WEI Operation Conference PSMS Track #1
“Building the PSMS House – Which Tools Will You Use?”

Presented by: Melvin Jessee, Lucy Sarkisyan, & Nicole Garrett
Western Energy Institute Operations Conference
April 24, 2019

Presentation Overview

• Session Title:
  ─ Building the PSMS House – Which Tools Will You Use?
  ─ Objective: Present a brief overview of the various tools that are offered by Pipelinesms.org to help implement API RP 1173. A panel will discuss how different organizations are implementing these tools to increase their Pipeline Safety Management System maturity.

• Description:
  ─ Explore how operators engaged in planning and implementation of a PSMS are using the tools available through pipelinesms.org. These include the Planning, implementation and Evaluation tools.
Melvin Jessee—Alyeska Pipeline Service Co.

- Anchorage, Alaska
- Quality Programs Manager
- Over 40 yrs. at Alyeska

Prior Experience
- 25 yrs. Quality and Compliance exp.

Lucy Sarkisyan—SoCal Gas Company/San Diego Gas & Electricity

- Los Angeles, California
- Safety Management System Technical Advisor
- Over 4-Years in the Oil and Gas Industry

Prior Experience
- Worked at Wells Fargo and Jacobs Engineering
Nicole Garrett – MDU – Utilities Group

- Boise, ID
- Manager Quality Assurance & SMS
- Certified Public Accountant
- 5 years in the utility industry

WEI CONFERENCE
PSMS Planning Tools

Mel Jessee, Quality Programs Manager

Trans-Alaska Pipeline System (TAPS)
Company Overview

- TAPS is a crude oil pipeline
- TAPS began operations in 1977
- 2018 throughput average was 509 thousand bpd
- Peak throughput in 1988 was 2.1 million bpd in 1988
- Almost 18 billion barrels moved by TAPS since 1977

Company Overview

- 48-inch diameter pipe
- 800-miles long
  - 420 miles above-ground
  - 380 miles below-ground
- 178 mainline valves
- 800 Alyeska employees
  - 95% live in Alaska
  - 20% are Alaska Native
- 1,000-2,000 TAPS contractors (Seasonal)
  - 70 percent of TAPS contractor companies are based in Alaska
There are over 124,000 heat pipes along the pipeline. These pipes transfer ground heat into the air to ensure soil remains stable and able to support the pipeline.

TAPS Crosses three mountain ranges and more than 30 major rivers and streams.
Valdez Marine Terminal covers 1,000 acres and has facilities for crude oil metering, storage, transfer and loading.

Laden tankers are escorted more than 70 miles through Prince William Sound into the Gulf of Alaska.

Alyeska’s Pipeline SMS Journey

**IMPLEMENTATION TIMELINE:**

<table>
<thead>
<tr>
<th>Date</th>
<th>PSMS Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>4Q 2015</td>
<td>Alyeska President Signed “Pipeline SMS Commitment Letter” to API and AOPL</td>
</tr>
<tr>
<td>2Q 2016</td>
<td>Completed Initial Gap Analysis to API-1173 <em>(Planning Tool)</em></td>
</tr>
<tr>
<td>4Q 2016</td>
<td>Obtained Executive Approval of Conceptual Solution for a New Management System Framework and 2017 Implementation Plan</td>
</tr>
<tr>
<td>2Q 2017</td>
<td>Developed New Management System Framework (Initial Draft)</td>
</tr>
<tr>
<td>3Q 2017</td>
<td>Obtained Executive Approval of New Management System Framework (Working Draft)</td>
</tr>
<tr>
<td>3Q 2017</td>
<td>Completed Implementation of Significant Fixes to Initial Gap Analysis</td>
</tr>
<tr>
<td>4Q 2017</td>
<td>Completed Management System Assessment for First Management Review</td>
</tr>
<tr>
<td>4Q 2017</td>
<td>Completed First Management Review</td>
</tr>
<tr>
<td>4Q 2017</td>
<td>Published New Management System Framework <em>(TAPS Framework for Excellence)</em></td>
</tr>
<tr>
<td>3Q 2018</td>
<td>Completed More Comprehensive “TFX” Assessment Tool</td>
</tr>
<tr>
<td>4Q 2018</td>
<td>“TFX” Assessment for Second Management Review <em>(13 of 15 Elements Completed)</em></td>
</tr>
<tr>
<td>4Q 2018</td>
<td>Second Annual Management Review <em>(11/13/2018)</em></td>
</tr>
</tbody>
</table>
Where do you Start?

- Go to the Pipeline SMS Website (https://pipelinesms.org)
- Under “Get Started” – Planning Tool and Instructions

What is the PSMS Planning Tool?

The Planning Tool is designed to help pipeline operators review their current management systems, programs and procedures against the requirements of API RP 1173...

ASSESSMENT TOOL

1) IDENTIFY GAPS
2) DEVELOP ACTIONS

1) Start by performing a “gap analysis” to see how your existing systems might already satisfy some of the requirements of RP 1173 and to identify any gaps.

2) Then develop and implement action plans to address each gap.
First Things First...

1. Secure Executive Management Approval and Support
   - Don’t start work without it!

2. Develop a Charter – Have a Plan, Schedule and Resources
   - Obtain executive approval of the charter

3. Use a Management Steering Committee
   - Keep key management engaged throughout
   - This is their program to implement

Using the Planning Tool

✓ Tailor the Tool to Your Needs
✓ Use Consistent Criteria
✓ Start with the End in Mind
Using the Planning Tool

Tailor the Tool to Your Needs...

Use Consistent Criteria (Color)

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>No gap found and no further work required for implementation.</td>
</tr>
<tr>
<td>Insignificant</td>
<td>Although changes or improvements were identified, they are not required for implementation (e.g., Continuous Improvement).</td>
</tr>
<tr>
<td>Minor</td>
<td>Minor changes or improvements were identified that are required for implementation. Minor edits and publishing of existing SPAC*.</td>
</tr>
<tr>
<td>Significant</td>
<td>Significant changes to existing SPAC* is required for implementation. Dedicated time and resources are required for implementation.</td>
</tr>
<tr>
<td>Major</td>
<td>Either not currently included in existing SPAC*, or a major new SPAC* development is required for implementation. Significant time and resources are required for implementation.</td>
</tr>
</tbody>
</table>

*SPAC - Standards, Procedures and/or Administrative Controls.
Summary Results of Initial Gap Analysis

Start with the End in Mind

Let’s Recap Some Details...

1. How did we prioritize what to do first?
   - The priority was driven by the severity of the gap (based on our criteria on Slide 13).
   - We focused on developing solutions for the red and orange gaps from our analysis (Slide 14).
   - We finished them at the same time we completed our new Management System framework about 1 year later (see timeline on Slide 7).

2. How were SMEs selected?
   - My Quality Team coordinated and facilitated all the Gap Analysis reviews (consistency).
   - The SMEs were identified by the Accountable Leadership, so the SMEs were assigned on their behalf to conduct the analysis.

3. Who had the responsibility of developing the documents/plans?
   - The respective Accountable Leadership or their designee, sometimes that was also the SME (Document Owner).
   - I was accountable for program areas where I was the Accountable Leader.
   - My team also conducted quality reviews of all the new/revised documents (consistency).
Some More Details...

4. What are examples of gaps and solutions that we needed to develop?
   - Our new Annual Management Review Process and Procedure is an example of a red gap and solution (see Slide 14).
   - Our new Management System framework and annual assessment process are examples of a red gaps and solutions (see Slides 18 and 19).

5. Who would own the solution after it was completed and implemented?
   - The respective Accountable Leadership or their designee (Document Owner).

6. How have we connected the Planning tool to the Implementation tool?
   - The Planning Tool is focused on initial implementation gaps only and does not address the effectiveness or maturity of implementation. **CONFORMANCE**
   - Once we had addressed the red and orange gaps and were substantially implemented we moved into use of implementation tool about 1 year after our gap analysis.
   - The implementation tool uses the API Maturity Model to support ongoing implementation and continuous improvement (see Slides 19 and 20). **EFFECTIVENESS**

Next Step, First Things First Again...

1. Secure Executive Management Approval Again
   - Don’t start implementation phase without it!

2. Develop an Implementation Charter
   - Obtain executive approval of the implementation charter
   - Different scope, plan, and resources...

3. Use a Management Steering Committee
   - Keep key management engaged throughout
   - May not be the same management for implementation phase
   - This is their program to implement
Our New Management System

TAPS Framework for Excellence (TFX)

1. Leadership Commitment & Direction
2. Personnel Management
3. Risk Assessment & Management
4. Safeguards
5. Operations & Maintenance
6. Integrity Assurance
7. Design & Construction
8. Third Party Management
9. Management of Change
10. Emergency Preparedness & Response
11. Stakeholder Engagement
12. Financial Stewardship
13. Documentation
14. Evaluate & Improve

Our New Integrated Assessment Tool
Our TFX Assessment Criteria

Pipeline SMS Maturity Model and Tools

**LEVEL 1**
**PLANNING**
*Are you starting?*
- Organization is developing an understanding of the management system
- Implementation action plan developed
- Implementation action plan approved

**LEVEL 2**
**DEVELOPING**
*Are you developing it?*
- Processes are being developed
- Implementation is about 50% complete

**LEVEL 3**
**IMPLEMENTED**
*Did you develop it?*
- Processes are developed
- Processes are documented
- Processes are in use

**LEVEL 4**
**SUSTAINING**
*Do you do it?*
- There is evidence of processes being used consistently
- Performance is being assessed

**LEVEL 5**
**IMPROVING**
*Is it improving?*
- There is evidence of continual improvement
- Processes are resulting in measurable performance improvements

**Introduced Concept of “Blue Work”**
- Non-Value Work
- Doing More Than Needed
- Things we can Stop Doing
- Time & Resources can be Redirected

Lucy Sarkisyan—April 24, 2019

API RP 1173 IMPLEMENTATION TOOL
WEI CONFERENCE
Lucy Sarkisyan—April 24, 2019
SMS | Safety Management Systems

Vision: Industry-wide leaders of safety management systems continuously enhancing the maturity of our Safety culture.

Mission: We are Pipeline Safety advocates and drivers, implementing a safety management system for SoCalGas and SDG&E and use by affiliated contractors by providing the necessary safety tools, resources and connections to enhance our robust safety culture.

SoCalGas and SDG&E Overview
API RP 1173 IMPLEMENTATION JOURNEY

Established Safety Management Systems (SMS) Organization

Conducted Initial Assessment
- Customized Implementation Tool to measure conformance

Evaluated Results
- Maturity Scores across lines of businesses

Established Implementation Plan
- Plan for developing, implementing and sustaining continuous improvements

Roles and Responsibilities

Executive and Director Steering Committees

Gas Safety Management Systems PMO (GSMS)

GSMS Program Manager

Tenet Champions (SMEs)

Tenet Advisors
WHAT IS THE IMPLEMENTATION TOOL?

“The Implementation tool helps to evaluate, track, summarize development and conformance.”

TOTAL NUMBER OF ELEMENTS (TENETS)
10

TOTAL NUMBER OF SUB-ELEMENTS
71

Breakdown of Sub-Elements

<table>
<thead>
<tr>
<th>Levels 3&amp;4 Defined for each Sub-Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANKING 0-4</td>
</tr>
</tbody>
</table>

CUSTOMIZATION STRATEGIES OF THE IMPLEMENTATION TOOL

STRATEGY 1
IDENTIFY YOUR GREATEST AREA OF OPPORTUNITY = SILOS

STRATEGY 2
IDENTIFY SUBJECT (ELEMENT) MATTER EXPERTS TO ANSWER QUESTIONS FROM ALL LINES OF BUSINESSES

STRATEGY 3
SCORING
- INDIVIDUAL SCORES FOR EACH LINE OF BUSINESS
- INCORPORATED POINT SYSTEM (EX. 3.5)

STRATEGY 4
DO A GUT CHECK (VALIDATE ANSWERS)– CROSS REFERENCE API RP 1173 PHMSA AUDITING TOOL
### BREAKDOWN YOUR “WHY”

<table>
<thead>
<tr>
<th>Sub-Element</th>
<th>API 1173 Requirement</th>
<th>Assignment</th>
<th>Level 3</th>
<th>Describe Score</th>
<th>Justification for Score (drop down)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.2</td>
<td>Is there a management of change procedure that addresses changes in technology, equipment, procedures, and organization?</td>
<td>2</td>
<td></td>
<td>Developed MOC procedures consider permanent or temporary changes and include planning for the effects of these changes. Current MOC procedures do not encompass all requirements and are in silos.</td>
<td>Need for Process Improvement</td>
</tr>
</tbody>
</table>

### SET A GOAL

**OUR GOAL: ATTAIN A LEVEL 3 MATURITY FOR EACH SUB-ELEMENT BY Q4 2019**
DEVELOP A PLAN

Identify Deliverables
- Assign Priority (High, Medium, Low)
- Assign Responsible Party's
- Schedule

<table>
<thead>
<tr>
<th>Sub-Element</th>
<th>Deliverable</th>
<th>Priority</th>
<th>Assigned To</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3.2</td>
<td>Create enterprise management of change policy</td>
<td>High</td>
<td>Lucy Sarkisyan</td>
<td>October 20, 2019</td>
</tr>
</tbody>
</table>

Track Progress + Report

KEY TAKEAWAYS

» Benefits of the Implementation Tool:
  ■ Communication Tool
  ■ Accountability Tool
  ■ Senior Management Support Tool

» Utilize PHMSA Auditing Tool
» Industry-wide benchmarking
» Integrate affiliated contractors into the API RP 1173 journey
MDUG SMS Evaluation Tool Adaptation

WEI OPERATIONS CONFERENCE
NICOLE GARRETT
APRIL 2019

975,000 Gas Customers
130,000 Electric Customers
SMS Journey

- Corporate Wide Communication
- Staffed QC/QA/ SMS Department
- One Vision One Utility
- Consultant Reports
- WUTC Stipulated Agreement

Do

Check

- API Pipeline SMS Evaluation tool

Act

Plan

Do

Check

Act

Plan
Evaluation Tool

Purpose
Provide guidance for pipeline operators who wish to evaluate their progress in the development, implementation, and ultimate effectiveness of programs related to API RP 1173:
- Conformance to the RP (levels 1 – 3 on the maturity model)
- Effectiveness in implementation (level 4 on the maturity model)
- Effectiveness in improving pipeline safety performance (level 5 on the maturity model)

Process
Intended for use once operator has reached level 3 (implemented) on the maturity model for most of the elements in the RP, it can be used at all levels of maturity
Discussions between the operator and the evaluator regarding each question, should result in many suggestions and ideas for improvement for the operator’s consideration

Implementation (0 to 4) + Effectiveness (-0.5 to 1.0) = Maturity Score
## Implementation

<table>
<thead>
<tr>
<th>Short Question Name</th>
<th>Element Number / Requirement / Section Number</th>
<th>Score</th>
<th>Comments</th>
<th><em>Shall</em>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 Operational Controls - Section 4</td>
<td>4.0.1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opening Procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations procedures (operating, maintenance, emergency response, control of materials), consistent with the Operator's safety policies and objectives and which consider operating trends, which operating personnel follow and have responsibility to raise concerns, permit revisions to, and stop work as deemed necessary, are as follows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Shall Statements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Element Number / Requirement / Section Number</th>
<th>Score</th>
<th>Comments</th>
<th><em>Shall</em>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0.4</td>
<td>43</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the pipeline operator (s) established and maintained a FAIM and its related understanding of safety issues?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the pipeline operator (s) action, goals, and commitment to safety, as well as identified preventives, been documented?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the pipeline (s) implemented the FAIM and measured its effectiveness and in accordance with the requirements of this document?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the pipeline (s) established and documented the goals and objectives for the FAIM?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The pipeline operator (s) has established and documented the goals and objectives for the FAIM.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the pipeline (s) implemented and documented the safety plans and objectives for the FAIM?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The pipeline operator (s) has implemented and documented the safety plans and objectives for the FAIM.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the pipeline (s) implemented and documented the safety plans and objectives for the FAIM?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Effectiveness

Why use the Evaluation Tool?

Our project plan will follow the usual arc. Phase one will be unvarnished optimism supported by delusions of competence. In phase two, the obstructionists will slither out of their lairs and try to smother our dreams. Ignorance and envy will fuel rumors that get repeated until they morph into common knowledge.

Resources will be allocated based on misinformation and favoritism. And requirements will drift until the project is both undesirable and impossible. That brings us to the second week. I want my unvarnished optimism back.
How are we using the Tool?

- Establish our baseline maturity score
- Identify strengths and GAPs
- Develop our strategic vision/ project plan
- Develop metrics and targets

Key Difference

- Defined levels 1-5
- KPI results are not weighted as part of our maturity score
- KPIs include company specific items
Baseline Maturity Score Process

Adapting the Pipeline Evaluation tool
- Defining requirements for levels 1, 2, and 5
- Streamlining language across the model
- Evaluating the maturity of each statement for each company
- Individual company scores will be combined for an overall maturity score

Level 1
Aware of requirement and consideration of need for development

Level 2
A plan/preferred approach has been established for meeting the requirement

Level 3
A documented process is in place to meet the requirement

Level 4
Evidence of adherence to the documented process is available

Level 5
Evidence of improvement being realized for requirement is available

API RP 1173 Requirement

<table>
<thead>
<tr>
<th>Requirement</th>
<th>IGC</th>
<th>CNGC</th>
<th>MDU/ GP</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has top management created a culture within the organization that encourages openness and two-way dialogue so learnings from incidents and events can ultimately reduce the risk of recurrence?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Level 1 (Planning)**
- Top management acknowledges the need for a reporting and feedback processes which allow two-way communication concerning incidents and events.

**Level 2 (Developing)**
- Top management has supported a culture for reporting and feedback processes to develop which allow two-way communication concerning incidents and events.
  - Communication from top management to the whole organization encourages openness and two-way dialogue

**Level 3 (Implemented)**
- Top management has documented reporting and feedback processes which allow two-way communication concerning incidents and events.
  - There is evidence of communication from top management to the whole organization which encourages openness and two-way dialogue.
  - The reporting policy is non-punitive.
Leadership & Management Commitment

5 5.3.b Has management documented a process for addressing regulatory and legislative requirements for safety and their impact on the SMS?

- A process for addressing regulatory and legislative requirements has been established.
- The process includes instructions on how to identify existing and new requirements, their impact on the SMS, as well as how to assess compliance to the new requirements and to address compliance issues.
- There is evidence that the impact of the regulatory and legislative requirements and their impact on the SMS are identified, evaluated, documented, and incorporated into the SMS.
- Interviews with a cross section of the organization demonstrate applicable regulatory and legislative requirements are understood by those who are impacted by such requirements.
- There is evidence that the process for determining impact of the regulatory and legislative requirements and their impact on the SMS is routinely reviewed for improvement opportunities.
- Identified improvement opportunities have been considered and implemented when necessary.

OPS 12 has been developed to provide guidelines for Monitoring Rulemakings procedure to effectively monitor and process guidance documents issued by PHMSA, WUTC, OPUC, IPUC, Montana PSC, Wyoming PSC, North Dakota PSC, South Dakota PSC, and MNOPS.
<table>
<thead>
<tr>
<th>RP 1173 Element and Response</th>
<th>12</th>
<th>12.f</th>
<th>Do the emergency preparedness and response procedures include a communication plan?</th>
<th>Procedures that include a communication plan have been considered.</th>
<th>The established procedures include a communication plan.</th>
<th>The documented procedures include a communication plan.</th>
<th>There is documentation to demonstrate the communication plan was executed properly during drills and/or actual responses.</th>
<th>The emergency preparedness and response procedures including a communication plan are routinely reviewed for improvement opportunities.</th>
<th>Identified improvement opportunities have been considered and implemented when necessary.</th>
<th>IGC</th>
<th>CNGC</th>
<th>MDU/ GP</th>
<th>Overall</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Preparedness and Response</td>
<td>3</td>
<td>3</td>
<td>Emergency Preparedness and Response</td>
<td>CNGC and IGC have a communication plan that is well laid out and documented. MDU states that the district management are responsible for the communication within the company and with outside agencies. It is not as robust or documented.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>