API 2026 PIX PROGRAM - ABSTRACTS

API Data Platforms to Support Pipeline Operating Companies

Title: Teach Me How to Fish

Author/Presenter: Adebukola (Bukky) Adeiya, API (adeiyaa@api.org)

With the current availability and capabilities of modern data tools for processing and analyzing information, API is creating tools to support our members as they continue to be inundated with a plethora of information every day, every hour, every minute. Over the past 12 months, API's statistics department has developed several new data and information sharing tools and platforms for data analysis and exchange among operators of industry best practices, lessons learned, and pipeline integrity and regulatory enforcement trends. These new tools include a consolidated database of all PHMSA releases and Power BI application for manipulating the data in thousands of different ways, an enforcement dashboard of pipeline regulatory actions, and an updated version to the prior PIPES information sharing portal (i.e., PIPES 2.0) that leverages advanced technology and significant improvements in web-based tools to enhance information exchange. This presentation will provide details on the new systems and demonstrate their functionality, as well as encourage pipeline operating companies to use the data available to them and to contribute information to the PIPES portal.

Lessons Learned from Offshore Pipeline Operations Excellence

Moderator: Amanda Beutelschies, Shell

Title: H2S Sour Service Management for Stabilized Crude Pipelines

Authors /Presenters: Connor Zekas, ExxonMobil (connor.j.zekas@exxonmobil.com)

Gas-free stabilized crude has been transported via pipeline for decades. However, the industry guidance on H2S threshold for sour service pipeline for stabilized crude is still limited. Currently, the main guidance from AMPP/NACE MR-0175 is the governing standard for sour service pipeline for North America. It defines the exclusion criteria based on pipe grade, pH, water content, and weld hardness. However, there are several unaddressed scenarios when it comes to operation. First and foremost, there is no guidance on measurement method for stabilized crude. There are different analyzers and testing methods available, yet each method has different measuring mechanism and limitations. Therefore, even with the same batch of crude, measurement from upstream and downstream might not be consistent and could cause confusion that leads to commercial impact. Second, the definition or threshold of H2S for sour service is warranted. The exclusion criteria did not include a threshold H2S concentration. Lastly, the weld hardness limit for existing/vintage pipeline might be difficult to verify and this makes it challenging for repurposing lines for transporting sour crude. In this presentation, a methodology that was internally developed will be shared to provide directions for future development of a detailed industry guidance on H2S containing stabilized crude.

Title: Field Experience on Using Dynamic Pressure Wave for Pipeline Obstruction Location
Authors/Presenters: Nikolaos Salmatanis, Chevron (niks@chevron.com)

Locating obstructions in offshore pipelines presents a significant operational challenge, particularly when access is limited and conventional methods such as rescue pigs, electromagnetic tracking, or excavation are impractical or potentially costly. Whether caused by stuck pigs, hydrate plugs, debris, or other restrictions, identifying the location of the obstruction is critical to minimizing downtime, reducing operational risk, and planning effective remediation. This presentation presents Chevron's operational experience evaluating dynamic pressure wave reflection technology to locate pipeline obstructions on two separate and different offshore pipelines. The work demonstrates how induced pressure pulse testing, high-speed pressure acquisition, and dynamic pressure wave reflection analysis can be used to determine the linear location of an obstruction without interrupting normal pipeline operations or requiring specialized tracking tools.

Personnel and Excavation Safety Best Practices
Moderator: TBD

Title: ExxonMobil's Personnel Safety Management System (PSMS)
Author/Presenter: Gradon Pilgrim, ExxonMobil (gradon.j.pilgrim@esso.ca)

While ExxonMobil Pipeline Company LLC (ExxonMobil) is proud of the progress we have achieved in personnel safety, we believe there is always room for improvement as we work towards our goal of "Nobody Gets Hurt." In furtherance of this goal, Exxon Mobil continues to focus our efforts on obtaining greater certainty of the effectiveness of our safeguards that help protect us from risks that can have life altering impacts. Safety is not just the absence of events…it's fundamentally the health of safeguards and the quality of leadership engagement by ExxonMobil representatives as well as our contractors. Our Personnel Safety Management System (PSMS) is anchored in Operations Integrity, grounded in behavioral science, and looks to leverage and learn from both industry and our own experience – it is more than a system, it is a culture of care. During the presentation, ExxonMobil will share how the PSMS program has helped fundamentally shift the focus of company safety programs on driving safety leadership at each level within the organization, emphasis on higher risk activities, build individual worker / leader Safety Capacity through repetition, and expands proactive learning for both our employees and contractors.

Title: No More Spray and Pray
Authors /Presenters: Enden Nelson, CHS (Enden.Nelson2@chsinc.com)

Operators send more paper to stakeholders each year than the height of One World Trade and multiple times over. That begs the question: Is paper really required for public awareness and is it possible to deploy effective electronic media in meaningful and effective ways. Lots are asking this. Some are testing the waters carefully while others have either jumped in headfirst or are hiding behind the nearest tree peaking from time to time. Attendees will learn about what they need to consider when evaluating electronic media and what to expect from the available approaches to the evolving technology being deployed today.

Panel Discussion - Hot Work Lessons Learned and Effective Mitigation Strategies
Moderator: Justin Harkrader, Shell

Panelists: Kody Smajstrla, Williams (kody.smajstrla@williams.com)
Barry Burke, Flint Hills (barry.burk@fhr.com)
Joseph Herbert, Marathon (Herbert, Joseph D. jdherbert@marathonpetroleum.com)
Jereme Havard, Shell (Jereme.havard@shell.com)

Recent information sharing during API Policy Group meetings (a common and regular form of sharing and learning) raised concerns with hot work incidents and flash fires. In addition, recent PHMSA enforcement cases are related to flash fires that occurred during hot work activities. Given the potential safety implications and the apparent recurrence of these events, this panel will focus on lessons learned, effective mitigation strategies, and corrective actions being implemented by several pipeline operator companies to provide valuable insights for all PIX attendees.

Integrity Management Lessons Learned and Best Practices – Session 1
Moderator: TBD

Title: Holistic Approaches for Full Team Management of a Waterway Crossing Program
Authors /Presenters: Jerry Diaz, Sunoco LP (jerry.diaz@sunoco.com); Jeff Budzich, Arcadis (Jeffrey.Budzich@arcadis.com)

Sunoco LP (Sunoco), with support from Arcadis U.S., Inc. (Arcadis), has developed and implemented a waterway crossing program to identify vulnerable pipelines to hydrotechnical threats by assessing and prioritizing them through a combination of publicly available data, operator knowledge, and site-specific information (e.g., pipeline characteristics, recent survey data, etc.). This is a proactive, progressive three phased approach that identifies and ranks potential threats over 3 phases, including initial data gathering and preliminary screening to filter low-risk crossings, further assessment through more detailed data and information collection, and the final phase where crossings of concern are re-ranked and classified into appropriate 'risk and consequence' classification categories (e.g., High, Medium, Low, etc.) utilizing and integrating operators selected criteria. This presentation will cover lessons learned through building in operations and regional personnel to assist with screening of waterways and provide feedback on waterways that either have been (or not been) selected for further assessment. Through working with the integrity team, Arcadis, and local operations, Sunoco has created a holistic approach for efficient and effective implementation of their waterway crossing program.

Title: Beyond Standard ILI Reporting: A Layered Approach to Identifying High-Risk Crack Penetrators
Author /Presenter: Trevor Nickerson, Marathon Pipe Line LLC (tcnickerson@marathonpetroleum.com)

Crack detection technologies continue to improve; however, significant integrity threats can remain hidden within reported anomaly populations, below reporting thresholds, or in areas not elevated through traditional in-line inspection (ILI) processes. This presentation explores a data-driven approach used to identify and prioritize potential crack penetrators by integrating advanced signal

analysis with field validation results from excavation and non-destructive examination. Building on lessons learned from pipeline releases and confirmed deep crack discoveries, a layered screening methodology was developed to identify higher-risk penetrator-type features. The approach evaluates correlations among multiple signal attributes, including pulse echo, enhanced sizing methods, indirect crack echo responses, amplitude behavior, sensor coverage, and internal/external feature interactions. A three-layer framework was applied to investigate reported long-seam features, intermittent crack-like behavior, and indications outside the reported anomaly population. Case study results will be presented that demonstrate how this methodology successfully identified previously unrecognized high-consequence features, including severe crack indications and a through-wall seep. The presentation highlights the prioritization logic used to rank excavation candidates and discusses how field verification results can be used to refine future predictive models. Attendees will gain practical insights into advanced crack screening techniques, risk-based excavation planning, and strategies for improving the identification of meaningful crack threats that may not be captured through standard ILI reporting practices.

Integrity Management Lessons Learned and Best Practices – Session 2

Title: Leak Volume and Failure Feature Size Estimation
Author /Presenter: Dr. Fan Zhang, P66 (fan.zhang@p66.com)

In July 2024, a 3rd party operator reported an active leak in a 10-in HVL line operated by Phillips 66 while working in the shared right-of-way. Because of the active leak and the large ice ball formed in the leak site, it was impossible to determine the size and characteristics of the leaking feature. However, regulations require timely reporting of the leak volume after the failure is detected. Based on the pressure-drop recorded within the failed segment after isolation, Phillips 66 estimated the leak rate, the feature type (cracking or pinhole), and the size of the feature, thereby fulfilling the reporting requirement. The feature was subsequently clamped before the pipeline returned to service. In spring 2025, the clamped joint was cut off for lab examination. The lab confirmed the leak was caused by a pinhole and measured pin hole size agreed well with the previous estimate. Phillips 66 would like to share this calculation approach and this case study to assist the industry in estimating leak volume and effective report with minimized future correction.

Title: Large Bore Valve Drain Plug Failure
Author /Presenter: Dan Gilfillen, Marathon Pipe Line (dtgilfillen@marathonpetroleum.com)

This presentation reviews the investigation into a leak discovered on June 26, 2025, from the bottom drain port of a gate valve on a crude oil pipeline in Louisiana. The valve had been refurbished, pressure tested to API 6D requirements, coated, shipped, installed, and commissioned before the release was identified at a pressure of 75 psig. Marathon Pipe Line requested an independent third-party failure analysis to determine the most likely cause of the failure and evaluate the condition of the drain plug connection. This case is relevant to the pipeline industry because it demonstrates how a small threaded component can become a concern when damaged during any phase of pipeline equipment preparation. The analysis found that the valve's body drain plug was at a non-perpendicular angle, with thread damage, and that metallic material recovered from the female valve threads was more consistent with plug material than valve body

material. This independent analysis confirmed Marathon's findings that the failure was most likely associated with compromised plug thread engagement rather than a valve body material deficiency. The presentation provides information on the event background and valve service conditions; summarizes the inspection methods, physical evidence, and third-party analysis; discusses the likely failure mechanism and why the findings matter to pipeline integrity, commissioning, and risk reduction; and highlights the lessons learned to mitigate future reoccurrence. The key lesson is the importance of verifying drain plug condition, alignment, and thread engagement before valves are placed into service. Marathon has since implemented drain plug inspections prior to valve installation and commissioning to identify damage that could have happened at any time during valve manufacturing, handling, and installation.

Title: Diamonds are Forever; but what about pipeline repairs?
Author /Presenter: Fernando Curiel, bp (fernando.curiel@bp.com)

This presentation will share the continuing learnings following BP's journey with prior repairs. In particular, the presentation will focus on sharing learnings from prior repair discussions that occurred during two separate API roundtable sessions held in 2026 that focused on legacy pipelines and risk management of prior repairs. The outcome of these roundtables thus far has been a document compiled by multiple operators that shares guidance on how to manage a prior/legacy repair threat using risk-based approaches; a summary of this document will be discussed. Future work remains for the industry as best practices need to be developed for pipeline repairs; possible areas of future collaborations and improvements are presented as well.

Panel Discussion: Workforce Development - Leveraging Internship and Co-op Programs to Meet Near-term Needs for Talent
Moderator: Brent Byrd, Shell

Panelists: Remington Byrd, Plains (remington.byrd@plains.com)
Rawan Aljubory, Shell (Rawan.Aljubory@shell.com)
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Luke Piazza, University of Georgia (luke.piazza@uga.edu)

The energy pipeline industry is addressing workforce development on multiple fronts, through multiple efforts. API has several initiatives that are focused on workforce development, from educating grade school and high school students on the benefits and opportunities that the industry provides to development of curriculum in trade schools and partnering with other organizations to establish training content. These efforts are focused on the future development of talent, but what are companies doing now to meet the immediate need? This panel session will share approaches that companies are using to meet the near-term needs for attracting, training, and retaining qualified workers, with emphasis on apprenticeships, internships, and co-op programs. Additionally, pipeline operating companies' representatives will discuss their internal programs and present success and failures. The panel will include perspectives from all participants that went through an intern/co-op experience and what key takeaways they learned through the experience.

American Petroleum Institute

Artificial Intelligence Applications for Integrity Management

Title: AI-Enabled NDE - Closing the Sizing Confidence Gap

Author/Presenter: Axel Aulin, TC Energy (axel_aulin@tcenergy.com)

Non-Destructive Examination (NDE) plays a critical role in integrity management, repair decisions, Engineering Critical Assessments (ECA), and risk-based decision making. Yet one of the industry's persistent challenges remains sizing confidence. Reported flaw dimensions are the basis on which engineering decisions are made for anomaly response and determining whether pressure reduction, excavation, and repair is necessary. A real-world comparison of the same lab-verified flaw, evaluated by multiple independent NDE vendors using advanced ultrasonic technologies, demonstrated sizing variations in reported defect depths despite examining the identical feature. This presentation examines the technical, procedural, and human factors that contribute to sizing variability, including personnel experience, data acquisition practices, calibration requirements, inspection technology, software platforms, and standards fragmentation. It also addresses where Artificial Intelligence (AI), particularly agentic and multi-agent AI systems, is beginning to influence the NDE workflow through automated document review, compliance verification, data analysis, characterization, sizing assistance, and reporting. Practical examples from radiography, phased array ultrasonic testing (PAUT), and time-of-flight diffraction (TOFD) applications illustrate both the promise and current limitations of AI-assisted inspection. While AI demonstrates strong potential for improving consistency and efficiency, challenges remain in validation, code acceptance, data quality, cybersecurity, and governance. The presentation also highlights gaps within current industry standards and certification frameworks that affect the adoption of AI-enabled inspection technologies.

Title: Augmenting Engineering Workflows Using AI Agents: A Ground Pressure Assessment Proof of Concept

Author/Presenter: Semiu Abdsalami, Trans Mountain (semiu_abdsalami@transmountain.com)

Pipeline operators routinely receive requests for temporary vehicle crossings and surface loading activities over operating pipelines. While the engineering methods used to assess these requests are well established, the overall workflow often requires engineers to manually gather information from multiple data sources, validate pipeline attributes and operating conditions, perform calculations, and document decisions. These repetitive activities can consume significant engineering effort and introduce variability in how information is assembled and interpreted. Trans Mountain is developing an Asset Integrity Management (AIM) AI Agent to augment integrity engineering workflows by combining artificial intelligence, established engineering tools and governance processes. The AIM AI Agent integrates structured databases, pipeline information systems, engineering rules, and existing GPA calculation tools into an integrated assessment workflow. The presentation will also discuss how AI-enabled engineering agents can improve consistency, enhance traceability, reduce manual effort, preserve institutional knowledge, and improve assessment timeliness while maintaining appropriate human oversight for pipeline safety-critical activities.

Title: Don't Hang up the Towel, Pick up the Rag
Author/Presenter: Fernando Curiel, bp (Fernando.curiel@bp.com)

Companies vary in their complexity with respect to integrity management practices, procedures, and knowledgebases. Additionally, changes to procedures within official documents and records repositories require practitioners to constantly pull the latest versions of documents to avoid missing slight changes that could impact a decision. This presentation will illustrate how an integrity practitioner can create a Retrieval-Augmented Generation (RAG) Agent to improve efficiency and effectiveness of retrieving information and making decisions based on company specific procedures, history, and data. The presentation will showcase a RAG agent is designed as a practical engineering knowledge assistant for pipeline integrity work, with a strong emphasis on using approved technical sources rather than unsupported general knowledge.

Damage Prevention and Excavation Safety

Title: Vehicle Outside Force Damage Turning Exposure into Action
Authors /Presenters: Christopher Ondrey, Shell (christopher.ondrey@shell.com)

Vehicle strikes involving aboveground pipeline assets remain an often-overlooked threat within the pipeline industry. Exposed piping, valve sites, meter stations, launcher and receiver facilities, and other aboveground infrastructure can be vulnerable to vehicle impacts that may result in product releases, public exposure, environmental consequences, and business interruption. While many operators recognize the hazard, a consistent method for identifying exposure, evaluating risk, and prioritizing mitigation is often lacking. This presentation will discuss how Shell transformed Vehicle Outside Force Damage (VOFD) from a recognized concern into a structured, risk-based integrity management program. By combining standardized field assessments, a multi-factor risk scoring methodology, digital data integration, and cross functional governance, Shell developed a repeatable process to evaluate and manage vehicle strike exposure across its asset portfolio. The presentation will also highlight how assessment data was integrated into existing integrity and damage prevention processes, enabling more effective allocation of resources and risk-based investment decisions. Key lessons learned will include the value of standardization, digital tools, and collaboration between integrity, operations, maintenance, and right-of-way teams. The session will demonstrate how simple field observations can uncover significant hidden risk and how a proactive, data-driven approach can improve visibility, consistency, and decision-making before a vehicle strike incident occurs. This work directly supports API Strategic Goal #3 by strengthening damage prevention through a standardized, risk-based approach that improves awareness of vehicle-strike exposure and enables proactive protection of critical pipeline infrastructure.

Title: Advancing Damage Prevention and Excavation Safety on Pipeline Rights-of-Way Through Strategic Use of Sheet Pile Systems
Authors /Presenters: Mario Alexei Martinez, Chevron (martinezm@chevron.com)

Excavation activities within pipeline rights-of-way present unique challenges related to damage prevention, worker safety, and protection of critical infrastructure. As projects continue to encounter increasingly constrained construction environments, effective hazard mitigation strategies have become essential to reducing operational and safety risks. This paper discusses key

considerations for excavation safety, including subsurface hazard identification, utility conflict management, ground stability assessment, and implementation of protective systems. A primary focus is the use of sheet pile installations as a practical and effective engineering solution for supporting excavations, protecting in-service assets, and maintaining safe work zones in areas with limited access or challenging soil conditions. The paper reviews common applications, design considerations, risk reduction benefits, and lessons learned from field implementation. By highlighting the integration of engineering controls, planning processes, and damage prevention principles, this work demonstrates how sheet pile systems can significantly improve safety performance and project outcomes across a wide range of ROW construction and maintenance activities.
