

# PIPELINE SAFETY MANAGEMENT SYSTEM

2017 Annual Report



**Pipeline SMS**



# ONE INDUSTRY, ONE GOAL

A crucial development for the Pipeline SMS program in 2017 was the creation of the joint industry Pipeline SMS team. This team represents the gathering, transmission, and distributions sectors of the natural gas and liquid pipeline industry. Comprised of six national trade associations and almost two dozen pipeline representatives, the team meets several times each year to measure the progress of implementing Pipeline SMS, generate tools and tactics to encourage industry-wide implementation, and define overall strategy for continuous improvement.












## Pipeline SMS

PIPELINE SMS INDUSTRY TEAM’S GUIDING PRINCIPLES

ONE INDUSTRY, ONE GOAL

IMPROVE OVERALL PERFORMANCE

IT’S A JOURNEY, NOT A DESTINATION

FLEXIBLE AND SCALABLE

PROVIDE TOOLS TO ASSIST ALL OPERATORS

FIRST CONFORMANCE, THEN EFFECTIVENESS

VOLUNTARY IMPLEMENTATION EQUALS UNLIMITED RESULTS

PROACTIVE VS. REACTIVE

STAY TRUE TO API RP 1173 (ESPECIALLY TERMINOLOGY)



## MESSAGE FROM THE CHAIR

This Annual Report gives a high-level summary of Pipeline Safety Management System (Pipeline SMS) implementation activities in the liquids, gas transmission, and gas distribution pipeline industry throughout the U.S. and Canada. There has been much progress since our initial Annual Report last year, and we are excited to share this information with you.

### Demonstrating Progress

The “demonstrating progress” phase of the Pipeline SMS Industry Team kicked off in 2017. This report explains the pipeline industry-wide Maturity Model that provides a common framework to measure progress, includes the coordinated Pipeline SMS surveys of the above trade associations’ membership to gauge development plans, progress, and results, and highlights the continued commitment and support from operators and regulators to Pipeline SMS.

### Joint Efforts

A significant development in 2017 has been the consolidation of various industry group activities into one team with participation of the major pipeline trade associations: the American Petroleum Institute (API), the Association of Oil Pipe Lines (AOPL), the Interstate Natural Gas Association of America (INGAA), the American Gas Association (AGA), the American Public Gas Association (APGA), and the Canadian Energy Pipeline Association (CEPA). While every company will have a unique journey and implementation plan for Pipeline SMS, these industry associations are working together to provide a consistent framework and set of tools to assist the pipeline industry in its drive toward continuous improvement of pipeline safety.

### Assisting Operators

In 2017, the individual trade associations have continued their efforts to educate, encourage, and assist their members with Pipeline SMS implementation including:

- AGA: held three webinars and a two-day workshop with 150 attendees,
- API / AOPL: held a workshop with more than 100 attendees, a special Pipeline SMS session at the API Pipeline Conference and a PSMS Group webinar, as well as presentations at various regional trade association meetings.
- INGAA: held two workshops on safety culture and Pipeline SMS.
- CEPA: continued to advance CEPA Integrity First® and has implemented five priority areas (with three having gone through third-party verification).

### What’s Next

The Pipeline SMS Industry team will continue its efforts in 2018 with the roll out of additional tools and the continuation of education and programs to assist operators. Already in 2018, the team has rolled out the Implementation Tool. Later in 2018 the team will roll out the Evaluation Tool and a pilot program for optional third-party audits.

I look forward to the continued enthusiasm of pipeline operators implementing Pipeline SMS and the One Industry, One Goal to assist. Remember – it’s a journey, not a destination. I encourage you to continue your Pipeline SMS journey and strive in 2018 to “make it real” for your company. Utilizing Pipeline SMS within your company and help demonstrate to regulators and the public that Pipeline SMS is working.



**Shawn Lyon**

Team Leader, Pipeline SMS Industry Team  
Vice President of Operations, Marathon Pipe Line LLC

# ONE PRACTICE: API RP 1173

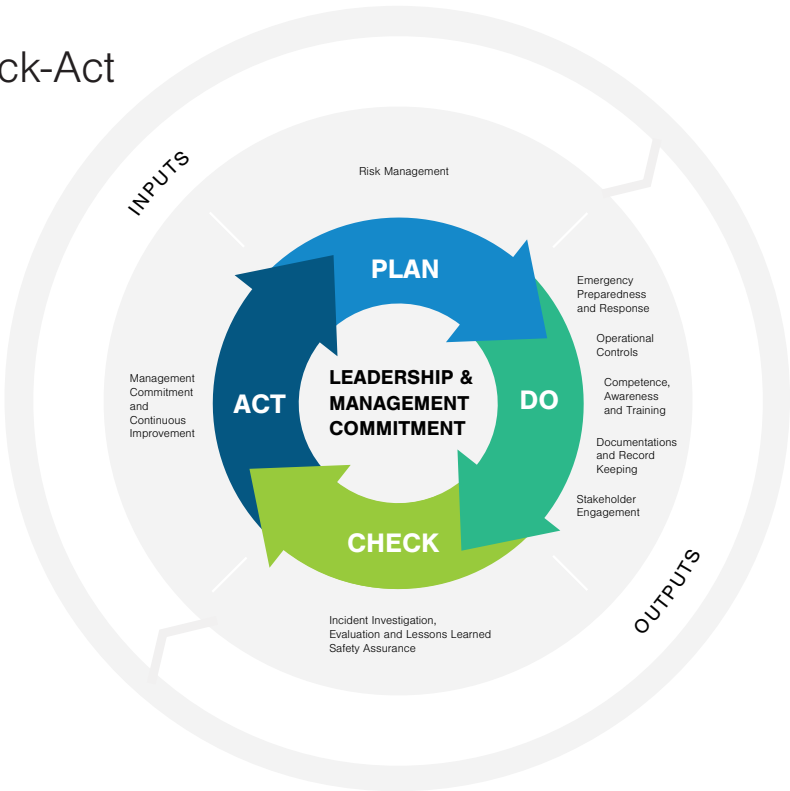
API published the First Edition of API Recommended Practice 1173 Pipeline Safety Management Systems (API RP 1173) in July 2015. It describes 10 elements that embody a systematic approach to pipeline safety management, using the Plan – Do – Check – Act (PDCA) cycle for continuous improvement. API RP 1173 is designed to be flexible and scalable. It applies to small pipeline operators with only a few employees as well as large multi-national pipeline operators with thousands of employees and tens of thousands of miles of pipe. We refer to the PDCA cycle as a Journey, with every incremental improvement leading to even more opportunities for improvement.

The pipeline industry began its efforts to promote adoption of safety management systems concepts in early 2015, before the final recommended practice was published. This includes a dedicated website, [www.pipelinesms.org](http://www.pipelinesms.org), that contains a variety of reference information about API RP 1173 as well as tools and guidance documents to assist operators on their journey to develop and implement programs per API RP 1173.

## Improving Overall Performance

### PIPELINE SAFETY MANAGEMENT SYSTEM - API RP 1173

- 10 ELEMENTS Yields a cohesive system
- SYSTEM Flexible & scalable
- JOURNEY Plan-Do-Check-Act
- CULTURE A must!



## STAKEHOLDER FEEDBACK

Pipeline regulatory agencies, members of the public, and the pipeline industry were involved in the development of API RP 1173. These stakeholders are now interested to see it make a difference in pipeline safety – starting with adoption of Pipeline SMS concepts throughout the pipeline industry. Recent feedback has been very positive.



### NTSB

Closes out their recommendation as  
**Closed-Exceeds Recommended Action**

**Senior staff** commended the “tremendous” job of industry in developing API RP 1173 on Pipeline SMS and the “phenomenal” efforts to implement the RP quickly

Extremely impressed with the industry’s aggressive implementation efforts and embracing of the SMS



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

### PHMSA

Pleased with the collaborative nature of implementation across the entire oil and gas industry

Clear from the specific examples provided by liquid pipeline executives on how SMS is already impacting culture, that SMS is making a difference and is **clearly a transformative initiative** that will impact pipeline safety performance



Carl Weimer, Executive Director  
Pipeline Safety Trust

The Pipeline Safety Trust is encouraged by the amount of effort and resources the pipeline industry has put into designing a strong industry-wide framework for pipeline safety management system implementation. The industry has the ability to improve safety much more quickly through its combined efforts than through the normal regulatory process, and we are very pleased to see this SMS initiative gaining traction in many companies. We hope the industry as a whole will continue to push for widespread adoption of this important recommended practice, to achieve sustainable safety performance improvements.

## ONE MODEL



## Conformance

The first three levels in the Maturity Model correspond to *Conformance* with API RP 1173's requirements. At level 1 the operator has developed an implementation plan to address the requirements of API RP 1173. At level 2 that implementation plan is about half complete, and at level 3 the implementation plan is complete. At Level 3, the Operator should have programs and systems in place that address all the significant requirements of API RP 1173 (even if they are not functioning perfectly or effectively).



## MATURITY MODEL

Measures the degree to which Pipeline SMS is comprehensive, systematic and integrated throughout an organization. The Pipeline SMS Maturity Model provides 5 levels of maturity, from Level 1 **PLANNING** to Level 5 **IMPROVING**. These maturity levels apply to all the various programs and activities an operator conducts under each of the 10 elements of **API RP 1173**. The assessment of a level is determined first for each element, and then for the overall company. For example, an operator might be at level 3 for one element, level 2 for another element, and level 4 for still another element, with an overall company level of 3.

## Effectiveness

Levels 4 and 5 of the Maturity Model correspond to the *Effectiveness* of an operator's Pipeline SMS. At Level 4 the operator's Pipeline SMS programs are being effectively implemented and the Plan-Do-Check-Act cycle is being used to pursue ever-increasing levels of continual improvement. Finally, at Level 5, the operator can demonstrate that they not only DO all the things required by RP 1173, but that they can demonstrate their pipeline safety management systems have resulted in measurable performance improvement for their company.

# ONE ROADMAP

The Pipeline SMS Tool Roadmap describes the major steps a company can take to implement its Pipeline SMS. The first step is getting started. The [www.pipelinesms.org](http://www.pipelinesms.org) website contains several reference documents to explain API RP 1173 and how it can benefit an operator. The major pipeline trade associations also host webinars and workshops to educate their members about API RP 1173. Once an operator has committed to API RP 1173 implementation, the roadmap outlines 3 major tools operators can use to assess the conformance and effectiveness of their Pipeline SMS. In addition to the major tools, there are three supplemental tools to assist operators in their Pipeline SMS journey.

1

The **Planning Tool**, as its name implies, is designed to assist an operator with development of their initial implementation plan. It can be used to conduct a gap analysis to compare an operator's existing system to the requirements of API RP 1173 to identify and rank various options to close the gaps, and to assign responsibilities.

2

The **Implementation Tool** is modeled after the Planning Tool, and assists an operator in tracking its progress in the implementation of their plans to conform to the API RP 1173.

3

The **Evaluation Tool** will be available to assist operators in their self-evaluations to determine how well their programs are being implemented, and to track their further development and maturity. Note: The voluntary API Audit Program can provide an independent assessment of that progress.

START

## GETTING STARTED

- Study API RP 1173
- Attend workshops
- Consider the benefits
- Talk with peers
- Obtain management commitment to API RP 1173 implementation
- Liquid operators: see Commitment Letter
- AGA members: Commitment to Enhancing Safety
- INGAA members: Commitment to Pipeline Safety

## PLANNING TOOL

- Summary of API RP 1173 requirements (71 questions)
- A gap analysis tool to compare an operator's existing system to the requirements of API RP 1173
- Documents action plans and responsibilities to close gaps
- Helps operators achieve Level 1 maturity (develop a plan, and begin work)

## IMPLEMENTATION TOOL

- Summary of API RP 1173 requirements (71 questions)
- Evaluates and summarizes the operator's implementation status by question, element and overall
- Helps operators track development of programs to implement the RP up to Level 3 or 4 maturity

## EVALUATION TOOL

- Comprehensive set of questions with ratings for all aspects of API RP 1173
- Helps operators evaluate the effectiveness of their programs in achieving the objectives of the RP (Is it helping?)
- Appropriate at Level 2 maturity or beyond
- Determines Effectiveness score

PEER-TO-PEER SHARING APPROPRIATE AT ALL MATURITY LEVELS

## VOLUNTARY API AUDIT PROGRAM

- API-administered audit program for conformance to API RP 1173
- Yields an objective evaluation and score to measure continuous improvement and/or benchmarking
- Appropriate at Level 3 maturity or beyond



## ONE GOAL, MANY JOURNEYS

Pipeline operators throughout the pipeline industry are at different points in their Pipeline SMS journey. Some pipeline operators already have sophisticated and comprehensive management systems containing many of the same elements as API RP 1173 and may only make minor adjustments to these existing systems to conform. Other operators may not have developed management systems, and are starting with a clean sheet of paper. No matter their starting point, every operator can benefit from the application of RP 1173 to their pipeline organization.



### Large Gas Transmission Operators:

“We have utilized most concepts of the PSMS since 2007. As we adapted our existing Operations Management System program to conform with the PSMS, we have identified additional areas of focus that can benefit from the Plan Do Check Act cycle. These additional areas of focus are an integral ingredient in our journey to implement an effective PSMS.”

“PSMS encourages you to do a better job of learning from past incidents, digging into the root cause, and driving to solutions and improvements in your processes.”



### Multi-National Liquid Operator:

“Having an integrated management system comprising the elements of API RP 1173 provided the foundation for safe and effective response to a pipeline emergency event in 2017. Pipeline Safety Management System (PSMS) implementation ensured that response systems, plans and processes worked as intended and response personnel were well prepared. PSMS has driven learning from this event and actions to prevent future incident occurrence.”



### Gas Distribution Operator:

“Our safety management system furthers our commitment to a positive safety culture which fosters collaboration, constructive attitudes toward compliance and the collective responsibility for the safety of our employees, our infrastructure and the public. Every employee is expected to be a champion of safety and carries the obligation to communicate cross-functionally in an effort to accurately identify, correct and measurably reduce threats to our business.”



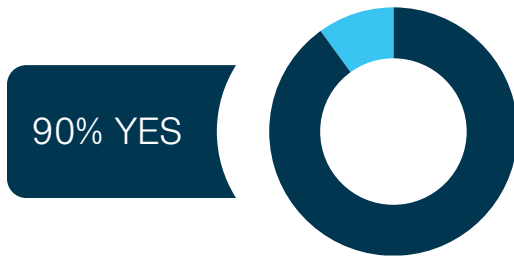
### Small Gas Distribution Operator

“In 2017 we reviewed the results of all implemented changes, recognized where additional gains were necessary, reiterated our message that all employees and contractors play a pivotal role in our Pipeline Safety Management Program; and, revealed enhanced elements of the program that highlighted our philosophy as a Natural Gas Utility Company, that everyone in, and associated with, our organization has a role in the success of the program.”

## PROGRESS MADE

### Benchmarking

of almost 100 companies surveyed by the industry associations in 2017:



Had attended workshops about Pipeline SMS, and are committed to implementation.



Had already performed a gap analysis, comparing their existing programs to API RP 1173 requirements.



Plan to address those gaps in five years or less, and about half had already developed a detailed action plan.



Had performed special assessments of their company safety culture since the publication year of the RP.



## **PATH FORWARD**

---

The joint industry team as well as the individual trade associations and their members have many activities on their agenda for 2018. While we have made much progress as an industry there is much left to do. We all benefit from enhanced pipeline safety, and plan to continue a cooperative industry approach to Pipeline SMS implementation and maturity for many years to come.

### **One Industry, One Goal**

---

In 2018 the joint industry team plans to get alignment concerning Key Performance Indicators (KPIs) for each industry segment which can be used to measure progress over time, and to begin pilot audits under the voluntary API audit program. Meanwhile the team will continue to coordinate activities between industry associations, and to communicate our progress to PHMSA and other stakeholders.

### **Flexible and Scalable**

---

The trade associations will continue their peer-to-peer sharing programs, mentoring programs, education programs, and other initiatives to encourage adoption of API RP 1173 throughout their membership, including APGA's development of Guidance for Small Operators.

### **All Tools Across All Pipeline Industries**

---

These include webinars to roll out the Maturity Model and the Implementation Tool (which have already been done), a webinar to explain the voluntary API audit program, a webinar to roll out the Evaluation Tool, and a face-to-face workshop on how to use all the tools. We are also hard at work on a revamp of the [www.pipelinesms.org](http://www.pipelinesms.org) website and supporting materials to improve its ease of use, consistency, and application to all parts of the pipeline industry (part of that Plan-Do-Check-Act cycle in action!). The emphasis of the team in 2018 will be to help “make it real.”

# **IT'S A JOURNEY, NOT A DESTINATION**





**Pipeline SMS**

