



about pipelines



canadian energy pipeline association | association canadienne de pipelines d'énergie

Safe Pipeline Operations

Operating safe and reliable pipelines is critical to the pipeline industry. It is the fundamental premise behind everything that our member companies do. Pipeline operators undertake a wide range of activities in order to prevent incidents from occurring on their pipeline facilities.

What are the key aspects of operating a safe pipeline? There are several key aspects a pipeline operator can do to maintain the safety of their pipeline. Some of these are:

- Pipeline Integrity Management
- Corrosion Prevention
- Inspection
- Monitoring, Leak Detection and Isolation
- Damage Prevention

What is involved in Pipeline Integrity Management? Pipeline Integrity Management involves a series of activities, using a systematic, comprehensive approach, to manage the safety and integrity of pipeline systems. Pipeline integrity management is achieved through thoughtful design, prudent selection of materials, use of careful construction practices and the diligent operation of pipeline systems. During the operational life of a pipeline, operating companies strive to maintain pipeline integrity through the application of multiple practices to maintain safe, environmentally responsible, and reliable service from their systems.

What is Corrosion Prevention? Corrosion is a naturally occurring phenomenon that happens when metal reacts to the environment in which it exists. Pipeline operators try to prevent corrosion by applying coatings to the outside of their pipelines. This helps to isolate the steel of the pipeline from the underground environment and so inhibits the development of external corrosion. Additionally, cathodic protection is applied to pipeline systems to provide supplemental protection against the development of external corrosion at any location where the coated pipe surfaces may have been damaged. For more information on corrosion, please take a look at our fact sheet on the subject, which can be found at www.aboutpipelines.com.

What do we mean by Inspection? Every year, pipeline operators are involved in inspecting and re-inspecting elements of their pipeline systems. There are different ways to inspect a pipeline. One of these ways is through the use of 'smart' in-line inspection tools. These computerized tools travel inside the pipeline and have the ability to identify and locate pipeline anomalies.



Figure 2: Image courtesy of TransCanada PipeLines Ltd.



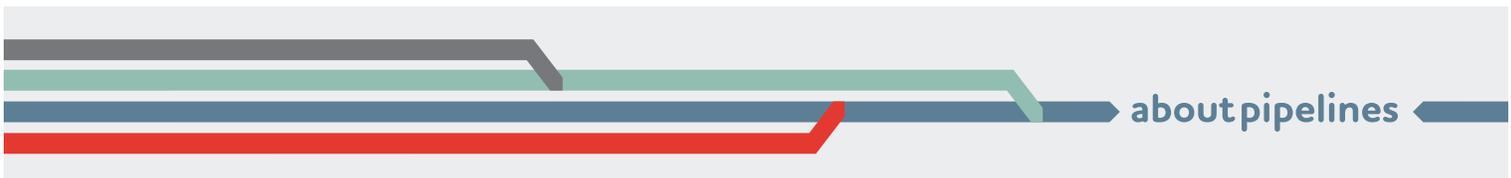
Figure 3: Image courtesy of Baker Hughes Company Canada



Figure 1: Image courtesy of Alliance Pipeline

"Ensuring pipeline operations remain safe is an extensive, intensive and ongoing process for pipeline operators, a process CEPA and its members aim to improve even further through our Integrity First® program."

Ziad Saad
Vice President,
Safety & Sustainability
Canadian Energy
Pipeline Association



These anomalies are then prioritized and assessed by qualified engineers and corrective actions may take place. Corrective actions could include digging up and repairing the piece of pipe or replacing sections of the pipe.

What is involved in Monitoring, Leak Detection and Isolation?

Monitoring, leak detection and isolation also play an important role in operating a safe pipeline. Pipeline operators are continuously monitoring the pipeline, 24 hours per day, 365 days per year, from their control centres. Every pipeline operator has a control centre, which is the hub of pipeline operations. These control centres use devices, such as Supervisory Control and Data Acquisition (SCADA) systems, to collect information from sensors installed along the pipeline route. This information is then transmitted back to the control centre. In the control room, highly qualified technicians, who have received extensive training in pipeline operations and emergency response, evaluate the information and determine if further action is required.



Figure 4: Image courtesy of Alliance Pipeline

The SCADA systems also allow the pipeline operators to remotely control pipeline flows by starting and stopping pumps and compressors, and opening and closing valves. If a significant leak occurs, automated leak detection systems, which continuously monitor pipeline flows, have the ability to alert the control centre technicians. The technician may be required to isolate sections of the pipeline with automated or manual block valves that are strategically located along the pipeline. Pipeline operators also use other leak detection methods such as aerial and ground patrols, as well as investigating concerns raised by the public.

What do we mean by Damage Prevention? The most common cause of damage to a buried pipeline is the uncontrolled excavation or undertaking of a digging project without the knowledge of where that pipeline is located. To prevent damaging the pipeline, it is critically important for pipeline operators, and those in communities through which pipelines pass, that are involved in underground work around pipelines to follow safe digging practices through accurate identifying, locating, and marking of buried utilities. The public can also play its part by contacting a provincial One Call centre or line locating service before doing any digging, especially with mechanical equipment. This will help prevent project delays, disruption of essential services, property damage, environmental contamination and serious injury.

Will following safe pipeline operations prevent incidents from occurring? Although they are the safest way to transport oil and natural gas products, pipelines are not completely risk-free. Pipeline integrity management programs and other preventative measures have been in place since the 1950s. They are used to reduce the risk associated with the operation of a pipeline as much as possible. In fact, our member companies, through CEPA, have initiated a program called CEPA Integrity First®. This program is designed to improve pipeline performance in the area of safety, environment and socio-economic matters. For more information on CEPA Integrity First®, please visit our website at www.aboutpipelines.com.

For more information on operating safe pipelines please visit:

Canadian Energy Pipeline Association
www.aboutpipelines.com

Canadian Common Ground Alliance
www.canadiancga.com

Individual pipeline company websites

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