

Why Pipelines?

Pipelines are the safest and most efficient mode of energy transportation, surpassing rail and truck, according to the U.S. Department of Transportation (DOT). Pipeline incidents or disruptions to natural gas service are rare because of the industry's consistent focus on safety and reliability.

Pipeline companies consider safety and reliability every stage, from pipeline design to construction to ongoing maintenance. For example, natural gas transmission pipeline operators use specialized steel materials, thorough testing and inspection programs involving state-of-the-art technologies, 24/7 monitoring and extensive employee training and qualification programs. Operators also develop public safety education programs and emergency response plans, working collaboratively with first responders. Federal and/or state regulatory oversight ensures these programs are compliant with applicable regulations and standards.

Rigorous safety programs and oversight ensure safe and reliable delivery to meet the ever-increasing demand for natural gas to heat homes, run businesses, generate electricity and fuel our economy.

In 2011, INGAA adopted a series of safety principles and voluntary commitments called the "Integrity Management – Continuous Improvement" (IMCI) program. Since then, INGAA's members have made great strides in integrating these measures into their day-to-day activities and enhancing operational safety.

INGAA's Five Guiding Principles for Pipeline Safety



1. **Our goal is zero incidents** – a perfect record of safety and reliability for the natural gas transmission pipeline system. We work every day toward this objective.
2. **We are committed to safety culture** as a critical dimension to continuously improve our performance.
3. **We are relentless in our pursuit of improvement** by learning from the past and anticipating the future.
4. **We are committed to applying integrity management principles on a system-wide basis.**
5. **We will engage our stakeholders** - from the local community to the national level - so they understand and can participate in reducing risk.

A Watchful Eye, 24/7

The eyes and the ears of any company's pipelines are the Gas Control Center, which manages pipelines using specialized equipment called a Supervisory Control and Data Acquisition (SCADA) system. Monitoring and

Going Further

INGAA members are committed to continuously enhancing the safety of our nation's natural gas transmission pipeline network in pursuit of a perfect record of safety and reliability. We relentlessly pursue new technologies and engineering practices that will improve our performance and ultimately prevent pipeline incidents.

Safety and Reliability Metrics

- Between 2006 and 2016, pipelines delivered 99.79% of "firm" contractual commitments to specified primary delivery points
- Transmission pipeline leaks are down 69% over the past 20 years
- Manufacturing-related incidents are down 90% (2002 – 2017)
- Excavation damage incidents are down 20% (2002 – 2017)
- Over 70% of interstate natural gas transmission mileage can accommodate inline inspection

Public Awareness

Because third-party damage is one of the largest threats to underground infrastructure, public awareness of pipeline locations is key. Excavators are required to call 811, the national One Call/Call Before You Dig program, several days prior to breaking ground to allow pipeline operators and utility companies to mark their facilities and monitor excavation on site. Operators also provide ongoing public awareness to landowners, public officials, excavators and emergency responders along the pipeline corridor.

control of the system occurs continuously to ensure customers obtain the energy they need safely and reliably. Gas Control personnel receive extensive training, under federally mandated control room management plans, to properly monitor and control the pipeline using remote sensors located along the pipeline. Control personnel are also trained to recognize and respond to abnormal operating conditions and, in the rare event of an incident, are able to shut down pipeline systems down and quickly dispatch pipeline company personnel and first responders.

Protecting Pipelines and Facilities

After a pipeline is in place, pipeline companies ensure safety by evaluating, inspecting and maintaining pipelines through integrity management programs. A number of tools and practices, consistent with DOT regulations, are used to protect operational pipelines, including:

- Hydrostatic tests of a pipeline at pressures that exceed maximum operating pressure to ensure the pipeline is sound and ready for service
- Non-destructive testing, such as industrial radiography or ultrasonic inspection of welds prior to placing a pipeline in service
- Cathodic protection systems, which continuously produce protective currents along the entire pipeline system to prevent steel corrosion
- External coatings that provide a layer of protection against corrosion
- Internal cleaning tools to remove liquids and other debris to prevent internal corrosion and help maintain flow efficiencies
- Highly sophisticated instruments, often referred to as inline inspection devices or “smart pigs,” that inspect inside the pipeline in order to identify and characterize potential pipeline defects before they affect a pipeline’s safety
- State-of-the-art safety equipment, like automated pressure control systems, over-pressure protection devices, emergency shutdown systems and computerized pressure monitoring/leak detection

Agency Oversight

Federal and state agencies play critical roles in ensuring the safety of natural gas pipelines. The Federal Energy Regulatory Commission has the authority to review and approve the siting of new natural gas pipelines, and the DOT regulates the ongoing safety of natural gas pipelines, in partnership with state pipeline safety agencies.

The Natural Gas Safety Act of 1968 established the federal role for developing and administering natural gas pipeline safety standards, under which the DOT’s Pipeline and Hazardous Materials Safety Administration (PHMSA) regulates pipeline design, construction, testing, inspection, operations and maintenance – including periodic audits of pipeline operators’ records to ensure compliance.

State agencies regulate pipelines that are wholly within their state borders (intrastate pipelines) and can assist PHMSA in inspecting interstate pipelines traversing their states.

Bringing Pipeline Safety Regulations into the 21st Century

INGAA’s members advocate policies that demonstrably improve safety and reliability, promote innovation and new technology, and encourage public/private partnership. These efforts advance INGAA members’ shared goal: **zero pipeline incidents**.

Several new pipeline safety rulemakings related to natural gas transmission pipelines now pending before PHMSA are expected to be finalized in 2019. They will represent the most significant update to natural gas transmission pipeline safety regulations since federal pipeline safety rules were first issued in 1970, and they will provide the “rules of the road” for operators to continue implementing 21st-century safety technologies and engineering practices that are more effective, more efficient and less disruptive than past methods.

INGAA supports these pending rules and encourages PHMSA to continue updating older regulations to reflect today’s technological and engineering capabilities.

- Safety of Gas Transmission Pipelines, MAOP Reconfirmation, Expansion of Assessment Requirements and Other Related Amendments I Estimated DOT Publication: April 4, 2019
- Safety of Gas Transmission Pipelines, Repair Criteria, Integrity Management Improvements, Cathodic Protection, Management of Change, and Other Related Amendments I Estimated DOT Publication: Dec. 20, 2019

- Class Location Change Requirements



INGAA's Commitment to Pipeline Safety

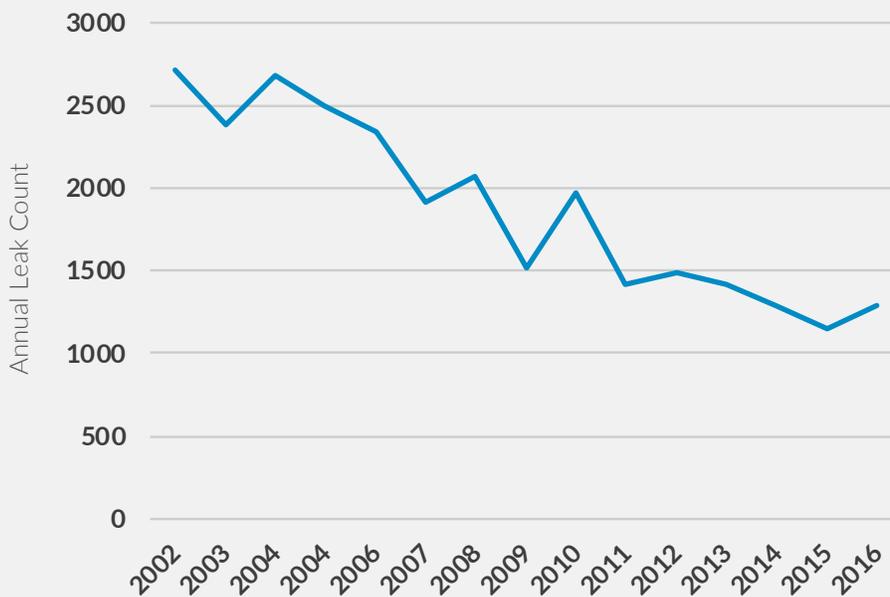
In 2011, INGAA adopted a series of safety principles and commitments called the “Integrity Management – Continuous Improvement” (IMCI) Program. Since then, our members have made great strides in integrating these measures into their day to day activities and enhancing operational safety.

Since the introduction of IMCI, our members have:

- Implemented risk management programs, in accordance with the ASME B31.8S standard, to cover approximately **90%** of the population living near pipelines
- Inspected **tens of thousands of miles** with new inline inspection technology (since 2012)
- Reconfirmed maximum allowable operating pressure for thousands of miles of pipelines and reduced the mileage of pipelines in high consequence areas without complete pressure test records by more than **40%** (since 2012)
- Increased the amount of existing pipeline mileage pressure tested to the levels required for new pipelines from approximately **67% to 82%**, (since 2012)
- Helped finalize a framework for pipeline safety management systems by working with PHMSA, state and local pipeline safety regulators and expert members of the public

The IMCI program has had a meaningful impact. Since its implementation there has been a **10%** reduction in the frequency of natural gas pipeline leaks and a **75%** decline in onshore natural gas transmission manufacturing-related incidents.

Decrease in Total Natural Gas Pipeline Leaks



Source: PHMSA public annual report data for all onshore gas transmission pipelines

Continuous Improvement

The IMCI Program has contributed to improvements in several areas, and INGAA members remain committed to continuously enhancing the safety of our nation's natural gas transmission pipeline network, with the ultimate goal of realizing a perfect record of safety and reliability. We're working with the relevant regulatory agencies to investigate, understand and learn from incidents and near misses in order to improve our safety performance. As the IMCI program continues, INGAA will communicate the progress of this journey to build continued confidence in pipeline safety.