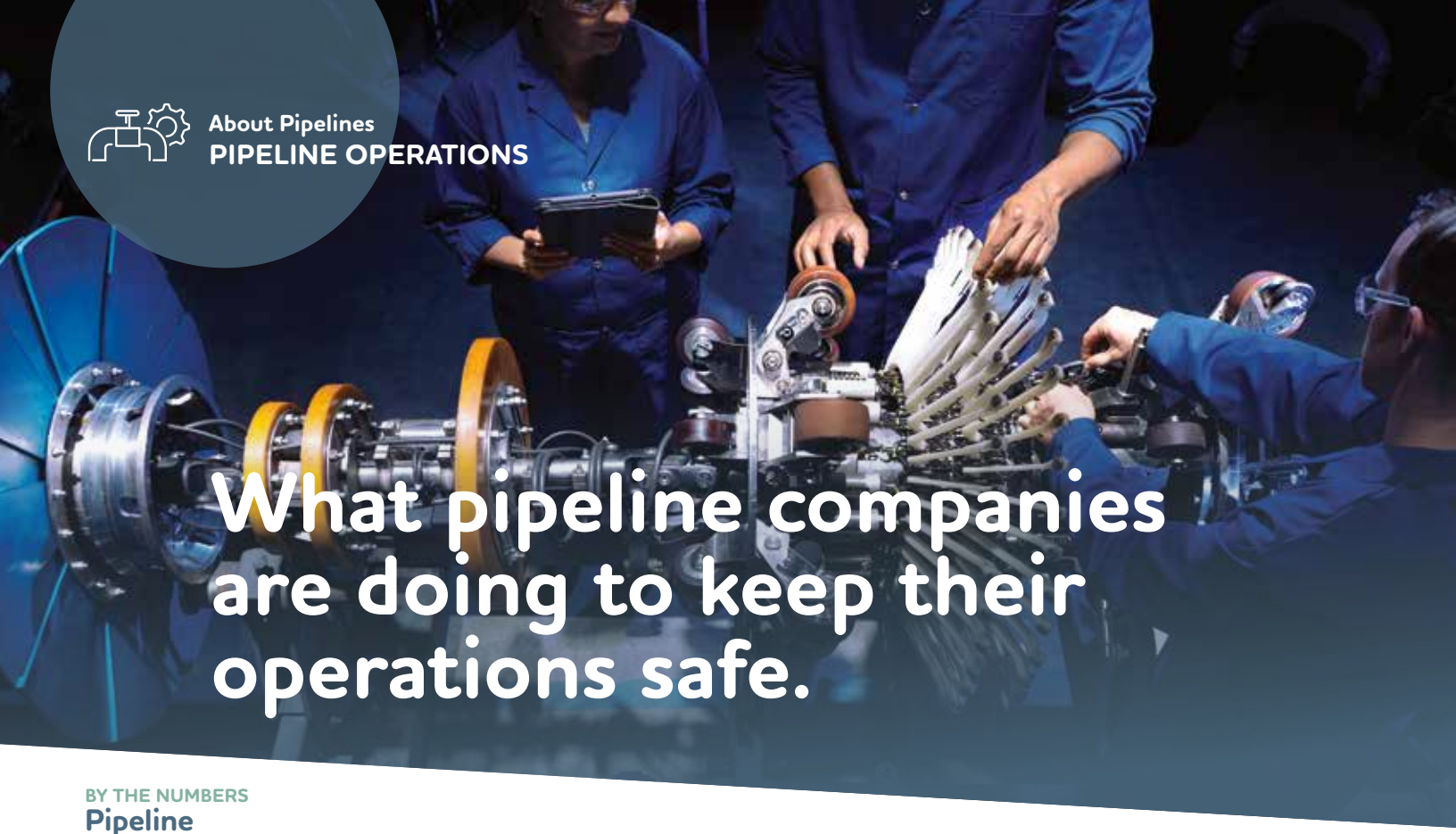

What pipeline companies are doing to keep their operations safe.

BY THE NUMBERS

Pipeline operations

3

METRES PER SECOND

The average speed a smart pig (an in-line inspection tool) moves through the pipeline to monitor conditions.

2,557

In 2017, the number of pipeline integrity digs CEPA members conducted to examine for defects and make repairs.

$22.8

MILLION

Invested in innovative technology in 2017.

Canada is the second largest country in the world and one of the top five largest energy producers. In fact, the Canadian transmission pipeline system spans 117,800 kilometres. It's no wonder that Canada's pipeline operators use a variety of systems and technologies to keep them running safely and efficiently across our vast country.

Pipeline operators are responsible for delivering the majority of Canadians' energy needs, and are committed to safely shipping natural gas and crude oil products through well-maintained pipelines.

That's why the industry carefully plans out every detail in the life of a pipeline – from materials to monitoring, inspection and maintenance. This process is known as pipeline integrity management and makes sure pipelines are designed, built and operated to be safe, reliable and sustainable.

The technology behind safety

The industry's commitment to pipeline integrity management drives us to use the most innovative technologies for safe operation of pipelines, particularly:

- Corrosion prevention.
- Inspections.
- Leak detection.
- Damage prevention.

Protecting and inspecting

Corrosion is the natural enemy of pipelines. It's caused by a chemical reaction between water and oxygen in the presence of metal. Often corrosion results in rust, which can weaken the metal in a pipeline.

To prevent corrosion, the industry uses special coatings on the pipes. Pipeline companies also apply a low voltage electrostatic current to the pipes that blocks the chemical reaction resulting in corrosion. This is called cathodic protection.

Maintenance is critical, which is why pipelines are inspected regularly. Whether it's simply walking along the pipeline route or looking inside the pipe – inspections keep pipelines safe.

"Smart pigs" are used to look inside the pipe. These are advanced inspection tools that use sensors to identify and locate problems that may be difficult to see without having to dig up the

CORROSION TESTING
Pipeline operators monitor and test for corrosion to mitigate any potential issues long before a leak or a failure could occur.

pipeline. If an in-line inspection detects a problem, operators will conduct an integrity dig to take a closer look and repair if needed.

Integrity digs

An integrity dig is conducted to inspect the pipeline, using detailed information from the in-line inspection on the location and the nature of the anomaly.

A section of pipeline is excavated to provide an up-close view. The topsoil is carefully removed, preserving each layer to be replaced later. The exposed section of the pipeline is closely inspected. If repair is needed, a protective sleeve may be placed over the anomaly, or the entire segment replaced.

The pipe is recoated with a high performance coating to prevent corrosion or damage, the soil is replaced and the land is restored to its previous state. The process is one of the most effective ways to proactively prevent a spill or leak.

Sensing and preventing

Leak detection is also done from control rooms. Active 24 hours a day, seven days a week, technicians monitor the line and collect information about the temperature, flow rate and pressure using sensors along the pipeline route. Alarms automatically go off if a leak or problem is detected, and parts of the pipeline can be instantly shut off remotely.

Preventing third party damage

A common cause of damage to pipelines is from construction and excavation activities by contractors, construction companies and homeowners, damage that can be prevented by checking to see where the underground utilities are before they dig. Every province has a line-locating service Canadians must contact before they begin a project, so that buried utilities can be located and marked before digging starts.

Click Before You Dig.com

This simple call or click prevents project delays, disruption of essential services, property damage, environmental contamination and serious injury. Visit clickbeforeyoudig.com for more information.

CEPA members collectively invested $22.8 million in innovative technology in 2017, focused on reducing pipeline corrosion and improving pipeline inspection, leak detection and damage prevention.

In 2017, CEPA members invested more than $1.6 billion in maintaining and monitoring their Canadian pipeline systems. For more information, visit *aboutpipelines.com/en/safety*

Technologies coming down the pipe

Researchers and engineers around the world are focused on developing new technologies to advance the safety of pipelines. For instance, highly sensitive fibre-optic technology on the pipeline can instantly detect changes as minor as people walking on a pipeline 1,500 kilometres away.

Read about new technology on our blog: bit.ly/2JP46qA

“CEPA members are 100% focused on safety and on achieving zero incidents.

The safety performance of the Canadian transmission pipeline industry is world class and continues to improve.”

CHRIS BLOOMER, PRESIDENT + CEO
CANADIAN ENERGY
PIPELINE ASSOCIATION

CEPA
canadian energy pipeline association | association canadienne de pipelines d’énergie

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