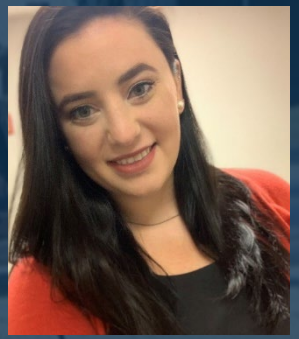
BAKERRISK®

Identify | Evaluate | Solve

What to Expect with API RP 1173 Pipeline Safety Management System



Presenter: Stephanie Salazar, CCPSC

- BS in Chemical Engineering from University of Rhode Island
- Certified Process Safety Specialist with the CCPS
- Specializes in Process Safety Management Program Development, with an emphasis in Process Hazard Analysis facilitation
- 5+ years of experience in process industry before joining BakerRisk

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Incident Investigation and Litigation Support

BakerRisk has an esteemed reputation for integrity, earned from performing incident investigations objectively, scientifically, systematically, and thoroughly for 35+ years.

Loss Prevention Services

BakerRisk utilizes a data-driven analytical approach to analyze and design optimal loss prevention and mitigation solutions.

Testing and Research & Development

From standard test programs to more complex custom testing requirements, our engineers have extensive field experience to design a program to meet your needs.

Risk Management and Mitigation Services

Our expertise is built on lessons learned from hundreds of incident investigations and a highly qualified team of consultants averaging 20+ years of industry experience.

BakerRisk Learning Center

For 35+ years BakerRisk has helped our clients improve their understanding and management of their hazards and risks with our industry-leading expertise.

About BakerRisk

Baker Engineering and Risk Consultants, Inc. is one of the world's leading explosion analysis, structural design, and risk management companies. BakerRisk provides comprehensive consulting, engineering, laboratory, and full-scale facility testing services to government agencies and private companies who are involved with hazardous operations or materials.

35+ years

Providing Solutions to Manage Hazards and Risks

Baker Engineering and Risk Consultants, Inc.

San Antonio | Houston | Los Angeles | Chicago | Toronto, Canada | Chester, United Kingdom

www.BakerRisk.com

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Presenter: Stephanie Salazar, CCPSC

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September 10, 2020

Agenda Overview

1

General Overview

Background, Program Intent, Key Elements, Detailed Criteria

2

Industry Implementation

Sample implementation schedules and tactics

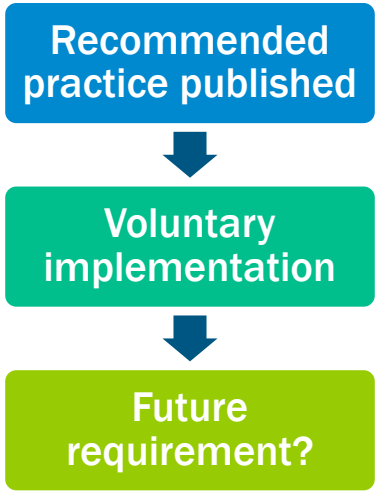
3

What About You?

General or specific questions, How BakerRisk can help you!

Background

- Recommended guidance developed by U.S. National Transportation Safety Board (NTSB), in conjunction with:
  - U.S. Pipeline and Hazardous Material Safety Administration (PHMSA)
  - American Petroleum Institute (API)
  - American Gas Association (AGA)
  - State regulators
- Practices on how to manage pipeline safety
  - Systematic approach
  - Continuous measurement of progress
- Culminated in API RP 1173 (July 2015)
  - Applicable to pipeline currently regulated by PHMSA



API RP 1173 - Program Intent

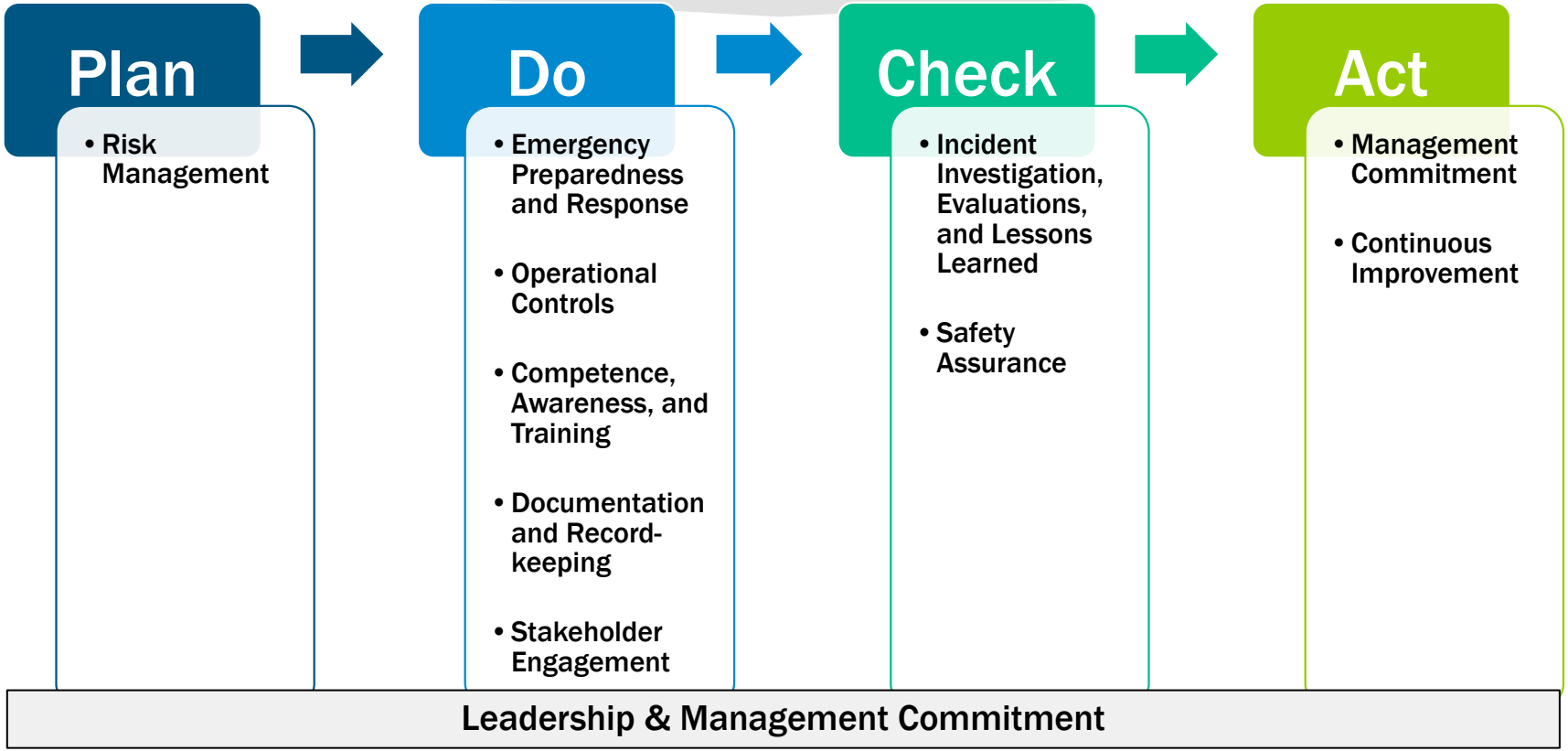
- Recommended framework to:
  - Strengthen safety culture
  - Be flexible and scalable
- Foundation on leadership commitment
- Core principles follow a “Plan-Do-Check-Act” cycle

Graphic from API Pipeline Safety Management System, 2018

Key Elements

1. Leadership and Management Commitment
2. Stakeholder Engagement
3. Risk Management
4. Operational Controls
5. Incident Investigation, Evaluation, and Lessons Learned
6. Safety Assurance
7. Management Review and Continuous Improvement
8. Emergency Preparedness and Response
9. Competence, Awareness, and Training
10. Documentation and Record Keeping

Core Principals



Overarching Principle

»» Leadership & Management Commitment

- Ownership at each level: Leadership, Management, and Employees
  - Establishing goals and objectives for successful PSMS
  - Promoting a positive safety culture
  - Identify personnel responsible for PSMS elements
- Responsibility, Accountability, and Authority
- Communication, Risk Reduction, and Continuous Improvement

Plan – Core Principles

Risk Management

- Evaluate threats throughout pipeline life cycle
- Data Gathering
  - Leveraged into metrics and key performance indicators for risk reductions
- Risk Identification and Assessments
- Risk Prevention and Mitigation
- Periodic Analyses

Do – Core Principles

Emergency Preparedness and Response

- Procedures for clear identification of potential types of emergencies with identification and communications plans with training for internal and external organizations

Operational Controls

- Including operating procedures, mechanical integrity and testing, management of change, and contractor awareness

Competence, Awareness, and Training

- Applicable elements of PSMS that affect the job requirements of operators and contractors, as well as risks (new or changing) associated with execution of the job duties and failure to follow procedures

Documentation and Record Keeping

- Maintain the identification, distribution, and control of documentation required by PSMS including retention policy

Stakeholder Engagement

- Internal employees and external contacts (regulators, shareholders, emergency responders, etc..)

Check – Core Principles

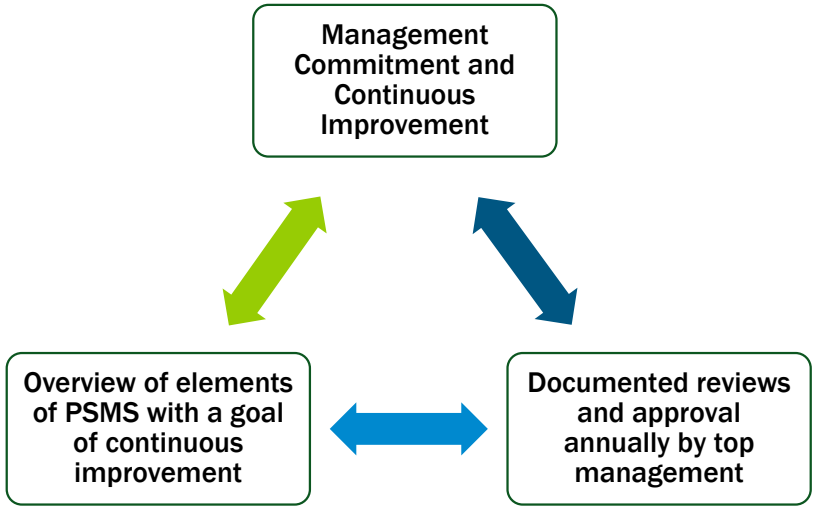
Incident Investigation Evaluation and Lessons Learned, Safety Assurance

- Incident Investigation to include potential cause(s) with consideration of potential consequences with evaluation and review of investigation findings and recommendations to reduce the associated risk(s).
  - Communication of Lessons Learned from internal and external events
- Safety Assurance including Audits and Evaluations of safety performance and PSMS maturity.
  - A reporting and feedback system, potentially anonymous, for employees and contractors
  - Procedural identification of Key performance indicators (KPIs)

Act – Core Principles

Management Commitment and Continuous Improvement

- Overview of elements of PSMS with a goal of continuous improvement
- Documented reviews and approval annually by top management



PLAN – DO – CHECK - ACT

- Execution of the PSMS is designed to elevate existing framework to be leveraged to strengthen existing safety cultures

Industry Implementation

- Multiple implementation techniques being utilized by Industry:

1 Integration of Existing Programs

- Extending established Process Safety management (PSM) programs to PHMSA covered assets

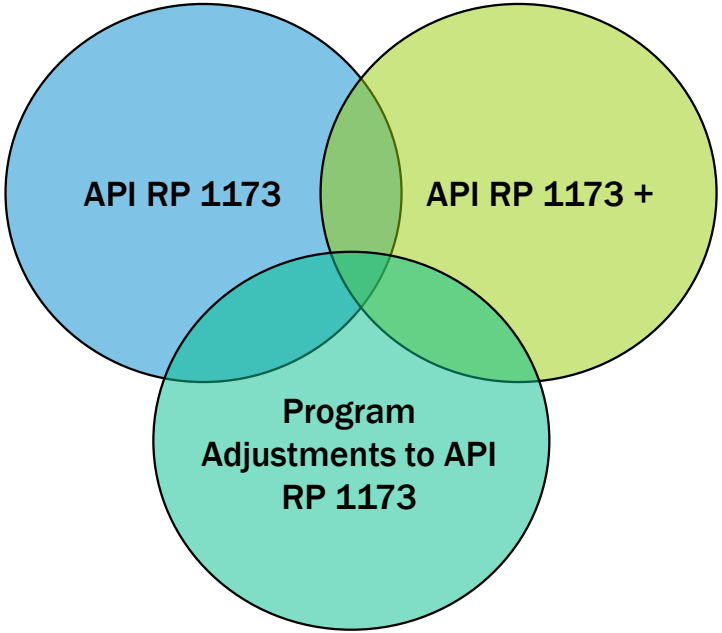
2 Documenting Current Practices

- Policies and practices currently in place that can be extended to cover additional systems

3 New Management Systems

- Organizational structuring to mimic recommended program elements

Implementing Framework for PSMS



- Existing infrastructure and/or organizational limitations allow for options when implementing the SMS models with structural differences; e.g.:
  - Merging Documentation and Recordkeeping into each of the elements (rather than keeping it organizationally separate)
  - Separating Operational Controls into programs to mimic OSHA PSM – e.g. Operating Procedures, Mechanical Integrity, Management of Change, Contractor Safety

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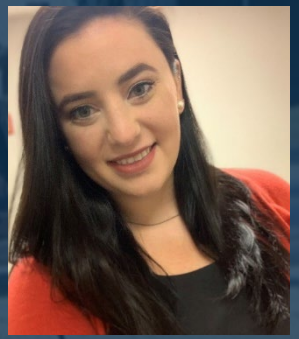

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Upcoming BakerRisk Webinar:
Thermal Shelter in Place:
Design Considerations for Buildings at Industrial Facilities

Date: Tuesday November 10, 2020

Presenter: Anay Raibagkar