Pipeline Integrity Management

The importance Iroquois places on safe operations and system reliability is reflected in the use of current technology, not only for our upgrades and expansions, but also in our on-going integrity monitoring and public awareness programs. In compliance with the safety initiatives of the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA), Iroquois' integrity management program includes:

Annual Walking Inspection

Technicians walk the land sections of the right-of-way to look for unusual activity and signs of ground disturbance. During this inspection, they also test the cathodic protection system's operation and use hydrocarbon sniffers to detect any underground leakage.

Aerial Patrol

Flyovers of the right-of-way are carried out to locate third party disturbance or activity occurring near the pipeline.

Internal Inspections

A sophisticated inspection tool known in the industry as a "smart pig," is periodically used by skilled industry technicians to perform an internal inspection of the pipeline. The "smart pig" detects metal loss, dents or deformation from outside sources, allowing remedial action to be taken when and if required.









Know what's **below**. **Call** before you dig.

CT and NY One-Call Systems (811)

As the greatest risk to underground pipelines is accidental damage during excavation, Iroquois places high importance on its participation with one-call systems. The one-call system will contact Iroquois after being notified of a proposed excavation so that we can mark the location of our facilities prior to such excavation on public or private property.

Public Awareness

Iroquois' close relationship with emergency responders and local officials in our pipeline communities helps prevent and prepare for any potential emergency. Our public awareness program includes periodic mailings and informational sessions to provide residents and businesses, local public officials, and emergency responders with important pipeline safety information. The public's awareness of the existence of our pipeline, and what can be done to safeguard everyone, is crucial to the safe operation of our system.

Iroquois also provides emergency responders with industry standard and system-specific information through regional meetings and on-site training sessions.





Additional safety publications are available in pdf format at www.iroquois.com/corporate-responsibility/safety/public-awareness/











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Safe Reliable Environmentally Responsible

Non-Emergencies 1 800.253.5152





Iroquois' Corporate Purpose is to "create and optimize sustainable value for our owners, customers, employees and communities by operating and expanding our natural gas pipeline facilities in a safe, reliable, cost effective and environmentally effective manner." It is not a coincidence that safety is the first thing listed when we describe how we operate our system. Safe operation has been of fundamental importance to Iroquois since it began operations in 1991. That is reflected in the construction of our natural gas transmission facilities, our daily operations and our ongoing integrity monitoring program.

Natural Gas Delivery Network

Natural gas, as a versatile, cleaner-burning and reliable energy source, plays a vital role in meeting the energy demands of a growing economy and population, and natural gas pipelines are among the safest and most secure method of transporting energy. From the time natural gas enters the system until it is delivered, interstate pipelines are controlled and monitored to make sure they are running safely and efficiently.

As a high-pressure (1440 psi maximum allowable operating pressure [MAOP]) interstate natural gas transmission pipeline, Iroquois transports natural gas from a variety of supply locations, called receipt points, to various customer locations, called delivery points. Iroquois does not produce the natural gas it carries, nor does it own the gas; Iroquois simply transports it for various shippers to other transmission pipelines, power plants, industrial users and local distribution companies who then deliver it to residential and commercial users.



Operations

As with any form of transportation, there is a need to monitor and maintain the pipeline and its facilities and to make the best use of available technology for safe and environmentally-effective operations.

Gas Control

Located at our corporate headquarters in Shelton, CT, Iroquois' gas controllers monitor and operate the pipeline, including system pressures, flows and customer deliveries, 24 hours a day, 365 days a year. All controllers are US DOT operator-gualified. They coordinate all emergency calls and collaborate with engineering and field operations personnel on maintenance and construction projects to minimize system outages. Backup location sites for gas control operations are maintained in the event Iroquois' corporate headquarters was to become inaccessible.



SCADA

Iroquois' Supervisory Control and Data Acquisition (SCADA) system is the backbone of the gas control center's communications. It provides data collection, monitoring and remote operation of the compressor stations, meter stations and mainline valves. Redundant communication methods are in place to provide backup should it be needed.

Operating conditions outside of pre-determined ranges and set points will cause alarms to sound at the gas control center, resulting in rapid diagnosis and resolution of the alarm condition. Our compressor station operators and field engineers continually perform an array of surveillance and maintenance tasks to ensure the continued safe operation of our system.

Emission Control Technology

All of Iroquois' compressor station combustion turbines were installed to incorporate emission controls mandated by federal and state agencies. These controls reduce nitrogen oxide emissions by more than 50 percent as compared with emissions associated with more conventional compressor station control technology. These emission reductions are proven and documented by periodic "stack testing" and agency reports.



Security

Iroquois maintains a comprehensive security plan to address potential threats to its facilities. This plan covers such critical areas as cyber-security, access control and coordination with federal and state homeland security agencies. In addition, Iroquois' facilities are equipped with detection and monitoring devices including security cameras for on-site viewing, as well as viewing from our gas control center.

Our Facilities

Pipeline

During the initial planning, design, materials procurement, and construction of our pipeline, measures were taken to enhance the reliability and safety of the Iroquois system. The pipe itself is made of high-strength micro-alloyed steel with a designed wall thickness to meet stringent federal regulations for specific locations and pressure of the pipeline. Welds were inspected both visually and with radiographic equipment by a third party expert to confirm the absence of defects. The pipeline and welds were then coated with a fusion-bond epoxy coating engineered to resist corrosion and provide a waterproof barrier between the steel pipe and the external environment. The pipeline's coating is augmented by a comprehensive cathodic protection system that further protects pipe from corrosion by applying a low voltage current to the surface of the pipe.

In addition to the fusion-bonded epoxy coating, the offshore segments of the pipeline are encased with a steel wirereinforced concrete coating to counter buoyancy and provide protection from vessel anchors and fishing gear which may be deployed directly over the pipeline route.

Before being placed into service, the pipeline was tested by pressurizing it to higher than the maximum allowable operating pressure. All of this has continued to hold true for our expansions.

Iroquois' transmission pipeline is buried underground at a depth that meets or exceeds pipeline safety regulations. It is located within a strip of land acquired for the construction and operation of the pipeline, commonly referred to as the right-ofway. 4-foot tall white line markers, with blue writing and trim, identify the pipeline's approximate location along our right-ofway and at road crossings. These markers prominently display our name and emergency contact numbers.

Compressor Stations

Compressor stations along our line are strategically placed to boost natural gas pressure to counter pressure lost through friction as the gas travels through the system, or as it is transported to various delivery points. Many of our compressor stations also have cooling facilities that use electricmotor-driven fans designed to cool the gas as it leaves the compressor station. The coolers keep temperatures within safe operating conditions and enable more volume to flow back into the pipeline.

These compressor stations are aesthetically designed to blend in with the character of their location and feature redundant fail-safe station control and monitoring capabilities. All of our compressor stations are designed to be unmanned, however, many serve as a base for our field technicians while carrying out their daily responsibilities. Sophisticated automatic control, detection, emergency shutdown, and fire protection systems are designed to operate whether the station is attended or unattended.



Odorant

Natural gas is a colorless and odorless gas. Typically, a distinct and recognizable odorant, known as mercaptan, is added for quick detection and recognition. In order to meet US DOT specifications, odorant injection systems are located at Iroquois' Wright, NY and Milford, CT compressor station facilities to odorize the gas in Iroquois' system south of Wright, NY. Gas in the Iroquois system north of Wright, NY is not required to be odorized.

Other Facilities

Other facilities along our line include metering stations that measure gas volumes at a delivery point and automated valves that control gas flow through the pipeline. These automated valves can be operated locally by a trained technician, remotely by gas control, or automatically based on pre-determined set points, enabling quick shut in of the pipeline should an emergency arise.

