

PIPELINE CONSTRUCTION

INTRODUCTION

This policy describes the trade jurisdictions in the pipeline construction sector. Pipeline construction is one of the four construction industry sectors.

There are four trades operating within this sector: labourers, operating engineers, pipefitters and teamsters. Each trade has a separate pipeline construction appropriate bargaining unit. All four trades engage in registration bargaining.

This policy outlines:

- the pipeline construction sector;
- the trade jurisdiction within pipeline construction; and
- the sequence of pipeline construction.

THE PIPELINE CONSTRUCTION SECTOR

There are four sectors for construction: pipeline construction; roadbuilding and heavy construction; general construction; and specialty construction. (For a more complete description of the sectors, see: [Roadbuilding and Heavy Construction, Chapter 25\(e\)](#)).

A pipeline is a system of connected lengths of pipe or joints, usually buried in the earth or laid on the seafloor. It is used for transporting petroleum, natural gas, water and other materials as well as underground and marine cables. A pipeline serves as both a conveyor and a temporary container.

A pipeline is constructed in a particular sequence with employees working in composite crews. The equipment and crew needed to build a pipeline is called a spread. Modern spreads, similar to moving assembly lines, can consist of 100 pieces of equipment and over 500 workers.

The construction of compressor stations, pumping stations, storage facilities, and other structures connected to the pipeline is not part of pipeline construction. This work requires multiple trades and falls under the industrial part of the general construction sector. See: [[General Construction, Chapter 25\(g\)](#)]. Pipeline construction does not include construction of an urban water transmission line. See: [*UA 488 v. Christman Installation Ltd.* [1993] Alta.L.R.B.R. 197]. It does, however, include preliminary clearing of the pipeline right-of-way. See: [*Neegan Development Corporation Ltd. v. Labourers.* 92 [1994] Alta.L.R.B.R. 326].

Pipelines come in different sizes. Some are the larger size or “big-inch” pipeline, usually 16" and above in diameter. These large central lines transport products from major points of production to

refineries and gas plants and eventually to markets in Alberta, other parts of Canada and the United States. Others are the smaller size or “small-inch” pipelines, usually 14" and less in diameter. These are used for gathering systems or flow lines connecting gas plants or oil refineries to the larger diameter central line which moves the products to market.

Only a few, large contractors construct the big-inch mainline pipelines. Most of these contractors are unionized. They have historically bargained together on a national basis for the Mainline Pipeline Agreement. Many of the small-inch contractors, on the other hand, are not unionized.

PIPELINE TRADE JURISDICTION

Each trade jurisdiction is exclusive of the others. The work of employees in each trade generally does not overlap. The following is a general guideline of the type of work included in each trade jurisdiction. (Refer to the Mainline Pipeline Agreement for Canada for scope of work and descriptions of the classifications covered by each trade).

- **Labourers:** This work includes: helping the surveyor; directing traffic; making up and setting explosives; cutting and clearing trees; locating buried structures with an electronic device; cleaning and preparing the pipe for the weld (except the final buff); operating a non-mechanical dope pot (contains coating mixture); applying the pipe coating; and checking for and repairing flaws in the coating; operating power and hand tools such as power saw, jackhammer, and drills; fabricating, erecting, installing, dismantling, rehabilitating, salvaging and demolishing all structures and accessories connected with pipeline construction such as reinforced concrete, pipe insulation, piles and pipe supports; hand digging in ditches to maintain the required grade; and, other general labouring duties not covered in the other trade jurisdictions.
- **Operating Engineers:** This work includes: surveying; operating equipment such as boom tractors, backfillers, mechanical pipe coating equipment, bulldozers, backhoes, cranes, shovel, etc.; heavy duty mechanics and service unit operators who repair and service the equipment; apprentice operators, mechanics, and engineers who assist the journeymen; helpers such as a spotter who assists operators in the spotting, placing, maintaining and cleaning of certain types of equipment, an oiler who oils, greases and helps the operator on certain types of equipment, and a greaser who services vehicles at a location on the site; and repair welders who work on the equipment, and their helpers.
- **Pipefitters:** This work includes: the preparation of the pipe for the weld including final buffing of pipe bevels, placing or stabbing a section of pipe for spacing, lining up and spacing of two sections of pipe, operating line-up clamps when setting in joints of pipe; welders, including rig welders, who weld the pipe and their helpers; servicing of automatic welding equipment; and all other installing, aligning, fabricating, and fitting of linepipe, compression, metering or pump piping valves, components and accessories.

- **Teamsters:** This work includes: the transportation of workers, materials, parts, equipment and machinery to and from the construction site and the warehousing of these. This includes the bus drivers who take the workers to and from the job site daily, fuel truck drivers, pipe and pole trailer truck drivers who haul and string the pipe on site, dump truck drivers, and other truck drivers on site. The warehouseperson is the receiver and parts person. S/he is essentially responsible for the materials handling function for the job.

SEQUENCE OF PIPELINE CONSTRUCTION

The construction of a pipeline is like an assembly-line production. Each segment is dependent on the other for start-up and completion. If there is a delay in one segment, it delays completion of the overall project. For example, you cannot string pipe along a right-of-way until the right-of-way is cleared on the construction site. Each segment has a composite crew of construction workers. The following is a breakdown of each crew and its role in getting the pipeline built.

- **Clearing Crew:** This crew removes brush, trees, rocks and other obstructions from the pipeline's right-of-way. The trades involved are the operating engineers, labourers and teamsters. The operators run the heavy equipment, with a helper or apprentice assigned to each. The mechanics and service people maintain the equipment. The labourers clear the trees and do any manual digging and moving required. The labourers also make up, set and discharge any explosives required to clear rock or other material. The teamsters drive the buses and trucks.
- **Grade Crew:** This crew levels the ground to achieve a uniform grade for the pipeline. They provide a smooth and even work area to facilitate the movement of equipment onto and along a right-of-way. The trades involved are operating engineers (including surveyors), labourers and teamsters. The labourers do the hand digging, if required, while the operators run the equipment and do the surveying. The teamsters drive the buses and trucks.
- **Ditch Crew:** This crew excavates trenches on the right-of-way in which to lay pipe or cable. The trades involved are operating engineers, labourers and teamsters. The operators run the equipment. The labourers do any hand digging, rock drilling and explosives work. The teamsters drive the buses and trucks.
- **Stringing Crew:** This crew delivers and distributes line pipe including joints of special wall thickness and pipe grade to specific locations. An example is at road crossings where heavy wall thickness is specified in the contract. The trades involved are teamsters to haul the pipe, operators to move the pipe, and labourers (swampers) who handle the load line. The teamsters also drive the buses and trucks (e.g., fuel truck).

- **Bending Crew:** This crew bend the joints (lengths of pipe) so the pipeline will conform to the topography of the right-of-way. This is done by a bending machine that is a track mounted hydraulic machine that bends a pipe to a precise angle specified by the bending engineer. The bend is made by a set of clamps that grip the outside surface of the pipe and prevent slippage. At the same time, a winch cable hooked to the free end of the pipe maintains the upward pull and guides the pipe through the machine. The trades on this are the pipefitters, operating engineers and labourers. The pipefitters operate the machine, the operators run the winch and the labourers handle the load line.
- **Pipe Gang:** The pipe gang positions the pipe, aligns it, and makes the welds. All four trades are involved. The labourers set the skids and prepare the pipe for the weld, except the final buff that is done by the pipefitter/helper. The operators lift the pipe and set it in place. The pipefitters do the final buff on the pipe, align it, and make the welds. The teamsters drive the buses and trucks.
- **Coating Crew:** This crew puts the primer, protective coating and final wrapping on the pipe. The pipe coating is a special material that coats pipes for pipelines. It prevents water from coming into contact with the steel of the pipe and causing corrosion. The pipe is cleaned and primed first with a self-propelled machine that removes any loose material from the pipe surface with a rotating set of brushes or buffers. It then applies a thin coat of primer in preparation for the coating. A dope pot is a portable container used to melt coal-tar enamel and maintain it at the required temperature for the pipe-coating operation. A pipe-coating machine runs along the pipe and applies an even layer of coating material to the pipe. The crew repairs any coating flaws. Material is then placed or wrapped on the pipe coating to protect it. The trades involved are labourers, operators and teamsters. The operators run the mechanical dope pots, the cleaning, doping, taping and wrapping machines, the mechanical pipe coating equipment, and service and repair the equipment. The teamsters drive the coating truck. The labourers do the rest of the work.
- **Lowering-in Crew:** This crew lays pipe in a ditch. The pipe is lowered as part of the coating operation or separately by a lowering-in crew. The trades involved are operating engineers, labourers and teamsters. The operators run the equipment. The labourers move the skids and do any other manual labour required. The teamsters drive the trucks that haul the skids and the fuel truck.
- **Back Fill Crew:** This crew covers the pipeline so adequate material is underneath as well as above the pipe. This includes replacing the topsoil and returning the right-of-way to its original or better condition. This involves the operating engineers and labourers. The operators run the equipment and the labourers do the manual work (e.g., removing rock, hand fill).

- **Fabrication Crew:** This crew welds fabrication assemblies into the line before the tie-ins. These workers work independently from the rest of the spread. Fabrication is defined as a collective term for the specialized connections and fittings on a pipeline. Fabrication assemblies control product flow and direct products to the proper location. They also aid in product separation and facilitate maintenance operations. The pipefitters are the trade primarily involved in this crew. Labourers perform manual preparation work.
- **Tie-In Crew:** This crew completes those construction tasks bypassed by regular crews. These include welding road and river crossings, valves, portions of the pipeline left disconnected for hydrostatic testing, and other fabrication assemblies. They also include taping and coating the welds. The trades involved are pipefitters, operating engineers, labourers, and teamsters. The pipefitters align the pipe and complete the welds. The operators move the pipe and piping accessories such as valves, components, etc. The labourers do any hand digging that might be required, and the taping and coating of the welds. The teamsters haul the parts.
- **Testing Crew:** This crew tests the line to prove its structural soundness and ability to fulfil its design function. In hydrostatic testing, the line is filled with water and then pressurized. Any ruptures or leaks revealed by the test are repaired. In non-destructive testing, the quality of both production and field welds are checked without altering them or affecting future usefulness by x-ray testing. This testing is done during construction and at the end.

Hydrostatic testing is sometimes done by the general contractor and other times subcontracted to a speciality contractor. The trades involved are pipefitters, labourers and operators. The pipefitters have the foreman, welders, pipefitters and graded helper on the crew. The labourers do the manual labour (e.g., digging ditches, putting up tents, etc.). The operators run any equipment needed. The x-ray testing is done by a subcontractor who specializes in non-destructive testing. The owner accepts bids for this work before the project begins. These speciality subcontractors, if unionized, employ Quality Control Council members. The council members are also members of the pipefitters and boilermakers building trades locals. See: [[Speciality Construction, Chapter 25\(f\)](#)].

- **Clean-up Crew:** This crew completes the final clean up on the construction site. This involves operating engineers, labourers and teamsters. The operators complete the backfilling. The labourers do the manual clean up. Teamsters haul material and equipment.