Asset integrity and reliability

Why it's important

We believe that pipelines are the safest and most reliable way to transport the oil and natural gas that fuel our economy and enable modern society. While infrequent, spills or releases of oil or gas are possible and have the potential to affect people, communities and the environment. Our asset integrity practices are aimed at ensuring that our pipeline systems are maintained in the condition they were designed to be – so that the environment and those living around pipelines are protected, and that we can ensure the reliable and safe delivery of energy to our customers.

Our approach

Our Safety and Reliability Policy articulates our overarching commitment to safety and reliability, and is an umbrella policy that incorporates policies related to six management programs that each business unit must implement.

A robust governance framework identifies accountabilities and responsibilities at every level of the organization – from Enbridge's Board of Directors through to all workforce personnel (including employees and contractors). Among other things, everyone has the authority to stop unsafe work and is expected to report hazards, potential hazards and incidents. Safety performance metrics are tied to each Enbridge employee's short-term incentive pay.

We take a lifecycle view of system safety, from design and construction, to prevention and asset integrity, to ongoing monitoring and leak detection. We've steadily advanced the use of predictive reliability modeling to support risk-informed decision-making. Instead of basing inspections solely on legal requirements or known degradation problems, our business units supplement fitness-for-service assessments with reliability models that address uncertainty and potential gaps in our pipeline condition monitoring. This combination of reliability assessments and fitness-for-service assessments has greatly improved the integrity management of our liquids pipelines and is now being applied enterprise-wide.

Our integrity management programs include specific triggers for when precautionary actions must be taken. Lessons from near misses and incidents, including incidents experienced by other pipeline companies, are shared within the Company, reviewed on a recurring basis and fed into the ongoing improvement and quality controls for our procedures and practices. Surveys also bring the voice of our employees into the conversation about continuous improvement to identify challenges, opportunities and innovations.

To underscore our belief that the safety of our assets must be demonstrated (not assumed), we implemented the voluntary industry standard (CSA Z260-19: Pipeline system safety metrics) for pipeline system safety performance enterprise-wide in 2020. The heightened transparency around leaks and releases has led to conversations about the cause of, and how to prevent, even very small incidents with the most senior members of Enbridge's leadership and has been used to establish a baseline for setting business unit targets going forward. This management practice is intended to keep pressure on our drive for zero incidents and industry-leading performance across Enbridge.

To help prevent third-party damage, we have an extensive public education program for pipeline safety awareness to promote safe digging practices. Enbridge continues to foster a proactive approach to reducing damages by liaising with the excavating community, adopting best practices and identifying opportunities through the advancement of technologies. Enbridge also supports and is a member of one-call and locate services to drive excavation safety.

How we take action	
Design and construction	**Monitoring, prevention and operations**
• Carefully select pipeline routes and facility locations • Follow strict standards for engineering and design • Conduct extensive testing and validation before introducing new materials and technology • Incorporate special design considerations for areas such as road, river and creek crossings • Set rigorous standards for pipeline materials received from manufacturers and continually confirm those standards are met • Employ professional inspectors to oversee every facet of construction; use X-ray or ultrasound technology to inspect welds for potential defects	• Once pipelines are commissioned and operating, continuously monitor them for any signs of trouble • Conduct inline inspections to detect any signs of internal and external corrosion, cracking, strain, fatigue, dents and legacy manufacturing defects, repair any defects found • Recognize conditions that previously caused failures and carefully analyze failures from our peers. Take a structured, systematic and methodical approach to mitigate or eliminate the risks • Provide adequate cathodic protection for steel pipelines • Minimize pressure cycling to limit fatigue • Conduct regular preventative maintenance • Monitor land use changes and ground disturbance work around pipelines • Inform the public, public works and excavating companies about the presence of pipelines, and how to dig safely • Locate pipelines for parties digging near or on our ROWs • Investigate unauthorized activities on ROWs • Devote resources – both people and automated systems – on a continuous basis to ensure control of pipelines and rapid response to abnormal situations • Apply comprehensive, multi-layered liquids leak detection system using several independent methods • Monitor pipelines for possible leaks and damage using multiple, redundant methods

Our goals

- Continuous improvement toward a goal of zero incidents.

More information

Explore our commitment to pipeline safety, on land and in water, through this interactive experience.

See our 2021 Sustainability Report for performance data and highlights.