



RP 1176



Pipeline SMS

API RECOMMENDED PRACTICE FOR ASSESSING AND MANAGING PIPELINE CRACKING

A Pipeline Safety Management System

To purchase this suite of standards or individual Integrity standards, visit the API publications store at

techstreet.com/api

API Recommended Practice 1176

API Recommended Practice (RP) 1176 enhances pipeline integrity by providing a comprehensive guide on how to predict and prevent pipeline failures due to cracking.

- Assimilates the industry's best understanding of the major types of cracking:
 - Environmental cracking
 - Manufacturing defects associated with longitudinal seams
 - Mechanical damage
 - Construction defects
 - Fatigue cracks
 - Cracks in repairs, buckles and hard spots
- Creates the standardized approach to detecting anomalies in pipelines and analyzing the threat they pose
- Recommends techniques to mitigate their occurrence and growth

- Outlines the five core disciplines required to properly predict and prevent pipeline failures due to cracking:

1. Understanding the primary characteristics of the main types of cracking in pipelines
2. Applying appropriate technology and modeling to detect and evaluate the impact cracking has on pipeline integrity
3. Employing effective repair strategies to address the observed conditions
4. Establishing preventative and mitigative practices
5. Evaluating the program performance and continuous improvements

- Some of the industry's leading technical experts in the industry convened to develop API RP 1176
- The team also incorporated work from the Canadian Energy Pipeline Association (CEPA), the Association of Oil Pipelines (AOPL), the Interstate Natural Gas Association of America (INGAA), plus relevant R&D and existing standards and practices
- Representatives from the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the National Association of Pipeline Safety Representatives (NAPSR) were invited to provide input

Customized Strategies Maximize Prevention Success

API RP 1176 assists operator customization of their crack management program to match their system construction materials, construction techniques, and operating conditions. Operators are provided guidance for evaluating and modifying their program to manage changes in pipeline operation, product delivery, or other integrity-related information. A pipeline assessment and management program attuned to the specific needs of the operator's system enables the greatest success preventing pipeline failure from cracking.

The Impact of Implementing RP 1176

- Implementation of API RP 1176 will lead to a consistent use of best practices to manage pipeline cracking
 - Operators, large and small, will conduct pipeline crack management programs based on the industry's best expertise
 - Effective implementation will enhance the layered defense against incidents

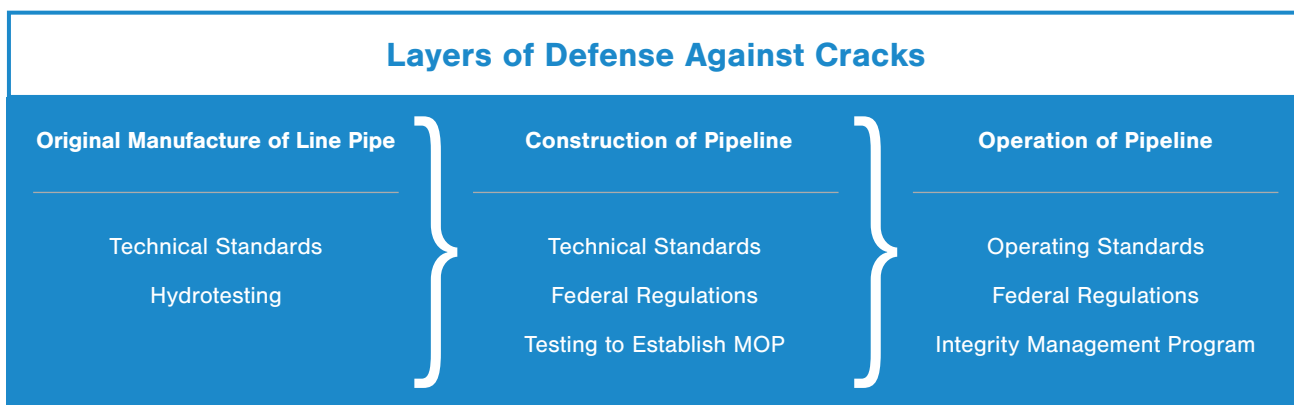
The Energy Pipeline Industry Is Committed to Improving the Safety of America's Pipeline System

- **Investment**
 - Advancing state-of-the-art technology for crack detection assessment programs and tools
- **Collaboration**
 - Leveraging individual experiences to develop collective best practices
 - Merging company data sets to understand industry trends
- **Measurement**
 - Tracking industry results to understand program effectiveness
 - Measuring safety impact of strategic initiatives

API Recommended Practices

API RPs standardize and implement best practices across the industry

- Developed via open, accredited processes, with formal review and comment periods
- Provide all operators with the benefits of the industry's combined expertise in critical areas
- Once adopted and implemented, establish standard practices across the industry



*America's Pipeline Industry:
Focused on Zero Incidents, Committed to Continuous Improvement*