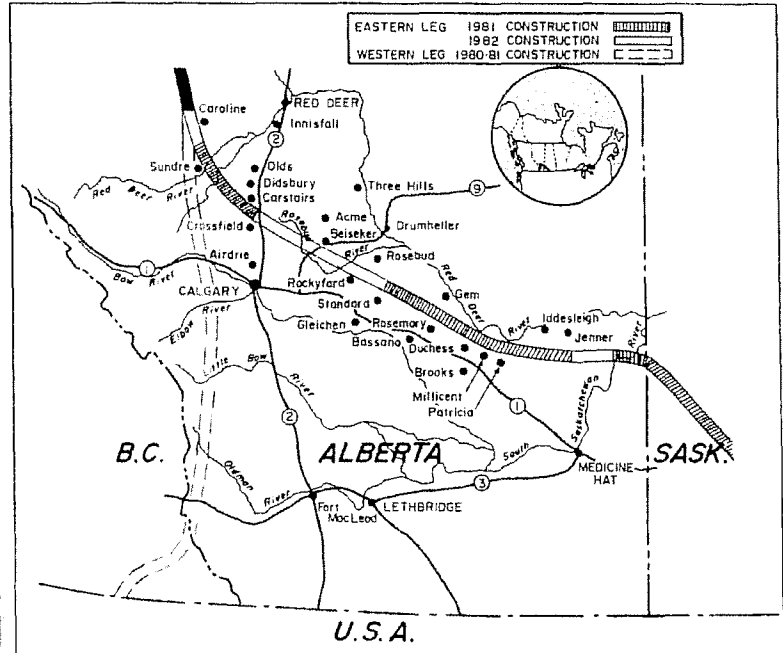
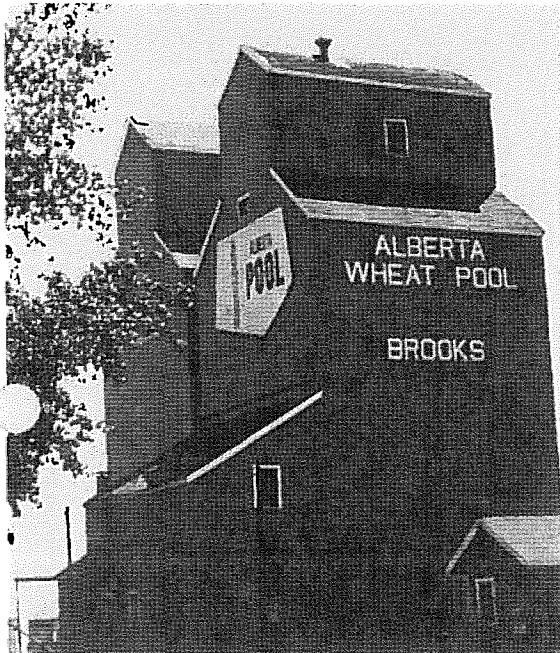


PIPELINE

Pipeline Provides Boost to Alberta Communities



For several weeks last summer, Leonne and Joe Stewart of Patricia were practically run off their feet cooking cheeseburgers on a tiny grill to feed crew members working nearby on the Eastern Leg of the Alaska Highway gas pipeline. The couple operate a small hotel and tavern in the eastern Alberta hamlet of 100 residents and, like many people in the accommodation, food, and service industry in other communities along the pipeline route, they welcomed the extra business generated by the project as construction progressed through their area.

In the nearby Village of Duchess where the population is 429, the hotel was opened earlier than normal to provide breakfast and box lunches for the pipeliners. Since May, when activity began in the Carstairs/Crossfield/Beiseker area, local restaurants, such as Bernice Nahorny's Country Kitchen in Carstairs, have been unusually busy. "Everyone's

feeling the pinch of the depressed oil and gas industry and this pipeline project's providing a pleasant boost," she remarks.

Last August through November and again this spring from March through May, the Town of Brooks, located 186 km (116 mi.) east of Calgary, served as the headquarters for the 500-member crew of the contractor, Marine Pipeline Construction of Canada Limited, the inspectors of Foothills Pipe Lines (Alta.) Ltd. and the Northern Pipeline Agency's field surveillance staff. As Eastern Leg construction pushed further westward in May, Marine Pipeline shifted its base of operations to Airdrie, while the office trailers of Foothills (Alta.) and the Agency occupied a .56-hectare (1.4-acre) industrial park site in Beiseker, where they will remain until August when the job is scheduled for completion.

However temporary the stay, Pamela Whitnack, Beiseker's Municipal Admin-

istrator, is pleased that the 30 to 40 company and Agency personnel are based in the community of 637. "The industrial park was completed in the fall of 1980," she says, "and I guess businesses have been reluctant to locate here as a result of the general downturn in the economy. We had hoped Marine Pipeline would set up in Beiseker; town council was willing to do everything possible to accommodate them, although there was a concern that the village was too small to handle a crew of that size." Mrs. Whitnack acknowledges the larger centres of Brooks and Airdrie, with populations of 9,100 and 10,000 respectively, are better suited because of more services and facilities.

Brooks' Mayor Chris Stark-Dunsmore recalls, "We had a few qualms when Marine Pipeline first approached us about a year ago for permission to set up a mobile home park for the crew.

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Pipeline Provides Boost to Alberta Communities

We were concerned mainly for reasons of safety. The land they wanted to lease was a privately-owned, undeveloped lot located on the main access road into town from the Trans-Canada Highway. We were worried about children from the trailer park playing on the road, as well as the potential traffic hazard created by so many private vehicles." However such problems did not materialize because the workers were bussed to and from the construction site every day, comments Mrs. Stark-Dunsmore. The fact that it was a fall and early spring job also helped, she continues, because any school age children of pipeline crew members would be back attending school in their home towns.

After some discussion, Marine Pipeline's request was approved by Brooks' town council, subject to certain special requirements. Mrs. Stark-Dunsmore explains, "We arranged with the landowner to have service outlets installed, but only for a four- or five-month period — this was not to become a permanent trailer park." For fire prevention purposes, the town required a space of at least 4.5 m (15 ft.) between trailer units and that storage tanks of fuel be fenced in and diked, so as to contain one and a half times the capacity of the tanks if a spill occurred. Provisions also had to be made for proper garbage disposal and pick-up.

"It was a well-run project," remarks Mrs. Stark-Dunsmore. "They gave us their full cooperation and we were happy to have them back in March, again stressing the temporary nature of the trailer installations."

The crew's most recent move to Airdrie, located only 32 km (20 mi.) north of Calgary, was carried out swiftly and smoothly, according to Mayor Darrell Bennett. "It was quite easy to get them set up," he notes. "They're occupying a vacant lot, owned by a local businessman in the middle of our industrial park. We did everything in our power to locate them as quickly as possible." Mr. Bennett explains a special permit had to be issued for temporary usage of the land and temporary services had to be run in to accommodate the 75 to 100 trailers. "We outlined the requirements that had to be met with respect to sanitation and safety and it was passed by council within two weeks of Marine Pipeline's initial application."

Ginny McKinnon, a vice-president of the regional tourist association and owner of a western and work wear store in Airdrie, notices a sizeable increase in the day-to-day operations of local businesses since the pipeline crew moved in. She estimates her own sales have risen by 10 to 15 percent, although this could also be related to the time of year with rodeo season coming up.

Airdrie has experienced a phenomenal rate of residential growth in the past six or seven years, explains Ms. McKinnon, with an average population jump of 2,000 per year as people relocate, mainly from Calgary. In 1975 Airdrie had about 800 residents, whereas the latest census puts the number at 10,000. "However, the retail business community hasn't caught up. It's still too small for the size of the town, since people have tended to do their shopping in Calgary," she remarks.

it required was sewage, water and electricity hook-ups. It's working out well for all parties concerned, and helping some of the new businesses get off the ground."

The commercial establishments in Brooks have also benefited from the pipeline project. Mark Breakell owns an automotive centre and estimates his profits were up by about \$1,500 a month while the pipeline crew was in town mostly through maintenance work to private vehicles. "It was good news to have them based in Brooks for awhile and spending money here," remarks Ted Storch, Station Manager of CIBQ Radio. "We used that in our sales approach with sponsors and I think we succeeded. But we didn't really notice the impact until January or February when advertising sales dropped and picked up again the following spring."



Beiseker, Alberta

"This is starting to change. Up until a year or so ago, approximately 25 percent of the shopping dollars stayed in Airdrie. Now it's about 40 percent, with more businesses moving in and a recently opened shopping mall."

"As the town began to mushroom, we didn't want it to become a bedroom community of Calgary," Mayor Bennett says. "In order to establish a sound tax base in Airdrie, we developed an industrial park which encompasses about a section of land and is now 75 percent occupied." Mr. Bennett adds Marine Pipeline's crew moved in at an opportune time. "The land was available, all

People are often hesitant to attribute a boost or a slump to one factor, observes Sharleen Douglass, President of the Brooks Chamber of Commerce. "We heard there was a payroll of about \$400,000 per week, but how directly those dollars came into circulation would be hard to determine. However, the general comment, especially from fast food outlets, restaurants, lounges and motels was that business was terrific."

With 500 to 600 businesses, Brooks serves the surrounding rural population of the County of Newell — roughly 6,700 to 7,000 people. In the past decade

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Agency Monitors Reclaimed Right-of-Way



Reseeded right-of-way in Saskatchewan's Great Sandhills (left) and in southeastern British Columbia (right)

Grass shoots are up and elk and deer wander along revegetated portions of the Western Leg of the Alaska Highway gas pipeline built in southeastern British Columbia during 1980-81. Observations by environmentalists with the Northern Pipeline Agency also indicate the initial success of some of the specialty revegetation and erosion control work undertaken last fall along completed segments of the Eastern Leg in Alberta and Saskatchewan.

In the arid Great Sandhills of Saskatchewan, for example, where wind erosion is high and little natural vegetation is found, grass seedlings have emerged through the sand along the right-of-way. However, in other areas, such as the pipeline crossing of Bone Creek, Saskatchewan, spring flooding washed away much of the fine material within the flood plain before the grass seeds had a chance to germinate. Most of the shrubs planted along the banks have survived and roses are budding.

The Agency's environmental group has embarked on a program for monitoring the right-of-way to detect environmental change over a period of time resulting from construction of the pipeline by the segment companies of Foothills Pipe Lines (Yukon) Ltd. "First we're checking whether the environmental protection measures taken by the company during construction have worked over the long term," says Bryan Grey, the Agency's hydrology and water quality scientist. "Consequently, the effec-

tiveness of the Agency's environmental terms and conditions which apply to the Foothills group are being put to the test."

Monitoring continues where surveillance leaves off. Mr. Grey defines surveillance as an activity of the Agency and the respective provincial or territorial jurisdiction during construction to ensure the company complies with the terms and conditions, regulations and approved plans and schedules. After the line is built and in operation, the Agency, company, and possibly, the regional governments will undertake monitoring from various perspectives, he says. "The company is primarily interested in monitoring for purposes of pipeline integrity. Anything they see that may threaten the safety of the system they must rectify."

The Agency wants to obtain feedback on the results of prior construction activity, Mr. Grey explains. "By monitoring the right-of-way one or more years after construction has taken place to see which measures were successful and which ones failed to reduce environmental impact, we'll be able to improve upon the protection plans for the pipeline's northern sections."

The Governments of Alberta, British Columbia and Yukon are likely to participate in monitoring in anticipation of future pipelines, adds Bonnie Gray, environmental scientist with the Agency. Since the National Energy Board will assume regulatory responsibility for the Alaska Highway gas pipeline once the

Agency ceases to exist — a year after the entire system is completed — it also will become involved.

Environmental change over time is a continuing process, observes Ms. Gray. "To be able to say with some degree of certainty that change has occurred in an area and whether it can be ascribed to the pipeline project or to natural causes, we need to know what specific environmental conditions existed there prior to disturbance," she emphasizes. For instance, the information obtained from the various wildlife and fisheries studies that the Foothills companies have been conducting in northeastern British Columbia and Yukon will help provide this pre-construction base from which to work, Ms. Gray says.

Monitoring activities on the completed phase one sections are somewhat different because systematic studies were not conducted for several years prior to construction, notes Agency wildlife scientist Dave Low. The approach to monitoring first phase construction is more "during-and-after-the-fact" observation, he explains. "We're concentrating on the environmentally-sensitive areas where special designs and mitigative measures were taken."

Erosion control, revegetation and certain water crossings were the major environmental concerns associated with the Western and Eastern Legs. "We're checking areas with steep slopes, such as riverbanks and coulees where ero-

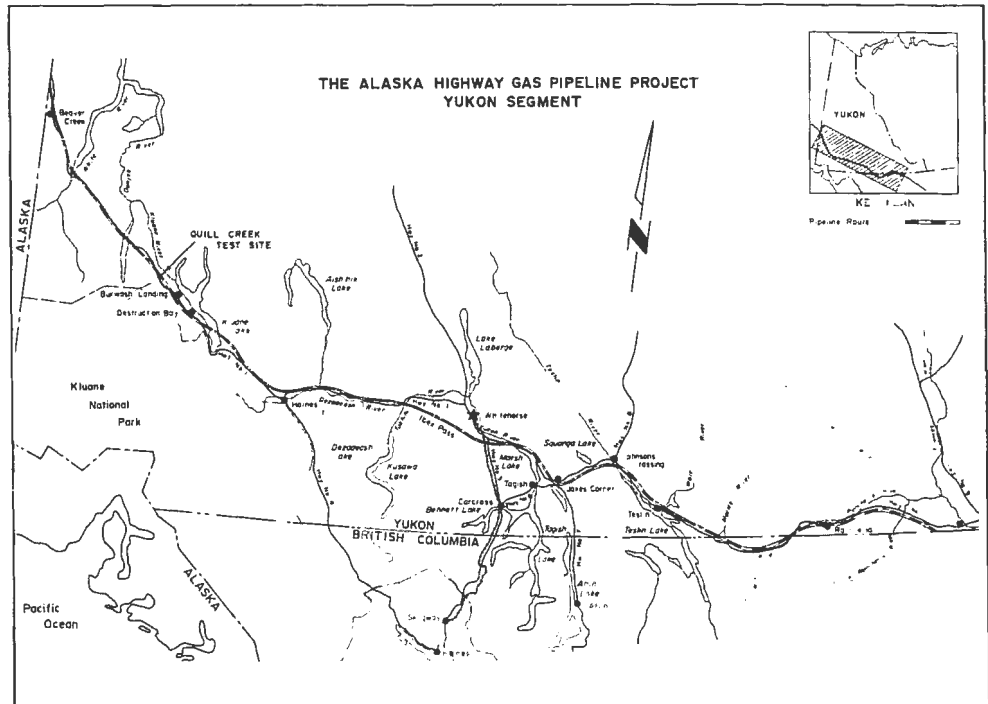
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Yukon Environmental Hearings Conclude

During five days of environmental hearings which began June 7 in Whitehorse, several federal government departments unanimously agreed with Foothills Pipe Lines (Yukon) Ltd. on the company's preferred and least-costly route alternatives of the Alaska Highway gas pipeline through the Kluane Lake, Marsh-Squanga Lakes and Rancheria Valley areas of Yukon. The routing in the Marsh-Squanga Lakes area had been modified as a result of concerns expressed at earlier hearings.

In the Marsh-Squanga Lakes region southeast of Whitehorse, Foothills (Yukon) proposes to follow the Alaska Highway. In the Rancheria Valley, the company has chosen a route which avoids the steep mountain terrain on the north side of the Alaska Highway by crossing the Swift River near the inlet of Swan Lake and following the south side of the Swift and Rancheria Valleys until the British Columbia border. The preferred pipeline crossing of Kluane Lake involves laying the pipe beneath the lake a distance of six km (four mi.).

The routing questions were among a number of issues under consideration by the six-member federal Environmental Assessment and Review Panel (EARP), chaired by Raymond M. Robinson, at the last round of hearings into potential environmental impacts of construction of the Alaska Highway pipeline in Yukon. Other issues addressed included geotechnical matters, as well as



fish and wildlife in relation to construction scheduling, and hydrological, pipeline design and revegetation concerns. These issues were based on a series of submissions Foothills (Yukon) has made over the last year and a half to the EARP Panel in response to information deficiencies identified by the Panel in the company's 1979 Environmental Impact Statement.

The company provided further details on its plans at the hearings and responded to questions raised in the briefs filed

by the Yukon Territorial Government, the federal departments of Indian Affairs and Northern Development, Fisheries and Oceans, Environment and Energy, Mines and Resources, the National Museum of Man and the various scientific advisors to the Panel. No questions were asked by members of the public.

Following a review of the proceedings, the Panel is expected to make recommendations to the Minister of Environment by September 1.

continued . . . *Agency Monitors Reclaimed Right-of-Way*

sion berms were installed to divert running water," Mr. Low says. He reports that the slope design has held up well at the pipeline crossing of the Frenchman River in Saskatchewan, where sandbags and heavy rocks were placed to stabilize the banks. Other slopes, such as the Gunn Creek crossing in Saskatchewan, have required remedial work by Foothills (Sask.) to prevent further erosion in a gully which was cut across the right-of-way by spring run-off.

Although a full growing season is needed to evaluate the success of the revegetation undertaken to control erosion by wind and/or water, Mr. Low says

their field trips have been planned to coincide with spring run-off following snow melt. "By observing the right-of-way under flood conditions, as in the case of several creek crossing areas in southeastern British Columbia, we have a good idea of how certain erosion control measures are holding up." The amount of run-off in the arid parts of eastern Alberta and southwestern Saskatchewan, which according to Mr. Low was relatively abundant this year, also indicates the success of seed germination in revegetated areas.

Timing is the key factor, he remarks, especially for monitoring wildlife. Short-

ly after nesting season, several raptor nest sites near the right-of-way in Alberta and Saskatchewan were monitored. "We found, for instance, that a pair of Swainson's Hawks had successfully brought up a brood in one nest located within 30 feet of the ditchline in Saskatchewan." However, cautions Mr. Low, one year following construction is too early to determine the long-term effect of the project on the overall environment. "We're just beginning by recording random observations but, after a number of years, the information will hopefully fit into a larger context."

Pipeline's Future Linked to Changing Economic Climate

The future of the Alaska Highway Gas Pipeline Project depends on the course of certain economic factors that led to the project's postponement in the first place, says C. Geoffrey Edge, Chairman of the National Energy Board (NEB). Many of these factors developed in a relatively short period and could be reversed in a similar time span, he told the Western Conference of Public Service Commissions in Monterey, California, on June 7.

When the decision was announced in April to delay completion of the multi-billion dollar system to 1989, the pipeline sponsors implied that the development of a financing plan had been overtaken by changing circumstances beyond the control of the project, including a short-term excess world energy supply and depressed oil prices, noted Mr. Edge. Yet spot world oil prices have since returned to around the level established by the Organization of Petroleum Exporting Countries (OPEC) after a drop of over \$6 a barrel, he pointed out, although projections of future price trends remain well below those of a year or so ago.

"The inescapable difficulty we face is that decisions must be made in the present about major energy developments that will only come to fruition in five, six or more years down the line, when the then-prevailing circumstances remain only a matter for conjecture," the NEB Chairman observed. Human nature tends to focus on the present rather than the future, he continued, and although this was an important factor behind the decision to postpone the Alaska Highway pipeline, those involved also realized they needed more time than earlier anticipated to resolve various issues surrounding the project.

Gas contracts between the shippers and producers may prove difficult to arrange because of constraints imposed by American anti-trust laws, Mr. Edge explained. "Associated with those contracts, for example, is the issue of the ownership and disposition of the natural gas liquids contained in the natural gas itself."

A more fundamental problem concerns the marketability of Alaskan gas during the early years of its delivery, stated Mr. Edge, despite the general acknowledgement that over the lifetime of the project gas from Alaska is likely



C. Geoffrey Edge, Chairman of the National Energy Board

to be one of the most competitive sources of energy available to the United States. "In a period of severe inflation, however, the traditional practice, followed by utilities and blessed by regulatory agencies, of imposing tariffs designed to meet the heavy front-end load of depreciation could very well make Alaskan gas unmarketable in the early years."

Only now are government and industry beginning to come to grips with the effects of inflation on major energy projects, on the pricing of utility services and on investment decisions, Mr. Edge remarked.

"I am convinced that, in order to deal with this problem of a heavy front-end load, it is necessary to level out the tariff to some extent by deferring depreciation and the return on equity. This deferral would also result in a reduced liability for income taxes in the early years, particularly if the flow-through rather than the normalized treatment of taxes is adopted."

This approach of levelling the tariff load has already been proposed in Canada by the sponsors of the Trans Quebec and Maritime Pipeline and it is attracting interest in academic and regulatory circles. However, Mr. Edge noted, utility companies and financial institutions seem reluctant to adopt it. He referred to a statement made last March by an official of the U.S. pipeline sponsor, Northwest Alaskan Pipeline Company,

who described tariff levelling as a "complex mechanism" and one which his company would consider as "a last resort." On further examination it may turn out to be the only resort, Mr. Edge suggested. "But I would also quickly concede that its implementation requires a readiness on the part of all those concerned to undertake an innovative leap forward," he said.

Defining himself as an optimist, Mr. Edge said he expects the economic factors that contributed to the pipeline project's delay will become more favourable. Studies indicate the United States will face a pressing need for access to the Alaskan gas reserves toward the end of the decade, he continued. Gaining access to those reserves is also vital to the U.S. national interest, he stressed and is economically feasible in the broadest sense of the term.

Financing the northern sections of the pipeline, while still uncertain, is the key issue being addressed by a new financing committee of both project sponsors and gas producers, which met for the first time in late May. "Conceivably, new participants may find it in their interest to join the project and, in the process expand its borrowing base. At the same time, the lending institutions might be persuaded to provide a greater amount of financing on a non-recourse basis than they have been prepared to make available up to the present time," Mr. Edge suggested. In his view, these developments may depend on the introduction of an acceptable means of levelling the pipeline tariff in the initial years to ensure all those involved that the marketing problem during that period can be overcome.

Non-completion of the pipeline would clearly affect Canada-United States relations, Mr. Edge warned his audience. "No doubt any effort subsequently to revive the proposal to use Canada as a land bridge for the transport of Alaskan gas to the lower 48 states would meet considerable scepticism on the part of Canadian corporate interests, the Canadian government and the Canadian people as a whole."

The collapse of the Alaska Highway pipeline would deny Canada the opportunity to gain access to its own gas reserves in the Mackenzie Delta, and possibly offshore in the Beaufort Sea,

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Pipeline Provides Boost to Alberta Communities

Brooks' population doubled to over 9,000 as it became an important service centre for the petroleum industry. "We're a self-contained community because basic industry is here", says Mayor Chris Stark-Dunsmore. "Most people who live here, work here and shop here, even though the City of Medicine Hat is only an hour's drive away. We're looking for steady growth rather than flamboyant growth followed by a down-fall. So far we've been very fortunate." No businesses have yet been forced to close down due to the low level of activity in the oil and gas sector, she adds, because agriculture is still the cornerstone.

The Eastern Leg of the Alaska Highway gas pipeline is the fourth and largest pipeline to traverse the predominantly agricultural County of Newell. "Pipelines can cause an inconvenience to farmers, particularly during certain times of the year," notes Tom Musgrove, County Reeve and rancher from Patricia. "However, I believe that any differences between the pipeline company and land-owners were settled before construction took place and there were no land expropriations as there have been in the past. I talked to some of the people whose property was affected and they seemed satisfied with the compensation they got and impressed that the installations went quickly and efficiently."

Despite initial objections, Jacob Waldner, Secretary of the Springside Hutterite Colony, commends Marine



Pipe bending operations near Standard, Alberta

Pipeline's job in replacing the topsoil and reseeded the eight-km (five-mi.) stretch of right-of-way which runs through the community's land and includes the steepest coulee along the Eastern Leg, Matzhiwin Coulee. Mr. Waldner feels they received a fairer financial deal this time than on previous pipelines because they could opt for annual payment for use of the land rather than a lump sum.

Reeve Tom Musgrove points out that road crossings by the pipeline were handled somewhat differently this time than in the past. County policy now requires a company or contractor to bore so that the top of the pipe is at least two m (seven ft.) below the crown of the road and at least 38 m (125 ft.) back from the centre. "We've run into problems with

other pipelines," explains Mr. Musgrove, "where the pipe has had to be excavated and lowered to accommodate any road-widening. By keeping it lower down to start with, the problem will be avoided."

Mr. Musgrove also notes how the farmers in the Buffalo-Iddesleigh region have benefited because the water used for testing the completed pipeline in the area drains into their community pasture "It's not very level country and the last few years have been very dry. Water for livestock has always been a concern so it's good that these people are able to fill up some of the watering places that would otherwise remain dry," he remarks.

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Pipeline's Future Linked

via the proposed Dempster Lateral to Whitehorse, Mr. Edge said. "That, of course, could lead Canadians to consider other alternative means of achieving that objective."

Regardless of the obstacles to be overcome, Mr. Edge concluded that a way will be found within the foreseeable future to carry through the project which is in the public interest of both Canada and the United States and economically sound.

Our Mistake

It was reported incorrectly in the June issue of Pipeline that the Kaska Dena Council had signed a contract with the Northern Pipeline Agency to consult with native communities in northeastern British Columbia on the anticipated effects of the Alaska Highway gas pipeline. In fact, such a contract has not been signed.

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. Enquiries or suggestions regarding the Agency's publication, *Pipeline*, are welcome and may be directed to:

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