

# Innovation across Canada

## Waterbombers fight fires with foam



Canadair waterbomber discharges a load of Lorcon-Silvex.

An Ottawa-based division of Wormald Fire Systems of Toronto, Ontario has developed a new fire extinguishing agent that enhances the forest-fire fighting capability of Canadair's amphibious waterbomber, the only aircraft in the world specifically designed to fight forest fires.

The chemical agent, Lorcon-Silvex, is mixed with the water that is picked up by the CL-215 twin-engined aircraft through a special on-board injection system developed by Aerospatiale of France and modified by Canadair Limited of Montreal, Quebec. When the mixture is released into the air, it becomes a foamy white blanket that clings

together as it falls on its target.

George Cowan, Wormald product application manager, said about 40 per cent of the foam is absorbed by trees and plants and the rest seeps down to the ground and penetrates up to 25 centimetres into the undergrowth to prevent fires from burning underneath. He added that little foam is vaporized and the mixture smothers much of the fire's smoke.

The mixture has been very successful fighting fires in France and Spain. It was also supplied to the British Columbia forestry ministry during the summer for use on the large fires in Invermere and Canal Flats.

## Latest technology advances rail operations

Canadian National Railways has begun to implement new operations technology that will eventually include robot locomotives at its Symington Yard in Winnipeg, Manitoba.

The new Hump Yard Improvement Program (HYIP) is expected to make the yard one of the most advanced in North America.

### Process control

The first development, to be implemented this fall, is a "process control system" that regulates humping activity.

A "hump", is a specially constructed hill over which yard engines push individual railway cars. As the cars roll down the tracks under their own momentum, they are sorted and sent to specific yard

areas to be coupled with other cars.

In the new system, a supervisory computer sends orders to microcomputers, which relay them to devices that slow the cars and route them to appropriate tracks. It then sends a message to another computer that keeps tabs on the location of all cars in the yard.

### Signal control

The second improvement, a signal control system, is scheduled to become operational in late 1986. Symington superintendent Keith Heller said most major passenger train yards now use signal systems.

Mr. Heller said a computer-based system with colour graphics monitors will allow opera-

## Mine water to heat town

Springhill, Nova Scotia is currently studying a plan to heat the town's buildings with warm water lying in dormant coal mine tunnels far underground.

If the plan proves feasible, home owners, businesses and institutions could save up to 40 per cent on heating bills.

The mines at Springhill, which were the world's largest and deepest coal mines at one time, were worked for about a century. Underground disasters in the late 1950s led to their closure and they have since been flooded.

The idea of using the warm mine water was suggested by Ralph and Kent Ross. Ralph Ross, a Springhill electrician, estimates the underground water temperatures range between 22 and 38 degrees Celsius.

### Double pumping

The process would involve pumping the water out of one seam into heat pumps, which would extract the heat before pumping the mine water back into the tunnels through another seam. Warm water from the pumps would then be further heated by conventional oil or electric systems, and circulated by a conventional space-heating system.

It would be a nearly inexhaustable resource, said Mr. Ross, because the mines are so deep — plunging two miles in some places — and the tunnels are so full of water, that it would be quickly reheated after use.

Mayor Bill Mont added that a report by a Halifax engineer contracted by Springhill showed that capital costs for installing the heat pumps, depending on the size of building and system used, could be recovered in two to eight years through energy savings.

tions tower personnel to easily plot entry and exit routes for freight trains, and issue the necessary track switching commands automatically. "That technology has never been put in the (freight train) yard," he said.

Both systems will interact with and help control an innovative and somewhat controversial robot locomotive control system, which will undergo testing in 1986.

The HYIP is also expected to double the traffic-handling capacity of the Symington Yard. George Engelberg, manager of the program said that "cars can be moved faster, and will spend less time idly in the yard before they are processed and moved out to their next destination".

CN is studying plans to implement the HYIP at its other yards in Edmonton, Toronto, Moncton and Montreal.