

PIPELINE

Quill Creek Field Test Program - A Model of What's To Come

As Yukoners looked to the weather vane and noted predictable unpredictability, January's rainfall temporarily halted clearing activity at Foothills Pipe Lines (South Yukon) Ltd., Quill Creek test site 300 km northwest of Whitehorse.

Work was interrupted for one day on the \$15 million test facility for pipeline design and pipe-laying procedures in discontinuous permafrost. The five km stretch along the Haines-Fairbanks right-of-way between Quill and Burwash Creeks was selected for the test program says Ken McKinnon, the Northern Pipeline Agency's Yukon Administrator, because it is characteristic of the extreme weather conditions and of the sensitive environment that will be encountered in building the northern sections of the Alaska Highway gas pipeline. Environmental impact will be minimized, he adds, because the adjacent construction camp is located where an old Hudson's Bay nickel mine once operated on a previously-cleared site equipped with a well system and camp facility infrastructure. Road access to the site is also in place.

Foothills (South Yukon) will test methods of ditch preparation, drilling and blasting, grading, welding and pipe installation, as well as the use of specialized equipment designed to control factors such as instability and erosion in permafrost. Pipe will be buried at Quill Creek in conventional underground ditches as well as in aboveground embankments. This latter method is new in pipeline construction. The installed pipe will be filled with hot air and special instruments called thermistors will register fluctuations in ground temperature due to seasonal variations.

Engineering, construction and environmental experts will monitor all phases of the program including construction which will be completed by April. Actual testing of the installations will then begin and possibly continue for up to five years to take in several summer and winter seasons.

Results of the Quill Creek tests could influence how the mainline of the Alaska Highway gas pipeline is built. Although construction of the 818 km Yukon portion is still two years away, it is important to determine and resolve any problems

that may exist in building a 56-inch diameter pipeline under severe conditions in delicate terrain.

"It's the first time such tests have been done in a true pipeline mode," explains McKinnon. "This is an actual, on the ground application of the theories that have been submitted as far as thaw settlement in winter-built pipeline conditions is concerned."

McKinnon sees the Quill Creek experiment as a test with implications reaching far beyond the technical and engineering aspects. In particular, it is a test of the Agency's proposed terms and conditions, and how effectively Foothills' (South Yukon) can meet the Agency's standards. For that reason, the Agency required Foothills (South Yukon) to submit environmental and socio-economic plans, which were subject to Agency approval before construction could proceed. This was given January 26.

Don Roberts is Chairman of the Yukon Advisory Council (YAC), a federally appointed group representing a cross-section of Yukon interests that acts as a sounding board for Yukoners' concerns relating to the pipeline project.



Kluane Tribal Brotherhood salvaged 80 cords of timber cleared from the Quill Creek test site.

"Activity at Quill Creek is arousing curiosity," Roberts says, "and it is starting to sink in among locals that the pipeline which people have been talking about for years will actually be built. It will demonstrate to Yukoners that what you're seeing happening here is a small model of what's going to happen on a larger scale."

Many environmental and socio-economic factors will be closely monitored at Quill Creek just as with other segments of the pipeline. These factors include the effects on wildlife habitat, notably that of the Burwash caribou; the use of water, snow, ice and gravel materials, and revegetation and restoration procedures.

Specific areas of concern deal with opportunities for Yukon businesses, manpower and employment. The Agency's proposed terms and conditions require that local business participation be encouraged, preference be given to qualified Yukon residents for jobs, and that employment opportunities for native people and women be provided. A local contractor, Kolody Construction, received the contract to crush the gravel

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Profile - William A. Scotland, Designated Officer



William A. Scotland, Deputy Administrator and Designated Officer.

William A. Scotland's job is unique. He is the first National Energy Board (NEB) member to work within a separate regulatory authority.

The federal cabinet appointed Alberta-born and educated Scotland to the Northern Pipeline Agency to act on the Board's behalf with respect to the design and construction of the Alaska Highway gas pipeline in Canada. As Designated Officer, Scotland exercises within the Agency a number of the powers the NEB would normally assume in relation to the project. These powers include approving the pipeline right-of-way, determining the need for additional lands, and issuing technical orders and instructions to the pipeline company. The *Northern Pipeline Act* extends these functions to include socio-economic and environmental terms and conditions.

Scotland's role as Deputy Administrator and Designated Officer within the Agency differs considerably from that of a regular NEB member in Ottawa. Along with Harold S. Millican, Administrator and Chief Operating Officer, and A. Barry Yates, Deputy Administrator, Policy and Programs, Scotland is part of the Agency's Executive Committee.

"Mr. Millican, Mr. Yates and myself function as a tight committee of three. I suppose I had the option of coming here and saying - 'Well, I'll just function as a member of the National Energy Board.

You guys come to me when you want something signed or approved.' That's never been my philosophy," says Scotland.

A chemical engineer by profession, with close to 20 years experience with the NEB, Scotland notes a basic distinction between the NEB and the Agency in their respective approaches to problem solving. The NEB, he says, is much like a court. The only way an NEB decision can be questioned is through a formal appeal.

The Agency's situation calls for a different approach. Unlike the NEB, the Agency is concerned with one specific project, and deals with one group of companies, the Foothills group, on an ongoing basis. The Agency's staff reviews draft plans prepared by the company on construction methods and schedules, engineering specifications, environmental protection standards and socio-economic measures. In this way minor points are settled before Foothills Pipe Lines (Yukon) Ltd. and its subsidiaries submit their formal plans for approval of the Agency. Occasionally, Scotland comments with a wry smile, company officials have to be reminded that once the Agency has issued an order the matter has been decided.

Scotland, 52, recognizes how on-site conditions may influence a decision. His early career includes work on the Athabasca Oil sands project, and work in oil exploration for Texaco Exploration Co. In 1960, he joined the NEB in Ottawa and by 1968 had become Chief Engineer of the Board. He left the NEB in 1972 to serve as Senior Advisor on U.S./Canada oil and gas relations with the Department of Energy, Mines and Resources, then returned to the NEB in 1974 as a Member. In 1978, Scotland was appointed as an Associate Vice-Chairman of the NEB, and the Board's Designated Officer with the Northern Pipeline Agency, at the operational headquarters in Calgary.

Over the years, Scotland has been involved in some 40 public hearings. Since construction of the Western Leg of the Alaska Highway gas pipeline began last summer, he has presided over six landowner hearings as the Agency's Designated Officer. He is amazed how much 'partial expert knowledge' he has picked up and can draw upon in areas ranging from medicine and agriculture

to aquatic biology.

"You're continually learning new things," he explains. "I've learned a great deal about fish in the last while and I haven't fished since I was a boy. Fish were in lakes and came in cans as far as I was concerned. But I've learned a great deal about fish, their sensitivity and how we, as much as possible, better do our thing with the pipeline so as not to interfere with them doing their thing."

In Scotland's view, the Agency is breaking new ground in the serious consideration it gives to environmental and socio-economic concerns. He notes, "Environmental factors have become a concern to the National Energy Board in recent years, and socio-economic factors are starting to be considered. These are both important factors to the Agency."

Agency Adds New Dimension

Scotland predicts the Agency's role in the Alaska Highway pipeline project will add a new dimension to the government's regulatory philosophy. Although the NEB will continue to have a deep and abiding interest in technical matters, he says, he anticipates a much greater awareness on the part of the Board of environmental and socio-economic factors.

Scotland hopes the concept will take hold of having two types of regulatory bodies, each responsible for a different phase of a major pipeline project. The NEB would conduct hearings to see if a pipeline should be built at all, then once the decision is made to proceed, turning the regulation of the design and construction over to another authority like the Northern Pipeline Agency. After the line is properly built, the NEB would resume responsibility for the line's operation and rate aspects. "I see the job of rate regulation and the job of construction regulation as really two different things, probably best achieved by two agencies," Scotland says.

In many ways the Northern Pipeline Agency serves as a test ground in how future major energy developments should be regulated. William A. Scotland's role as the link between the NEB and the Agency provides the essential elements of both tradition and innovation.

Yukon Environmental Review Resumes

Foothills (Yukon) Submits Additional Information

The federal panel studying the environmental implications of construction of the 818 km stretch of the Alaska Highway gas pipeline through the Yukon is resuming its review and is expected to conclude by next fall.

In September, 1979 the panel conducting the Environmental Assessment and Review Process (EARP) reported it could not determine the environmental impact of the project in the Yukon until Foothills Pipe Lines (Yukon) Ltd., the company building the line, provided additional information. The panel's report was based on the company's 1979 environmental impact statement and subsequent public hearings held that spring in Whitehorse. The panel recommended Foothills (Yukon) prepare a revised environmental impact statement, followed by another round of public hearings.

Meetings between the panel, Northern Pipeline Agency and Foothills (Yukon) last summer and fall clarified what information was lacking, the format in which the company would submit it and the respective roles of the panel and the Agency in concluding the review process. The EARP panel is concerned with the preliminary planning of the pipeline project in the Yukon, while the Northern Pipeline Agency will supervise final design and construction.

Over the next eight months Foothills (Yukon) will submit packages of material to the EARP panel under six categories, including new data, and will cross-reference it with previous information. The panel has agreed to receive and review the material on a piecemeal basis.

The company submitted its first package of information in early February detailing pipeline route alternatives in the Ibex Pass area in the Yukon. The remaining packages will provide information on locations of pipeline facilities such as compressor stations, frost heave and thaw settlement, water crossings and the impact on fish and wildlife.

In the course of its review process, the EARP panel distributes the material to



Surveying the Ibex Pass, Yukon, September 1980.

Photo by Massey Padgham (Whitehorse Star)

technical experts both within and outside of the government. The panel will decide if further public hearings are necessary following the review.

The EARP process was set up by the federal government in 1973 to seek

public comment on major federal projects or projects on federal lands such as an airport, a main highway or a pipeline, so that environmental effects could be taken into account early in the planning stages.

Ottawa Report

The Hon. H.A. (Bud) Olson, Minister responsible for the Northern Pipeline Agency, briefed members of the parliamentary committee on Northern Pipelines January 15, on construction progress on the Western Leg and the status of the financing for the Alaska portion of the pipeline.

Sen. Olson appeared with the Hon. Mitchell Sharp, Commissioner of the Agency, before the House of Commons Standing Committee at its first meeting since the decision to proceed with construction of the southern segments of the pipeline was reached by the federal government last July.

In a second appearance before the Committee on January 29th, the Minister and Commissioner responded to questions from the members concerning natural gas exports, the construction schedule for the Eastern Leg, details of the financing plan for the Alaskan portion, and land acquisition.

Commenting on the effect that the new Administration in the United States

will have on the pipeline project, the Minister indicated that he fully expects President Reagan will honour the commitment of his predecessor. Senator Olson pointed out that the Joint Resolution passed by the U. S. Congress last summer was unanimous and demonstrated the support of both political parties for the Alaska Highway Gas Pipeline Project.

The Commissioner told the Committee that the companies developing financing plans for the pipeline and gas conditioning plant in Alaska are moving forward on the assumption that the new Administration is as committed to the project as the previous Administration. "I think if the American companies are thinking that way, it supports very strongly the views expressed by the Minister," he said.

Barry Yates, Deputy Administrator of the Agency, was also on hand for the second Committee hearing. Yates reviewed the nature and history of the difference of opinion that developed late

last year between officials of the Agency and the B.C. Department of the Environment on technical questions relating to the crossings of the Moyie River. He emphasized that "the Agency and the province had the same objective, that of minimizing the damage to fish resources in rivers and streams, and that only the method to be adopted to achieve this objective was different."

The House of Commons Standing Committee was established in June, 1978, for the purpose of maintaining a continuing surveillance of the Northern Pipeline Agency and the Alaska Highway Gas Pipeline Project as it progressed. Since its formation, the Committee has heard testimony from the responsible Minister, officials of the Agency, members of the National Energy Board, and officers of Foothills Pipe Lines (Yukon) Ltd.

Agency officials will be appearing as witnesses at the next meeting of the House Committee, which is scheduled for the latter part of February.

News In Brief

Foothills Pipelines (Yukon) Ltd. is conducting a test drive in February, under winter conditions, using a self-steering trailer to haul 80-foot lengths of 48-inch diameter pipe between Edmonton and the Quill Creek test site in the Yukon. The vehicle has a swivel-type mechanism attached to the rear axle which enables the front wheels to turn with the curve of the road rather than to drag and cause undue wear on the road. The test is in response to concerns over safety and the cost of road maintenance, since 80-foot pipe has never before been moved along northern roads.

The Agency has approved socio-economic plans developed by Foothills Pipe Lines (Sask.) Ltd. for the Saskatchewan portion of the pipeline project. The plans describe steps the company will take to provide public information, employee orientation and local business opportunities resulting from the project's construction activity in the province. Work on the 258 km Saskatchewan segment begins in May.

Plans for providing employment opportunities for women and native people for construction of the Alberta and Saskatchewan segments of the pipeline have been submitted by Foothills Pipe Lines (Alta.) Ltd. and Foothills Pipe Lines (Sask.) Ltd. to the Agency for approval.

The company estimates the total number of field construction jobs for women and native people on the 1300 km Alberta segments of the project will range from 432 to 576 over a five-year period, starting with construction of the Western Leg last summer. In Saskatchewan an estimated 60 to 80 pipeline jobs will be created for native people and women during the 1981 construction season, and 18 to 24 jobs during construction in 1984.

Foothills' (Sask.) plan for environmental protection along the Eastern Leg in Saskatchewan has also been submitted to the Agency for approval.

The plans are available for public review in the library of the Northern Pipeline Agency offices in Calgary and

Ottawa. The Saskatchewan plans are also available at the main public libraries in Regina, Saskatoon, Burstall, Tompkins, Climax and Shaunavon. Comment on the plans is welcome.

The socio-economic and environmental terms and conditions to be applied to the construction and operation of the pipeline project in North B.C., Swift River, B.C., and Saskatchewan were approved January 29, 1981 by the Governor in Council. The terms and conditions, prepared by the Agency in consultation with the Governments of British Columbia and Saskatchewan, specify requirements the segment Foothills companies operating in these areas must meet. These include provisions for native people in training, job and business opportunities, equal access to pipeline employment for women, compensation to landholders for property damage, plans to minimize adverse environmental impact, and protection of traditional native harvesting and cultural areas.

1980 Flashback



Western Leg construction in Alberta kicks off near Chain Lakes, August 1980.

Harold Millican:

"After many frustrating delays the Agency could at last get its teeth physically into the project. I am gratified by the dedication shown by NPA personnel to their work. I lay claim with confidence to the fact that the NPA is the least bureaucratic of any government agency of which I have personal knowledge and this holds well for the future."

Connie Crepin:

"It was a lot of wondering what was going to happen. It was a relief when it finally did go, but busy. It was fun watching the news every night, not knowing what to expect next."

Danger! Carl Crossing



Bill Scotland:

"A vintage year! It was a break-in year, a year in which we broke in our people, the company, our procedures....A pretty definitive year in respect to finally getting the prebuild underway."

Alison Atkins:

"1980 was an encouraging year. We got approval for a comprehensive plan development and review process so the Agency, the company and the Yukon government can work together."



Agency staff visit construction site near Sundre, Alberta, November 1980.

Gail Fletcher:

"It was pretty busy in this department when we started rolling - super busy! Sometimes we were just flying, the paper was flying..."

Jan Parcels:

"We've really become more of a team."

Cheryl Douglass:

"We got our surveillance team started; we got our AES machine and all our vehicles...it's called 'panic in the summer of 1980'."

Les Williams:

"It was a learning period for both the company and ourselves because the go-ahead and the permit to proceed came unexpectedly to some of us. It made things rushed for us, but at the same time interesting."



Jim Wallace, Senior Surveillance Officer for Alberta.



Marcella Brown, Gill Bowles, Doug Kwok and Lynne Weaver at construction site near Sundre, Alberta, November 1980.

Bur-alba Barbecue
July 1980



Mike Stanistreet and Mel Werner scramble for the finish line.

Barry Yates:

"It was active. After a long wait the pipeline got started. In brief - at last!"

Dale Longlitz:

"Not enough activity. I would have liked to see less politicking and more action, though it was pleasing to see that they finally got something underway."



Jim and Joyce Buchholz lead sing-song around the campfire.

Landowners Speak Out

Compensation for damages from pipelines crossing their lands was the chief concern expressed by landowners at public hearings held by the Northern Pipeline Agency in Brooks, Alberta, February 5, and in Olds, Alberta, January 29.

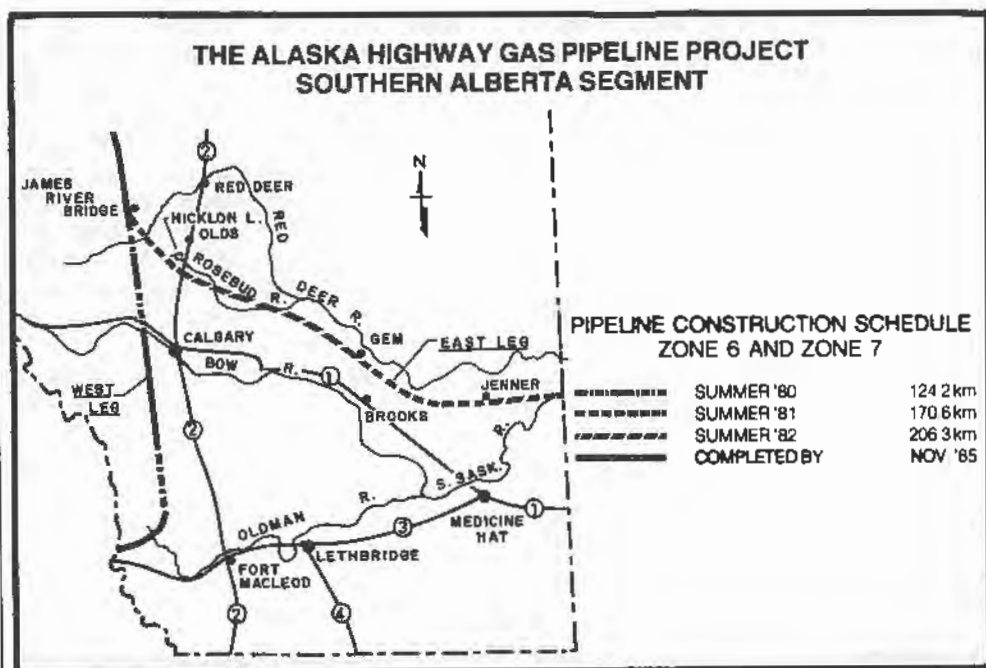
The hearings were held to hear applications made by Foothills Pipe Lines (Alta.) Ltd. to take additional lands along the Eastern Leg of the Alaska Highway gas pipeline. However, the landowners' representations focussed on compensation, crop and soil damage from previously built lines and objections to the pipeline route.

The company seeks to widen its proposed right-of-way to 29 to 39 m (96 to 128 ft) from the 18.3 m (60 ft) permitted under the *National Energy Board Act*. The additional land includes permanent working space: that area needed throughout the life of the pipeline for proper construction, operation and maintenance of the line. The company says that impact on agricultural lands will be minimized because this permanent working space lies on the existing right-of-way of the Alberta Gas Trunk Line Company Limited, now NOVA, AN ALBERTA CORPORATION.

Foothills (Alta.) also requests between five to ten m (16 to 33 ft.) of temporary working space, depending on the topography, especially in areas where extensive grading is required or at river crossings where more room is needed for equipment set-up. Temporary working space will be used only during the construction phase and landowners will be compensated accordingly.

Foothills (Alta.) claims the wider right-of-way and additional working space are needed to provide for proper separation and storage of topsoil, as well as to permit greater ease of mobility for construction crews and machinery.

Landowners at both the Brooks and the Olds hearings agreed the company's reasons for requesting additional space are valid. Seven farmers made representations at the Brooks hearing, although no formal submissions had been previously filed with the Agency. Their concerns included interference with irrigation systems and the risk of root damage from the heat of the pipe. A Hutterite spokesman suggested the pipe be buried at least 1.8 m (6 ft.) deep,



At the Olds hearing, Foothills (Alta.) sought additional lands along the first 54 km of the Eastern Leg extending from James River Bridge to Hicklon Lake. At the Brooks hearing, the company requested extra lands from a point near Gem southeast for 103.5 km to a point near Jenner, and west from the Saskatchewan border for 13.3 km.

which is below the plant root zone.

Representatives from the Eastern Irrigation District (EID), an organization which administers irrigated lands in eastern Alberta, contended their interests are also involved. The representatives pointed out that the EID has a statutory interest in lands along the pipeline route.

Questions raised by the eight landowners, who spoke at the Olds hearing, reflected past experience with pipelines and problems they do not wish to see repeated with the Alaska Highway gas pipeline. One area farmer wants Foothills (Alta.) to replace trees removed by NOVA in 1977 along a creek crossed by the right-of-way. The trees had protected the creek from freezing over in winter. Another landowner is asking for assurances that better conservation practices be followed this time round. He claims contractors on the 1977 pipeline project neglected to save his topsoil even though he had offered additional land at no extra charge to ensure this be done.

Although route objections to the Eastern Leg of the pipeline were heard at an Agency hearing in Calgary last November, several people voiced reservations

on the pipeline route. One landowner suggested the company should give more oral rather than written explanation to landowners regarding the project and how it will affect their property.

Representations by the landowners and Foothills Pipe Line (Alta.) Ltd. were made to William A. Scotland, a Deputy Administrator and the Designated Officer of the Northern Pipeline Agency. Scotland is also an Associate Vice-Chairman of the National Energy Board and exercises within the Agency the powers delegated to him by the Board.

A similar hearing on the taking of additional lands along the Eastern Leg of the pipeline is scheduled for February 17 in Shaunavon, Saskatchewan. A decision on all three hearings is expected in March.

The 635 km (394 mi.) Eastern Leg extends southeast from James River Bridge, approximately 88 km (54.7 mi.) northwest of Calgary, to a point near Empress, Alberta, and continues south easterly to the Canada-United States border near Monchy, Saskatchewan. Construction is scheduled to begin in May.

American Update

A consortium of nine American banks agreed in January to loan Pacific Gas Transmission Company \$160 (U.S.) million for construction of the western U.S. portion of the Alaska Highway gas pipeline. The company held an inauguration ceremony in Spokane, Washington, on February 9 to commemorate the start of U.S. Western Leg construction. Actual construction began in northern Idaho December 22. Both Sen. H.A. (Bud) Olson, Minister responsible for the Northern Pipeline Agency, and Hon. Mitchell Sharp, Commissioner of the Agency, spoke at the dinner held to mark the occasion.

Final cost estimates for first phase construction of the U.S. lower legs were filed in early December with the Office of the Federal Inspector. Pacific Gas Transmission Company estimates

costs for the Western Leg at \$176,178,200 while Northern Border Pipeline Company puts its costs for the Eastern Leg at \$1,238,612,000.

Northwest Alaskan Pipeline Company is expanding its frost heave test program by adding seven new test sites along the pipeline route in Alaska, and two more sections of 48 - in. diameter pipe at the company's Fairbanks facility. Northwest and Foothills Pipe Lines (Yukon) Ltd. are conducting a joint project to test means of controlling or minimizing frost heave: a phenomenon which occurs when moist soil freezes and expands causing the ground to thrust upward. Two control methods being tested are insulation and replacement of frost-susceptible soil with selected bedding material.

Pipeline

The Northern Pipeline Agency was created by Parliament in April, 1978 to oversee the planning and construction of the Alaska Highway gas pipeline project in Canada. Inquiries or suggestions regarding the Agency's publication "Pipeline" may be directed to:

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Quill Creek continued...

needed for the project. Yukon businesses also secured surveying, water sampling, hauling, electrical and equipment rental contracts.

During the three month construction phase, a total of 97 jobs will be provided. In January, a crew of 24 local natives from the Kluane Lake Tribal Brotherhood at nearby Burwash Landing cleared and prepared the test areas for construction. By the end of the month, three women had been employed on the project and 73 per cent of the total work force were Yukon residents, according to Foothills (South Yukon).

John Ferbey, Pipeline Co-ordinator for the Yukon Territorial Government (YTG), says the Yukon Government is keeping a close eye on the impacts of the test program on the demand for local goods, services and tourist facilities. He feels it is essential to sort out potential problems now rather than wait until it is too late. Ferbey adds the Quill Creek test program will serve as an economic boost. "There are certainly economic benefits to the Yukon at the present time from this project. Equipment that some of our business people and contractors are using on the project has been sitting frozen and cold over the winter because there isn't much else going on."



Crew unloads 80-foot lengths of pipe at Quill Creek test site.