FAST FACTS ON PIPELINE REGULATION

• Petroleum pipeline routes must be patrolled at least 26 times a year.
• Valves must be checked routinely for functionality.
• Corrosion prevention systems must be checked and maintained.
• Prescribed maintenance and inspection of other facilities at intervals dictated by the environment in which the pipeline operates is federally regulated.
• The Office of Pipeline Safety under the U.S. Department of Transportation has jurisdiction and frequently audits pipeline operators’ procedures, records and facilities.

COMPREHENSIVE PIPELINE SAFETY PROGRAM

Pipeline incidents are not common, and Enbridge’s goal is to have zero incidents that result in worker injuries or pipeline releases.

A comprehensive set of national standards, federal laws and regulations have developed over many decades that prescribe design, construction, operations, maintenance, worker qualifications, and emergency response planning for liquid petroleum transmission pipelines.

Enbridge has invested millions of dollars in advanced monitoring and inspection practices and continues to make progress toward achieving our ultimate goal of no major pipeline releases. Our comprehensive safety measures include:

• Design and specification of facilities, including a built-in safety factor for planned operating conditions and pressures,
• High-quality pipe materials and special coatings that protect our pipelines,
• Cathodic protection to prevent corrosion,
• Testing and inspection of new facilities before they go into service,
• Product sampling to ensure quality standards are met for transportation,
• 24-hour computerized pressure monitoring,
• Routine aerial and right-of-way patrols,
• Internal pipeline inspection,
• Routine maintenance programs, and
• On-going emergency response training for employees and with local emergency responders.
Design
Experienced engineers, manufacturer and specialists plan and design new pipeline systems to meet or exceed a host of national consensus standards, codes, federal regulations, applicable state and local requirements.

Construction
Pipelines are built with high-quality steel pipe tested for strength at the factory and in the field. The pipe is coated with anti-corrosive, fusion-bonded materials. Enbridge inspects every weld, far exceeding the required 10 percent sampling mandated by federal regulation. Field welds are also coated with anti-corrosion material. Before operation begins, the pipeline is pressure tested with water at levels above and beyond normal usage.

Real-time Monitoring
The entire pipeline is monitored in real time by our computerized Pipeline Control System and trained controllers. In the event there is an abnormal change in pressure, alarms are sounded, and the Pipeline Control System can either automatically initiate pump shut down, or control room operators will safely shut down the pipeline within minutes and mobilize trained field personnel to investigate.

Internal Inspections
Part of pipeline maintenance is locating and repairing defects that could weaken the pipe strength. Internal inspections are performed regularly to check for cracks, dents and corrosion. These devices use sophisticated technology to assess the condition of the pipe electronically, allowing precise analysis.

Integrity Digs and Verifications
In some cases, the inspection tool locates a feature that requires a visual inspection to determine if a repair or other action is required. The area around the pipeline is excavated so the feature can be examined directly. This is called an Integrity Dig. After the pipeline is excavated, the pipe coating is removed and the pipe is visually inspected. In some cases, the pipe is cleaned to stop early signs of corrosion, and the coating is replaced. In other cases, the pipe section is repaired by wrapping sections of new steel pipe around the original pipe. And, in some cases where there may be several anomalies located in close proximity, a segment of pipeline will be replaced.

Patrols
Another method we use to protect our pipelines is by physically patrolling the pipeline route. This is done in two ways: on the ground and by air. Ground patrolling is just that – walking the route to check for potential hazards. Air patrols occur regularly and are an important part of our pipeline maintenance. Often it’s the pilots who spot something, such as visible signs of a potential release or flooding conditions that may have eroded soil supporting the pipeline. Enbridge crews are then sent to check the location on the ground. Our aerial patrols can also see excavations, construction or logging activity near the pipeline, and these activities are reported and investigated.

Markers identify the general location of the pipeline. Large aerial markers provide mile marker locations for our pilot to see during routine fly-over surveillance.
Our comprehensive pipeline integrity assessment, maintenance and management programs include the tools, technologies and strategies needed to ensure our pipeline network has the strength and operating capability to perform safely, reliably and in an environmentally responsible manner.

**Dig Safely**

The best way to deal with releases is to prevent them. That’s why Enbridge, along with other utilities, sponsors programs to educate excavators, other contractors and the general public about the hazards of working near buried facilities.

Permanent pipeline location signs along the pipeline route provide awareness but not exact location of the underground pipeline.

Development of safe digging practices and aggressive national excavation one-call systems have sharply reduced the number of accidents caused by excavating equipment. When we receive a call, our trained technician will visit the work area where digging will take place, physically locate and mark our pipelines. When responding to a one-call request, our crews will stake the exact location and also check for the depth of cover over the pipeline. If planned excavation is close to the pipeline, we require our technician to be on site and workers to follow strict guidelines in order to protect our pipeline. There is no cost to the public, a company or contractor to call.

If an internal inspection tool indicates a potential feature, a closer visual assessment of the pipe can be done. An integrity dig exposes the pipe to allow for visual examination, and the appropriate repairs can then be completed. Recoating, sleeving, or replacement of a section of pipe are the most common remedies.

Sleeving repairs involve wrapping a section of new steel pipe around the segment that requires repair, returning it to original design strength for many more years of safe operation. All repair options extend the pipeline’s integrity for decades to come.