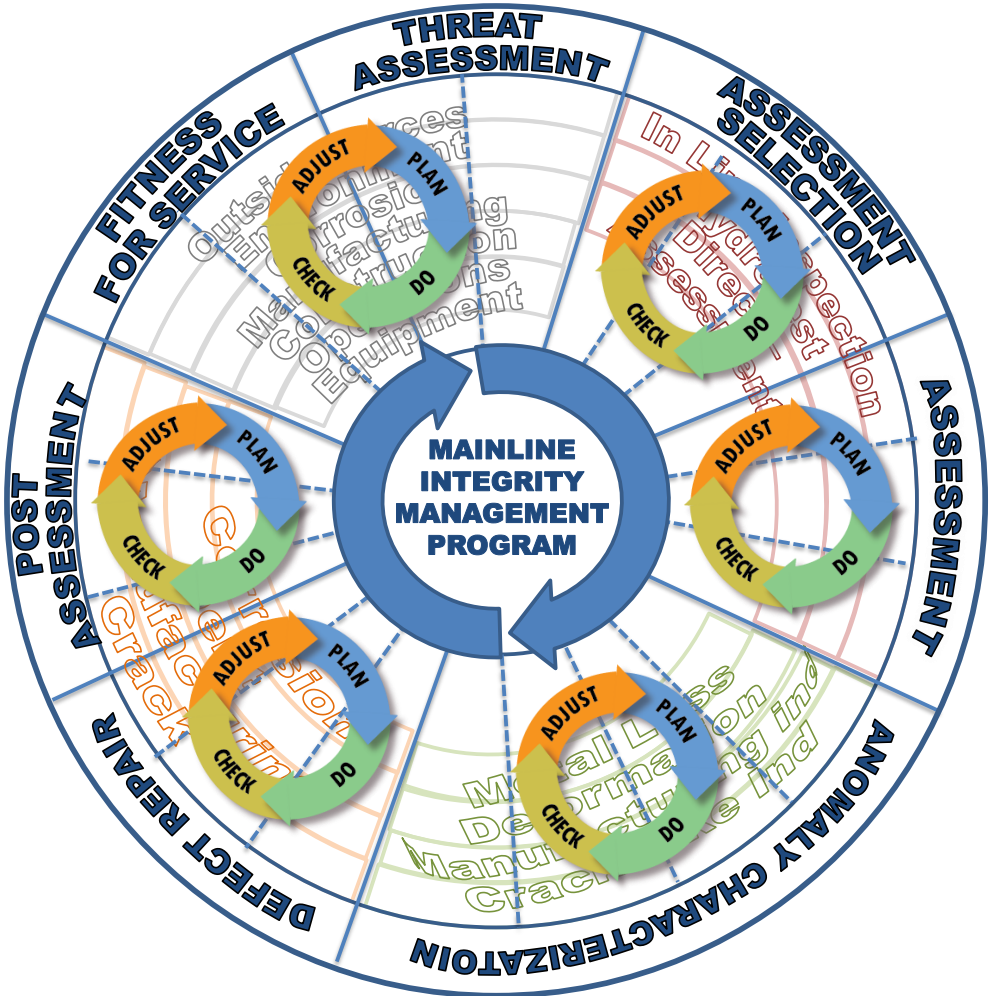


Image is for illustrative purposes only.

Not practical or technically sound to spike test each thickness/grade combination based on %SMYS

Engineering Critical Assessment

- Uncertainty remains on what PHMSA intends
- Pipeline Research Council International project underway to develop guidance
- Engineering analyses are already integral to integrity management
- Unique to each pipeline system



Material Documentation

- The suggested approach ***will not be practical in most cases*** and provide only limited value
- Even the most complete recordkeeping ***might not reveal vulnerabilities***
- Need to pursue technology solutions/alternatives to ***address higher-risk gaps***
- Successful SubPart E hydrotest should be ***an acceptable alternative***

Working Together to Accomplish Objectives

- ✓ Technical experts need to be **focused on mitigating highest risks**
- ✓ Diversion of resources to non-value-adding activities **introduces vulnerabilities**
- ✓ Integrity management **cannot be reduced** to a one-sized-fits-all algorithm
- ✓ Risk mitigation needs to be **laser-focused** on a system-by-system basis
- ✓ Need to address **specific global technical weaknesses** through collaboration