U.S. DOT
Pipeline and Hazardous Materials
Safety Administration

Integrity Management Systems

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Chris McLaren
Management Systems

- A framework of policies, processes and procedures used to ensure that an organization can fulfill all tasks required to achieve its objectives.

- Include accountability (an assignment of personal responsibility) and a schedule for activities to be completed, as well as auditing tools to implement corrective actions, creating an upward spiral of continuous improvement.

- A simplified model is the P-D-C-A "Plan, Do, Check, Act" cycle of continuous improvement.

- A-D-D-I-E Model is another way to describe a continuous improvement cycle –
  - Analyze, Design, Develop, Implement, & Evaluate
Management Systems

- PHMSA has worked on Pipeline Risk Management Systems since 1990’s
- In the 1990’s, PHMSA completed the Risk Management Demonstration & Systems Integrity Projects
- 2000’s - Integrity Management (IM) Regulations promulgated for Hazardous Liquid and Gas Transmission pipelines
- 2010’s – IM Regulations promulgated for Gas Distribution and Hazardous Liquid Gathering pipelines
- PHMSA has continuously evaluated the implementation of the IM regulations and sought to clarify and improve them thru Rulemaking and Stakeholder Communication
Regulatory Enhancements

- In the Late 2000’s, PHMSA began developing regulatory improvements based on IM inspection experience and enforcement as well as technology improvements (e.g., GIS, Data Models, Risk Models, Pipeline Inspection tools).

- Advanced Notice of Proposed Rulemaking (ANPRM)
  - 2010 – Hazardous Liquid IM ANPRM
  - 2011 – Gas Gathering and Transmission IM ANPRM

- Notice of Proposed Rulemaking (NPRM) was issued for Hazardous Liquid IM on October 1, 2015. The comment period for this NPRM ends January 8, 2016

- The issuance of the NPRM for Gas Gathering and Transmission IM is projected for November 12, 2015

http://www.transportation.gov/regulations/report-on-significant-rulemakings
DuPont Bradley Curve

External Motivation

Compliance

Rules, Procedures, Protocols

Internal Motivation

Commitment

Felt Leadership, Role Modeling, Influencing >> Engagement

Injury Rates

Natural Instincts

Reactive

- Safety by natural instinct
- Compliance is the goal
- Delegated to safety manager
- Lack of management involvement

Dependent

- Management commitment
- Condition of employment
- Fear / Discipline
- Rules / Procedures
- Supervisor control, emphasis and goals
- Value all people
- Training

Independent

- Personal knowledge, commitment & standards
- Internalization
- Personal Value
- Care for Self
- Practice & Habits
- Individual Recognition

Interdependent

- Help others conform
- Being others’ keeper
- Network contributor
- Care for others
- Organizational Pride

Teams

“I follow the rules because I have to”

“I follow the rules because I want to”
Serious Incidents

All System Types show downward trend with slight rise in 2014

data as-of 2/2/2015

**Serious** – fatality or injury requiring in-patient hospitalization
Significant Incidents

All System Types seems to have plateaued

Significant includes Serious incidents as well as incidents costing $50,000 or more in total costs, measured in 1984 dollars; Highly volatile liquid (HVL) releases of 5 barrels or more; Non-HVL liquid releases of 50 barrels or more; or Liquid releases resulting in an unintentional fire or explosion.

data as-of 2/2/2015
Significant Gas Incident Rates Decreasing

Figure 5. Incident rate (per 1,000 miles) for significant and non-significant incidents (1994–2012)
Actions by PHMSA to Enhance IM

- In addition to the NPRMs for IM of transmission pipelines, other rulemakings are in process that address congressional mandates and NTSB recommendations (San Bruno, CA; Marshall, MI; etc.)
  - Amendments to Parts 192 and 195 to require Valve installation and Minimum Rupture Detection Standards
  - Performance Measurement of IM Programs and use of Meaningful Metrics in Conducting IM Program Evaluations
  - Integrity Verification Process to ensure Maximum Allowable Operating Pressures are based on verifiable records
  - Enhancements to NPMS data gathering for better mapping
  - Excess Flow Valves in Gas Distribution Systems
  - Stakeholder Workgroup on Risk Modeling and Threat Assessment initiated at Public Workshop in September, 2015
Management Systems are Effective

- Management Systems are an effective in reducing risks in many Industries – pipeline, nuclear, aircraft, processing, etc.
- PHMSA requires IM systems and has discussed the use of Quality and Safety Management Systems for pipelines.
- Integrity Management is a continuous improvement regulation for Operators and Regulators have been evaluating the Rule’s performance and are acting within the rulemaking process.
- IM Regulations have been in the process of being revised for several years, and it will take a few more years before current changes are implemented through the negotiated rulemaking process.
- PHMSA will continue to monitor the performance of operators and the pipeline industry to identify areas for improvement.
On January 27, 2015, NTSB issued 28 Recommendations based on their study of implementation of the Gas IM Regulation. Twenty-two of the recommendations were directed at PHMSA State Programs, Mapping and Geospatial Information Systems, High Consequence Areas, Threat Interactions and Threat Elimination, Risk Assessment Methodologies, Qualification of personnel performing IM tasks, Reporting Requirements, Required use of In-line Inspection (ILI) technologies, Removal of Direct Assessment as a sole integrity assessment method.
Thank you for Your participation in Pipeline Safety