



National Energy
Board

Office national
de l'énergie

BUILDING AND INSTALLING A PIPELINE

ISSUE: BUILDING AND INSTALLING A PIPELINE



Designing and engineering a pipeline is a lengthy and detailed process to ensure the safety of Canadians and the environment.

Pipeline construction under National Energy Board (NEB or the Board) regulation consists of a number of distinct activities that each contribute to the long-term integrity of the pipeline as well as to minimize the impact to the environment and those living near the pipeline.

The process:

- If a pipeline is approved and once the route is finalized, the right-of-way is surveyed and staked for any temporary working space required for construction.
- Trees and vegetation are removed from the right-of-way (ROW) and the topsoil is removed, stockpiled and protected for future reclamation. Silt fences are installed along edges of streams and wetlands to prevent erosion of disturbed soil and for protection of the water courses.
- Excavators dig the trench to the required depth and place the excavated soil to the side.
- Individual lengths of pipe ranging from 12 to 24 meters long are laid out end-to-end along the right-of-way.
- Individual joints of pipe are bent using a hydraulic bending machine for directional changes and to fit the terrain.
- Welders join the individual joints of pipe together using either manual or automated welding processes with every weld inspected and certified using non-destructive examinations including X-ray or ultrasound methods.
- The outside of the pipeline is coated to prevent corrosion or rusting, typically with fusion bond epoxy.

QUICK FACTS:

- Pipeline integrity begins with sourcing the materials
 - oil and gas pipelines are generally constructed from steel with an inner diameter typically ranging from 100 mm to 1,200 mm (four to 48 inches).
- Individual lengths of pipe ranging from 12 to 24 meters long are brought in from stockpile sites and laid out end-to-end along the right-of-way.
- The steel used is of the highest quality and manufactured to stringent Canadian Standard Association (CSA) specifications.

- The welded pipeline is lowered into the trench using heavy lifting machines called side booms.
- Valves and other fittings are installed at intermediate locations as required by the Canadian Standards Association pipeline code. The valves are used once the line is operational to shut off or isolate part of the pipeline.
- Once the pipeline is in place, select backfill may be used to protect the pipe. Subsoil and topsoil are then replaced in the sequence in which they were removed.
- The pipeline is pressure tested, typically with water, to ensure integrity of the complete system of the pipe, welds, fittings and valves. A successful test is required to obtain certification for the pipeline to operate.
- The final step is to reclaim the pipeline right-of-way, removing any temporary facilities, re-seeding and restoring the land.

