

# A QUARTER CENTURY OF SERVICE FOR CANADA'S FIRST BIG-INCH NATURAL GAS PIPELINE

by R. J. Payne

October 8, 1982 will mark the 25th year of service of Canada's first big-inch natural gas pipeline. Built and operated by Westcoast Transmission Company Limited, one of the three largest natural gas transmission companies in Canada, the pipeline system is a key link in an international gas grid that extends from northeastern British Columbia to New Mexico.

From its incorporation in 1949 by a special act of the Canadian Parliament, Westcoast has been a pioneer in promoting the transmission and export of natural gas on a large scale. Westcoast was the first Canadian company to establish that wells could be operated and gas dehydrated and transmitted in subzero temperatures. And it was the first Canadian company to build and operate an underground, high-pressure, large diameter pipeline in the environmentally sensitive muskeg and hostile permafrost areas north of the 60th parallel. In every sense, Westcoast's early northern experience established the feasibility of the Canada-United States Alaska Highway Gas Pipeline project currently under construction.

Westcoast's complex gas gathering system, totalling hundreds of miles in length, extends throughout the Peace river areas of northeastern British Columbia and reaches into Alberta, the Yukon Territory and the Northwest Territories. It is in these areas that are found the prolific gas fields of the great Western Sedimentary Basin—the seabed of a vast prehistoric inland sea that once stretched north from the Gulf of Mexico to the Arctic Ocean.

From the northern terminus in British Columbia's Peace River grain growing belt, the route of the Westcoast main transmission line swings south

through the lower elevations of Pine Pass in the Rocky Mountains, crosses the prime Spruce and Pine forest lands of the Prince George and Quesnel districts, passes the town of Williams Lake then traverses the rolling grasslands of the Cariboo cattle country to Savona and Merrit. The route then veers west and climbs through the rugged Coquihalla Pass in the Cascade Mountain Ranges where it reaches its greatest altitude of 4510 feet. From that point it descends to sea level at Hope in the farming region of the Fraser Valley and on to the Canada-United States boundary near Huntingdon southeast of Vancouver. There the pipeline connects with that of the Northwest Pipeline Corporation, an American utility company. Through this line, which is in turn connected with the lines of Colorado Interstate Pipeline Company serving Colorado and adjacent states, and the pipelines of El Paso Natural Gas Company serving New Mexico, Arizona and California, Canadian gas helps meet the rapidly increasing demand of millions of customers in villages, towns, cities and industrial complexes within economic reach of the pipelines.

Along the route of Westcoast's main transmission line there are seven major aerial or submerged crossings of the Peace, Fraser, Quesnel and Thompson rivers, 41 railway crossings, 66 cased highway crossings, and hundreds of road, small stream and creek crossings. In its long southward journey, the pipeline runs through 491 miles of provincial and federal crown lands, 376 miles of fee lands and touches 15 Indian Reservations.

During the past quarter century, Westcoast's right-of-way specialists and land agents have contacted more than



*Westcoast Transmission headquarters, completed in 1970, is the only building of its type in North America. The continuous concrete center core, which contains the elevators and support services, was built by continuously forcing concrete upward until the mold was filled. Then the building was built from the top down, floor by floor. The cables, which are attached to the core, suspends the main structure above the ground.*

2000 landowners throughout British Columbia whose holdings range from small town lots to ranches of nearly one million acres and all have proved cooperative in granting easements. Similarly, negotiations with both federal and provincial governments regarding pipeline passage through crown lands have presented no significant problems.

To acquire easements across Indian lands, Westcoast works with the federal Department of Indian Affairs and negotiates with Chiefs and Councillors of the various native bands. When agreement is reached and consent given, the department of Indian Affairs issues the required permits and the band

*(see Westcoast, pg. 38)*

*R. J. Payne is a free-lance writer who frequently produces articles for Westcoast Transmission Company, Limited. He has been published in a number of technical journals and national magazines. Payne also has developed a variety of award-winning documentary film scripts.*

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receives fair and equitable recompense for the use of its land.

When establishing pipeline corridors, Westcoast places environmental protection second only to human welfare. Environmental sensitivity is paramount to Westcoast because the pipeline in its northern reaches passes through remote wilderness and sparsely populated areas about which there is a paucity of available environmental and ecological data. Paralleling closely the procedures that are used in the United States, studies into the potential social, environmental, and economic impact of the proposed pipeline are prepared and submitted to the regulatory authorities having jurisdiction—in Westcoast's case, the National Energy Board of Canada. The proposal is also aired at public hearings before permission to build is given.

After construction, all rights-of-way, regardless of from whom acquired, are restored as nearly as possible to their original condition. This involves a thorough clean-up, grading to contour, replanting with indigenous grasses and other vegetation, fertilizing if found necessary, and rebuilding or replacing damaged fences and other structures. When crossing improved farmland, the fertile topsoil is stripped and conserved for re-use and when encountered, tile drains are repaired or replaced. Where complete restoration is not possible, as in the case of lost farm crops or felled

timber, the owner is 'made whole' by financial compensation at current market value established by company right-of-way agents, independent appraisers if retained, and timber cruisers.

Over the years, the Westcoast system has been expanded and looped to increase its throughput capacity. Today the 2,754-mile system encompasses 867 miles of 30-inch diameter mainline, 581 miles of 36-inch diameter mainline looping, and 1306 miles of small diameter gathering lines. A 10-inch diameter lateral pipeline 368 miles in length and traversing some of the most rugged terrain in western Canada, distributes gas through a Westcoast subsidiary company, Pacific Northern Gas Ltd., to customers in west-central British Columbia and two west coast ports. The company's two main Canadian customers are British Columbia Hydro and Power Authority serving Vancouver and the lower mainland of British Columbia, and Inland Natural Gas Co. Ltd. serving the interior areas of the province.

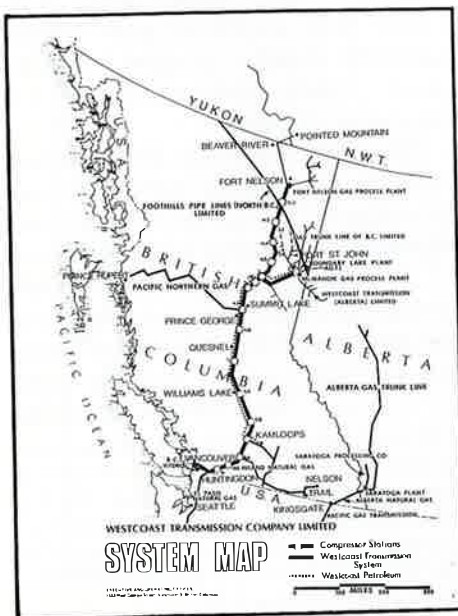
To handle the volume of natural gas which Westcoast markets, 17 mainline compressor stations, 14 booster compressor stations, and five gas processing plants are required. One of these plants, at Fort Nelson in northeastern British Columbia, is the largest of its type in the western world, capable of processing up to 1 billion feet of raw gas and recovering 400 tons of sulphur per day.

In its entirety, the Westcoast natural gas system is the largest 'river of energy' in British Columbia. It has a daily mainline capacity of 1.45 billion cubic feet and actually transmits more energy than is derived from any other source, surpassing even electricity and the hydro-electric potential of the mighty Peace and Columbia rivers. Each day an average of 412 million cubic feet is sold to Canadian distributors and 422 million cubic feet flows south to the United States. In 1981, the company sold enough gas to heat more than one-third of all the homes in Canada for an entire year.

Indirectly, Westcoast is also in the business of exploring for, developing, and producing oil. Westcoast Petroleum, a subsidiary company, built and operates an oil and condensate pipeline along some 500 miles of the existing Westcoast right-of-way starting at Taylor and connecting at Kamloops with the facilities of Tarns Mountain Pipe Line which services refineries in British Columbia and Washington state.

Another Westcoast-sponsored company, Saratoga Processing Company Limited, operates a pipeline and a gas processing and sulphur recovery plant in southwest Alberta. Gas from this enterprise is delivered to the United States via pipelines of Alberta Natural Gas which connect with the Pacific Gas Transmission system at Kingsgate on the British Columbia-Idaho boundary.

*(see Subsidiary, pg. 40)*



*Photo by Doris Morris*