

PIPELINE SAFETY MANAGEMENT SYSTEMS

— | Pipeline SMS
2022 Annual Report



Pipeline SMS

www.PipelineSMS.org



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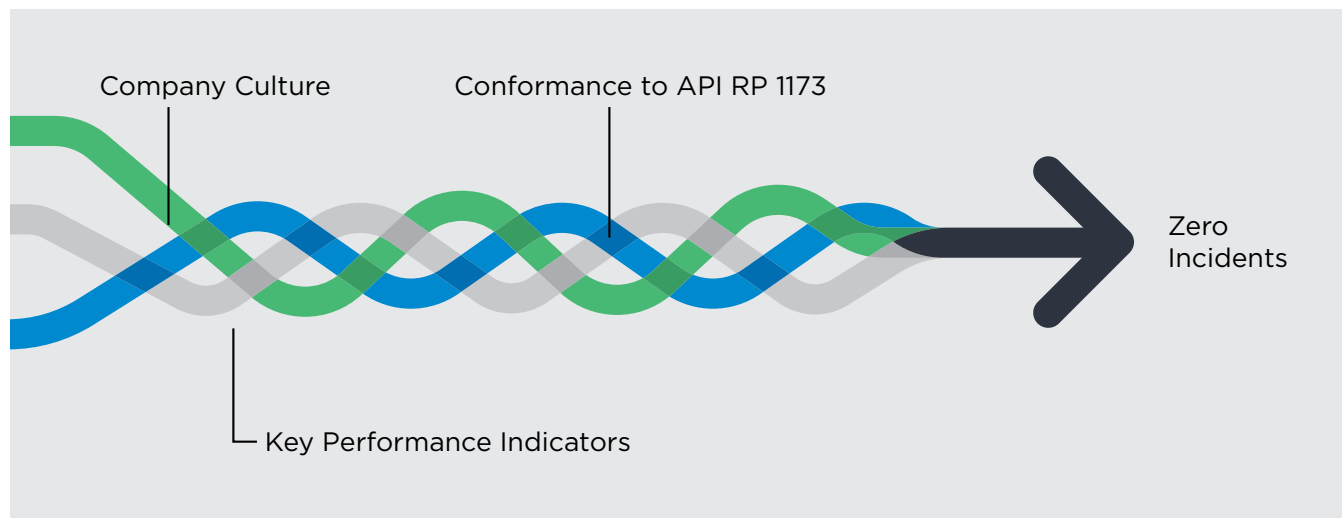


PIPELINE SMS: ONE INDUSTRY, ONE TEAM, ONE MISSION, PIPELINE SAFETY

After the publication of API Recommended Practice (RP) 1173, *Pipeline Safety Management Systems (Pipeline SMS)* in 2015, the pipeline industry began efforts to promote commitment and implementation of the RP.

Since 2015, Pipeline SMS implementation has expanded beyond liquid operators to include gas distribution, transmission, and gathering operators, as well as the contractor community, all in the shared goal of operating with zero incidents on a voluntary basis.

In 2022, the Industry Team extended the viability of RP 1173, first edition, until 2027 while a Task Group revises the document and looks to publish a second edition, targeted for 2025. Last year also featured important initiatives to support small operator and contractor implementation of RP 1173 along their journey of continuous improvement and the combined vision of One Industry, One Team, One Mission, Pipeline Safety.



LETTER FROM THE OUTGOING TEAM CHAIR

It is hard to believe my term as Pipeline SMS Industry Team Chair has come to an end. It has been a great pleasure working with such a broad and committed group – eight (8) trade associations and over twenty (20) operators – unified with the goal of operating with zero incidents. I am extremely proud of the Industry Team's work in supporting industry's voluntary implementation of Pipeline Safety Management Systems and RP 1173 to improve pipeline safety.

The first edition of RP 1173 was published in 2015, and the pipeline industry has worked proactively to implement this management system framework over the past seven years. The success of our voluntary approach is evidenced by strong annual survey results, which include nearly 85 percent of total pipeline industry mileage as implementing the Pipeline SMS. Companies large and small across the entire country, carrying oil, petroleum products or natural gas and representing all industry segments, are committed to their journey of continuous improvement to achieve the goal of zero incidents.

Performance data from liquids pipelines has been an integral part of this progress. Over the last five years, liquids pipeline safety improved across key indicators, including a 28 percent reduction in total incidents and a 16 percent decrease in incidents impacting people or the environment. These safety improvements come as both pipeline mileage and barrels delivered continue to increase, safely delivering the crude oil, fuels, heating oils and energy products that our country depends on.

We also recognize that more work remains to be done in the spirit of continuous improvement. The Industry Team is focused on universal implementation of the Pipeline SMS across industry as the most effective way of achieving the goal of zero incidents. Only through proactive improvement in SMS processes can we effectively make progress on our journey of improved pipeline safety.

Many thanks and appreciation to Pat Carey for his service as Vice Chair this past year, and I look forward to the steps ahead in our shared journey.

CINDY GRAHAM

Director of Safety & Reliability Governance
Enbridge Inc.

Outgoing Chair, Pipeline SMS Industry Team

LETTER FROM THE INCOMING TEAM CHAIR

I am honored to have this opportunity to lead the industry's efforts around Pipeline SMS commitment, implementation and initiatives. A warm thanks to Cindy Graham for her exceptional leadership as Chair of the Industry Team last year, as well as previous leaders including Shawn Lyon, Angie Kolar and John Hill. Having their legacy of leadership has provided a smooth path to continue our progress.

As we are well into 2023, critical steps emerge in our journey of continuous improvement and improved safety performance. In late 2022, the RP 1173 Voting Group approved a five-year reaffirmation for the first edition of the RP, extending its viability until 2027. A group of operators developed a list of potential revisions to the RP in 2022 and will start working through revisions in earnest in 2023 through an open process for any interested parties. The Team's intention is to publish a second edition in 2025, ten years after initial publication and the minimum implementation period for management systems. This process will include an annex for very small operators to provide guidance on implementing core principles and foundational elements of a Pipeline SMS.

Additionally, the Team remains committed to supporting PHMSA's study on Pipeline SMS implementation among gas distribution operators. Required as part of the 2020 PIPES Act, the agency must develop a study on implementation progress, maturity and feasibility to Congress by December 2023. PHMSA largely accepted industry recommendations to better align with previous Team surveys in 2022 and the Team will encourage distribution operators to respond to the information collection request, regardless of their implementation maturity, to showcase industry's proactive efforts. Participating in initiatives such as this one can demonstrate the industry's tangible efforts along its journey of continuous improvement to public stakeholders.

Something else that is new this year is the alignment of a couple of Safety Culture Survey processes that have been used over the years. The alignment of the surveys between US and Canadian gas and liquid transmission operators further supports our vision of "One Industry, One Team". The survey will include over 20 operators surveying more than 35,000 employees using a standardized 84 question set that map back to specific Pipeline SMS elements.

These significant developments highlight the voluntary commitment of pipeline operators to SMS implementation in the pursuit of zero operating incidents. Our 2023 theme, One Industry, One Team, One Mission, Pipeline Safety, reflects this shared vision among all pipeline segments to improve pipeline safety through SMS. I look forward to leading this Team through these critical steps over the next year towards our united goal of zero incidents.

PATRICK CAREY

Director, Operations
Kinder Morgan

Incoming Chair, Pipeline SMS Industry Team

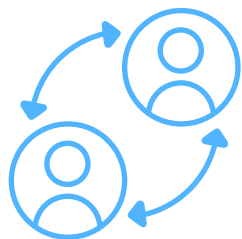
2022 KEY EVENTS

The Joint Industry Pipeline SMS Team conducted numerous events and activities throughout 2022 to support industry understanding and implementation of RP 1173. In 2022, the Team focused on four key areas to support operator journeys:



PROVIDING OPERATOR & CONTRACTOR SUPPORT

- Conducted six API Pipeline SMS Third-Party Assessments,
- Distributed Benchmarking Report among past participants,
- Published the [Contractor's Guide](#) on integrating with operator's Pipeline SMS,
- Began preparations on [Contractor Implementation Tool](#),
- Held webinar on "[Making PSMS Metrics Effective](#)" in August,
- Distributed tools for [aligning PSMS implementation](#) with Environmental, Social, and Governance (ESG) goals, and
- Organized a June 15 webinar on PSMS Implementation Supporting ESG efforts with Hart Energy.



ENGAGING STAKEHOLDERS

- Published [2021 Annual Report](#) highlighting industry implementation progress,
- Engaged stakeholders, including public safety advocates, on the report and voluntary industry progress,
- Highlighted leading implementation practices and challenges during API's Pipeline Conference in Nashville, TN,
- Held a roundtable with national, regional and associated trades supporting operator implementation.



INCREASING INDUSTRY PARTICIPATION

- Conducted 2022 Annual Survey with distribution, transmission and gathering operators representing about 85% of total industry mileage,
- Prepared for 2023 safety culture survey among US and Canadian transmission operators, and
- Identified leading practices, barriers to entry and implementation challenges using Annual Survey results.



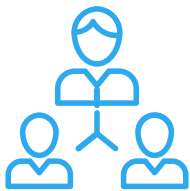
ENSURING GOVERNANCE & OVERSIGHT

- Validated list of potential changes to RP 1173, 1st edition, with Standards Policy Group,
- Approved a five-year reaffirmation for RP 1173, 1st edition, with the next standards action likely in 2027,
- Reviewed PHMSA's Request for Information Collection from gas distribution operators, provided recommendations to align with the the Industry Annual Survey and engaged PHMSA staff.
- Hosted a Team meeting in November to review the contractor framework, PHMSA activities, RP revision efforts and Annual Survey results; PHMSA shared guidance that Level 3 maturity stemmed from completion of at least one self or outside assessment as a baseline for industry implementation efforts.



TESTIMONIALS FROM OPERATORS

In the 2022 Annual Survey, operators discussed their implementation journeys in their own words, highlighting the voluntary progress on the continuous improvement road to zero incidents.



LEADERSHIP COMMITMENT

“ We’ve attempted to **integrate our PSMS into our mission, vision, and values** rather than treat it as a stand-alone process. Pipeline Safety is a key part of who we are and so rather than trying to explain new concepts, we look to build on our existing focus on providing safe and reliable service to our customers. In this way, we’ve removed the barrier of speaking to new terms or concepts and are able to build on the foundation that was already established.”

— *Gas Distribution Operator*

“ We have remained on track by adjusting the schedule, allocating internal and external resources with the focus on establishing the foundation to **sustain the PSMS for the long term** such as governance structure and corporate policy.”

— *Gas Distribution Operator*

“ We are moving at a faster pace as our original plans were conservative. **Due to increased resources and priority from leadership** we are moving ahead of pace.”

— *Gas Distribution Operator*



STAKEHOLDER ENGAGEMENT

“ Our company continues to engage internal stakeholders to support the expectations of PSMS including operations, safety, and construction management teams. We have **incorporated PSMS principles and messaging** within our New Supervisor Training and workforce technical training and safety huddles.”

— *Gas Distribution Operator*

“ We have noticed our employees are more aware of what we are expecting from them. For example, **they are finding equipment failures before installation begins**. We have been able to identify some incorrect operations related to our contractors and have addressed these problems as they happen. We engage our employees every month on any significant findings related to PSMS.”

— *Gas Distribution Operator*



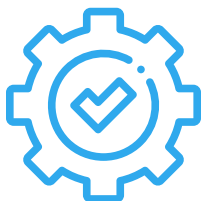
RISK MANAGEMENT

“ We established a team of field personnel who receive feedback on safety related issues to make recommendations to the PSMS Executive Board. My company developed an employee driven ESG Committee to identify and implement initiatives related to the company’s Environmental, Social, and Governance related goals. Specifically, the ESG Committee, together with Company Operations personnel, **focused on fostering relationships** with local first responders and emergency management organizations by conducting incident drills and table-top exercises in coordination with the local groups.”

— *Liquid Transmission Operator*

“ We stood up an enterprise Health and Safety team to **enhance our company’s risk management culture** centered on strong governance and risk identification and mitigation. We recently selected a safety data management system solution that will help with incident reporting and tracking of incidents and near misses. We also developed a safety governance model that outlines accountabilities and responsibilities towards safety starting with the board of directors down to the frontline employees.”

— *Gas Distribution Operator*



OPERATIONAL CONTROLS

“ The elements of the PSMS program are viewed as a **shared responsibility with our contractors** where applicable. As an example, in addition to traditional safety metrics, internally derived (proactive) safety metrics are applied to all contractors and their ability to continue work with our company. Failure to meet these agreed-upon obligations will either disqualify a contractor or set up a prescriptive remediation pathway to regain status for bidding work through our Supply Chain team.”

— *Gas Transmission Operator*

“ We include our **primary contractors in my company’s PSMS program** with the expectation to include all gas related contractors in the future as part of PSMS.”

— **Gas Distribution Operator**

“ We are currently requiring this [contractors to have their own Pipeline SMS program] during our new bid process changes **as an action item for our official bid award.**”

— **Gas Distribution Operator**



EMERGENCY PREPAREDNESS & RESPONSE

“ By having the disciplined approach from PSMS embedded at our organization, **we were well positioned to respond** during a recent labor disruption. In particular, our approach to Emergency Management and Response positioned us to ensure work continued in a safe and reliable manner, our investigation and lessons learned approach allowed us to identify and implement areas of improvement, and our stakeholder engagement processes ensured that necessary information was communicated and received in a timely manner.”

— **Liquid Transmission Operator**



INCIDENT INVESTIGATION, EVALUATION AND LESSONS LEARNED

“ We have greatly expanded the use of root cause analyses and these processes being conducted now are digging deeper into the issues to find the possible multiple causes. This allows us to **implement better procedures, training, or other items to prevent reoccurrence** across the system.”

— **Gas Distribution Operator**

“ Our **safety culture is growing by learning from previous and new events** in the industry. Having a safe space to engage in dialogue, such as an April 2022 event, was extremely valuable to our team. The ability to discuss and learn about what happened promptly, without waiting for official accident reports or NTSB reports, is also very valuable to us. The bravery it must’ve taken for that company to stand in front of our industry and take that leap is acknowledged and appreciated.”

— **Gas Distribution Operator**

“ One of our earliest PSMS projects was implementing a formal lessons learned system. We selected a software program that tracked safety related incidents. It provides a standardized method for reporting issues and ensures that any issue submitted through it is properly addressed. While initially participants were hesitant to enter information, it's now widely viewed as being a non-punitive program and **has given us a great database of past issues and source for lessons learned.**”

—*Gas Transmission Operator*



MANAGEMENT REVIEW & CONTINUOUS IMPROVEMENT

“ Implementation of API RP 1173 has helped our company engage all levels of the organization in the continuous improvement cycle. **Completing an annual evaluation of the PSMS provides data driven guidance** for the identification and implementation of organizational goals.”

—*Liquid Transmission Operator*

“ We implement Plan-Do-Check-Act-based reviews of safety data, construction quality, and operations through the use of Hazard ID, near miss, and incident reporting. We continue to work towards a **documented, structured comprehensive program.**”

—*Liquid Transmission Operator*

“ When we decided to align our PSMS program with the elements of our Standard Operating Procedure (SOP) system, that was a big breakthrough for us. Our company was having trouble with the PSMS element structure because it seemed to be duplicative to the element structure of our SOP. So, we opted to convert the shall statements of the RP to the element structure of our SOP and that has made adoption of the RP much easier. By putting the RP criteria into the language of **how our company talks about its work has made all the difference.**”

—*Liquid Transmission Operator*

API PIPELINE SMS THIRD-PARTY ASSESSMENT PROGRAM

Launched at the beginning of 2020, the API Pipeline SMS Third-Party Assessment Program serves as a tool to assist operators with measuring progress and the maturity of Pipeline SMS, as well as facilitating the identification of good practices and information sharing across the pipeline industry. The program utilizes the Planning, Implementation and Evaluation Tools created by the Team, allowing for seamless integration with ongoing industry efforts.

API continued to conduct assessments for pipeline operators. Since its inception in January 2020, the API Pipeline SMS Assessment Program conducted twelve (12) assessments through the end of 2022. A detailed breakdown of assessments and the types of operators can be found on the next page.

Assessments have been completed with a diverse group of operators of all sizes, including transmission, distribution, and even a steam operator, seeking to evaluate their Pipeline SMS maturity. The wide range of operator types utilizing the program illustrates the wide applicability of RP 1173 and the Assessment Program. API continues to evolve the program in the spirit of continuous improvement to help operators satisfy the audit requirements in the Safety Assurance element of RP 1173.

DATA BY THE NUMBERS

2020 ASSESSMENTS COMPLETED: 2

- ✓ 2 large gas distributors

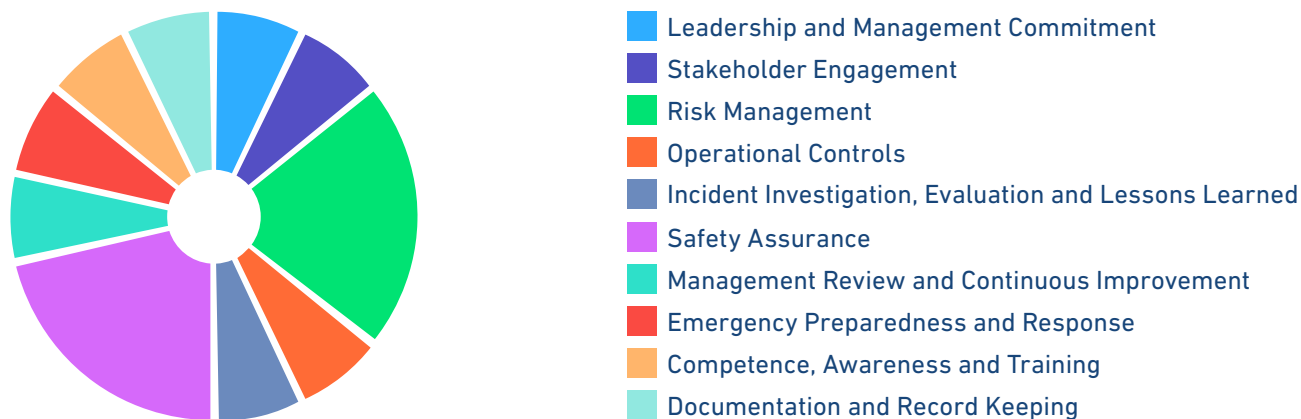
2021 ASSESSMENTS COMPLETED: 4

- ✓ 2 large liquids operators
- ✓ 1 large gas distributor
- ✓ 1 small steam utility distributor

2022 ASSESSMENTS COMPLETED: 6

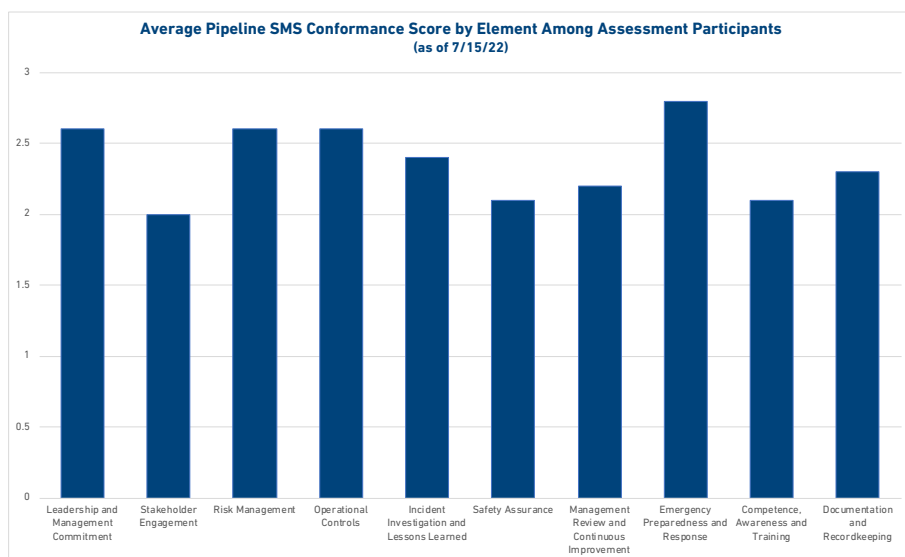
- ✓ 2 large gas distributors
- ✓ 2 small liquid operators
- ✓ 2 large liquid operators

PSMS ASSESSMENT OUTPUT FEEDBACK BY ELEMENT: COUNT OF FEEDBACK GIVEN TO PARTICIPANTS IN THE PROGRAM CATEGORIZED BY EACH OF THE 10 PSMS ELEMENTS



BENCHMARKING

2022 was a landmark year for the Pipeline SMS Assessment Program, with the first ever Benchmarking Reports distributed to past participants. This blinded and anonymous statistical analysis gives companies a detailed view of their assessment results relative to the other participants. As the program matures, operators will be able to narrow the benchmarking to peers in their subsegment (e.g., only large gas distributors, etc.). Benchmarking data is only available to those who conduct assessments with API. Benchmarking to date has revealed that the industry averages of implementation are all above a PSMS Maturity of 2. Average conformance scores seen in the program can be seen below.



As this was the first year of publication, API and the PSMS Industry Team cannot yet report on trending analysis, but we hope to be able to report comparative numbers in next year's report.

LOOKING AHEAD (2023 AND 2024)

We are seeing operators come back to us for repeat assessments. Once completed, these repeat assessments can provide insight into the maturity of the operator's safety management system compared to prior assessments. The assessment outcome can provide a landscape of a positive culture change within the organization. It also will help the Pipeline SMS Industry team understand how quickly some operators have been able to make meaningful changes in their organizations, which can give further insight to industry regarding how long it may take for most operators to achieve a level 3 maturity score.

In 2023 and 2024, based on current levels on interest, we anticipate completing 10-15 more assessments, which will further build out industry benchmarking and will give the Industry Team better insights into trends on maturity.

If anyone has any interest in conducting a PSMS Assessment, please reach out to **PipelineSMS@api.org**.



APGA PSMS PLANNING TOOL

American Public Gas Association (APGA) members, publicly and community owned natural gas distribution systems, are committed to incorporating the concepts of Pipeline Safety Management Systems into their operations. APGA continues to support members voluntarily implementing PSMS through roundtables, workshops and tools designed for smaller gas distribution systems.

The APGA PSMS Planning Tool guides operators through the foundational principles of PSMS and allows them to compare their existing practices against those recommended by API RP 1173. Over 60 different public gas systems have utilized the tool to help launch their PSMS journey.

Access the APGA Planning Tool here:

<https://apga.org/operationssafety/compliancetools/psms-planning>



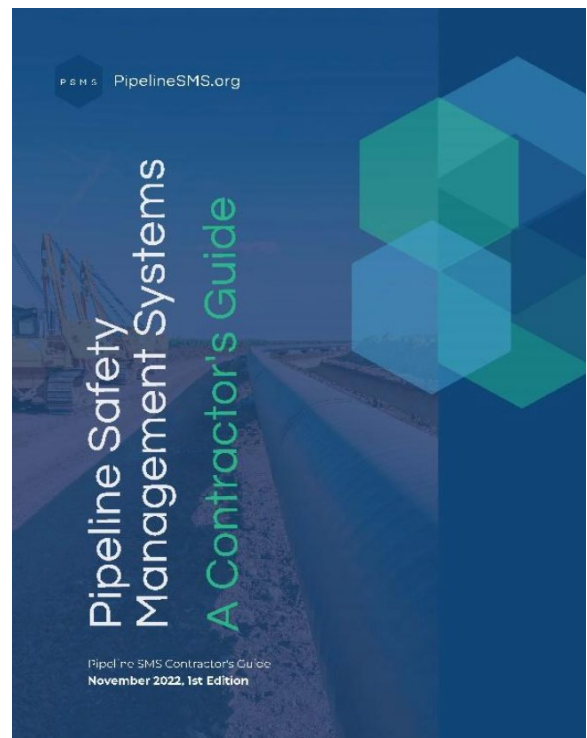
CONTRACTOR GUIDANCE PUBLISHED

In an ongoing effort, the Pipeline SMS Industry team continued to maintain the implementation progress through its four main focus areas: industry participation, stakeholder engagement, operator and contractor journeys, and governance and oversight.

A key component of these efforts is small operator and contractor operations. To support these operations a Contractor Guide was published in November of 2022. The Contractor Guide is a complement to API RP 1173 to provide pipeline contractors and service providers an enhanced understanding of how their scope of work should be integrated with the operator's PSMS.

As a companion to the Contractor Guide, a Contractor Implementation Tool was developed in April of 2023. This interactive tool is based on the 56 key requirements identified by industry to aid contractors and service providers in gauging the implementation and maturity of their SMS. The goal of the contractor tool is to allow collaboration between operators and contractors to assure appropriate alignment with their PSMS.

Both the Contractor Guidance and the Implementation tool can be found on www.pipelinesms.org/contractor-guidance to download and use to help align operator and contractor/service provider safety programs. Please contact PipelineSMS@api.org with any questions you may have regarding the contractor guidance documents.



2022 ANNUAL SURVEY RESULTS

Pipeline operators representing close to 85 percent of total industry mileage responded to the 2022 Annual Survey. The results showcased significant implementation progress throughout 2022 compared with previous results, including increases in...

↑ +7

Companies Participated
in Sharing Events

↑ +5

Operators Conducted a
Gaps Assessment

↑ +6

Operators Conducted
Management Reviews

↑ +13

Operators Including
Contractors when
Implementing PSMS

IN 2022, PIPELINES OPERATORS WERE MOST FOCUSED ON IMPLEMENTING:

1. Incident Investigation, Evaluation, and Lessons Learned
2. Competence, Awareness, and Training
3. Stakeholder Engagement
4. Leadership and Management Commitment
5. Operational Controls

THE MOST CHALLENGING ELEMENTS TO IMPLEMENT IN 2022 WERE:

1. Operational Controls
2. Competence, Awareness, and Training
3. Stakeholder Engagement
4. Management Review and Continuous Improvement
5. Risk Management



EVALUATING PSMS MATURITY

Conducting an API Pipeline SMS Assessment fulfills companies' maturity evaluation requirements found in RP 1173.

Operators described how they maintained a method(s) to evaluate Pipeline SMS maturity:

“ Bi-Annual PSMS Executive Board Meetings which continually improve process performance, including corrective actions on significant differences between actual and planned results, analyzing the differences to determine their root causes, and determining where to apply changes that will include improvement of the process or product.”

“ Step 1: Do the appropriate documents exist to comply with the PSMS? Step 2: Do the documents contain the appropriate language to comply with the PSMS? Step 3: Are we doing what we say we are doing? Step 4: Are the documents effective in achieving the intent of the PSMS? Step 5: Is the PSMS effective?”

“ At a process level, we utilize an internally developed tool, which asks a series of questions related to each element to determine process maturity. At the company level, we utilize the PSMS Implementation Tool to evaluate the maturity of each element.”

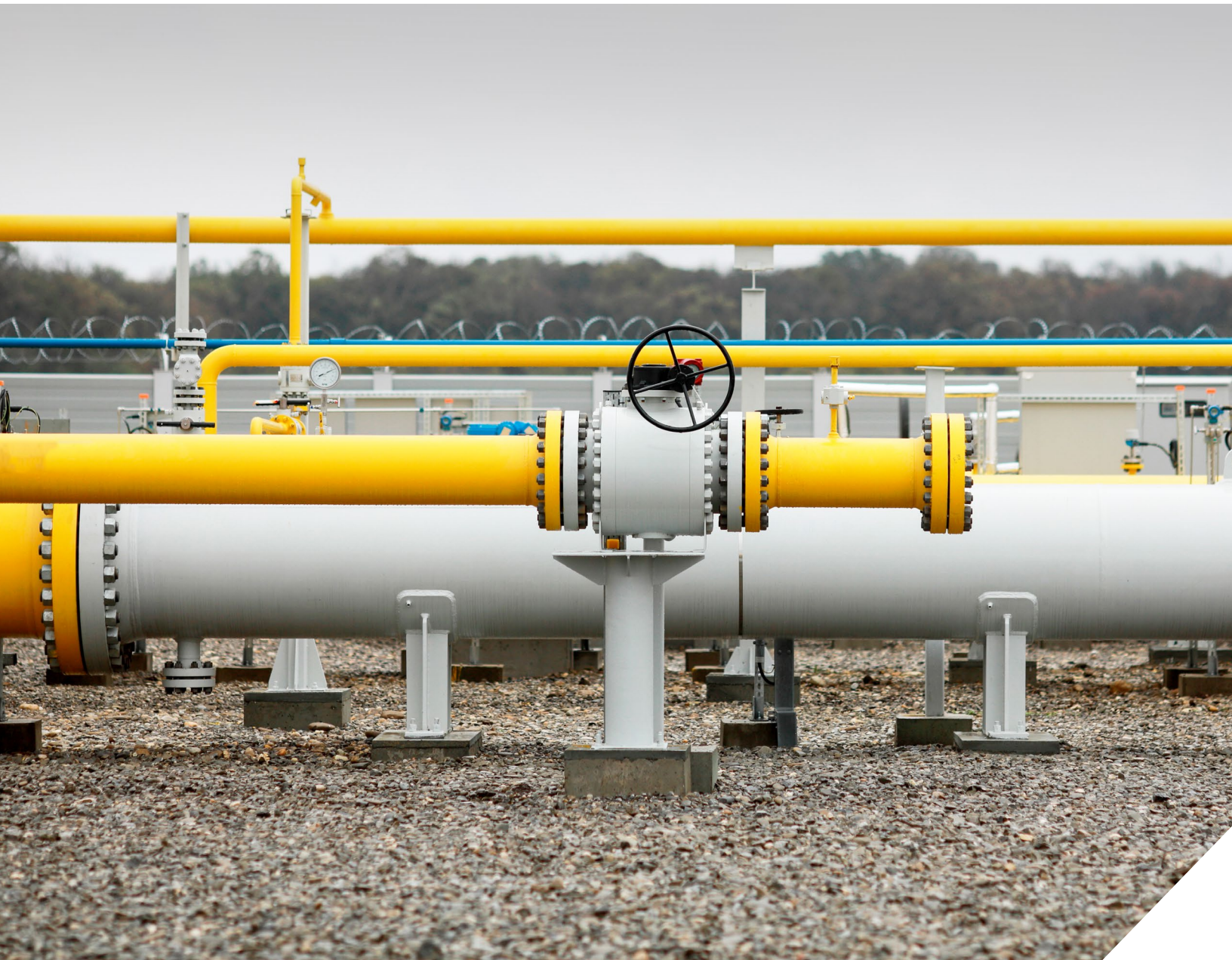
“ An annual PSMS review process is completed that includes maturity scoring. Each element is given a maturity score during a field level review. The score is then validated by the element champion and shared at the annual review meeting with management.”

“ We have written into our plan to have an annual review for upper management. At this annual review for management, we review progress, lessons learned and make suggestions regarding our SMS program.”

“ Every January we conduct a new implementation study that's reviewed by our PSMS committee, made up of representatives from all our Operations, Engineering, and Project Management groups. Based on this, our PSMS committee identifies our largest gaps or areas for improvement and establishes PSMS “projects” that are designed to specifically address these gaps. Project leads are assigned for each project. The PSMS committee meets quarterly throughout the year to hear updates from the Project leads and to address any roadblocks in project implementation.”

2023 FOCUS AREAS

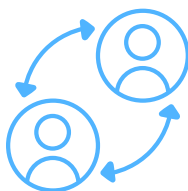
In 2023, the Pipeline SMS Industry Team will maintain implementation progress through its four main focus areas: increase industry participation, ensure stakeholder engagement, support operator and contractor journeys, and provide governance and oversight.





INCREASE INDUSTRY PARTICIPATION

- Create different survey versions for contractors, first-time respondents and long-time respondents, including the ability for operators to benchmark over time,
- Conduct 2023 Annual Survey with pipeline operators,
- Host associations roundtable to exchange leading practices and support PSMS events hosted by other associated groups,
- Support industry responses to PHMSA's voluntary Request for Information Collection as well as the agency's study on gas distribution implementation due to Congress, and
- Facilitate development of an annex in RP 1173, second edition, for very small operators.



ENGAGE STAKEHOLDERS

- Publish the 2022 Annual Report and engage stakeholders, including regulators and public safety advocates,
- Communicate contractor guidance and implementation tools to support integration with operators' PSMS, and
- Engage PHMSA and state regulators on development and submission of PHMSA's study on gas distribution implementation.



SUPPORT OPERATOR AND CONTRACTOR JOURNEYS

- Socialize Contractor Guidance and Implementation Tool with contractor community,
- Develop training for field-level personnel that can be shared and embedded with operators' specific trainings,
- Conduct safety culture survey with US and Canadian transmission operators,
- Complete eight Pipeline SMS Third-Party Assessments, and
- Support smaller operators through element-specific training.



ENSURE GOVERNANCE AND OVERSIGHT

- Oversee RP 1173, first edition revision and publication processes,
- Develop and track metrics for Industry Team, and
- Transition to new Chair and Vice Chair.



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