

NORTHERN PIPELINE AGENCY
ANNUAL REPORT
1979-1980



Canada

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Northern Pipeline Agency
Canada

Administration du pipe-line du Nord
Canada

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December 31, 1980.

Dear Sir:

I present herewith the Annual Report of the Northern Pipeline Agency for the fiscal year ending on March 31, 1980, together with the report of the Auditor General on the accounts and financial transactions of the Agency for the same period, for submission by you to Parliament as provided for under Section 13 of the *Northern Pipeline Act*.

Yours sincerely,

A handwritten signature in dark ink, reading "Mitchell Sharp". The signature is written in a cursive, flowing style.

Mitchell Sharp,
Commissioner,
Northern Pipeline Agency.

Senator The Honourable H. A. (Bud) Olson, P.C., M.P.,
Minister responsible for the
Northern Pipeline Agency,
Ottawa, Ontario.

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ALASKA HIGHWAY NATURAL GAS PIPELINE PROJECT



See Project Description for metric measurements.

Major Developments in Canada and the United States Involving the Alaska Highway Gas Pipeline Project

Overview

During the course of 1979-80, intensive and wide-ranging activities were undertaken on both sides of the border by governments, regulatory agencies, sponsoring pipeline companies and Prudhoe Bay producers to resolve the many complex issues that remained outstanding with respect to the planning and construction of the Alaska Highway Gas Pipeline Project.

These activities were related both to the resolution of issues involving the mainline system — particularly the northern segments of the pipeline in Canada and Alaska and the gas conditioning plant at Prudhoe Bay — and to the first-stage construction of the southern portions of the pipeline in Canada and the lower 48 states initially for the export of surplus Alberta gas to U.S. markets.

Much of the attention in both countries was focussed on clearing the way for commencement of the first stage of the project with construction in 1980 of the Western Leg, to be followed by building in 1981 of the Eastern Leg. (All necessary approvals for proceeding with the first stage of the project were granted by Canadian and U.S. authorities by August, 1980, and construction on the Western Leg commenced immediately thereafter.)

Substantial progress was made during the fiscal year with respect to many facets of the design, engineering, routing and regulatory provisions for the northern segments of the system in Canada and the United States.

Concerted efforts were also made by the U.S. government, the pipeline sponsor, Northwest Alaskan Pipeline Company, the three main Prudhoe Bay gas producers — Exxon, Sohio and Arco — and

the State of Alaska to come to grips with one of the most challenging of all tasks, the financing of the multi-billion dollar pipeline system and the associated gas conditioning plant to be built in Alaska.

The pipeline sponsor and the producers made considerable strides in developing an agreement on the sharing of costs of some \$500 million or more to complete design and engineering of the Alaska pipeline and conditioning plant.

By the fiscal year's end, they were also moving toward an understanding with respect to development of a workable plan for financing costs of construction of both the Alaskan pipeline and conditioning plant. (The two parties concluded a cost-sharing agreement and issued a Statement of Intention with respect to financing in June, 1980.)

While the entire pipeline system was originally scheduled under the Canada-U.S. Agreement to go into operation by January, 1983, this target was subsequently set back to late 1984 as a result of a number of delays that were encountered earlier. The extensive amount of time required to work out cost-sharing and financing arrangements and to complete design and engineering of the Alaskan system further set back the scheduled date for completion of the entire pipeline to late 1985.

Major U.S. Developments

The Mainline Project

There were a number of significant developments in the United States relating to the over-all Alaska Highway Gas Pipeline Project during the period covered by this report.



On a trip to Prudhoe Bay in September, 1979, the Hon. Mitchell Sharp, Commissioner of the Northern Pipeline Agency, scans the starting point of the Trans-Alaska Pipeline, which carries oil from the North Slope of Alaska some 800 miles southward to the Port of Valdez. The Alaska Highway Gas Pipeline will parallel the oil line over most of the route to Fairbanks, Alaska, at which point it will swing south-eastward along the Alaska Highway to Yukon.

Late in May, 1979, Congress approved the Limited Re-organization Plan submitted by President Carter, which provided for establishment of an Executive Policy Board and creation of the Office of the Federal Inspector to expedite the project and coordinate the activities of all federal departments and agencies involved. In July, the United States Senate confirmed the appointment of John T. Rhett as Federal Inspector, whose functions are similar in a number of respects to those of the Commissioner of the Northern Pipeline Agency in Canada.

Several outstanding regulatory issues were also dealt with by the responsible U.S. authorities. These issues included the form of the tariff for the transportation of gas to be applied by the various pipeline companies operating the system within U.S. territory. The formula with respect to rate of return on equity to be adopted as an incentive to the pipeline companies to hold down capital costs and the general routing of the pipeline through Alaska, together with the design pressure and diameter to be adopted, were also determined.

Overshadowing all of these and other developments, however, was the critical, unresolved problem of financing construction of the gas conditioning plant at Prudhoe Bay, and the 1,180-kilometer (730-mile) pipeline from the North Slope of Alaska to the Yukon border.

In his Decision and Report to Congress of September, 1977, President Carter ruled that the entire project must be privately financed. At the same time, he maintained that, as major beneficiaries of the project, both the Prudhoe Bay gas producers and the State of Alaska should participate in the funding of the Alaskan segment of the system.

Over a period of several months following submission of the President's Decision and Report and its subsequent approval by Congress, virtually no progress was made in resolving the financial role to be played either by the producers or the State. Furthermore, only a limited number of agreements had been concluded for the sale of Prudhoe Bay gas to U.S. shippers for distribution in markets in the lower 48 states. No work was underway to complete the final design and engineering of the large and complex conditioning plant to be built at Prudhoe Bay. In addition, the producers were strongly contesting an initial decision by the U.S. Federal Energy Regulatory Commission (FERC) that would require them to absorb most of the costs of conditioning the gas prior to its delivery to the pipeline system.

A speech made in Kansas City by President Carter on July 16, 1979, the day after he had outlined proposals for a major new national energy program, marked a significant turning point of events. Underlining the importance to the United States of gaining

access to its substantial gas reserves at Prudhoe Bay in order to reduce the nation's reliance on uncertain supplies of foreign oil, the President asserted that the North Slope producers had "dragged their feet" in providing the financial assistance that was required to build the pipeline. "I have," he said, "instructed the Secretary of Energy to call them in and get them going and I will insist personally that this gas pipeline be built without further delay."

The statement by President Carter was followed by several months of intensive discussion between the Secretary of Energy and his officials and representatives of the pipeline sponsor in Alaska, the three major Prudhoe Bay producers, and the State of Alaska. These discussions centred on a variety of proposals put forward by the producers and alternative approaches suggested by a consultant retained by the Department of Energy to seek the development of an agreement acceptable to all parties concerned. At issue were such complex questions as the respective roles to be played by the pipeline sponsor and the producers in the management of the project and their relative share of equity, and the sharing of additional expenditures required to complete studies in order to establish final design and engineering of the Alaskan pipeline and conditioning plant. Other issues under consideration included the determination of final design costs of the system, the allocation of costs of conditioning the gas between the producers and shippers/consumers, and the nature and extent of debt financing that might be provided by the producers. Although progress was made in dealing with these issues as a result of the meetings held under the aegis of the U.S. Department of Energy, no final resolution had been arrived at by the end of the fiscal year.

First-Stage Construction of the Eastern and Western Legs

Although the Federal Energy Regulatory Commission in June, 1978, conditionally approved the import of 1.04 billion cubic feet ($29.5 \times 10^6 \text{ m}^3$) a day of Canadian gas by Northwest Alaskan through first-stage construction of the southern segments of the Alaska Highway Gas Pipeline, a number of regulatory questions relating to construction of the Western and Eastern Legs of the system in the United States and the importation of the Canadian gas remained to be settled by the FERC.

In April, 1979, the Commission ordered that hearings related to the pre-building of the Western Leg of the system to California and the Eastern Leg to the U.S. Mid-West be undertaken on an expedited basis. In January, 1980, the FERC approved construction of a portion of the Western Leg in the United States,

looping of 258 kilometers (160.5 miles) of the Pacific Gas Transmission pipeline from the border point at Kingsgate, B.C., to Stanfield, Oregon. The Commission deferred ruling on a proposal to transmit the Canadian gas from Stanfield to southern California through the so-called Western Delivery System, which involved trans-shipment through expansion of the existing pipeline systems operated by Northwest Pipeline Corp. and El Paso Natural Gas. Hearings continued on issues relating to the Eastern Leg, but no final decision by the FERC was made by the end of March, 1980.

Major Canadian Developments

The Mainline System

The primary focus by Foothills Pipe Lines (Yukon) Ltd. and its segment companies during the year was directed toward planning for first-stage construction of the Western and Eastern Legs of the pipeline in 1980-81 for the purpose of initially exporting surplus Canadian gas to the United States. At the same time, however, Foothills continued design, engineering and other activities related to the second-stage construction in Canada of the northern segments of the project in line with the revised timetable dictated by the further delays encountered in the United States.

While much of the attention of the Northern Pipeline Agency continued to be centred on development of the socio-economic and environmental terms and conditions which would apply to the planning, construction and operation of the pipeline across Canada by the Foothills companies, several other related regulatory issues were also considered by the National Energy Board (NEB).



Surveying and clearing of a 2-metre line along the southern boundary of the proposed pipeline right-of-way in Yukon to determine the final routing. Maureen Jensen (far right), Foothills' Community Relations Co-ordinator, discusses progress with the survey crew.

Through an order issued in April, 1979, the Board provided for a series of public hearings to be held on a number of aspects of the project. The hearings addressed the question of tolls and tariffs to be charged by Foothills for the transmission of Alaskan gas over the Canadian system and the earlier transmission of Alberta gas through the southern segments, the establishment of a rate of return formula on equity designed to provide an incentive for minimizing construction costs, and the financeability of the project in Canada.

First-Stage Construction of the Eastern and Western Legs

In its report of July, 1977, on *Reasons for Decision: Northern Pipelines*, the National Energy Board proposed that consideration be given to the possibility of "pre-building" the southern segments of the Alaska Highway Gas Pipeline in Canada and the United States moderately in advance of the remainder of the project so as to provide a means for the export of a small surplus of Canadian gas of some 800 billion cubic feet (bcf) ($22.66 \times 10^9 \text{ m}^3$).

The volume of gas surplus to Canadian requirements was considered then as very limited and temporary. For this reason, the Board advocated that the gas exports be swapped for later supply to Canada of an equivalent volume of Alaskan gas.

Following a further series of hearings on Canadian natural gas supply and requirements that was held in the fall of 1978, the NEB issued a report in February, 1979, which concluded that by its most stringent test — that of current deliverability — Canada had a surplus of gas available for export of some 2 trillion cubic feet (tcf) ($56.65 \times 10^9 \text{ m}^3$). During the summer of 1979, the Board considered applications for the export of gas by several companies. Included among these applications was the proposal by Pan-Alberta Gas Ltd. for the export of 4.9 tcf ($138.8 \times 10^9 \text{ m}^3$) through the proposed pre-building of the southern segments of the Alaska Highway Gas Pipeline. Pan-Alberta's submission was part of a joint application filed along with TransCanada PipeLines Ltd. and Consolidated Natural Gas Ltd., two previously competing applicants. This joint application followed an agreement reached between three major Canadian petroleum interests in support of the first-stage construction of the Western and Eastern Legs of the Alaska Highway Gas Pipeline. These were TransCanada, Dome Petroleum Ltd., which earlier had acquired a controlling interest in TransCanada, and the Alberta Gas Trunk Line Company (now known as Nova, An Alberta Corporation), one of two principal supporters of Foothills Pipe Lines (Yukon) Ltd.

In a report issued on December 6, 1979, the NEB authorized the combined export by the 10 applicant companies of 3.75 tcf ($106.2 \times 10^9 \text{ m}^3$) out of the total of 4.5 tcf ($127.5 \times 10^9 \text{ m}^3$) which it concluded had become surplus to domestic requirements because of a significant increase in the volume of Canada's established reserves.

While the Board approved the export through the southern segments by Pan-Alberta of 1.8 tcf ($51 \times 10^9 \text{ m}^3$), nearly half of the total authorized for sale to the United States, this was considerably less than the 4.9 tcf ($138.8 \times 10^9 \text{ m}^3$) sought by the company. Foothills, together with the U.S. sponsors of the Western and Eastern Legs, were quick to contend that the volume of gas approved for export through these segments was insufficient to finance their construction in view of continuing uncertainties as to when the remainder of the system would be completed and Alaskan gas would begin to flow.

Early in 1980, Pan-Alberta and Foothills made a number of submissions to the NEB with respect to requirements they considered had to be met in order to enable first-stage construction of the southern segment of the pipeline to be successfully financed. Pan-Alberta, for example, sought approval for the additional export through the Eastern and Western Legs of some 500 bcf ($14.16 \times 10^9 \text{ m}^3$) from the surplus previously identified by the Board but not allocated in its decision of December 6, 1979. With the support of the other two companies, Foothills also applied for permission to have part of the gas — some 450 bcf ($12.75 \times 10^9 \text{ m}^3$) — previously allocated to Consolidated Natural and ProGas Ltd. for export to the United States through expansion of TransCanada facilities, transmitted instead through the Eastern Leg.

Many of the issues raised by Pan-Alberta and Foothills were still under consideration by the end of the fiscal year. In a report issued on March 11, 1980, however, the National Energy Board recognized in principle that additional throughput of Canadian gas via the pre-build facilities and acceptance of special depreciation provisions were essential to obtaining financing for the building of the Eastern and Western Legs of the project.

Meanwhile, another broader and more fundamental issue involving the first-stage construction of the southern segments of the pipeline in Canada and the United States was beginning to take shape during the latter part of the fiscal year.

The bilateral agreement between Canada and the United States of September, 1977, and the implementing legislation subsequently passed in the two countries, essentially provided for the construction of an Alaska Highway Gas Pipeline to transport Prudhoe Bay gas to southern U.S. markets. The Agreement also provided for the building of a connecting lateral to enable Canada to gain access to its own reserves in the Mackenzie Delta.

It was never considered that pre-building of the southern segments of the line initially for the export of Canadian gas was precluded by the bilateral agreement or the implementing legislation. But the proposal as originally advanced by the National Energy Board envisaged that construction of this part of the project would take place only moderately in advance of the remaining northern sections of the pipeline and would provide only for the short-term export of a relatively small volume of Canadian gas. This conception was reflected in Condition 12 of Schedule III of the *Northern Pipeline Act* approved by Parliament in April, 1978. Among other things, this Condition required Foothills to establish to the satisfaction of the NEB and the Minister responsible for the Northern Pipeline Agency that financing had been obtained for the whole of the pipeline in Canada before commencement of construction was authorized.

During the months that followed these events there were two major changes in circumstances. First, the scheduled date for completion of the entire system provided for in the bilateral agreement of January, 1983, had been set back to late 1985 as a result of the delays encountered in the United States. Second, the volume of surplus Canadian gas available for export had increased by nearly six-fold over that originally estimated by the NEB.

As a consequence of these two interrelated factors, an early start of first-stage construction of the southern segments came to assume substantially greater importance. It was seen as a means of facilitating construction of the entire pipeline, one which would also yield major economic benefits to Canada in terms of capital investment, employment, producer and government revenues, and balance of payments inflows. At the same time, however, the



View from a helicopter of the disused Haines-Fairbanks pipeline right-of-way, north of Kluane Lake. Survey work in March, 1980, confirmed that the Alaska Highway Gas Pipeline will follow this right-of-way for much of the route along the Kluane Ranges.

very delays that arose in the United States as a result of the complex issues to be resolved there, created continuing uncertainty with respect to the expeditious completion of the entire project. This, in turn, made it impossible for Foothills to obtain financing for the whole line in Canada, as then required under the Act, before first-stage construction of the southern portions of the system was scheduled to commence. As the fiscal year came to an end, therefore, the dominant question that was emerging with respect to first-stage construction of the Eastern and Western Legs from Canada's perspective was the degree of assurance available from the United States on the timely completion of the second stage of the Alaska Highway Gas Pipeline Project in Alaska.

Parliamentary Surveillance

In April, 1978, the House of Commons took an unprecedented step in establishing a Standing Committee on Northern Pipelines for the specific purpose of maintaining continuing surveillance over the implementation of the *Northern Pipeline Act* and the operations of the Northern Pipeline Agency. In the same year, the Senate established a Special Committee on the Northern Pipeline for a similar purpose.

During the course of 1979-80, both committees met several times to receive testimony and question witnesses involved in the Alaska Highway Gas Pipeline Project, including the responsible Minister and officials of the Northern Pipeline Agency, members of the National Energy Board, and officers of the companies sponsoring construction of the pipeline in Canada and the United States.

The Dempster Lateral

In keeping with an agreement made in May, 1978, with the Canadian government, Foothills (Yukon) filed an application with the National Energy Board shortly before the deadline of July 1, 1979, for permission to build and operate the proposed Dempster Lateral. This 1,200-kilometre (746-mile) pipeline would provide access to the 5.3 tcf ($150.1 \times 10^9 \text{ m}^3$) of established gas reserves in the Mackenzie Delta area of the Northwest Territories, connecting with the main line of the Alaska Highway Gas Pipeline at a point just west of Whitehorse in the Yukon Territory. The bilateral agreement between Canada and the United States provides for capacity of up to 1.2 billion cubic feet ($34 \times 10^6 \text{ m}^3$) a day to be made available for the transmission of Delta gas to southern markets through the main pipeline system.

Operations of the Northern Pipeline Agency

Introduction

The Northern Pipeline Agency has continued to be active during its second year of operations in laying the groundwork for the planning and construction in Canada of the Alaska Highway Gas Pipeline.

In particular, the Agency's attention has been focussed on the following areas:

- finalization of the socio-economic and environmental terms and conditions and their submission to the Department of Justice for drafting in legal form;
- review of socio-economic, environmental and technical submissions by the Foothills segment companies detailing the measures they will take to meet the requirements of the terms and conditions and engineering orders; and
- widespread consultation with the general public, special interest groups, and provincial and territorial governments.

The *Northern Pipeline Act* requires the Agency to take into account local and regional interests and the interests of residents, particularly native people, in the vicinity of the pipeline route. Working towards this objective, the Agency conducted public hearings in British Columbia, undertook field work in northern British Columbia and Yukon to better inform residents about the project, and held quarterly meetings with provincial and territorial governments to keep them apprised of project developments.



Members of the Executive Committee in the Northern Pipeline Agency's main operational office in Calgary reviewing plans for the Alaska Highway Gas Pipeline Project. From left to right are: William A. Scotland, Deputy Administrator and Designated Officer; A. Barry Yates, Deputy Administrator; Harold S. Millican, Administrator; and Carl von Einsiedel, Executive Secretary, Operations.

Ministerial Responsibility for the Northern Pipeline Agency

On June 5, 1979, the Honourable Walter Baker succeeded the Honourable Allan MacEachen as the Minister responsible for the Northern Pipeline Agency, following the formation of the Conservative government by Prime Minister Clark. On October 2, 1979, responsibility for the Agency was transferred to Senator the Honourable Robert R. de Cotret. Following the election of the Liberal government in February, 1980, Senator the Honourable H. A. (Bud) Olson was appointed on March 3, 1980, as Minister responsible for the Northern Pipeline Agency.

Terms and Conditions

The development of socio-economic and environmental terms and conditions to apply to the segment companies of Foothills (Yukon) licensed to build the pipeline in Canada has formed a major part of the Agency's activities since its inception.

These documents establish in general terms the standards of performance which must be achieved during construction and operation of the pipeline by the Foothills' Group of Companies. Upon approval by the Governor in Council, the terms and conditions are attached to the certificates granted to Foothills by Parliament to build the pipeline and become legally binding.

The terms and conditions were developed from initial first drafts, released in May, 1978, through a subsequent process of consultation and review with provincial and territorial governments, various federal departments, public interest groups and the Foothills' Group of Companies. As well, they take account of submissions made by various groups and individuals during public hearings in the Yukon and British Columbia. During the fiscal year, the terms and conditions were finalized by the Agency and submitted to the Department of Justice for drafting in legal form.



Reserve of Doig Indian Band, which is close to pipeline route in northeastern British Columbia.

Terms and conditions have been prepared for all segments of the pipeline — Alberta, South B.C., Saskatchewan, North B.C., Yukon — and for the short Swift River segment which, although in North B.C., will be constructed by Foothills Pipe Lines (South Yukon) Ltd.

Environmental guidelines were also developed by the same consultative process to provide more precise direction to the company in the planning, design and construction of the pipeline. With the exceptions of Alberta and Saskatchewan, guidelines were prepared for each of the segment areas through which the pipeline will pass. The environmental standards and practices ordinarily required in these two provinces by provincial authorities will apply to the Foothills companies. As these standards and practices are well understood by government and industry, it was not felt necessary to spell them out further through additional guidelines.

The Review Process

Under the *Northern Pipeline Act*, the company is required to submit for Agency approval socio-economic and environmental plans outlining how it intends to implement certain terms and conditions. Among other things, these terms and conditions require the company to: consult and inform interested parties on the construction of the pipeline; provide training and employment opportunities for native people and women; minimize adverse environmental impact; and implement surveillance, monitoring and inspection procedures.

During the year, the Agency began the review of the socio-economic and environmental plans and supporting information, which included consultants' reports, engineering data and an environmental atlas, submitted by the Foothills' segment companies for the Western Leg of the pipeline in Alberta and southern British Columbia. By the end of the fiscal year, the Agency had specified the plan requirements for construction of the southern segments of the pipeline and had begun the review of the Environmental Plans and Procedures Manuals for Alberta and South B.C.

The plan review process comprises three stages. Initially, the company, the Agency and the concerned provincial or territorial government meet to discuss the content and degree of detail required for a particular plan. The company subsequently prepares a draft document for the Agency's review. Other interested groups may be invited by the Agency to take part in the review and meetings held with the company to discuss the submission. Through this process, the Agency seeks to resolve any conflicts that may arise and, where necessary, to arrive at a balance which will best serve the public interest.

Following such rounds of discussion, which may result in subsequent revisions, the plan is formally submitted to the Agency by the company. At this stage, the document is made available to the general public for comment. Any comments received from the public are then taken into account by the Designated Officer before determining whether any further revision is required to the plan before its final approval.

During the fiscal year, Foothills Pipe Lines (North B.C.) submitted an initial document outlining environmental considerations to the British Columbia Environment and Land Use Committee. As the provincial environmental requirements fulfill some of the terms and conditions under the *Northern Pipeline Act*, the Agency also reviewed the document. Similarly, the Agency reviewed an Environmental Overview submitted by Foothills Pipe Lines (Sask.) Ltd. to the Saskatchewan government.

Environmental Assessment and Review Panel for the Yukon

In March and April, 1979, public hearings were conducted jointly in the Yukon on behalf of the Northern Pipeline Agency and the Federal Environmental Assessment Review Office to consider the Agency's proposed socio-economic and environmental terms and conditions and the company's Environmental Impact Statement. Also represented at the hearings were the Yukon Territorial Government and the Department of Indian Affairs and Northern Development in recognition of the fact that

government has a responsibility to minimize adverse impacts which are beyond the control of the company.

Following the conclusion of the Yukon public hearings, the Environmental Assessment and Review Panel submitted an interim report to the Minister of the Environment in September, 1979, detailing areas in which the Environmental Impact Statement provided by the company was considered to be deficient.

The report called on Foothills to provide additional information with respect to such issues as frost heave and thaw settlement, major stream crossings, access roads, and the preferred route of the company in four particular areas — the Ibex Pass, Mt. Michie-Squanga Lake, Kluane Lake and Rancheria Valley.

At year's end, discussions were being held among the three parties involved in an effort to determine how Foothills could best meet the requirements of the Panel for additional information without involving it in unnecessary duplication of effort in providing a great deal of similar information to the Agency in response to its terms and conditions or technical requirements.

North B.C. Public Hearings

On behalf of the Agency, W. Winston Mair, a private consultant with a broad background of experience in the matters under consideration, pre-



Members of Lower Post Reserve making a presentation at the public hearings into the proposed socio-economic and environmental terms and conditions held in late 1979 in northeastern British Columbia.

and the Agency conducted information seminars in communities along the pipeline route. Research reports prepared for the company on inflation, immigration and camp-community interaction were presented and the respective roles of the Northern Pipeline Agency and the Yukon government discussed with participants at the public meetings.

In addition, a Northern Business Briefing was held in February, 1980, co-sponsored by the Whitehorse Chamber of Commerce and Foothills Pipe Lines (South Yukon) Ltd. Barry Yates, a Deputy Administrator of the Agency, outlined the role and objectives of the Agency regarding procurement, small business opportunities, and local hiring practices. The participants spent the remainder of the day questioning contractors, union representatives, Foothills staff and Agency officials about potential business activities during pipeline construction.

The Yukon Advisory Council

Throughout the year, Yukon Advisory Council members concentrated their efforts on learning the many aspects of the Alaska Highway Gas Pipeline Project and its implications for the Yukon. Eight members were appointed for a two-year term in February, 1979, to advise the Minister on potential impacts from pipeline construction and on

ways to maximize social and economic benefits to local residents.

The Chairman and Vice-Chairman were appointed for one-year terms. During the period covered by this report, Donald Roberts served as Chairman of the Council and Raymond Jackson served as Vice-Chairman. The other members of the Council were: Cliff Geddes, Joanne Linzey, Wayne Palmer, Dale Stokes, Robert Stubenberg, and Charles Taylor.

Presentations were heard by the Council from community interest groups, the Yukon government, the Northern Pipeline Agency, Foothills and others on a wide range of issues. These issues included provision of natural gas to communities along the pipeline route and the problems presented by permafrost for pipeline construction. The Yukon Advisory Council also considered the controversial matter of routing through the environmentally-sensitive areas of the Ibex Pass and Mt. Michie-Squanga Lake areas. In order to gain a clearer understanding of the technical aspects of the project, the Council members also toured the gas production and pipeline construction sites of Westcoast Transmission Company Limited near Fort Nelson, B.C.

Federal-Provincial Coordination

While in Whitehorse on September 6, 1979, the Honourable Walter Baker, Minister responsible for



The Hon. Walter Baker, Minister responsible for the Northern Pipeline Agency, signing the Canada-Yukon Memorandum of Agreement on non-discriminatory taxation and general co-operation on the pipeline during a visit to Whitehorse in September, 1979. Standing behind the Minister are (from left to right): Hon. Chris Pearson, Government Leader of Yukon Territorial Government; Hon. Ione Christensen, Commissioner of Yukon; and Hon. Mitchell Sharp, Commissioner of the Northern Pipeline Agency.

the Northern Pipeline Agency, and Yukon Commissioner Ione Christensen signed the Canada-Yukon Memorandum of Agreement on the Alaska Highway Gas Pipeline Project. This was the first agreement concluded with respect to such matters as non-discriminatory taxation and general co-operation on the pipeline. The Federal-Territorial Agreement also makes provision for the payment of a property tax to the Territorial Government to a maximum of \$30 million annually, escalated for inflation, in the year after leave-to-open is granted. Similar agreements covering non-discriminatory taxation and general co-operation are expected to be concluded with the provinces of Saskatchewan, Alberta and British Columbia.

Native Relations

The channels of communication established between the Northern Pipeline Agency and native groups in 1978-79 were maintained throughout this

project to obtain maximum job and business opportunities from pipeline construction for native people and to mitigate potentially adverse impacts.

The Champagne-Aishihik Band in Yukon continued an active interest in the project, assisting in the compilation of a traditional land and resource-use inventory for the area it represents along the pipeline route. Early in 1980, the Band submitted bids to Foothills Pipe Lines (South Yukon) Ltd. and obtained a sub-contract for slashing and clearing of the southern boundary along the northern portion of the pipeline route in the Yukon. Chief of the Champagne-Aishihik Band, Raymond Jackson, is also Vice-Chairman of the Yukon Advisory Council.

The Council for Yukon Indians has, as a matter of general policy, declined to participate in discussions involving the interest of native people and the pipeline project until their land claim negotiations with the federal government have been successfully concluded. The Council has, however, raised no objection to individual bands working with the Northern Pipeline Agency. In addition, the Council



Presiding Officer, W. Winston Mair (centre) listening to members of West Moberly Band at a meeting held in a teepee during North B.C. hearings into the proposed socio-economic and environmental terms and conditions.

fiscal year. Under the terms of the *Northern Pipeline Act*, the Agency is directed to give special consideration to the interests of native people.

The principal and most significant involvement of native people in the project was the full participation of the Union of British Columbia Indian Chiefs (UBCIC) in the British Columbia public hearings. Two major presentations were also made by the Louis Riel Métis Association.

In southern British Columbia, the Kootenay Indian Area Council and the UBCIC made presentations at the public hearing in Grasmere. The Council also worked with the Agency and Foothills Pipe Lines (South B.C.) Ltd. in planning for the

itself has cooperated with the Agency on certain matters of specific interest to native people. In August, 1979, the Council for Yukon Indians submitted its report, *A Trapper Compensation Model*. This is an extensive study which proposes and details a compensation plan for loss of livelihood resulting from pipeline construction. The Council also met with Mr. Baker, the Minister responsible for the Northern Pipeline Agency, during his visit to Whitehorse in September, 1979.

The Indian Association of Alberta, and the Métis Association of Alberta, made recommendations to the Agency with respect to the further involvement of native people in economic activities related to the

project. These recommendations were supported by several Indian Bands and Métis colonies, which expressed their interest in job opportunities and small business contracts arising from pipeline construction.

Procurement Program

Toward the end of 1978-79, Foothills submitted a draft procurement program. This program was revised during 1979-80 to take account of views expressed by the United States Administration, the Office of the Federal Inspector, and the company itself. Extensive discussion also took place between officials of the Agency and the U.S. government regarding reciprocal arrangements for exchanging information on procurement for the pipeline in both countries of certain designated items.

Under the terms of the *Northern Pipeline Act*, Foothills is required to design a program for procurement that ensures Canadians have a fair and competitive opportunity to participate in the supply of goods and services on generally competitive terms for the pipeline. The company is obligated to obtain the greatest practical domestic input into the project and to ensure that maximum advantage is taken of the opportunities presented by the project to broaden the Canadian industrial base and to foster technological research and development.

The legislation provides for the prior approval by the Designated Officer of the Agency for the procurement of certain major components for the system, which are referred to as designated items. These designated items are expected to include: line pipe of 36-inch (914 mm) diameter and larger, turbo-compressors, and valves and pipe fittings of 20 inches (508 mm) and larger in diameter.

Foothills (Yukon) has complied with the requirement to seek ministerial approval for all purchases in excess of \$100,000 foreign and \$500,000 domestic pending approval of the procurement program. To date, the company has endeavoured to follow the policies and objectives set forth in the draft program. Upon approval of the program, Foothills is required to seek approval only on designated items. (Approval of the procurement program was given by the Minister in August, 1980.)

Procurement Contracts

Negotiations by Foothills continued throughout the fiscal year with the Steel Company of Canada (STELCO) and Interprovincial Steel and Pipe Corporation Ltd. (IPSCO) for the supply of 1.5 million tons of pipe valued in excess of \$2 billion.

Foothills also received Agency approval to negotiate contracts for turbine compressor packages, valves and fittings required for the proposed construction in 1980-81 of the Western and Eastern Legs of the project in southern Canada. Contracts will be negotiated with Westinghouse Canada Ltd. and Cooper Rolls Corporation for the supply of approximately \$25 million of turbo-machinery required for the Eastern Leg. The valves and fittings required for the southern segments are estimated at a value of \$10 million. The Canadian manufacturers of valves and fittings selected by Foothills include: Rockwell International of Canada Ltd. of Barrie, Ontario; Borsig Hartmann Valve Ltd. of Calgary, Alberta; C.A.E. Machinery Ltd. of Vancouver, British Columbia; Uniracor Ltd. of Bécancour, Quebec; EPG Taylor Forge Division of Hamilton, Ontario; and Steel-Flo Industries of Turner Valley, Alberta. United States firms selected by Foothills were Cameron Iron Works Ltd. of Houston, Texas, and ITT Grinnell of Oakland, California.

During 1979, Foothills awarded contracts for the equipment and construction of a burst-test research facility at Rainbow Lake, Alberta. The facility, constructed at a cost of \$8 million, is the most technologically advanced of three research establishments in the world currently capable of this type of testing. Two tests on pipe of 1422 mm diameter (56 inches) and 1067 mm (42 inches) were completed during the fiscal year.



Welding of the instrumented pipe, which will measure fracture speed, gas decompression behaviour and deflection of steel, at the burst-test facility, Rainbow Lake, Alberta. Installed by Foothills, this is only the third such facility in operation in the world and is the most modern. The burst-test facility, initiated as a result of the Alaska Highway Gas Pipeline Project, was completed in December, 1979.

Manpower Planning

In accordance with the *Northern Pipeline Act*, Foothills is required to develop a manpower plan for the construction and operation of the pipeline. The plan is intended to demonstrate how the company proposes to achieve the objectives of the Act in the area of manpower planning for the project. The primary purpose of the plan is to detail the means the company intends to adopt so as to ensure that the maximum possible use is made of Canadian labour in the planning, construction and operation of the pipeline.

The company has now forwarded two drafts of the plan, which have been reviewed and analysed by officials of the Canada Employment and Immigration Commission and the Northern Pipeline Agency. The complete manpower plan will consist of six volumes:

- Section I — Construction Phase (south of 60° N.)
- Section II — Construction Phase (Yukon portion)
- Section III — Operation and Maintenance
- Appendix I — Entry Requirements
- Appendix II — Manpower Supply
- Appendix III — Manpower Requirements

During the fiscal year, Foothills forwarded drafts of Section I and Appendices I, II and III. These volumes address the issues of entry requirements, labour supply and source, manpower demand, training, affirmative action plans for women and native people, employment and training information, recruiting procedures and local hire, mobility and a reporting system. The Agency agreed that in the interests of time, the issue of "mobility" may be addressed in a separate document, and the issue of "affirmative action" in separate plans for each segment. (Approval of Section I and the attached appendices was subsequently granted by the Minister in July, 1980, for construction of the Western Leg only.)

Transportation and Logistics

Agency staff members worked closely during 1979-80 with their counterparts in the federal, provincial and territorial governments and with the operating companies to determine the capacity of the existing transportation systems to accommodate project demands. Possible areas of constraint in road, rail and air transportation routes were identified so that they might be taken into account in the logistics plans being developed by the Foothills' Group of Companies.

Discussions on northern transportation were held with officials of the State of Alaska in July and August to learn from their experience during construction of the Alyeska oil pipeline in the mid-seventies. The Yukon and British Columbia hearings also brought to light many of the local residents' concerns about increased traffic flows from pipeline construction.

In addition, Foothills' strategic logistics plans and preliminary support documents were reviewed on an on-going basis.

Through this continued consultation with representatives of the provincial and territorial governments, the federal Department of Public Works and representatives of Foothills, the Agency played an important role in providing information needed by government to plan for expanded or new facilities and information required by the company to ensure minimal disruption of present transportation systems.

Project Control

Northern Pipeline Agency staff members worked with Foothills employees over the year to develop a reporting system on scheduling and cost control measures for the project. A work breakdown structure, in which all of the major elements of construction are identified in terms of region, time and cost estimates, is required by the Agency to ensure to the greatest extent possible that the pipeline is built on schedule and within the budget in the interest of all Canadians.

The establishment of effective control procedures is particularly important for Canada. In keeping with a provision in the bilateral agreement, a major share of the cost of transporting Canadian gas through the Dempster Lateral between Whitehorse and Dawson, Yukon, is to be borne by the United States. The exact proportion depends on the total cost of the main pipeline system in Canada in relation to original cost estimates (after escalation to take account of inflation) and the proportion of Canadian gas carried in the trunk line.

Landowner's Information Booklet

On February 18, 1980, Foothills Pipe Lines (Alta.) Ltd. commenced service of the Landowner's Information Booklet to those who would be affected by construction of the Western Leg in southwestern Alberta. This was the first substantial right-of-way activity in connection with the Alaska Highway Gas Pipeline Project and was the prelude to negotiations

for pipeline right-of-way. (Distribution of the Landowner's Information Booklet in southern British Columbia was begun in April, 1980.)

The Landowner's Information Booklet is designed to acquaint property owners with the project, its sponsors, and the Northern Pipeline Agency. Maps in the booklet describe the overall pipeline route and identify the proposed location of the pipeline on each property. The land acquisition procedure to be followed, as well as the rights of the property owner in this process, are also clearly described.

The booklet was prepared by the company and determined to be suitable in format by the Designated Officer on October 31, 1978.

In early March, 1980, procedures were developed for dealing with any route objections that were raised following the service of the Landowner's Information Booklet under the provisions of the *Northern Pipeline Act*.

Plans, Profiles and Books of Reference

On November 22, 1979, two Plans, Profiles and Books of Reference covering 11 kilometers (7 miles) of the pipeline route in northeastern British Columbia and adjacent to the British Columbia - Alberta border were reviewed by Agency staff and given qualified acceptance.

Under the requirements of the *National Energy Board Act*, the company is required to submit Plans, Profiles and Books of Reference for the approval by the Designated Officer before construction of any part of the pipeline can commence.

In an effort to ensure that appropriate and timely action can be taken, close liaison was maintained between the company and the Agency staffs to define the details and information to be contained in these documents.

The Federal Regulatory Role

The *Northern Pipeline Act* authorizes the Governor in Council to transfer to the Minister responsible for the Northern Pipeline Agency the regulatory powers of other federal departments and agencies that involve the planning and construction of the Alaska Highway Gas Pipeline Project in Canada. The intention of this provision is to establish the Agency as the 'single window' in exercising most of the authority at the federal level that is applicable to the project so as to co-ordinate and facilitate the whole regulatory process. In keeping with this objective, a number of the powers of the National

Energy Board have already been delegated to the Designated Officer of the Northern Pipeline Agency, who is also a member of the Board.

During the fiscal year, plans were developed for the transfer to the Agency of authority to exercise powers under the following statutes for the purposes of the pipeline project: the *Northern Inland Waters Act* and the *Territorial Lands Act* from the Department of Indian Affairs and Northern Development; the *Migratory Birds Convention Act*, the *Clean Air Act*, the *Environmental Contaminants Act*, and the *Canada Wildlife Act* from the Department of Environment; and the *Fisheries Act* from the Department of Fisheries and Oceans. (The transfer of powers to the Agency was completed in August, 1980.)

This year the Agency completed arrangements begun in 1978 for close cooperation with other federal bodies having some involvement in the project, in the case of which the transfer of jurisdiction was not considered necessary or practical. The federal bodies involved include: Transport Canada with respect to navigable waters; the Canadian Transport Commission with respect to railway crossings; and the International Boundary Commission with respect to pipeline crossings of the Canada-United States border.

Engineering Activities

The engineering design of the pipeline and the materials and procedures used for constructing the pipeline are subject to the approval of the Northern Pipeline Agency's Designated Officer.

With the Alaska Highway Gas Pipeline Project moving closer to construction of the southern seg-



Lake bottom drilling tests conducted at Kluane Lake, Yukon, prior to ice break-up in spring of 1980, to provide data for construction and engineering plans. Present plans envisage the pipeline being installed in a trench on the bottom of Kluane Lake from a point 21 km southeast of Destruction Bay and extending 5.5 km to the opposite shore.

ments, much time was directed specifically to this area. Scheduling and planning for the Eastern and Western Legs of the pipeline entailed numerous meetings between Agency staff and Foothills personnel to define the requirements of the engineering orders issued by the Designated Officer and to incorporate these into a satisfactory plan and schedule.

A series of engineering orders issued in January, 1979, directed that, prior to construction, each of the segment companies must submit to the Designated Officer for his approval:

- 1) detailed engineering designs and information in support of the designs, including field tests, experiments and their analyses;
- 2) pipeline project scheduling and cost-control procedures; and,
- 3) construction specifications and procedures and inspection procedures.

The Designated Officer may issue further engineering orders to meet any problems identified at a specific site during the public review of the socio-economic and environmental terms and conditions. No further orders became necessary, however, as a result of the Yukon and British Columbia hearings.

Under the terms of the *National Energy Board Act*, the company is required to submit its Plans, Profiles and Books of Reference for the approval of the Designated Officer. In keeping with these requirements and those set forth in the engineering orders of the Agency, numerous alignment sheets, pipe drawings, typical drawings (with respect to such items as swamp weights, river weights, coating

standards, sign posts, etc.) and the crossing drawings of rivers, creeks, highways, pipelines and other utilities were submitted for review and the approval of the Designated Officer.

A study was undertaken to ascertain the minimum safe separation distance required to ensure the integrity of any adjacent pipelines during construction, as well as during the operation and maintenance of the pipelines after leave-to-open is granted.

Agency staff also worked with Foothills personnel to determine the most feasible means of controlling problems of frost heave, thaw settlement and ductile fractures — fractures along the length of the pipe. The orders of the Designated Officer and regulations of the National Energy Board require Foothills to undertake extensive experimental work and testing in order to develop means of dealing with these problems.

The Frost Heave and Thaw Settlement Program

Continuous and discontinuous permafrost exists along the proposed Alaska Highway Gas Pipeline route in Alaska, Yukon, and, to a limited extent, in northern British Columbia and northern Alberta.

The gas flowing through Alaska to the first compressor station in the Yukon will be chilled below the freezing point by refrigeration plants. Chilling the gas will prevent thawing of the permafrost and settling of the pipeline. Downstream of the first com-



A section of pipe torn apart at the burst-test facility, Rainbow Lake, Alberta.

pressor station in the Yukon, the gas will be permitted to warm up and the pipeline will operate in a conventional way.

Chilling the gas creates a unique design problem. In the unfrozen ground in the discontinuous permafrost areas, a frost bulb may form around the chilled pipe. In certain soils this freezing action could — in the absence of preventative measures — generate so-called ice lenses, which have the effect of pushing the pipe upwards. This phenomenon is known as frost heave. Conversely, some areas of frozen ground will be traversed by the warm pipeline downstream of the last point of cold flow. In these areas, particularly in muskeg, differential settlement poses potential stability problems that must be overcome by the design of the pipeline system.

The frost heave problem is being given extensive study by Foothills at its Calgary test site, as well as at a recently completed facility in Fairbanks, Alaska, by the Alaskan project sponsors. Extensive tests and analytical programs are now underway in Canada and the United States to develop technically feasible and environmentally acceptable engineering designs which will cope with this problem.

To assist with the review of the available frost heave information, the Office of the Federal Inspector in the United States established the Cold Weather Engineering Technical Committee in December, 1979. Chaired by a representative of the Office of the Chief of Engineers from the Corps of Engineers, the committee is composed of personnel from the Corps of Engineers, Cold Regions Research Laboratories, United States Geological Survey, Departments of Interior and Transportation, the Office of the Federal Inspector, and a structural consultant. Three committee meetings were held during the fiscal year in Washington, D.C., Reston, Virginia, and Irvine, California.

To develop safe design, it is necessary to delineate the frozen and unfrozen ground so that appropriate designs can be implemented in each area during construction of the line. For this purpose, Foothills Pipe Lines (Yukon) Ltd. is undertaking a detailed route survey to identify areas of frozen and unfrozen ground through the use of surficial geological characteristics, geophysical mapping, and drill hole sampling, as required by the engineering orders issued to Foothills by the Designated Officer in



Aerial view of the Alaska Highway crossing the eastern end of Kluane Lake, where it flows into Slim's River and skirts Sheep Mountain.

January, 1979. Similar surveys are also being undertaken in Alaska by the sponsoring pipeline company.

Pipe Fracture Control

The second of the two full-scale burst tests undertaken under contract by the British Gas Corporation was conducted on September 14, 1979, and the results of both it and the test of November, 1978, have been submitted to the Agency by Foothills. In addition to conducting the two tests, the British Gas Corporation also assisted in the design and commissioning of the Rainbow Lake burst-test facility installed by Foothills.

Foothills conducted its first test at this new facility — on 1422 mm (56-in.) diameter pipe — on December 14, 1979. Two further tests were conducted in February and March, 1980. The program for the testing of pipe in connection with the Alaska Highway project is continuing.

Preliminary reports on the three tests conducted to March, 1980, indicate they produced an exceptional volume of data, while on-site observations appeared to confirm the self-arrest capabilities of the pipe. If these conclusions are substantiated by the remaining part of the testing program, the company would not be required to develop additional means for halting pipe fractures.

General Engineering Review

In addition to the specific design activities related to the frost heave and thaw settlement research program, numerous general engineering design principles and activities were reviewed during the fiscal year. These activities included:

- 1) geophysical and geotechnical reports of the winter geological and drilling programs for the portion of the line from the Alaska border to Kluane Lake, Yukon;
- 2) the system design report for the Eastern Leg by Foothills Pipe Lines (Yukon) Ltd. and the terrain assessment report by Foothills Pipe Lines (Sask.) Ltd.;
- 3) material specifications for steel flanges of 406.4 mm (16 in.) and larger in diameter, specifications for high strength steel compressor stations and assembly pipe 457 mm (18 in.) and larger in diameter, and line pipe specifications for the southern segments;
- 4) the valve bidding document and attendant engineering specifications for valves 406.4 mm (16 in.) and larger in diameter;
- 5) turbo-machinery specifications and bid evaluations for the selection of equipment for gas compression in Alberta and Saskatchewan.

Finance, Personnel, and Official Languages

Financial and Personnel Position

Section 12 of the *Northern Pipeline Act* provides for an annual audit of the accounts and financial transactions of the Agency by the Auditor General of Canada and for a report thereon to be made to the Minister. Section 13 of the Act requires the Auditor General's report to be laid before Parliament, together with the Minister's annual report on the operations of the Agency. To comply with these requirements, the report of the Auditor General on the accounts and financial transactions of the Agency for the year ended March 31, 1980, is reproduced as Appendix "B" to this report.

Estimates for 1979-80 provided \$6.2 million for the operation of the Agency. Actual expenditure was \$4.3 million, almost \$2 million less than the amount approved by Parliament. The number of man-years authorized for 1979-80 amounted to 94, of which only 69 were used. Both the spending and the manpower of the Agency were significantly below approved levels because of continuing delays in construction of the pipeline.

Section 29 of the Act provides for recovery of the costs of the Agency from the company constructing the pipeline in accordance with regulations made under sub-section 46.1(2) of the *National Energy Board Act*. These regulations were approved by the Governor in Council on April 24, 1978. During the year, recoveries totalling \$4.2 million were made, representing the unrecovered balance from the previous year and part of 1979-80 expenditure. Recoveries were credited to the Consolidated Revenue Fund. The balance of 1979-80 expenditure, amounting to \$1.5 million, is due to be recovered in the fiscal year 1980-81.

Official Languages Plan

In accordance with the provisions of the *Official Languages Act*, the Agency provides service to the public in both official languages. Inquiries of the Agency are answered in the language chosen by the inquirer and public documents are available in both languages.

The Agency has undertaken also to conform with the intent of government language policy for the Public Service. Employees in Ottawa, 21 per cent of whom have French as their first language, may work and receive service in the official language of their choice. Every reasonable attempt is made to balance the participation of both official language communities at all levels. The working language of the Calgary office is English, but it is the policy of the Agency to ensure that a minimum of two employees, one officer and one member of support staff, are qualified and available to provide service to the public in the French language.

These policies are contained in the Agency's Official Languages Plan, which has been approved by the Treasury Board. Compliance with the plan is monitored each year.

There is a small but steady demand for services in the French language in the Ottawa office of the Agency, but little or no demand in the Calgary office or its two regional offices in Vancouver and Whitehorse. There have been no complaints from the public on the service being provided.

As the Agency is very small and is planned to exist for only a limited time, it has not established second-language training programs for its employees.

The Role of the Northern Pipeline Agency

The Northern Pipeline Agency was established with the proclamation of the *Northern Pipeline Act* on April 13, 1978, for the purpose of overseeing the planning and construction of the Canadian portion of the Alaska Highway Gas Pipeline to provide access to the substantial Arctic natural gas reserves of both Canada and the United States.

In addition to creating the Agency, the Act provides the legislative authority required to implement the bilateral agreement between the two nations of September 20, 1977, which governs the joint undertaking of the 9,000-kilometer (5,500-mile) system. A brief description of this system can be found in Appendix C.

The Agency was created as the principal instrument for carrying out the objects of the legislation approved by Parliament. The Agency's mandate is twofold. It is required to regulate the project and to facilitate the efficient and expeditious planning and construction of the system in Canada by the Foothills' Group of Companies. It is also required to ensure that the project is carried forward in a way that will yield the maximum economic, energy and industrial benefits for Canadians with the least possible social and environmental disruption. In particular, the Agency is directed by the Act to take account of the local and regional interests of residents, especially native residents, in areas affected by the undertaking.

In an unprecedented step, the House of Commons in April, 1978, agreed to the establishment of a Standing Committee on Northern Pipelines to maintain continuing surveillance over the implementation of the *Northern Pipeline Act* and the operations of the Northern Pipeline Agency. The Committee has since conducted several meetings following its formation in June of that same year to hear testimony from senior officers of the Agency and of the Canadian and United States project companies, as well as others.

In October, 1978, the Senate also adopted a motion for the establishment of a Special Committee on the Northern Pipeline with authority to "inquire

into all matters relating to the planning and construction of the pipeline for the transmission of natural gas from Alaska and Northern Canada...". The Senate Committee also has held a number of hearings related to the project since its formation.

The Northern Pipeline Agency was established to provide a 'single window' for the conduct of virtually all dealings at the federal level with the Foothills' Group of Companies which was authorized under the Act to undertake the project in Canada. In keeping with the provisions of the legislation, it is anticipated that many of the regulatory powers of other federal departments and agencies relating to the planning, construction and operation of the Canadian system will be transferred to the Northern Pipeline Agency. The principal exception involves responsibilities reserved exclusively to the National Energy Board or shared between the Board and the Agency. In addition, the Agency is responsible for facilitating the co-ordination of activities bearing on the project that involve other arms of the federal government, other levels of government in Canada, and U.S. departments and agencies.

The management and direction of the Agency come under the authority of a Minister designated for this purpose by the Governor in Council. A Commissioner appointed by Order in Council serves under the Minister as his deputy in charge of the Agency. The Commissioner is based at the head office in Ottawa. The main operational office is located in Calgary and functions under the direction of an Administrator appointed by Order in Council, who is also responsible for the day-to-day direction of regional offices located in Vancouver, British Columbia, and Whitehorse, Yukon Territory. As provided for under the Act, a member of the National Energy Board serves as its Designated Officer, and as a Deputy Administrator of the Agency, exercising the powers of the Board that were delegated by it on July 27, 1978. A listing of the senior officers of the Agency as of the end of the fiscal year and the location of Agency Offices can be found in Appendix D on page 25.



AUDITOR GENERAL OF CANADA

VÉRIFICATEUR GÉNÉRAL DU CANADA

The Honourable H. A. Olson, P.C., M.P.
Minister Responsible for Northern Pipeline Agency
Ottawa, Ontario

I have examined the statement of expenditure and recovery of costs of the Northern Pipeline Agency for the year ended March 31, 1980. My examination was made in accordance with generally accepted auditing standards, and accordingly included such texts and other procedures as I considered necessary in the circumstances.

In my opinion, this financial statement presents fairly the results of the operations of the Agency for the year ended March 31, 1980 in accordance with the accounting policies set out in Note 2 and on a basis consistent with that of the preceding period except for the change in the basis of recording expenditure as described in Note 3 which increased expenditure of the current year by \$8,808. No attempt has been made to restate expenditure of the previous period to reflect this change.

A handwritten signature in dark ink, appearing to read "M. H. Rayner".

Acting Auditor General of Canada

Ottawa, Ontario
October 9, 1980

NORTHERN PIPELINE AGENCY

(Established by the Northern Pipeline Act)

Statement of Expenditure and Recovery of Costs for the year ended March 31, 1980

	1980 (12 months)	1979 (11.5 months)
Expenditure		
Salaries and employee benefits	\$2,274,002	\$1,285,129
Professional and special services	602,317	412,905
Travel and communications	570,066	451,199
Rentals	532,551	420,874
Furniture and equipment	113,927	272,406
Information	101,331	21,505
Materials and supplies	70,628	90,866
Leasehold improvements	-	177,776
Other	13,072	3,022
	<u>\$4,277,894</u>	<u>\$3,135,682</u>
Expenditure provided by:		
Privy Council Vote 25 (1978-79 Vote 30a)	\$3,963,894	\$2,951,682
Statutory—Contributions to employee benefit plans	314,000	184,000
	<u>\$4,277,894</u>	<u>\$3,135,682</u>
Recovery of costs of the Agency:		
Expenditure for the year	\$4,277,894	\$3,135,682
Less: Recoveries credited directly to Consolidated Revenue Fund	1,950	-
Amount recoverable from Foothills Pipe Lines (Yukon) Ltd.	4,275,944	3,135,682
Less: Portion of current expenditure to be recovered in the following year	1,487,531	1,454,009
	<u>2,788,413</u>	<u>1,681,673</u>
Add: Portion of prior year expenditure recovered in the current year	1,454,009	-
Payments received from Foothills during the year and credited to Consolidated Revenue Fund	<u>\$4,242,422</u>	<u>\$1,681,673</u>

The accompanying notes are an integral part of the financial statement.


Commissioner


Chief Financial Officer

NORTHERN PIPELINE AGENCY

Notes to Financial Statement March 31, 1980

1. Objective

The Agency was established on April 13, 1978 to facilitate the efficient and expeditious planning and construction of the Alaska Highway Gas Pipeline in a manner consistent with the best interests of Canada as defined in the Northern Pipeline Act, 1977-78, c. 20.

2. Significant accounting policies

(a) Cost-recovery

Agency costs are fully recoverable from Foothills Pipe Lines (Yukon) Ltd. based on quarterly billings. The resulting payments are credited to the Government of Canada Consolidated Revenue Fund in the period received.

(b) Expenditure

Expenditure for the year includes amounts relating to work performed, goods received and services rendered to March 31, 1980. Capital acquisitions are charged to expenditure in the year of purchase. All expenditure is financed by the parliamentary appropriations provided for that purpose.

Expenditure also includes all actual costs incurred on behalf of the Agency by other government departments, except for contributions to employee benefit plans which are based on budgeted employee strength.

3. Change in accounting policy

For the year ended March 31, 1980 the Agency has adopted accrual accounting for expenditures. In the previous year, expenditures were recorded primarily on a cash basis.

The change in policy is consistent with changes made by departments of the Government of Canada. The effect of the change was to increase the Agency's expenditure of the current year by \$8,808.

Comparative figures for the previous fiscal period have not been restated to reflect the change in accounting policy.

4. Employees' contingency plan

Senior employees who remain with the Agency until completion of their responsibilities and whose service exceeds five years, are entitled to a termination allowance of 13% of accumulated salary received. These costs will be charged to expenditure when paid. Based on employees on strength at year end who may become entitled to this benefit in the future, unrecorded costs are estimated at \$212,000. These costs would be recoverable as outlined in Note 2(a).

Project Description

The Alaska Highway Gas Pipeline Project is a large diameter system that will transport natural gas from the North Slope of Alaska to the lower 48 states via a Canadian land bridge. It will also provide access through the Dempster Lateral to Canada's own reserves in the Mackenzie Delta-Beaufort Sea area of the Northwest Territories as and when they are required.

During the fiscal year 1979-80, Canadian and U.S. authorities were actively considering the proposed first-stage construction in 1980-81 of the Western and Eastern Legs that form part of the southern portion of the system for the initial purpose of exporting surplus Alberta gas to U.S. markets in California and the mid-western states. A brief outline of this first-stage plan follows below.

Foothills Pipe Lines (Yukon) Ltd. of Calgary, Alberta, is the parent company responsible for the Canadian portion of the project. Foothills Pipe Lines (Yukon) Ltd. is owned equally by the Alberta Gas Trunk Line Company Limited of Calgary, Alberta (now known as Nova, An Alberta Corporation), and Westcoast Transmission Company Limited, Vancouver, British Columbia.

The mainline system in Canada will be built in five segments by the following subsidiary companies:

- Foothills Pipe Lines (South Yukon) Ltd.;
- Foothills Pipe Lines (North B.C.) Ltd.;
- Foothills Pipe Lines (Alta.) Ltd.;
- Foothills Pipe Lines (South B.C.) Ltd.;
- Foothills Pipe Lines (Sask.) Ltd.

A sixth subsidiary, Foothills Pipe Lines (North Yukon) Ltd., will build the Dempster Lateral, if and when it is approved.

In the United States, the Alaskan segment will be built and operated by the Northwest Alaskan Pipeline Company on behalf of the Alaskan Northwest Natural Gas Transportation Company. South of the 49th parallel, Northern Border Pipeline Company, a consortium of U.S. transmission companies, will construct the Eastern Leg of the system. Two California companies, Pacific Gas Transmission Company and its parent corporation, Pacific Gas and Electric Company, will construct the Western Leg.

The mainline project will comprise almost 7,720 km of pipe in the two countries. The diameter of the pipe

will be of 1,422, 1,219, 1,067 and 914 mm. A total of approximately 3,270 km will be in Canada, 1,180 km in Alaska and 3,270 km in the United States south of the 49th parallel.¹

The mainline through Canada will consist of the following lengths and diameters:²

Yukon	375 km of 1,219 mm
	443 km of 1,422 mm
B.C. (North)	715 km of 1,422 mm
Alberta	634 km of 1,422 mm
	377 km of 1,067 mm
	301 km of 914 mm
Saskatchewan	258 km of 1,067 mm
B.C. (South)	171 km of 914 mm

The pipeline in Alaska will be approximately 1,180 km of 1,219 mm pipe. In the lower 48 states, the Eastern Leg will consist of almost 1,800 km of 1,067 mm pipe and the Western Leg will involve about 1,470 km of looped 914 mm line.³

The system is designed so that when fully powered it would be able to carry 68 million cubic metres per day (2.4 billion cubic feet per day) of Alaskan gas and, if approved, an additional 34 million cubic metres per day (1.2 billion cubic feet per day) of Canadian Mackenzie Delta-Beaufort Sea gas.

The capital cost for the entire system, excluding that for the Dempster Lateral from the Mackenzie Delta, was originally estimated to be \$10.7 billion (Cdn). This reflected a cost of \$4.3 billion for the Canadian segments and \$6.4 billion for the American segments. In February, 1979, Foothills Pipe Lines (Yukon) Ltd., in light of the delay in the project schedule, revised the cost estimates for the Canadian portion to \$5.8 billion (Cdn). As of March 31, 1980, no revised cost estimates have been submitted for the American section of the line.

¹ The total project will comprise almost 4,790 miles of 56, 48, 42 and 36-inch pipe. Approximately 2,030 miles will be in Canada, 730 miles in Alaska and 2,030 miles south of the 49th parallel.

² Yukon 233 mi of 48" Saskatchewan 160 mi of 42"
 275 mi of 56" B.C. (South) 106 mi of 36"
 444 mi of 56"
 334 mi of 56"
 234 mi of 42"
 187 mi of 36"

³ The pipeline in Alaska will be approximately 730 miles of 48-inch pipe. In the lower 48 states, the Eastern Leg will consist of almost 1,120 miles of 42-inch pipe and the Western Leg will involve about 910 miles of looped 36-inch line.

As indicated earlier, the Canada-U.S. Agreement established January 1, 1983, as the target date for completion of the project. As a result of unforeseen delays in the United States, the current target for completion is now late 1985.

The map found on page vi provides a description of the proposed pipeline route.

First-Stage Plan for Construction of the Southern Sections

The first-stage plan provides for construction in Canada and the United States of all or part of the proposed Western and Eastern Legs of the system from the point where they branch off from the trunk

line 105 kilometres (63 miles) north of Calgary, Alberta.

This first-stage program involves the laying of some 2,992 kilometres (1,858 miles) of pipe in Canada and the United States at an estimated cost of \$2.4 billion (Cdn), of which 850 kilometres (526 miles) are in Canada. The system would be capable of transporting some 1.14 billion cubic feet ($32.3 \times 10^6 \text{ m}^3$) of Alberta gas a day to U.S. markets, rising to a possible peak flow between 1983 and 1986 of 1.35 bcf ($38.2 \times 10^6 \text{ m}^3$) daily.

In Canada, first-stage construction of the Western Leg involves installation of seven loops over a distance of 215 kilometres (132 miles) of pipe 914 millimetres (36 inches) in diameter. The Eastern Leg would consist of 1,067 millimetres (42-inch) diameter pipe extending over a distance of 635 kilometres (395 miles).

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