

# Pipeline Safety

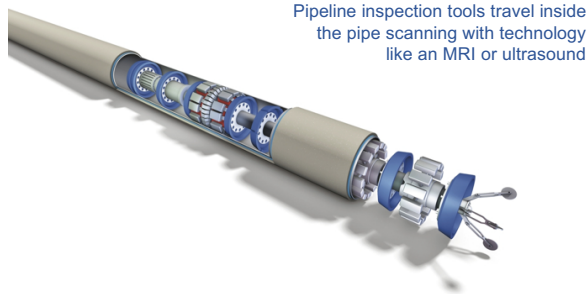


## How do pipeline operators work proactively to prevent pipeline incidents?

**Pipeline operators use proactive inspections and preventative maintenance to find and fix issues to keep the pipe safe.**

### Proactive Pipeline Inspections

Pipeline operators proactively inspect their pipelines on regular schedules to look for any potential issues and ensure the pipe remains safe. Operators use diagnostic tools called “smart pigs” that travel inside pipelines scanning the walls with technology similar to an ultrasound or MRI found in a doctor’s office. Hi-tech inspection tools and regular inspections allow pipeline operators to identify and guard against pipe issues before they become a problem.



Pipeline inspection tools travel inside the pipe scanning with technology like an MRI or ultrasound

The pipeline operator will go out to the pipe segment with the identified issue and perform the appropriate maintenance, such as reapplying protective coating, installing a patch or sleeve around the pipe or replacing that section of pipe.



Preventative maintenance allows pipeline operators to keep their pipelines operating safely

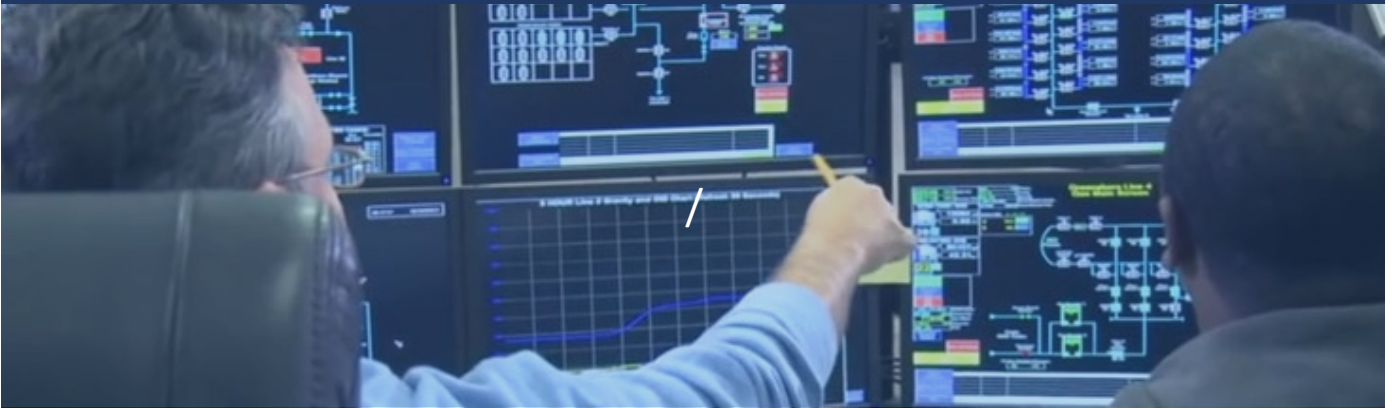
### Preventative Pipeline Maintenance

Pipeline operators perform preventative maintenance on their pipes to address potential issues before they become a problem. For example, an inspection may tell a pipeline operator a small amount of corrosion is starting to form on the pipe. It does not yet pose a problem for the pipe, but needs maintenance to remove and keep the pipe in safe condition.

### 24/7 Pipeline Monitoring

Pipeline operators monitor their pipelines from a central control center 24 hours a day, 7 days a week, 365 days a year. Specially trained controllers keep a watchful eye over systems monitoring pipeline pressure, flow and volume. Operator personnel patrol along the pipeline route and personnel in airplanes or helicopters travel overhead the length of the pipeline on a regular schedule looking for signs of leaks.

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Pipeline operators monitor their pipeline networks around the clock and can rapidly shutdown and close off a pipeline if a problem is detected

### Rapid Shutdown

Pipeline operators can quickly shut down a pipeline if monitoring technology suspects a leak. From their central control centers, pipeline operators will remotely stop pumps and close isolation valves. Pipeline control personnel are trained to shut down their systems, diagnose whether an alarm is showing a leak, and not restart until personnel determine the pipeline is operating safely.

### Emergency Planning & Practicing

Pipeline operators have extensive emergency response plans to handle a pipeline incident if one were to occur. The federal government approves operator emergency response plans and operators share their plans with local authorities. Pipeline operators know in advance who to contact in case of an emergency and have support personnel and equipment reserved to deploy to an incident site.



Pipeline operators practice deploying equipment to contain and cleanup pipeline incidents

Pipeline operators regularly train their employees and practice their response plans to be ready for a pipeline incident. Pipeline operators work with local authorities, first responders, response contractors and other local stakeholders during drills conducted to practice emergency response.



Pipeline operators work with local first responders to practice and be ready for a pipeline incident

### Emergency Response

With 99.999% of the crude oil and petroleum products reaching their destination safely by pipeline, actual pipeline incidents are relatively rare. Nevertheless, pipeline operators are prepared to respond to an emergency should it occur. Advance planning, training, drilling and equipment all help an operator respond as fast as possible. A rapid emergency response helps keep the size of a pipeline incident as small as possible.