Pipeline Safety Trust 2017 Conference

November 3, 2017 • New Orleans, Louisiana

Safety Management Systems
Does Implementation Change Behavior or Performance?

Linda Daugherty – Deputy Associate Administrator for Field Operations PHMSA
Shawn M. Lyon – Vice President Operations, Marathon Pipe Line LLC
C.J. Osman – Director, Operations, Safety and Integrity, INGAA Pipeline

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Safety Management Systems
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Pipeline SMS Background
**API 1173 GOAL:** Provide a framework tool to move the needle on pipeline safety

High-profile accidents drove development

**Pipeline SMS Background**

API facilitate the safety management system standard development specific to the pipeline industry (similar in scope to your RP 750, Management of Process Hazards)

**Development involved gas transmission and hazard liquid pipeline companies, PHMSA, industry groups and the public**

- **July 10, 2012**
  - NTSB recommendation on Marshall, MI
  - *(Incident was on NTSB’s Ten Most Wanted list)*

- **2010**
  - July 25
  - Marshall, MI

- **2011**
  - September 9
  - San Bruno, CA
  - July 1
  - Yellowstone River, MT

- **2012**
  - December 2012
  - Initial team meeting
  - July 10, 2012
  - NTSB recommendation on Marshall, MI
  - *(Incident was on NTSB’s Ten Most Wanted list)*

- **2013**
  - May 2015
  - Implementation Team began

- **2014**
  - July 2015
  - API 1173 published

- **2015**
  - API 1173 development

- **API 1173 GOAL:** Provide a framework tool to move the needle on pipeline safety
# Improving Performance - Not Just Safety

## Pipeline Safety Management System – API RP 1173

<table>
<thead>
<tr>
<th>10 Elements</th>
<th>Yields a cohesive system</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Flexible &amp; scalable</td>
</tr>
<tr>
<td>Journey</td>
<td>Plan-Do-Check-Act</td>
</tr>
<tr>
<td>Culture</td>
<td>A must!</td>
</tr>
</tbody>
</table>

![Diagram of API RP 1173 framework](PipelineSMS.png)
Industry Working & Implementing Together

• All ONE team with INGAA, AGA and CEPA
• Participating on PHMSA’s LPAC SMS sub team
• Surveying / benchmark facilitation
• Providing workshops, communications and web
• Mentoring strategy
• Commitment strategy
• Adopted a common maturity model
Pipeline SMS Maturity Model
One Model, One Industry

**Level 1**
---
**Developed**
Did you develop it?
- Process is developed
- Implementation is not complete

**Level 2**
---
**Implemented**
Did you begin?
- Process is developed
- Process is documented
- Process is in use

**Level 3**
---
**Established**
Did you do it?
- There is evidence the process is being used consistently
- Attempts are made to assess performance

**Level 4**
---
**Improving**
Is it helping?
- There is evidence of continual improvement
- The process is resulting in measurable performance improvements

---
**Conformance**
---
**Effectiveness**

Pipeline SMS Group
TOOLS & COMMUNICATIONS

WEBSITE www.pipelinesms.org

BOOKLETS

TOOLS
- Implementation planning tool *gap-level* assessment
- Peer-to-peer sharing practices
- Additional tools released by 1st Quarter 2018

WORKSHOPS & WEBINAR
- Workshops averaged 31 companies, 95 participants
- Webinars and discussion groups engaging over 100 participants

SAFETY CULTURE
- Surveys
What PHMSA is doing to support SMS
WHERE WILL PIPELINE SMS TAKE US?

Reactive -> Proactive -> Predictive
Will Pipeline SMS become a Federal Regulatory Minimum?

• No, PHMSA does not intend to incorporate API RP 1173 by reference into the federal regulations.

• Why? SMS centers around safety culture, behavior change and the way we make decisions that have safety impacts. Efforts to force behavior change usually fail and may have unintended consequences.

• Incorporating into Corrective Action Orders when appropriate

• However, we are one bad accident away from Congress mandating SMS.
PHMSA’s Expectations for Pipeline Operators?

- **Awareness and Self-Education**
  - PHMSA is on this journey too.

- **Taking the First Step on the Road to Implementation**
  - It’s too hard? Break it down, figure out what you are already doing. (gap analysis)
  - It’s overwhelming? Focus on one element at a time and build confidence.
  - It’s too much for a small company? SMS is scalable: Figure out how the concepts and principles apply and implement accordingly. Don’t eat the elephant at one sitting.

- **Leaders Lead.**
  - And we are all leaders.
  - Share lessons learned with others. Help make their journey a bit easier.

- **Set Reasonable Expectations**
  - This is a long journey; it is a marathon and not a sprint.
PHMSA’s View of How It’s Going?

• Success:
  – Commitment: Widespread executive support
  – Some companies are making impressive progress
  – Some companies are inviting regulators in.
  – Some cultural/behavioral changes are occurring
  – Information sharing is increasing drastically
    • Voluntary Information Sharing Working Group – Big Win!

• Challenges:
  – “You first” approach
  – It’s too hard
  – It’s not a regulation and we don’t have to!
  – Doubters: You want me to do what? Why?
  – We already do that
QUESTIONS
Does Implementation change behavior or performance?
QUESTIONS

• Prepared questions
  o SMS – Does implementation change behavior or performance?
  o Other…

• Audience questions / comments
# Benchmarking – INGAA Safety Culture Survey

<table>
<thead>
<tr>
<th>Category</th>
<th>Asset Safety Questions</th>
<th>2014 Favorable</th>
<th>2016 Favorable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>38. Demonstrates commitment to pipeline integrity and safety of the assets</td>
<td>85%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>39. Provides detailed asset safety reports to workers</td>
<td>71%</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>40. Gives pipeline integrity personnel the authority they need to do their job</td>
<td>74%</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td>41. Quickly responds to reports on asset safety and pipeline integrity hazards</td>
<td>79%</td>
<td>81%</td>
</tr>
</tbody>
</table>
## Benchmarking – INGAA Safety Culture Survey

**Results – “Familiarity with PSMS”**

<table>
<thead>
<tr>
<th></th>
<th>Non-Exempt (hourly)</th>
<th>Exempt (non-hourly)</th>
<th>Management</th>
<th>Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>68%</td>
<td>67%</td>
<td>76%</td>
<td>89%</td>
</tr>
</tbody>
</table>
OVERVIEW OF REGULATORY EXPECTATIONS – PHMSA’S PERSPECTIVE

- Summary of Federal SMS Regulatory Expectations
- Information on Pipeline Advisory Committee’s Pipeline Safety Management Systems Working Group
- What is PHMSA seeing regarding the implementation process with industry to date? (good and bad?)
- What is PHMSA seeing regarding the implementation process with regulators to date (good and bad?)
- PHMSA SMS Experience
OVERVIEW OF REGULATORY EXPECTATIONS – PHMSA’S PERSPECTIVE

- Summary of Federal SMS Regulatory Expectations
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- What is PHMSA seeing regarding the implementation process with industry to date? (good and bad?)
- What is PHMSA seeing regarding the implementation process with regulators to date (good and bad?)
- How will PHMSA get better to strengthen oversight and evaluation of SMS?
- PHMSA SMS Experience
Summary of Federal SMS Regulatory Expectations
PHMSA’s SMS Regulatory Expectations

1. Will SMS become a Federal regulatory minimum?

2. What are PHMSA’s expectations for pipeline operators?

3. Does PHMSA inspect and enforce against API RP 1173?

4. Too many different SMS standards!
3. Does PHMSA inspect and enforce against API RP 1173?

- Generally, no. It is not a regulatory requirement.

- Exceptions: As part of corrective actions following an incident or safety investigation, PHMSA may “order” a company to implement a SMS.
  - In 2010 (prior to API RP 1173 development), PHMSA ordered a liquid pipeline company to develop and implement a SMS.

- Volunteer, Non-Punitive Pilot Audits – We are on the learning curve too. We are signaling we believe SMS is important.
4. Too Many Different SMS Standards!

…If part of a company has to comply with Canada’s NEB SMS regulations and another part has to comply with DOI’s Bureau of Safety and Environmental Enforcement SMS regulations, does PHMSA expect the company to comply with 1173 too?

• All SMS standards have very similar requirements. PHMSA does not care which flavor of SMS is selected (although we do have a preference for all of the elements in 1173).

• Look for commonalities and what fits best for the company.
Pipeline Advisory Committee
SMS Working Group
PAC SMS Working Group

- In 2016, PHMSA asked the PAC to establish a SMS Working Group.
  - Composed of LPAC and GPAC members.
  - External experts are be included at the discretion of the working group.
  - PHMSA provides logistical support.

- The Working Group will report out to the PAC on progress and challenges.

- This is NOT the same as the separately established Voluntary Information Sharing FACA group.
THE WORKING GROUP TASKS

• Share lessons learned, best practices and challenges from industry’s experience in implementing SMS.

• Initial Focus Area: Key Performance Indicators to gauge progress of SMS implementation throughout gas and liquid industries.

• Topics for continuous improvement may include:
  ➢ Analysis and sharing of safety data;
  ➢ Hazard identification/risk mitigation improvements via SMS;
  ➢ Safety culture experiences;
  ➢ Safety performance measurement; and
  ➢ Leadership/employee engagement.
PAC SMS Working Group

• The group has identified a short list of survey questions for use as initial KPIs of industry implementation.
  
  o Later surveys will likely be more detailed/focused

  o Various industry segments have already conducted surveys – rolling up the results when different questions are asked is challenging.

  o The overall survey results will be reported out to the PAC later this year.
What is PHMSA seeing regarding the implementation process with regulators to date?

• **Success:**
  - Champions emerging in States
  - PHMSA SMS team established and trained
  - PHMSA Pipeline created a National Safety Coordinator Position => Lessons learned and information sharing is a big deal.

• **Challenges:**
  - Doubters remain
  - Much more training is needed. Industry is far ahead of most Fed/State inspectors.
PHMSA SMS Experience

We are doing it too!
PHMSA SMS EXPERIENCE

- “Why are we doing this?”

- “I can see how this applies to industry, but not us.”

- “Oh good grief, not another fad program. Don’t we have enough real work to do already?”

- “Let’s face it, we aren’t in charge of our destiny…there are too many external drivers in our world for this to work.”

- “Finally! I know we can do better!”

SMS IS NOT...

• Something that will go away with the change of Administration.

• Something that is spoken, SMS is something that is practiced.

• Something that can be successful without individual accountability and safety leadership at all levels (Executive as well as front line).

• Something that you do after a problem is identified…it needs to happen long before that.
What Have We Done So Far?

- We have made a commitment to implement SMS principles within PHMSA.
  - Senior Management Performance Plans
  - Business Plan
- We developed a PHMSA SMS Framework
- We developed a SMS Governance Structure
- We have begun to educate ourselves about SMS principles and what it really means to promote a positive safety culture within PHMSA and in the industry.
How Are We Doing So Far?

- We have had some successes but have a LOT of work to do and a long way to go.

- Most people don’t understand what SMS is or why we are investing effort in this.
  - I have been asked to “cut to the chase, how does this impact my daily work”

- This is HARD. Changing behavior is a long, hard process.
WHERE WILL SMS TAKE US?

Reactive $\rightarrow$ Proactive $\rightarrow$ Predictive