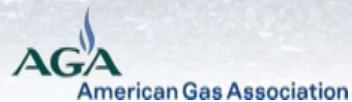


# PIPELINE SMS INDUSTRY TEAM

## PIPELINE SMS WEBINAR PRACTITIONERS & PROGRAM MANAGERS

JUNE 4TH, 2019



# TODAY'S SPEAKERS

- David Murk, API, Pipeline Manager, Midstream and Industry Operations
- Angie Kolar, Colonial Pipeline, VP Operations Services & Chief Risk Officer Pipeline SMS Industry Team Chair
- Shannon Guterson, TransCanada, Senior Management System Specialist, Quality, Compliance and Technical Training
- David Toth, Kinder Morgan, Manager, Compliance/Codes and Standards
- Justine Brubaker, Marathon Pipe Line, Risk Analyst
- Aaron Duke, API, Senior Associate, New Programs and Operations, Global Industry Services
- Bobby Lu, Gas Systems Program Manager, Southern California Gas Company



# AGENDA

- Greeting and API Antitrust Statement
- Current Pipeline SMS Landscape
- Pipeline SMS 2019 Focus Areas
- Pipeline SMS Fundamentals
- Challenges of Implementation
- Making it real – Operational Controls and Risk Management
- Advanced Tools and Resources
- Mentorship Program
- Wrap-up



# API ANTITRUST GUIDELINES

- No discussion or forecasting of prices for goods or services by or received by a company.
- No sharing or discussing any company's confidential or proprietary information.
- No discussion of any company's specific purchasing plans; merger/divestment plans, production information, inventories or costs.
- No sharing or discussion of specific company compliance costs, unless publicly available.
- No agreement or discussion regarding the purchase or sale of goods or services (such decisions are independent company decisions).
- No discussion on how individual companies intend to respond to potential market/economic scenarios or government action: discussion limited to generalities.
- No disparaging remarks regarding specific vendors, products or services.



# TODAY'S OBJECTIVES

**Provide practitioners and Pipeline SMS program managers more advanced training and insight into challenges of implementation, anecdotal solutions and approaches by operators in addressing challenges including resources available to support their journey**



# CURRENT LANDSCAPE

- NTSB and PHMSA supported voluntary nature of Pipeline SMS
- Pipeline SMS as a voluntary program under scrutiny by Congress
- Importance of industry demonstrating growing commitment and progress critical
- Pipeline SMS Industry Team proactively advancing tools and resources to support industry
- Industry needs to continue to champion and mentor to build upon commitment



# 2019 PIPELINE SMS FOCUS AREAS

## Increase Industry Participation

Trade Association  
Pipeline SMS  
Alignment

Industry Annual Survey

Industry Pipeline SMS  
Annual Awards

“Barrier to Entry”  
Determination

## Ensure Proactive External Engagement

“One Industry, One  
Mission”  
Communications

Target Audience:

- Contractors
- Regulators

Annual Report

## Provide Ongoing Support for Operator Journeys

Training & Education

3rd Party Voluntary  
Assessment

Culture Survey for  
Operator Use

Element “deep dives”  
by year

## Provide Governance & Oversight

Finalize Industry Team  
Charter

Reaffirmation /  
Reauthorization of  
1173

Team meeting  
structure / scheduling

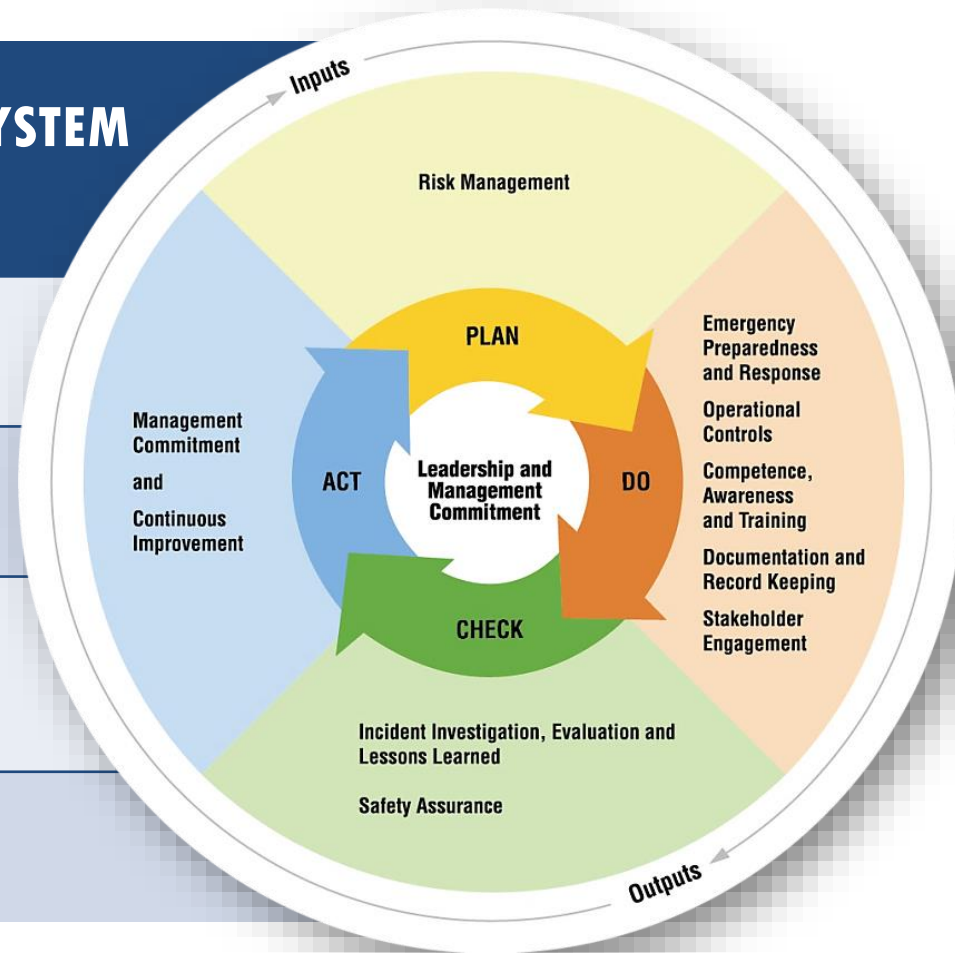
Membership



# PIPELINE SMS FUNDAMENTALS

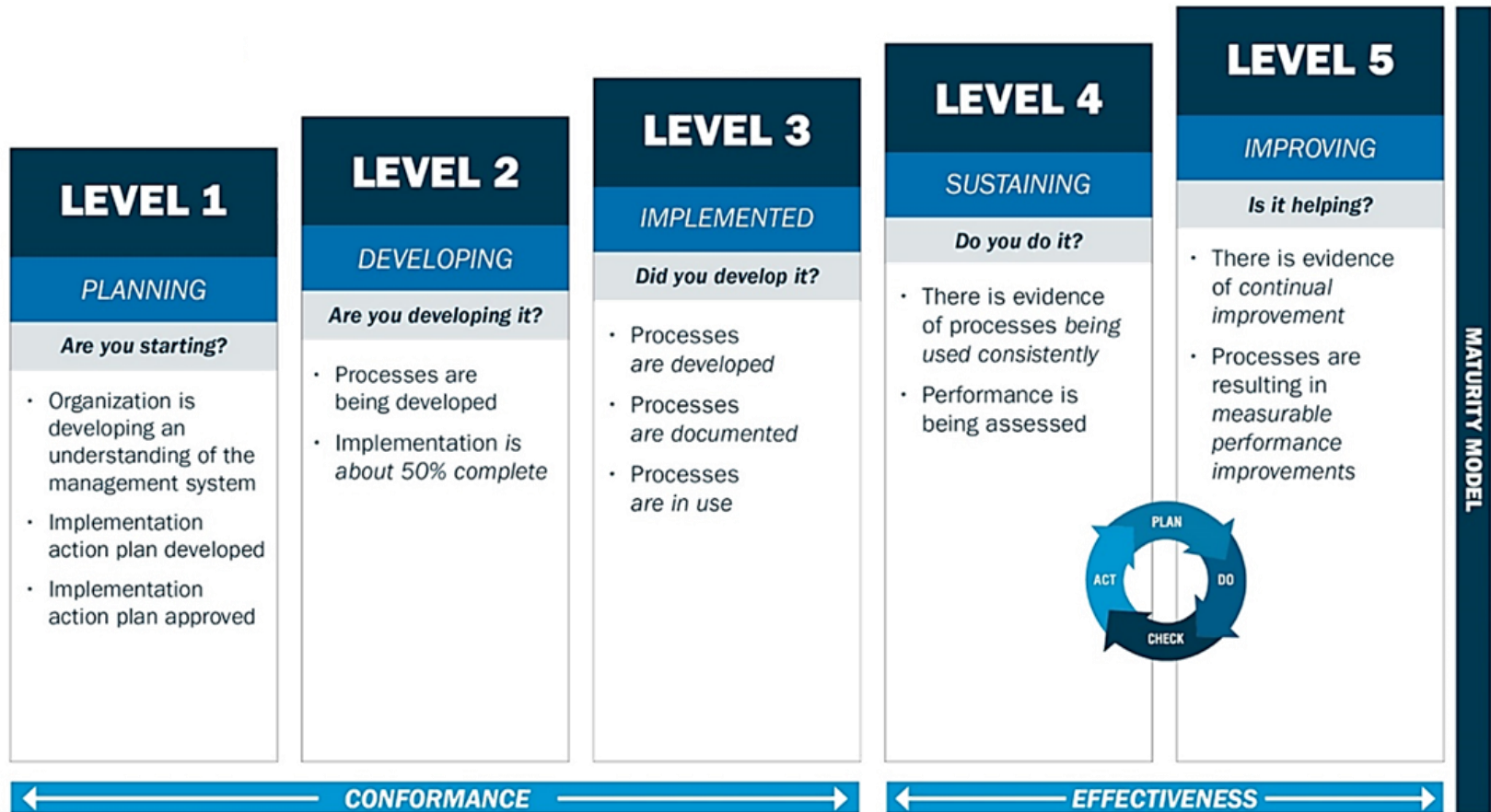
## PIPELINE SAFETY MANAGEMENT SYSTEM – API RP 1173

<b>10 ELEMENTS</b>	Holistic Integrated Framework
<b>SYSTEM</b>	Flexible & scalable
<b>CONTINUOUS IMPROVEMENT</b>	Plan-Do-Check-Act
<b>SAFETY CULTURE</b>	The glue





# THE PIPELINE SMS JOURNEY



# PIPELINE SMS TOOLS & COMMUNICATIONS

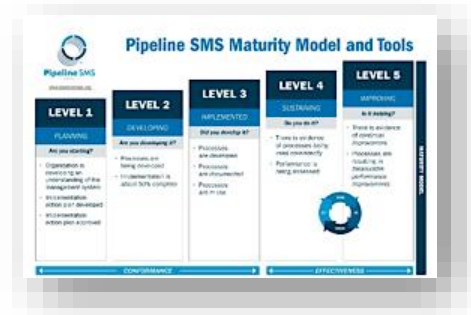
**WEBSITE** [www.pipelinesms.org](http://www.pipelinesms.org)  
Revamped in 2018 to improve functionality

## BOOKLETS



## TOOLS

- ✓ Pipeline SMS Maturity Model
- ✓ Planning and Implementation *gap* assessments
- ✓ APGA Pipeline SMS Planning Tool
- ✓ Evaluation *effectiveness* assessment
- ✓ Peer-to-peer sharing practices
- ✓ Voluntary API third-party assessment program



## WORKSHOPS & WEBINARS

- ✓ 2017 and 2018 materials available on-line at [www.pipelinesms.org](http://www.pipelinesms.org)



# PIPELINE SMS SURVEY

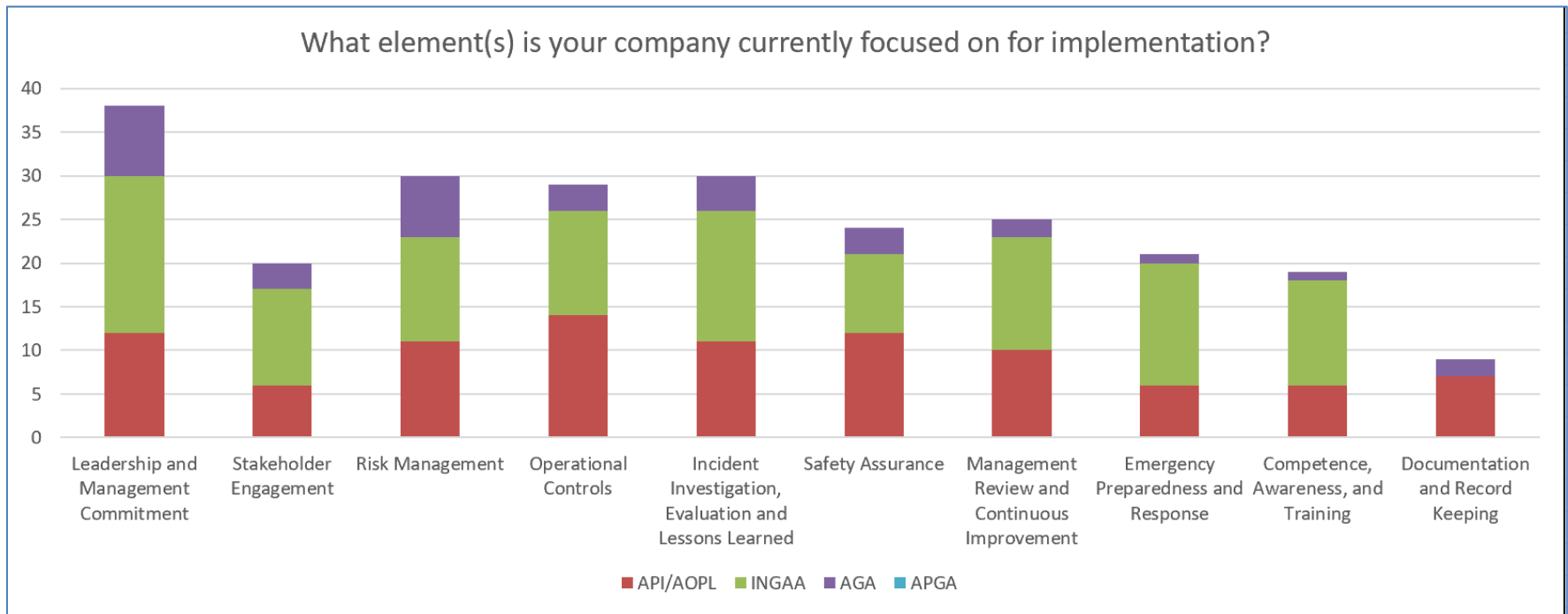
API conducts an *annual Pipeline SMS Survey* with a focus on an Operator's

1. Current commitment to safety
2. Evaluation of safety culture
3. Alignment with SMS elements
4. Gap assessments (identification, tools and actions plans)
5. Priorities to improve their SMS



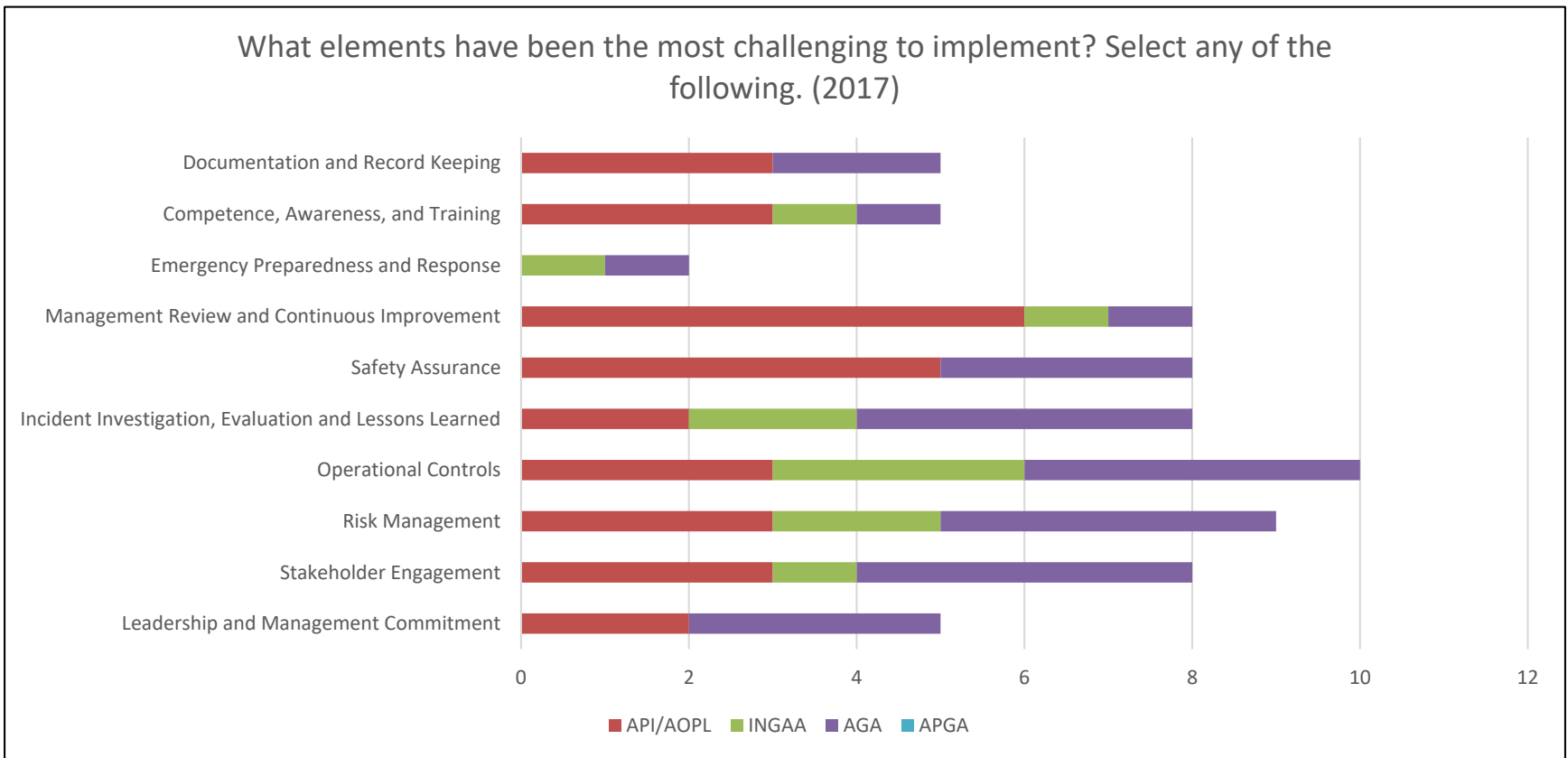
# IMPLEMENTATION CHALLENGES

The following question is from the Pipeline SMS Survey



# IMPLEMENTATION CHALLENGES

The following question is from the Pipeline SMS Survey



# IMPLEMENTATION CHALLENGES

## ● Risk Management

- Scale of risk – difference between enterprise vs. front line
- Speaking the same language
- Type of risk tools

## ● Operational Controls (Management of Change)

- Concept of an operational control
- Ability to effectively and efficiently manage a change
- When should Management of Change be used





**Practitioners & Pipeline SMS Program Managers**  
***Making it Real – Operational Controls***

**S. David Toth**

Manager

**Kinder Morgan Products Pipelines**

*Operations Management System*

Compliance, Codes and Standards



# LONG JOURNEY OF SAFETY PERFORMANCE IMPROVEMENT

- Safe and effective pipeline operation requires awareness and management of many linked activities, yielding complex processes.”
- “Major accidents with high consequences rarely occur but when they do, the accident occurs because of an alignment of weaknesses or failures across multiple activities.”
- “No amount of regulations can make up for deficiencies in the quality of management of safety. That quality depends critically on effective safe leadership at all levels and the commitment of the whole workforce to give priority to safety”.
- *API RP 1173, announced in 2015, is NOT viewed as an “emerging discipline”, but rather as an endless journey of safety performance improvement by pipeline operators, regulators and key pipeline safety stakeholders.*

## TEAMWORK

coming together is a *Beginning*  
keeping together is *Progress*  
working together is *Success*

-Henry Ford





**KMPP**  
**Operational Management System (OMS)**  
**Provides Overall Guidance**

LEADERSHIP & MANAGEMENT COMMITMENT	STAKEHOLDER ENGAGEMENT	RISK MANAGEMENT	OPERATIONAL CONTROLS	INCIDENT INVESTIGATION, EVALUATION & LESSONS LEARNED	SAFETY OR QUALITY ASSURANCE	MANAGEMENT REVIEW & CONTINUOUS IMPROVEMENT	EMERGENCY PREPAREDNESS AND RESPONSE	COMPETENCE, AWARENESS, & TRAINING	DOCUMENTATION & RECORD KEEPING
		OPR 40 INTEGRITY	OPR 39					OPR 46	
OPR 6.1 MGT SYSTEM	OPR 47.2 DAMAGE PREVENTION	MANAGEMENT PROGRAM	SURVEILLANCE AND MONITORING	OPR 6.3/6.5 MGT SYSTEM	OPR 15 QUALITY ASSURANCE	OPR 6.5 MGT SYSTEM	OPR 32 EMERGENCY MGT PROGRAM	TRAINING PROGRAM	OPR 56 RECORD RETENTION
SECTION 5 API RP 1173	SECTION 6 API RP 1173	SECTION 7 API RP 1173	SECTION 8 API RP 1173	SECTION 9 API RP 1173	SECTION 10 API RP 1173	SECTION 11 API RP 1173	SECTION 12 API RP 1173	SECTION 13 API RP 1173	SECTION 14 API RP 1173



# OPERATIONAL CONTROLS - OVERVIEW



- **Operating Procedures:**

- Operations
- Maintenance
- Emergency Response
- Start-up/Shut-Down
- Safe Work Practices
- Control of Materials

- **System Integrity:**

- Design
- Fabrication and Manufacture
- Construction
- Testing
- Inspection

- **Management of Change:**

- Technology
- Equipment
- Procedures
- Organization

- **Use of Contractors:**

- Communications
- Training and Orientation
- Responsibility, Authority and Accountability
- Evaluation
- Risk



# CHALLENGES FOR IMPLEMENTATION

## Constructing Processes to Ensure Consistent Results

- Creation of the KMPP OMS Steering Committee
  - Chaired by the Chief Operating Officer
  - All departments have a seat at the table (no unintended consequences)
- Development of Key Performance Indicators
- Goals, Objectives and Targets
- Communication

*Get to know  
the CHALLENGES*

## Ensuring Personnel are Competent

- Creation of new/updating eLearning for KMPP OMS, Management of Change, and operational controls
- Training and competence needs must be assessed, implemented, and reviewed

## Analyze “Organizational Readiness” and “System Status”

- Organizational Readiness Factors = Mindset, Understanding, and Culture
- System Status Factors = written and Unwritten Processes /Procedures and Essential tools

## Self-Assessments

- Internal Issues: resources, knowledge, know the requirements to audit against, and competence
- Compliance: to regulatory or other
- Conformance to Management System
  - Are things happening like they are supposed to?
  - Is the system effective
- Communicate the Findings: Learn and Improve
- Understand performance relationships “better”



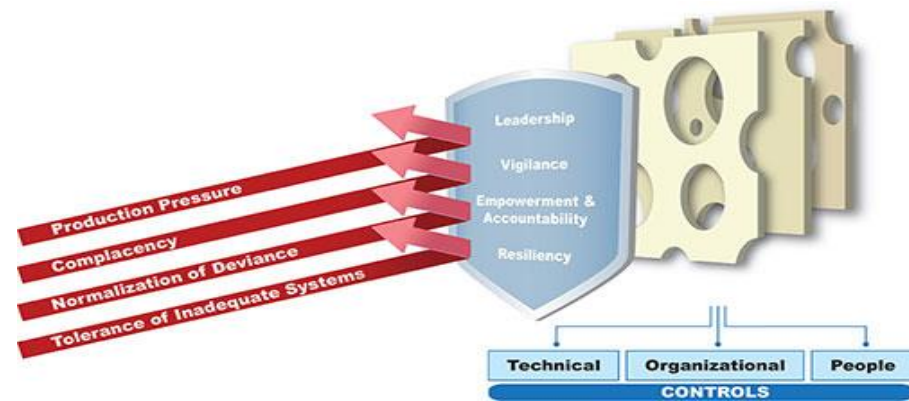
# CHALLENGES FOR IMPLEMENTATION

## Safety Culture Indicators

- Upper Management (OMS Steering Committee) matures the Safety Culture Indicators prior to the Safety Culture Survey
  - Derived from NEB safety indicators, INGAA Safety Culture Survey, Internal indicators
- By learning more about KMPP's safety culture and the reporting, training and guidance available, employees can improve and sustain a strong safety culture in their work environments
- Lagging indicators – reactive
  - Incidents and injuries
  - Rise in costs
- Leading indicators – prevent before they happen
  - Training
  - Survey
  - Audits
- Performance measurement

## Using Technology to Ensure Results

- Periodically evaluating and discussing new technology with top management - down to field level technicians
- Updated MOC Process
- External and outsourced processes must be defined and controlled





# CHALLENGES FOR IMPLEMENTATION

## Safety Culture Survey

- Describes an organization's overall commitment to workplace safety
  - ✓ Respond anonymously
  - ✓ Opportunity to deliver candid feedback
  - ✓ Providing management with a more accurate view of how workers perceive the organization's safety processes
- Upper management can have natural tendency to focus on the tangible effects of the safety incidents
  - The more honest the feedback that management receives, the easier it is for them to determine the reality of the company's safety culture



## Purpose of the Safety Culture for KMPP

- Described as - how an organization behaves when no one is watching
- Safety Culture is expressed and observed via individual and group attitudes and behavior, as well as organizational processes
- Identify the good, the bad and the ugly
- Compare Safety Culture Indicators vs. Safety Culture Survey
- *Performance Measures*
  - Determine deficiencies
  - Management System Plan
  - Enhance, develop, and implement – address and help strengthen KMPP's Safety Culture
- *KMPP OMS Steering Committee*
  - Listening to and clarifying concerns
  - Identifying underlying issues and interests
  - Exploring possible options through formal or informal channels
  - Collecting general data on emerging trends and patterns in the organization
  - Recommending systemic changes



# CONCLUSION

- Best results are obtained by a joint systematic examination of all contributors to safety performance
- Build a strategy that you can implement, not through increased processes/procedures – rather through identifying proven opportunities for improvement
- Foster a culture of success by working together towards these common goals, objectives, and targets
- Safety Cultures are not uniform and there are opportunities for improvement
- For safety to be the highest priority in day-to-day work, first line supervisors need to continuously coach and enforce performance expectations
- Participate in industry associations and user communities to help arrive at standards for sharing of content
- GAP analysis - look to areas of vulnerability in your operation
- Audit the active monitoring processes and performance indicators required to ensure that the management system remains effective



# MAKING IT REAL – RISK MANAGEMENT



Identify



Evaluate



Prioritize

**Risk Management is the identification, evaluation and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability or impact of undesired events or to maximize the realization of opportunities.**



# MAKING IT REAL – RISK MANAGEMENT





# MAKING IT REAL – RISK MANAGEMENT

## PROCESS IMPROVEMENT & COST COMPETITIVENESS

The consistent evaluation of operations, processes & standards to ensure we run a cost competitive business.

- △ Risk versus Opportunity
- △ Risk Elimination versus Risk Management
- △ Continual Improvement
- △ Control Effectiveness & Efficiency

## PROJECT DEVELOPMENT

Utilization of a risk-based tool to evaluate projects and processes for annual budgeting.

- ? Project Merit Assessments
- ? Portfolio Planning

## CONFORMANCE & COMPLIANCE

External and internal factors require MPL to assess risk within our business.

- ✓ CFR 195.452 – Mainline Integrity Management (IMP)
- ✓ Process Hazard Analysis (PHA) / Process Hazard Review (PHR)
- ✓ API 1173 & RC14001 – Strategic Threat Risk Register
- ✓ Corporate Standards



# PIPELINE SMS ROADMAP – ADVANCED TOOLS



## GETTING STARTED

- Study API RP 1173
- Attend workshops
- Consider the benefits
- Talk with peers
- Obtain management commitment to API RP 1173
- Liquid operators: [Commitment](#)
- AGA members: [Commitment](#)
- INGAA members: [Commitment](#)

## 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

- Summary of API RP 1173 (71 questions)
- Evaluates and summarizes operator's implementation question, element and objectives
- Helps operators track development of programs to implement the requirements to achieve 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 3 maturity or beyond
- Determines Effectiveness score



## CONFORMANCE CHECKLIST

## PEER-TO-PEER SHARING APPROACH

## VOLUNTARY API THIRD-PARTY 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



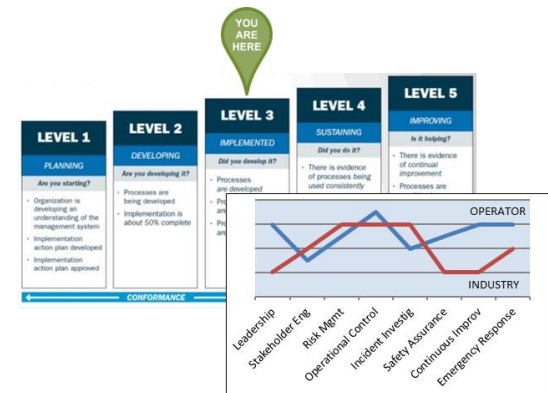
# ADVANCED TOOLS

## Evaluation Tool + Process Guidance Document

- Evaluate implementation and effectiveness of the PSMS at a high-level
- **TWO PARTS:** Audit/Assessment Matrix + Effectiveness Evaluation
- **GUIDANCE DOCUMENT:** Evaluation process, Explanation of KPIs, Selection of implementation levels, Maturity model scoring

## 3<sup>rd</sup> Party Voluntary ~~Audit~~ Assessment

- Support RP requirement for audits & evaluations
- Process and protocols consistent with Industry Team tools
- Modeled after successful API refinery program (PSSAP)
- **OBJECTIVES:** Drive continuous improvement, Share good practices, Benchmark progress



Each Pipeline SMS Element audited *at least once every three years* (RP 1173, 10.2.2)

# EVALUATION TOOL: 3 BIG QUESTIONS

1. Did you build it and are you doing it (Implemented, Level 3)?
2. Are you doing it consistently and improving it (Sustaining, Level 4)?
  - Implementation Tab for rating and Shall Statements Tab for reference
3. Did it make a measurable difference in your performance?
  - Normative KPIs for each industry segment
    - Gas Transmission, Gas Distribution, Hazardous Liquids

**Audit Matrix**

**Effectiveness  
Evaluation**

Improving, Level 5 achieved with good performance (v/ peers) and full implementation

- “Informative KPIs” by industry segment, used for context



# EVALUATION TOOL – IMPLEMENTATION TAB (AKA AUDIT MATRIX)

1	A	B	C	D	E	
2	<b>Short Question Name</b>	<b>Element # / Requirement / Section #</b>	<b>Score</b>	<b>Comments</b>	<b>"Shall" #</b>	
3	Operating Procedures	4. Operational Controls - Section 8 Operations procedures (operating, maintenance, emergency response, control of materials), consistent with the Operator's safety policies and objectives and which consider safe operating limits, which operations personnel follow and have responsibility / authority to raise concerns, get permission to deviate, and stop work meanwhile, are in writing for the following topics: ○ initial start-up (new or modified facilities) ○ normal operation ○ temporary operations, as the need arises ○ emergency operations, including emergency shutdowns ○ normal shutdown ○ start-up or restoration of operations following maintenance or outage	2.5	Evaluation Comments	8.1-1 8.1-2 8.1-3 8.1-4 8.1.2 8.1.2.a.1 8.1.2.a.2 8.1.2.a.3 8.1.2.a.4 8.1.2.a.5 8.1.2.a.6 8.1.2.b	
4		○ Time limitations ○ Qualification and training of personnel affected by the change			8.3.1-2 8.3.3.c	
Implementation Scores   Effectiveness Scores   Summary   234 Shall Statements   Informative Liquid   Informative Gas T   Informative Gas I ...						

**Short Name**

**"Big Fat Question"**

234 Shall Statements

# EVALUATION TOOL – EFFECTIVENESS TAB (AKA NORMATIVE KPIS)

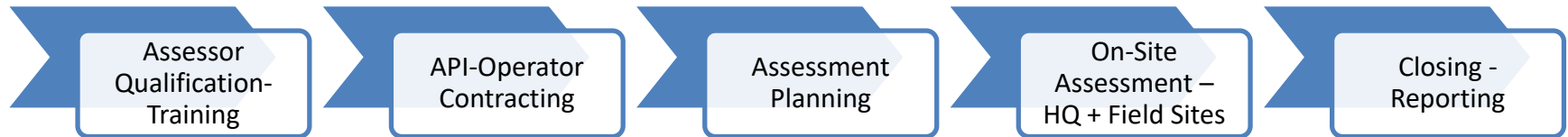
	A	B	C	D	E
1	<b>Automatic Deductions</b>		<b># Incidents</b>		<b>Deduction</b>
2	# Incidents with PHMSA Fatalities (might also have PHMSA injuries)		1		-0.5
3	# Non-Fatal Incidents with PHMSA Injuries		1		-0.25
4					
5	Relative KPI Results	Operator Results v/ Industry Peer Averages			
6		Industry Avg.	Operator Avg.*	Ratio	KPI Score
7	<b>Gas Distribution</b>				
8	Incidents / kmile (main and services)	0.05	0.08	0.20	1
9	Incidents with public impacts / kmile (main and services)	37	30	0.81	0.25
10	OSHA Injury Rate	0.8	0.03	0.04	1
11	<b>Gas Transmission</b>				
12	ROW Incidents / kmile	0.18	0	0.00	1
13	Incidents with public impacts / kmile	0.11	0.15	1.36	0
14	OSHA Injury Rate	0.8	1.1	1.38	0
15	<b>Liquid Transmission</b>				
16	ROW incidents / kmile	0.67		0.00	
17	PHMSA IPE / kmile	0.48		0.00	
18	OSHA Injury Rate	0.8		0.00	
19			<b>Avg. KPI Score</b>		0.54
20			<b>Final KPI Score (after deductions)</b>		-0.21

# ADVANCED TOOLS – 3<sup>RD</sup> PARTY ASSESSMENTS

**PSMS ASSESSMENTS:** Standardized, objective approach to evaluate implementation and progress

- Competent, diverse teams of industry pipeline SMS and safety management system experts
- Share opportunities for improvements, best practices, reinforce positive aspects
- Objective evaluation of maturity – Test evaluation process(es), benchmark
- Flexible, Scalable – Across liquids and natural gas pipeline industry

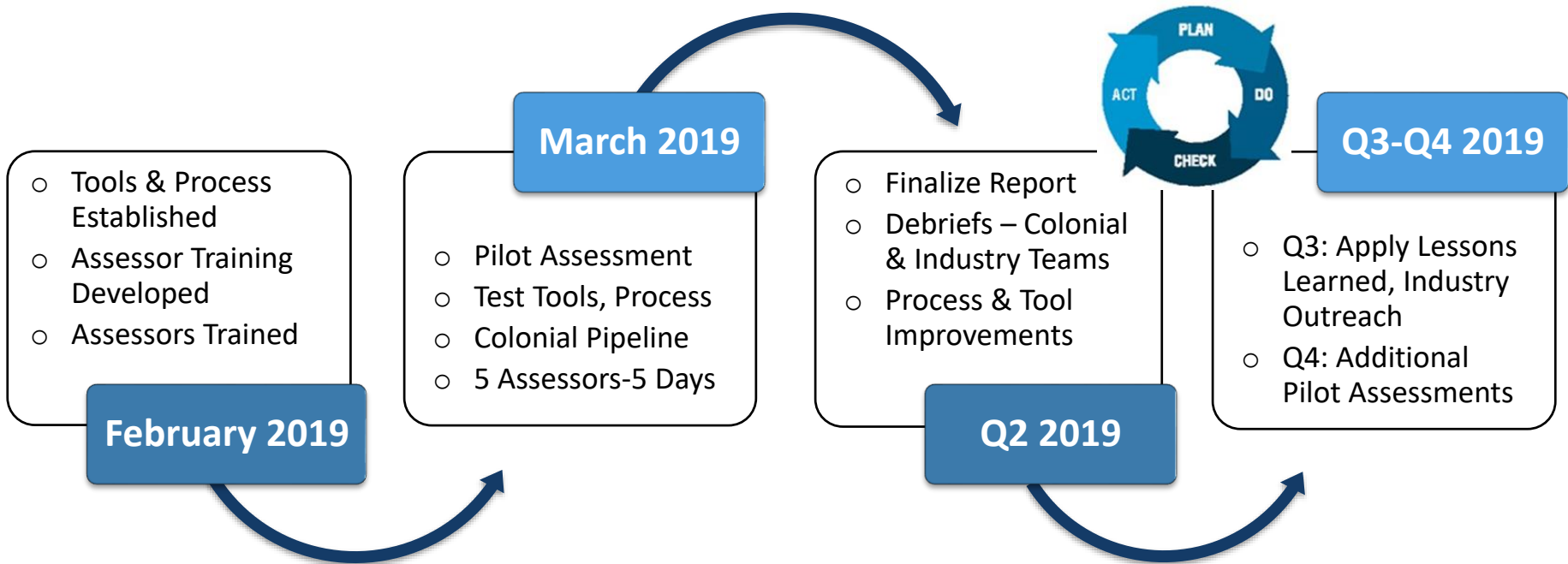
## STANDARDIZED INDUSTRY PROCESS:



## PROCESS OUTPUTS & DELIVERABLES:

Assessment Report	Benchmark Information	Operator-Assessor Feedback
<ul style="list-style-type: none"> <li>• Key highlights &amp; good practices</li> <li>• Observations</li> <li>• Opportunities for improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment tool information</li> <li>• Maturity level data + KPIs</li> <li>• Experience share with Assessors</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment team performance</li> <li>• Assessment process</li> <li>• Inform future activities</li> </ul>

# 3<sup>RD</sup> PARTY ASSESSMENT TIMELINE



# MENTORSHIP PROGRAM

- **WHY:** Learn from each other in peer to peer fashion in implementation challenges and solutions
- **WHO:** Pipeline SMS Industry Team available to assist in overall program or specific elements
- **HOW:** API will be central point of contact for identifying appropriate mentor match & Pipelinesms.org will be portal for making the request





# WHAT'S NEXT?

- **ELEARNING:** API RP 1173 AND API RP 1175, just released
- **WEBINAR:** Additional Webinars being considered for late Summer/Fall
- **WORKSHOP:** Making it Real | December 4th & 5<sup>th</sup>, 2019
- **SURVEY:** Conducted in Q4 in advance of Annual Report

**Interested in getting engaged with the team?**

Contact the Industry Team at [pipelinesms@api.org](mailto:pipelinesms@api.org)

Need your input... Please complete the webinar feedback survey



# WRAP-UP

- Increased commitment is key to industry success
- Real benefits from being proactive, “Finding the bad is good”
- Voluntary approach yields unlimited results; must demonstrate progress
- Take advantage of readily available tools, resources and assessment program
- It’s a journey, not a destination
  - Patience is important; must keep moving forward

**Senior staff** commended the “tremendous” job of industry developing API RP 1173 on PSMS and the “phenomenal” efforts to implement the RP quickly — NTSB

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

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 — PHMSA

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



A photograph of an industrial facility, likely a refinery or chemical plant, featuring large white pipes, metal walkways, and stairs. The scene is set outdoors under a clear blue sky. The image is overlaid with a semi-transparent blue filter.

**WE WANT TO HEAR FROM YOU**  
***THANK YOU***