



PIPELINE SAFETY EXCELLENCE - AN INDUSTRY JOURNEY

API RP1175 WORKSHOP – APRIL 26, 2017

TODD DENTON, PHILLIPS 66

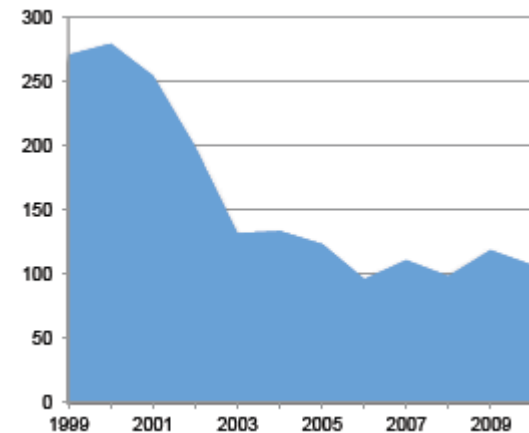
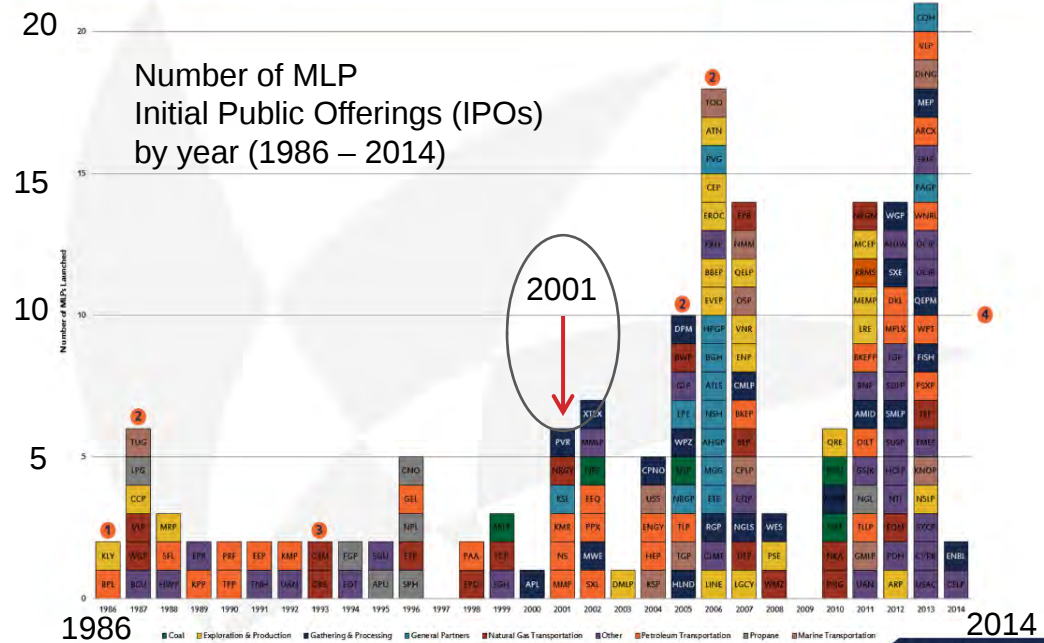
2001-2009 – THE GOOD OLD PIPELINE DAYS

Spill performance improved significantly

You could actually get a Presidential Permit!

The expansion of companies into the Master Limited Partnership (MLP) space drove growth in the industry

History of MLP IPOs



Total Liquids Pipeline Incidents
Outside of Operator Facilities

Federal Register / Vol. 74, No. 164

DEPARTMENT OF STATE

[Public Notice 6738]

Notice of Issuance of a Presidential Permit for the Proposed Enbridge Energy Alberta Clipper Pipeline Project

August 26, 2009.

AGENCY: Department of State.

ACTION: Notice of Issuance of a Presidential Permit for the Proposed Enbridge Energy Alberta Clipper Pipeline Project.

August 26, 2009 / Notices

2010 – A VERY BAD YEAR

March

- API/AOPL Pipeline Safety Reauthorization Committee formed
- Goal: “Clean” reauthorization



April

- Deepwater Horizon blowout



May

- First hearing on Pipeline Safety Reauthorization (House Transportation and Infrastructure Subcommittee)

July

- Marshall, Michigan crude oil pipeline release

September

- San Bruno, California natural gas pipeline explosion



2011-2012 – THE AFTERMATH

January – June 2011

- More Congressional hearings

July 2011

- Yellowstone River crude oil pipeline release

August – November 2011

- More Congressional hearings

December 2011

- Pipeline Safety Reauthorization finally passed by Congress
- Signed into law on January 3, 2012 by President Obama
- **38 new mandates** ←

July 2012

- **NTSB** report on Marshall, Michigan released – **recommends industry develop a Safety Management System for Pipelines**

One Hundred Twelfth Congress of the United States of America

AT THE FIRST SESSION

*Begun and held at the City of Washington on Wednesday,
the fifth day of January, two thousand and eleven*

Concurrent Resolution

Resolved by the House of Representatives (the Senate concurring), That, in the enrollment of the bill H.R. 2845, the Clerk of the House of Representatives shall make the following correction: Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE; AMENDMENT OF TITLE 49, UNITED STATES CODE; DEFINITIONS; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the “Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011”.

2012 – THE RESPONSE: CAN WE AGREE ON A GOAL OF ZERO?

FOR IMMEDIATE RELEASE [DRAFT]

AOPL Board Adopts Pipeline Safety Principles

Washington, DC – June 26, 2012 – The Association of Oil Pipe Lines (AOPL) Board adopted eight pipeline safety principles this week, during meetings this week.

AOPL Board Chairman Todd Denton, President of Phillips 66 Pipeline LLC, said:

“Our Nation’s energy liquid pipeline operators demonstrate they are serious about safety by valuing these safety principles. Making these principles part of our culture is how we act safely every day to protect the public and our employees.”

The eight liquid pipeline safety principles are:

- Zero Incidents
- Organization-Wide Commitment
- A Culture of Safety
- Continuous Improvement
- Learn from Experience
- Systems for Success
- Employ Technology
- Communicate with Stakeholders

AOPL President and CEO Andy Black said:

“Liquid pipeline operators have a long history of working together to improve pipeline safety, and the improved safety record over the last ten years shows we are on the right track. Formally adopting these pipeline safety principles recognizes the dedication to ‘move the needle’ even more on pipeline safety [toward the ultimate goal of zero incidents].”

2013-2014 – PIPELINE SAFETY EXCELLENCE INITIATIVE

The U.S. liquids pipeline industry's safety performance improvement program. It reflects the shared values and commitment of operators to building and operating safe pipelines to include:

1. Shared Pipeline Safety Principles

Safety principles that represent not only aspirational goals, such as zero incidents, but also everyday ways of doing business that promote continuous improvement and excellent safety performance

2. Industry-Wide Safety Efforts

More than a dozen API and AOPL groups and teams comprised of volunteers from member companies work on safety initiatives that will benefit the entire industry

3. Annual Pipeline Safety Performance Reporting

Every year, liquids pipeline operators measure and report industry-wide safety performance results to the public

4. Annual Pipeline Safety Strategic Planning

Liquids pipeline operators annually review and revise a pipeline safety strategic plan to guide industry-wide efforts toward improving pipeline safety

2015-2016 – THE STRATEGY

1. Improve Inspection Technology Capability

- Improve ILI smart pigging

2. Enhance Threat Identification and Response

- Crack detection and management
- Data Integration
- Guidance on hydrotesting
- Water Crossing program management
- Update Integrity Management recommended practice

3. Expand Safety Culture and Management Practices

- Pipeline Safety Management System
- Industry-wide safety sharing, learning, and improvement program
- Construction Quality Management System

4. Boost Response Capabilities

- Leak Detection
- Improve emergency response

TODAY - ACCOMPLISHMENTS

Research and Development

- Pipeline Research Council Int'l (PRCI) R&D Projects on ILI Capabilities
- PRCI Technology Demonstration Center

Completed API Recommended Practices & Technical Reports

- Crack Management
- Leak Detection Program Management
- Pipeline Safety Management System (SMS)
- Water Crossing Program Management
- Appropriate Uses of Hydrotesting
- Data Integration Data Management

Safety Culture and Sharing

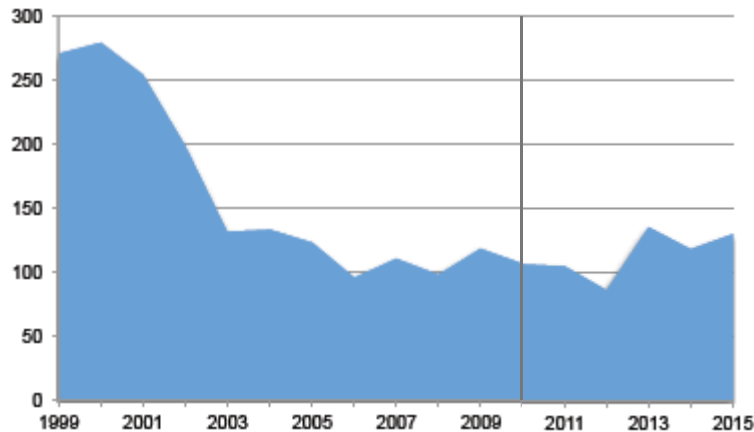
- Industry-wide Sharing PiX Conference
- Quarterly Industry-wide Sharing Tailgates
- Peer to Peer Meetings
- Pipeline Industry Practical Experience Sharing (PIPES) Portal

Emergency Response Improvements

- Emergency Response Advisory Board
- Annual Forum for Emergency Responders, Regulator and Industry
- Free On-Line Training Portal for First Responders

TODAY – THE CHALLENGES

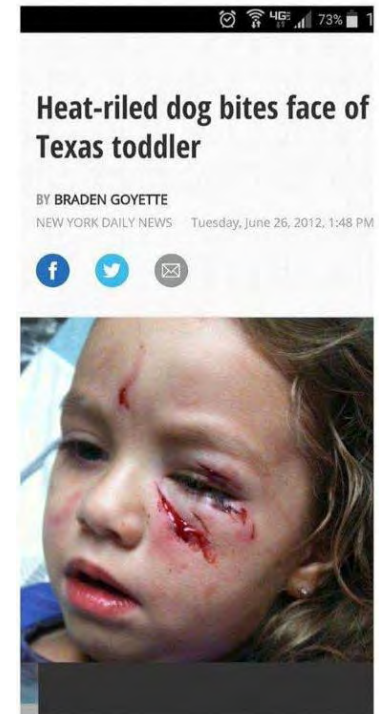
Total Liquids Pipeline Incidents
Outside of Operator Facilities



Long-Term trend was decreasing but is higher in recent years



Challenges to Eminent Domain



Social Media Battle

“US: Canine Expert Decries "Egregious" and "Horrific" Dog Attacks on Native Americans Defending Burial Site”

Source: Democracy Now – Independent Global News

“Oil Company Takes Dozers on 20-Mile Detour to ‘Deliberately Destroy’ Ancient Native American Sites”

Source: The Free Thought Project.com

2017-2019 – THE FUTURE: RAISING THE BAR

1. Cultivate Organizational Excellence

Develop and promote industry-wide safety culture through continues improvement mechanisms, such as Pipeline SMS, Construction QMS & Integrity Management PDCA

2. Improve Safety Through Technology & Innovation

Drive industry-wide engagement in advancing ILI capabilities to achieve the pipeline industry's goal of zero incidents

3. Enhance Emergency Response Preparedness

Increase effective and rapid emergency response efforts. Promote peer-to-peer opportunities for drilling, sharing of lessons learned from incidents, and training for first responders

4. Increase Stakeholder Awareness & Involvement

Advance public knowledge and engagement on the pipeline industry, improve pipeline operator and landowner relations, and prevent first-, second- and third-party excavation damage

ALL LEADING TO WHY YOU ARE HERE...

Continuous Improvement is Essential

- Recent efforts have been focused on **SYSTEMS** and **PROGRAMS**: Crack Management, Water Crossings, Pipeline Safety Management Systems, Safety Sharing, **Leak Detection**

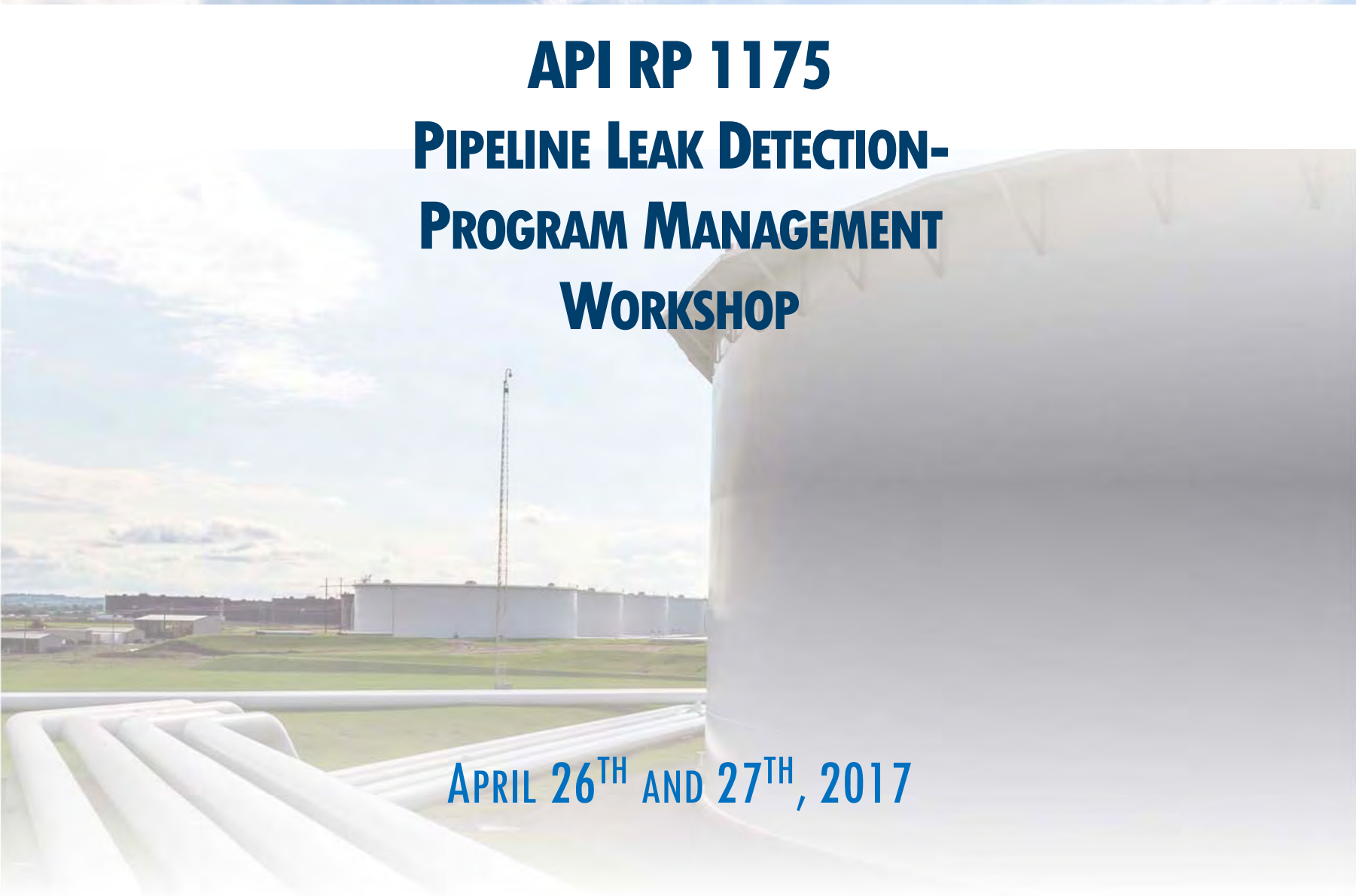
Cooperative Learning

- We can (and should) help each other when it comes to pipeline safety performance improvement

You Make a Difference

- We need you to own and champion this effort within your company and our industry





API RP 1175

PIPELINE LEAK DETECTION- PROGRAM MANAGEMENT WORKSHOP

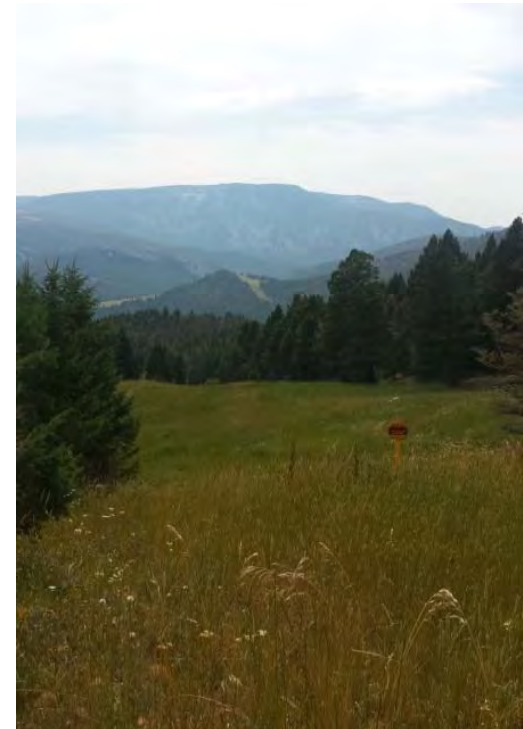
APRIL 26TH AND 27TH, 2017



PIPELINE LEAK DETECTION –PROGRAM MANAGEMENT

It's Not Enough to have a Leak Detection System

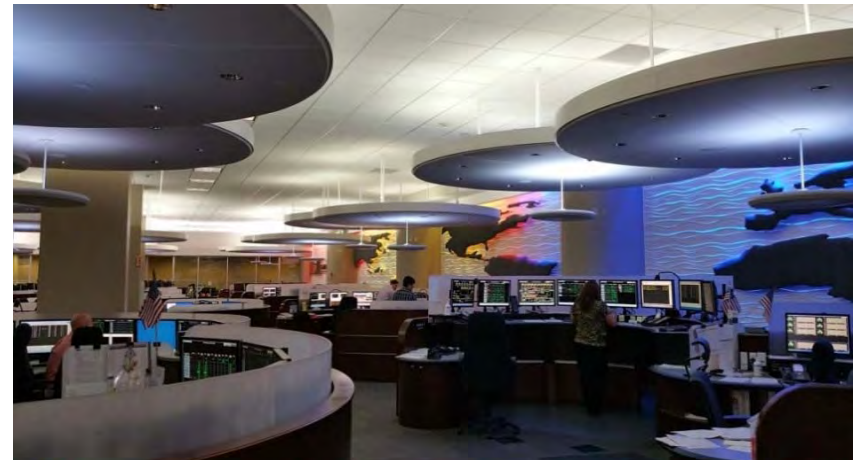
- It must be designed and installed appropriately for various operating situations and conditions
- It must be maintained and tuned so it works when needed
- People must know what to do to properly respond
- Leaders need to establish effective strategy and supportive culture



WHAT IS API RP 1175 LEAK DETECTION PROGRAM MANAGEMENT?

Elements:

- Leak detection culture and strategy
- Selection of leak detection methods
- Performance targets, metrics, and KPIs
- Testing
- Control Center procedures for recognition and response
- Alarm management
- Roles and responsibilities and training
- Reliability centered maintenance for leak detection equipment
- Overall performance evaluation of the LDP
- Management of change
- Improvement process(es)



THE API RP 1175 IMPLEMENTATION JOURNEY



December 2015 - Published RP 1175



June 2016 – AOPL & API Member Leaders chose to add this to Strategic Plan



July 2016 - Formed Implementation Team



Nov 2016 – Hosted webinar and launched gap assessment tool



April 2017 – Hosting today's workshop and issuing baseline gap assessment



RP 1175 IMPLEMENTATION TEAM



RP 1175 Implementation Team:

API -	Stuart Saulters
Buckeye Pipeline -	Rick Bishop
Chevron Pipe Line -	Robert Morgan
Enbridge -	Rick Barlow
LOOP -	Donny Chiasson
Marathon Pipe Line -	Jason Dalton
Phillips 66 Pipeline -	Doug Sauer
TransCanada -	Marieli Romero

Our View of Implementation Success:
Entire industry developing excellent systems, processes, and people to detect and respond to releases promptly!



MEASURING PROGRESS FROM LD PROGRAMS

KPIs

1. Average spill volume / leak for Crude, Refined Products, and HVLs
2. Industry participation in RP1175 Implementation workshops
 - November 2016 Webinar had 106 participants from 52 companies
 - April 2017 Workshop has 146 registered from 68 companies
3. Industry consolidated gap assessment scores and progress over time
4. Industry's % leak detection from CPM systems (above minimum CPM detection level)



RP 1175 IMPLEMENTATION ROAD MAP

RP 1175 Implementation Team Goals

1. Help our industry understand and align on the importance of implementing RP 1175
2. Facilitate workshops and webinars to collaborate across pipeline operators on best practices for leak detection and response
3. Measure & communicate industry performance progress to demonstrate industry commitment to leak detection

RP 1175 Team 2017 Actions

- ✓ Conducted baseline gap assessment
- ✓ Developed awareness brochure
- ✓ Hosting LD Program Workshop
- ➔ Facilitate best practice sharing webinar(s)
- ➔ Measure industry aggregate KPIs and communicate progress



Questions



**API RP 1175 Pipeline Leak Detection
Gap Assessment
Marieli Romero – TransCanada System Control Quality
& Compliance Engineer**

API RP 1175 IMPLEMENTATION TEAM

Purpose:

To increase awareness around the API RP 1175 Gap Assessment Tool and to encourage industry members to participate in our implementation efforts

Agenda:

- Why a Gap Assessment?
- How? Overview of the Gap Assessment Tool (GAT)
- Industry Preliminary Results
- Next Steps



WHY A GAP ASSESSMENT?

- Where are you at?

You will know where you are at by assessing the gap between your current Leak Detection Program and the components of the API Recommended Practice 1175.

- You should select a Gap Assessment tool and perform a gap assessment to determine whether all of the components of API RP 1175 are met and documented somewhere in their Leak Detection Program or Management System, but also is part of the company's culture.



How To PERFORM A GAP ASSESSMENT?

- Understand the specific components and obligations of API RP 1175.
- Evaluate your current Leak Detection Program against all API RP 1175 mandatory requirements in the Primary Requirements section of the GAT provided.
- Identify where API RP 1175 components and obligations are unmet by current practices and procedures.
- Determine opportunities to improve your current Leak Detection Program.



API RP 1175 GAP ASSESSMENT TOOL

ANSI/API Recommended Practice 1175 - Pipeline Leak Detection - Program Management

Gap Assessment Tool Example

26

Gap Score of "1" if requirement is met, documented and part of the company's culture;
Gap Score of "25" if requirement is clearly documented but not consistently done;
Gap Score of "50" if requirement is partially met but not sufficiently documented;
Gap Score of "75" if requirement is generally not met and only partially documented; or
Gap Score of "100" if requirement is not met or documented.

Step 2

• Evaluate Primary Requirements

Step 3

• Fill Out Action Plan

Component/Sub-components	RP 1175 Reference	Primary Requirements	Gap Score	Who performed the assessment?	Score Justification	Description of Potential Action(s) to Close Gaps.	Responsible Party
Testing	8	LDSs used in an LDP shall be tested when implemented and on a regular basis not to exceed five (5) years or when there has been a significant change in the pipeline's operation or a physical change in the configuration. The testing process shall include the requirements of LDS testing as outlined in API 1130.	50 1	Marieli Romero, Quality and Compliance Engineer (LDE & OCC)	Testing guidelines are documented but the testing has not been performed within the timeframe	Improve testing documentation Improve governance around testing timelines	LD Technology Initiatives & BD Support Team

Step 1

• Check Informational Items

Component/Sub-components	RP 1175 Reference	Informational Items	Check List				Description of Potential Action(s) to Close Gaps.	Responsible Party
			Deployed	Partially Deployed	Not Deployed	N/A		
		- The testing process is rigorous and planned and executed using sound engineering and technical judgment - The requirements of API 1130 are tailored to accommodate the operator's LDS and its assets - The testing process may use actual leaks in lieu of periodic testing, evaluation testing, and validation testing - Detailed testing plans including purpose, methods, process	2 X	2 X	0	0		

Instructions Example Culture and Strategy Methods and Selection Metrics and KPIs Testing Recognition and Response Alarm Management Responsibilities & Training



Scoring of 1 means that the RP 1175 Requirements are met, documented and part of company's culture, and 100 means that the RP 1175 Requirements are not met or documented.

API RP 1175 IMPLEMENTATION TEAM TARGET

- All 50 API and AOPL members
- 97% of Industry Total Barrel Miles
(4,5 trillion of 4.6 trillion Barrel Miles)
- As of April 21st, 36% of API and AOPL Members sent their GAT results



2017 PRELIMINARY GAP ASSESSMENT INDUSTRY RESULTS

The largest the number,
The largest the Gap

Component # (RP 1175 Reference)	Components		Median		Mean
4 & 5	Leak Detection Culture and Strategy		45		44
6	Selection of Leak Detection Methods		18		23
7	Performance Targets, Metrics and KPI		50		42
8	Testing		1		12
9	Control Center Procedures, Recognition and Response		6		6
10	Alarm Management		7		14
11	Roles, Responsibilities and Training		25		30
12	Reliability Centered Maintenance for LD Equipment		25		30
13	Overall Performance Evaluation of the LDP		50		57
14	Management of Change		1		10
15	Improvement Process		44		49
Total Gap Score			26		30

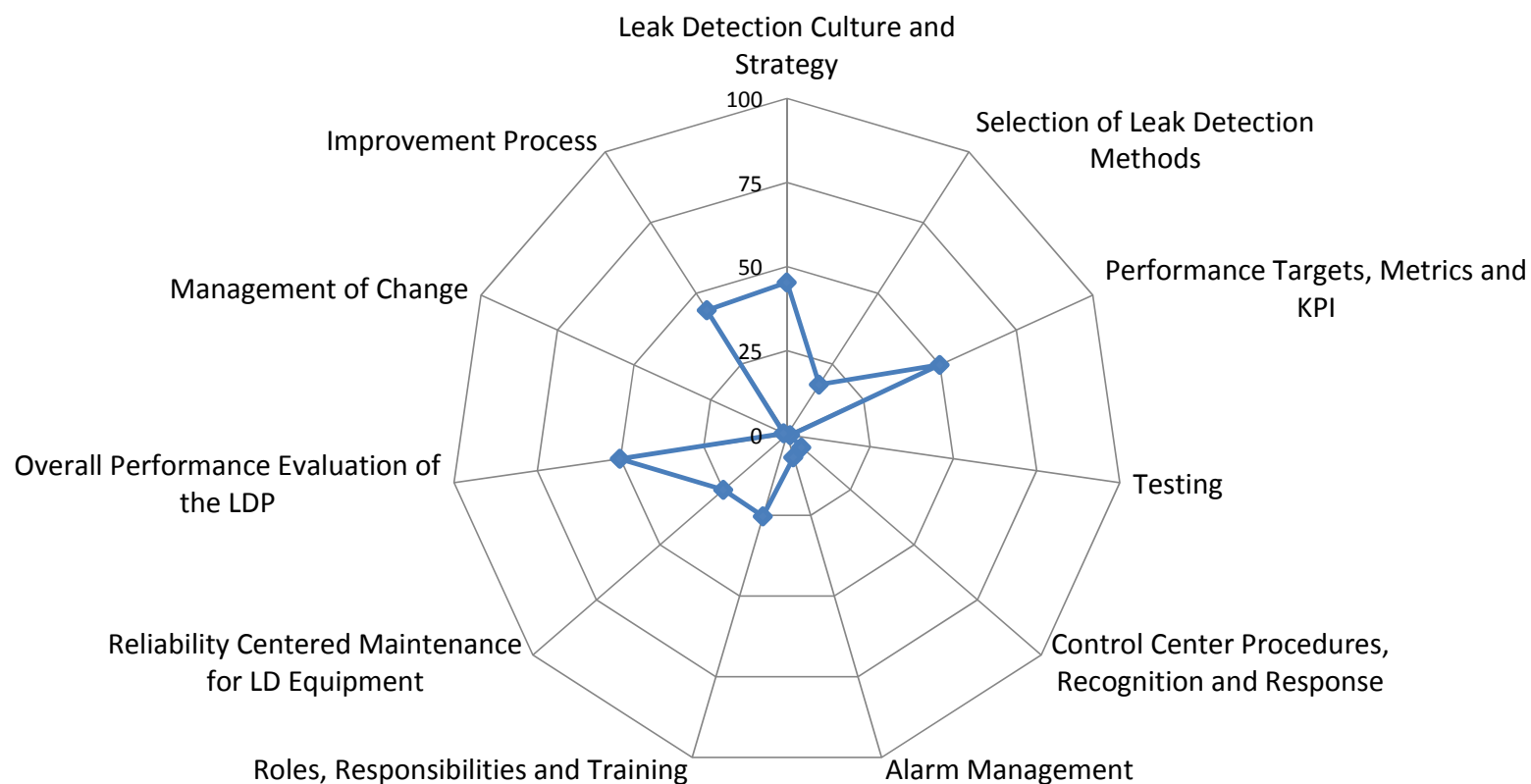


36% Participation from API and AOPL Members (As of April 21st)



API RP 1175 INDUSTRY PRELIMINARY RESULTS

Median



API RP 1175 IMPLEMENTATION TEAM FOCUS

1. Overall Performance Evaluation of the LDP
2. Improvement Process
3. Performance Targets, Metrics & KPIs
4. Leak Detection Culture & Strategy



YOUR HOMEWORK

1. Use the GAT to assess your company's current LDP in 2017 (Deadline extended from March 30th to June 30th, 2017)
 1. GAT can be found at <http://www.pipelinesms.org/wp-content/uploads/2017/04/API-RP-1175-Gap-Analysis-Tool-Template.xlsx>
 2. Anonymously share results with API (email or phone). PipelineLDP@api.org
 3. API will protect confidentiality and report aggregate Industry benchmarking progress
2. Prioritize the gaps on risk and importance
3. Develop action plan to close gaps
4. Execute action plans
5. Re-assess Operator's LD Program vs. RP 1175 in 2018 (March 31st, 2018) to measure progress



WHY SHOULD YOU DO YOUR HOMEWORK?

