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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL POWER COMMISSION

In the Matter of)
El Paso Alaska Company, et al:) Docket Nos. CP75-96, et al:

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WRAP-UP BRIEF OF THE ALCAN PROJECT

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December 16, 1976

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With the passage of the Alaska Natural Gas Transportation Act of 1976 (Act), Pub. L. 94-586, 90 Stat. 2903 (October 22, 1976), Congress recognized that the selection of an Alaskan natural gas transmission system is one of the most important energy decisions facing this country during this century. Thus, instead of relying upon the traditional procedures embodied in the Natural Gas Act, 15 U.S.C. §§717, et seq., Congress established a special procedure which will permit the final decision to be made only after substantial input from all levels of government. The decisional process begins, of course, with the initial decision of the Presiding Judge.

Given the spirit of the Act, Alcan submits that, regardless of the proposal ultimately preferred by this agency, it is incumbent upon the Presiding Judge and the

^{1/} For the purposes of this brief, Alcan Pipeline Company, Northwest Pipeline Corporation, Foothills Pipe Lines (Yukon), Ltd., Westcoast Transmission Limited, The Alberta Gas Trunk Line Limited and The Alberta Gas Trunk Line (Canada) will be collectively referred to as "Alcan."

Commission to weigh the evidence and provide an objective and balanced evaluation of the comparative merits and disadvantages of all three competing projects. Such an evaluation, in contrast with the biased presentation in Staff's position brief, will provide the groundwork for meaningful participation in the decisional process by other Federal agencies, the President and the Congress.

The vast record in this proceeding contains a plethora of detailed information on such issues as engineering, economics, environmental impact, tariffs, financing, and gas supply. This evidence has been adequately catalogued in prior briefs on specific subjects, and, therefore, will not be reiterated in this brief. Instead, this final submission by Alcan will address the broad issues which led to the formation of the Alcan Pipeline Project, and which, in our judgment, should control the selection of a system to transport desperately needed Alaskan gas to U.S. consumers for the foreseeable future. These issues are:

1. Whether an overland system should be selected instead of a combined land-water system.
2. If an overland system is selected, which route should be chosen in light of environmental, economic, and Canadian considerations.

Pipeline design is important, of course, but this issue should not dictate the selection of a system. In the last analysis,

the design of the project selected will be optimized on the basis of specific information developed regarding deliverability from Alaska, market distribution, and technological feasibility.

I. Overland System vs. Combined Land-Sea System

Virtually all parties who have addressed this issue (except, of course, El Paso Alaska, the State of Alaska and two purchasers of Alaska royalty gas whose support is compelled by their gas purchase contracts) have concluded that a totally overland system is far superior to a combined land and water transportation system in terms of ease of construction, reliance on existing technology, reliability of cost estimates, safety, and reliability of service once operations commence. Alcan believes that, in light of the history of the natural gas transmission industry over the past 40 years or so, there can be no doubt that reliance upon proven pipeline technology in a project of this magnitude is far preferable to reliance on relatively new LNG technology. This is especially so when consideration is given to the fact that the El Paso proposal is beyond the current technological limits of even this relatively new industry.

Fear of Canadian interference is the primary reason for El Paso's "all-American" project. In Alcan's view, there is no foundation whatsoever for this fear. Once the Canadian government has approved a trans-Canada system,

Alaskan gas undoubtedly will be transported to the United States without interference by the Federal or provincial governments of Canada.

The key, however, is to secure Canadian approval of an overland route in the first place. To accomplish this, the Canadian government must be provided with an alternative which protects Canadian interests as well as United States interests. The Alcan Pipeline Project is such an alternative.

II. Selection of the Optimal and Realistic Overland Route

Alcan's Canadian co-sponsors have testified that, in their judgment, Canada will be willing to permit a transit pipeline to cross its territory, provided Canadian needs and interests are respected. In addition to meeting Canadian needs and interests, the overland route selected should maximize environmental advantages, logistical advantages, and economic advantages, including benefits to the State of Alaska.

A. Environmental and Economic Considerations

With the exception of a short segment between Fort Nelson, British Columbia and Zama, Alberta, the entire Alcan route follows existing transportation corridors. From an environmental standpoint, the use of these existing corridors will mean that the overwhelming majority of Alcan's construction will occur in areas which have already been

environmentally impacted. This approach stands in sharp contrast to the Arctic Gas Project which will require new intrusions into pristine wilderness areas.

The location of Alcan's proposed route along established corridors, in the vicinity of all-weather roads, also gives it clear logistical and economic advantages over Arctic Gas. It is simpler to place and move men and equipment along Alcan's route than along Arctic Gas' route. Invariably, then, there must be a higher degree of confidence in Alcan's proposed construction schedule than in Arctic Gas'. The economic advantages of Alcan's proposed construction schedule and its greater reliability in adhering to that schedule are discussed in the briefs on economic matters filed by Alcan. Indeed, the advantages of Alcan's route and its maximum use of existing technology will enable it to complete its system and bring Prudhoe Bay gas to the lower 48 states some two years sooner than either of the other applicants. Even the Commission Staff has acknowledged that Alcan could bring Prudhoe Bay gas to the lower 48 states a year earlier than the other applicants.

Maintenance is also an important consideration. The availability of all-weather work roads and other facilities along existing transportation corridors means that Alcan will be able to engage in year-round maintenance and repair operations with very little, if any, environmental

and economic impact. In contrast, Arctic Gas' ability to conduct maintenance and repair operations on its North Slope and Cross-Delta segment, without significant environmental and economic impact, is severely limited.

Not the least of the economic benefits of the Alcan Project are those to the State of Alaska. Although Alaska has expressed its preference for the El Paso Project, which completely traverses the state, it has characterized Alcan as a sound second choice in its position brief. The reasons are evident. By going southward to a point beyond Fairbanks before turning southeastward toward the Alaska-Yukon border, the Alcan system will enable Alaska to transport its royalty gas from Prudhoe Bay to the heartland of Alaska. The benefits which the Alcan Project would bring to Alaska are summarized in Alcan's briefs on socio-economic issues.

Apart from the foregoing environmental and economic issues concerning the routing of an Alaska gas transportation system, another major routing question in this proceeding is: Should the Arctic National Wildlife Range (and of course the similar North Slope land immediately adjacent to the Range in Canada) be sacrificed in order to bring Alaska gas to the lower 48 states? In Alcan's view, this issue overshadows the numerous other environmental matters which have been addressed in the course of this hearing. Every major environmental

organization in the United States has expressed adamant opposition to efforts to construct a pipeline across the Wildlife Range. This is not to say that these other issues are not important, but in distilling key issues, the impact on the Range clearly emerges as dominant. If the only choice open to the decision makers were to authorize a pipeline across the Range, as proposed by Arctic Gas, or not bring North Slope gas to the lower 48 states, a difficult question would indeed be posed in light of this country's urgent need for additional natural gas supplies, on the one hand, and its strong commitment to preserve environmental, wildlife, wilderness and recreational values, on the other hand. Fortunately, that stark decision need not be made, since there is another reasonable alternative overland proposal available: the Alcan Project. Again, if the entire picture is viewed dispassionately, there is simply no need to ruin the Arctic National Wildlife Range in order to bring Prudhoe Bay gas to the lower 48 states.

Even if this nation should eventually decide to seek hydrocarbon reserves which might potentially underlie the Range, the construction now of a gas pipeline through the Range will in no way benefit that development. If significant hydrocarbon deposits are discovered underlying the Range, they are likely to be oil reserves with solution and associated gas, similar to the deposits in Prudhoe Bay. Thus, in any event, a new oil line would necessarily connect

the hypothetical discoveries with the existing oil/gas separation and conditioning facilities at Prudhoe Bay to permit the oil to be transported south in the Alyeska oil pipeline. Therefore, any argument that the proposed Arctic Gas routing would advantageously connect such potential reserves with transportation facilities ignores the realities of the situation. ^{2/}

B. Utilization of Existing Systems

One of the great strengths of the Alcan system design is its maximum utilization of existing systems in Canada. Just as the Commission Staff discovers economic and other benefits from maximizing the use of existing facilities in the lower 48 states, so too does Alcan find such benefits from maximizing the use of existing facilities in Canada. The environmental benefits are obvious, and the economic benefits are also evident when one compares the cost of building entirely new facilities with the cost of partial looping of an existing line, combined with joint utilization of various facilities and personnel.

Of particular significance in this case is the undisputed fact that AGTL and Westcoast, which will not only expand

^{2/} To utilize Arctic Gas' routing for transportation of the gas from such reserves, either new oil/gas separation and conditioning facilities must be constructed in the Range or such gas will somehow have to be transported to Prudhoe Bay.

their own existing facilities to accommodate the Alcan project, but, along with Foothills, will build the new line segments in Canada, know more about constructing and operating pipelines in the far north than any other pipeline operators in North America. They have actually done it, and not merely theorized about it in laboratories and offices. Consequently, an overland project utilizing these unique talents is most likely to yield major benefits to U.S. shippers and consumers.

C. Canadian Considerations

Since Canada must approve any transit pipeline which would transport Alaska gas across its territory, Canadian needs and interests must be considered in the decisional process looking toward the selection of a totally overland route. When Arctic Gas filed its application in 1974, its sponsors believed that their project would ideally accommodate the needs and interests of both the United States and Canada. However, subsequent events have made it increasingly clear that Canada may not need or want a pipeline running through the MacKenzie Valley to connect MacKenzie Delta reserves in a time frame which will reasonably accommodate the need and desire of the United States to bring badly needed Prudhoe Bay gas to the lower 48 states. The record in this proceeding now shows that, in the recent past, natural gas consumption in Canada is growing at a considerably lower rate than previously anticipated, while gas supplies

from traditional sources, particularly in Alberta, have been increasing. Thus, Canada's need for Delta volumes now appears much less urgent in the near term than it did when the Arctic Gas application was filed.

More importantly, however, it now appears, on the basis of extensive hearings conducted by the Berger Inquiry, that extremely difficult socio-economic and political problems exist in the MacKenzie Valley, in the form of native land claims and the desire of the native peoples to secure adequate political rights. Indeed, the staff of the Berger Inquiry has tentatively recommended that no pipeline be built through the MacKenzie Valley until 10 to 15 years after the native claims in that area have been resolved. While Canadian action on the Berger staff recommendation cannot be predicted, it would be foolhardy for the United States to select an Alaska natural gas transportation system that is clearly vulnerable to long delays and massive cost overruns on account of problems known to exist and which cannot be resolved by decision makers in this country. These thorny problems are endemic to the Arctic Gas proposal, but not the Alcan proposal. As Alcan's Canadian sponsors have testified, the Alcan project provides a means of assuring the U.S. of overland access to its Alaskan reserves at the earliest possible date, while leaving Canada the flexibility to connect the Delta reserves at such time as required by her national interest.

Some parties -- most conspicuously, the Commission

Staff -- have maintained that the Alcan Project and the Maple Leaf Project, which is designed to bring MacKenzie Delta gas to Canadian markets, must be treated as a single project for purposes of environmental and economic comparison with the Arctic Gas Project.^{3/} Of the many allegations made by Alcan's opponents, this is perhaps the most absurd. The record in this case clearly demonstrates that the Alcan and Maple Leaf projects, while complementary, are entirely separate and distinct. Unlike Arctic Gas, the Alcan project's timing and cost are not dependent upon the construction^{4/} of a pipeline to connect Mackenzie Delta reserves.

Arctic surmises, without any support in the record, that approval of its proposal will have a beneficial impact on the level of Canadian gas exports to the United States. This

^{3/} Strangely, the Staff does not deem it proper to combine the Maple Leaf Project with the El Paso Alaska Project for comparative purposes. The illogic of Staff's position is striking. Alcan and El Paso both deal only with Alaska gas, and either project could be authorized regardless of actions taken with respect to Mackenzie Delta gas.

^{4/} Alcan has responded at greater length to the Staff's arguments in its Reply Brief to Positions of Other Parties, filed December 16, 1976. As noted in other briefs filed by the Alcan Project, Alcan can very easily eliminate the proposed exchange arrangement involving Delta gas and, through the addition of minor compression facilities, transport the entire amount of Prudhoe Bay gas directly to the AGTL System in Alberta. (See Alcan's initial brief on economic matters, pp. 16-17; Tr. 39,157.) Alcan is ready and willing to commit to do so, thereby removing even the remote suggestion that there may be a connection between the Alcan Project and the Maple Leaf Project.

specious contention is discussed in Alcan's reply brief on Canadian issues, as well as its reply brief to the position briefs of other parties. In light of the foregoing discussion, it is evident that Mackenzie reserves will be developed only when Canada finds it in its best interest to do so. When that time arrives, the Maple Leaf project stands ready to bring such reserves to appropriate markets in an expeditious manner.

In sum, Alcan affords the only logical choice of an overland route from Prudhoe Bay to the lower 48 states, since it, unlike Arctic Gas, affords recognition to Canadian interests. Not only does Alcan offer Canada the opportunity to accommodate its neighbor by approving a transit pipeline through Canadian territory, but it permits Canada to do so without losing its flexibility with respect to the development of Mackenzie Delta reserves. Moreover, only Alcan recognizes Canada's interest in having its existing pipeline facilities (AGTL and Westcoast) utilized in conjunction with a transit pipeline.

III. Technological Matters

As noted, Alcan believes that the most crucial judgments which the Commission, the President and Congress must make are (1) which is the preferable transportation mode, and (2) which overland route should be selected. On the basis of the facts and circumstances as they exist today and will con-

tinue to exist in the foreseeable future, the Alcan route is the only reasonable choice available to the decision makers.

Very serious issues on system design have been raised in this proceeding. While these issues are secondary and should not control the selection of a route, they must be resolved ultimately. Alcan believes that the Commission, in preparing its recommendation to the President, can lay the foundation for ultimate resolution of the design issues. This part of the brief will consider some key technological questions and suggest how the Alcan project will meet them.

At the outset, Alcan believes that the final engineering design and construction techniques that should necessarily be utilized on whichever project is selected cannot be determined in an adversary proceeding such as this one. Modifications and refinements are to be expected throughout construction, particularly in a project where new technology and techniques are required. Likewise, permit stipulations by government agencies having jurisdiction will greatly influence final design, prior to and during construction. This has been amply demonstrated during the Alyeska project. Certain designs in that project still have not been approved by jurisdictional agencies, yet the job is nearly complete. Even the concept of a totally chilled, buried gas pipeline, which has been central to each of the three proposals, may be modified as detailed design proceeds. It has been shown in these

proceedings that not all potential geotechnical problems have been solved to date, even after massive investment of time and money. In short, design issues cannot be of pivotal decisional significance in this proceeding.

The key issue in the area of pipeline design is the size of the line which will best accommodate the gas supply likely to be available from Alaska. When the Arctic Gas Project was initially presented in 1974, its sponsors were faced with the problem of designing a line which would not merely be optimally sized to meet the requirements for transportation of Alaska gas, but which would also accommodate the volumes expected to be available from the Mackenzie Delta. Throughout the hearings, Arctic Gas has steadfastly maintained that it expects 2.25 Bcf/d from Prudhoe Bay and, after a few years of buildup, 2.25 Bcf/d from the Mackenzie Delta. Accordingly, its pipeline is designed for a maximum of 4.5 Bcf/d. As discussed at length in Alcan's initial and reply briefs on gas supply issues, it now appears that the maximum volume likely to be available from Prudhoe Bay is 2.0 Bcf/d, and, indeed, the State of Alaska, which will control the amount of gas which will be made available through its approval of the field operating plan, has indicated that no more than 2.0 Bcf/d is the likely volume which will be made available for transportation to the lower 48 states. If Mackenzie Delta volumes are developed as projected by Arctic

Gas (to the level of 2.25 Bcf/d), the Arctic Gas system will have an expansibility capability without looping of 12.5%. Any expansion of the Arctic Gas system to accommodate additional Alaska gas beyond 2.25 Bcf/d will require looping of Arctic Gas' main line through Canada from Tununuk Junction south. Of course, if Mackenzie Delta volumes do not reach the 2.25 Bcf/d level, Arctic Gas will have additional flexibility to expand its Alaska gas deliveries, should additional supplies from Alaska ever become available, beyond 2.25 Bcf/d without looping. At the very least, however, this would require additional compressor stations on the Prudhoe Bay lateral, thereby assuring further destruction of the Arctic National Wildlife Range and its unique wildlife, wilderness, and recreational values.

The Alcan Project, on the other hand, is optimally sized to handle the volumes which are likely to be available from Alaska throughout the life of the project.^{5/} Thus, at its design volumes of 2.4 Bcf/d, the Alcan system has expansion capability, without the addition of any facilities, of 20% above the anticipated maximum daily volume of 2.0 Bcf. And Alcan has demonstrated that its system can be expanded

^{5/} This subject is discussed at length in Alcan's initial and reply briefs on gas supply issues. See also Rebuttal Brief on Environmental Matters of the Alcan Project, pp. 6-8, which was filed on December 9, 1976.

without looping to an average daily volume of 2.9 Bcf (3.1 Bcf on a peak day) -- an expansion capability of 45 percent above the expected maximum of 2.0 Bcf/d. Of course, the Alcan system, like the Arctic Gas system, can be further expanded through incremental looping or a combination of looping and compression.^{6/}

Alcan acknowledges that its use of a 42" line at 1250 psig operating pressure and its use of lower pressure existing pipelines will result in greater fuel consumption than would the use of a 48" express line operating at 1680 psig. Alcan is certainly sensitive to this issue in this time of energy shortage. However, there is a real trade-off involved in resolving the fuel consumption issue, namely, fuel economy versus system reliability. Alcan believes that the greater the degree of new, untried technology involved in a proposal of this magnitude, the less reliable will be the estimated construction costs, scheduling projections and service after operations commence.

One important question is whether this project, which must be constructed in one of the most hostile environments in the world, is the proper occasion to experiment with

^{6/} The sponsors of the Alcan Project are ready, willing, and able to expand the system to accommodate additional Alaska volumes which may become available. See, e.g., Blair, Tr. 41,787, 41,797; Phillips, Tr. 42,158-59.

technology not yet tried and tested in actual pipeline operations. Both of the overland applicants, Alcan and Arctic Gas, must inevitably propose some new technology, namely construction of a chilled gas pipeline in permafrost areas. Indeed, both applicants propose higher pressure pipelines than are currently in operation anywhere else in North America. But here the similarity ends. In terms of pipeline pressure, Alcan would go to 1250 psig, 25% beyond the highest pressure line now in operation in North America, while Arctic Gas would leap 68% beyond current technology to 1680 psig. In addition, Arctic Gas has opted for 48-inch pipe, again larger than any gas pipeline in operation in North America. Should billions of dollars be gambled upon Arctic Gas' ability to make a successful giant leap forward in pipeline technology, or should the more modest, but nonetheless real, technological advances proposed by Alcan be accepted? Alcan submits that the same logic which should lead the decision makers to prefer a totally overland system to a combined land and water transportation system should lead them to prefer a system which, although technologically innovative in certain respects, is sufficiently close to existing technology to assure construction on schedule and within estimated costs, and which will prove to be a safe and reliable service over the life of the project. This is especially so in view of the fact that United States gas consumers and taxpayers may be called upon to pay for the system "in all events."

Following the selection of a route, the governments of Canada and the United States will be required to reach an agreement, perhaps after further investigation, on a pipeline design which will protect the interests of both countries. Alcan's sponsors are willing to abide by such a decision and build the system that is determined to be appropriate under the circumstances, provided that it meets applicable safety codes.

V. Conclusion

As noted above, there can be no doubt that, in scope, size, and level of uncertainty regarding key issues remaining after the close of the record,^{7/} this is no ordinary certificate case to be resolved by the Commission under its standard decisional criterion. Under these circumstances, Alcan submits that the Presiding Administrative Law Judge and the Commission will best serve the President and Congress by not proposing a typical certificate of public convenience and necessity, but rather by providing a decision which identifies the U.S. and Canadian interests involved in the selection of an applicant.

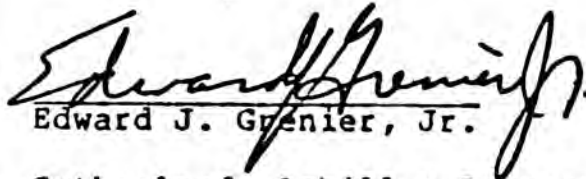
^{7/} For example, there are still no executed contracts for the sale of Prudhoe Bay gas to shippers; there is no definitive evidence concerning the handling of the construction and cost of the huge gas processing facility which must be constructed at Prudhoe Bay; and there is as yet no fixed wellhead price for the Prudhoe Bay gas.

In this connection, the Presiding Judge and the Commission can provide a service to the President and Congress which the Staff proved unwilling to perform. Staff insists on approval of the Arctic Gas project without an even-handed balancing of the alternatives. This obvious attempt to push Canada to the project which Staff has non-objectively selected is not what Congress requested. Further, this approach could cause substantial delay in the event that Canada should reject a proposal for which the U.S. has provided no alternative.

Alcan urges the Commission (and the Presiding Judge in his initial decision) to focus upon the key decisional factors discussed in this brief. Although the typical issues raised in comparative certificate proceedings, such as comparative cost of service, must be addressed, such issues should be given secondary weight in the decisional process.

Alcan respectfully submits that, in view of the foregoing, the record itself, and numerous other briefs filed by Alcan in this proceeding, the Presiding Administrative Law Judge and the Commission should recommend selection of

the Alcan Project, after going through the review and ranking process recommended herein.


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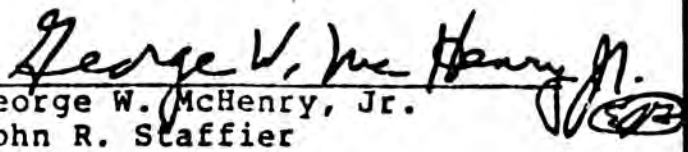
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Alcan Has New Plan

SEAE
2/17/77

ANCHORAGE (AP) — American and Canadian sponsors of the Alcan Pipeline Project for transport of Prudhoe Bay natural gas by an alternative express pipeline system will be filed with Canada's National Energy Board by the end of this month.

John G. McMillian, chairman of sponsor Northwest Pipeline Corp. and its subsidiary Alcan Pipeline Co., says the alternative proposal calls for construction of a 48-inch-diameter pipeline.

The firm's earlier proposal was based on use of 42-inch pipe. It was sharply criticized by Administrative Law Judge Nahum Litt, the Federal Power Commission hearings judge, as being inadequate.

Litt endorsed an alternate proposal offered by Arctic Gas for a route through the Arctic National Wildlife Refuge and south through Canada.

He called a route proposed by El Paso Natural Gas Co. a "viable option." That route would parallel the trans-Alaska oil pipeline to Gravina Point, where gas liquification plants would prepare it for tanker shipment south.

The FPC record is currently closed, and the panel is preparing to make its recommendation to the President by May 1. The President will then select a line. Congress is to make a final decision on the route by the end of this year.

Alcan's Alaska representative, Morris Thompson, said today a decision on the alternative route as it relates to the FPC has not yet been made.

McMillian says Alcan's larger pipe can carry about 3.4 billion

cubic feet of gas per day through Alaska and western Canada for delivery near Kingsgate, B.C., and Munchy, Sask., both near the U.S.-Canadian border.

McMillian says the express line option "will provide for greater expansion flexibility than Alcan's initial proposal, if it is determined that such expansibility will best suit the long-term needs of the U.S.

"This larger system proposed for our route is very similar to the so-called 'Fairbanks Alternative' proposal that was recommended by staffs at the Federal Power Commission and the Department of Interior," he said.

"Since we believe that the selection of the route is the key decision, we are prepared to alter our proposed facilities in any responsible manner that will meet U.S. objectives and also be acceptable to Canada."

The pipeline would still parallel the trans-Alaska oil pipeline to a point south of Fairbanks, and then swing east to follow the route of the Alaska Highway. However, the route would then shift to divide at Caroline, Alta. Originally, a branch was to head south through British Columbia to Washington state for West Coast deliveries.

Under the revised proposal, a 42-inch pipeline would carry about 70 per cent of the gas to Munchy and into the proposed Northern Border Pipeline for redelivery to the U.S. Midwest and East. The remaining 30 per cent would be transported through 36-inch pipeline along existing corridors to Kingsgate for redelivery to western U.S. markets.

**THE ALCAN
PIPELINE PROJECT
A REALISTIC
SOLUTION TO THE
TRANSPORTATION
OF ALASKAN
GAS**



Facts about Alcan

The Alcan Pipeline Project is one of three systems currently being considered by the Federal Power Commission for the transportation of Alaskan gas reserves to markets in the lower U.S.

The Alcan Pipeline Route will parallel the Alyeska oil pipeline for 539 miles to Delta Junction, at which point it will proceed along the Haines utility corridor and the Alcan (Alaska) Highway to Fort Nelson, British Columbia and Zama Lake, Alberta. Existing Canadian pipelines will carry the Alaskan gas for redelivery to U.S. transmission companies at three points along the U.S./Canadian border.

New Pipeline: 1,806 new pipeline miles — 731 in Alaska and 1,073 in Canada.

Diameter: 1,499 miles of 42-inch pipe and 307 miles of 36-inch pipe.

Capacity: 2.4 billion cubic feet per day (expandable to 3.1 billion) within three years of operation. Initial capacity of 1.2 billion cubic feet per day.

Cost Estimate: In 1975 dollars, the Alaskan portion of the Alcan Project will cost \$2.3 billion, and the Canadian portion will cost \$2.4 billion. Alcan's total costs, including additional facilities in the lower 48 states, are \$6.3 billion.

Comparative Costs are \$10.4 billion for Arctic Gas and \$6.6 billion for El Paso.

Canadian Associates: Alberta Gas Trunk Line Company Limited and its subsidiary, Alberta Gas Trunk Line (Canada) Limited; Westcoast Transmission Company Limited; and Foothills Pipe Lines Ltd.

Alcan's Advantages:

- Lowest total investment for transporting Prudhoe Bay gas.
- Lowest delivery costs.
- Earliest delivery date.
- Provides stable economic growth base for the Alaskan interior.
- Least environmental impact.
- Year-round access to all facilities.
- Can be built independent of Canadian decision to develop its frontier gas reserves.



What is the Alcan Pipeline Project?

The Alcan Pipeline Project is the proposal of the Alcan Pipeline Company, a wholly-owned subsidiary of Northwest Pipeline Corporation, headquartered in Salt Lake City, Utah. Northwest Pipeline owns and operates a 4,400-mile pipeline system extending from the San Juan Basin in New Mexico and Colorado to the Canadian border, serving natural gas customers in seven western states. The company supplies all of the natural gas consumed in Idaho, Oregon and Washington and part of the gas used in Nevada, Wyoming, Utah and Colorado. Northwest Pipeline has assets of more than \$500 million.

On July 9, 1976, the Alcan Pipeline Company filed a request with the Federal Power Commission seeking authorization to construct a 731-mile pipeline in Alaska, utilizing the Fairbanks Corridor / Alcan Highway Route. This pipeline will be part of a proposed new pipeline system to transport natural gas from the Prudhoe Bay on Alaska's North Slope to markets in the lower 48 states.

The planned pipeline would follow established utility and highway corridors in Alaska and Canada and would utilize existing Canadian pipeline systems to deliver the gas to the United States border. This conforms to the Mineral Leasing Act which calls for joint use of rights-of-way to prevent unnecessary scarring of public lands.

Four Canadian Companies — Westcoast Transmission Company Limited; The Alberta Gas Trunk Line Company Limited and its subsidiary, Alberta Gas Trunk Line (Canada) Limited; and Foothills Pipe Lines Ltd. — have entered into an agreement with Alcan and Northwest Pipeline to transport the Prudhoe Bay gas through Canada to the U.S. border and have filed the necessary applications for Canadian regulatory approvals.

Alcan Pipeline's project will be designed to transport all of the Prudhoe Bay gas, up to approximately 2.4 billion cubic feet per day, through a 42-inch diameter pipeline. The pipeline will follow the Alyeska oil pipeline for ap-



BRITISH
COLUMBIA

ALBERTA



Northwest Pipeline Corporation owns and operates a 4,400 mile pipeline system serving natural gas customers in seven western states.

proximately 539 miles to Delta Junction, south of Fairbanks, where it would then parallel the Alcan (Alaska) Highway to the Yukon border.

At the Alaskan/Yukon border gas would be delivered to a new pipeline to be constructed by a Canadian company, Foothills Pipe Lines Ltd., which would continue the transportation of gas through a 42-inch pipeline along the Alcan Highway to the Yukon-British Columbia border and then by Westcoast Transmission Company Limited to Fort Nelson, British Columbia.

At Fort Nelson, a portion of the gas would be diverted into the expanded existing system of Westcoast for ultimate delivery to the United States at an interconnecting point on the border near Sumas, Washington, where the gas will be received by the Northwest Pipeline system for delivery to western markets.



The Alcan Project will provide for direct pipeline delivery of Alaskan gas to markets in the lower 48 states.

The remainder of the gas would be transported from Fort Nelson to Zama Lake, Alberta through a new pipeline for delivery at Zama Lake to Alberta Gas Trunk Line Company Limited. Alberta Gas Trunk Line would then transport the gas through its expanded existing system for delivery to Empress, Alberta, and to Coleman, Alberta where the existing Alberta Natural Gas Company line would carry the gas to Kingsgate, British Columbia for delivery to the Pacific Gas Transmission system, which would transport the gas to California.

From Empress, Alberta, Foothills would construct a new pipeline to Monchy, Saskatchewan and from there, gas destined for the Midwest and Eastern regions of the United States could be delivered through the Northern Border Pipeline, presently pending before the FPC.

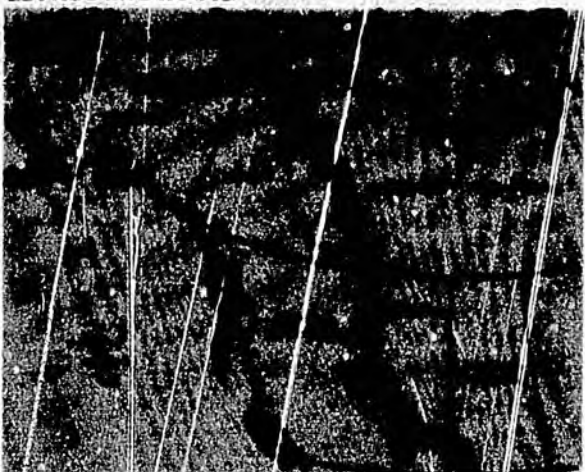
What are the Alternative Proposals?

The El Paso Natural Gas Co. proposes to construct a trans-Alaska pipeline that would roughly follow the Alyeska oil pipeline. Under El Paso's proposal, gas would be liquefied in Alaska and transported as LNG to southern California where the gas would be delivered from the West Coast to the rest of the U.S. by a displacement mechanism which has not yet been defined.

The proposal of the Arctic Gas Group is an all-land route that would begin in Prudhoe Bay, cut straight across the virgin wilderness areas including the Arctic National Wildlife Range, to Canada's Mackenzie Delta, then south to the U.S.-Canadian border, where proposed companion lines would carry the gas to the eastern and western U.S.



EL PASO LNG ROUTE



TRANS-CANADA ROUTE OF ARCTIC GAS

Economic Advantages of Alcan

The total cost of the Alcan Project, including facilities for transporting the gas within the lower 48 states, is \$6.3 billion in 1975 dollars. This compares with \$10.4 billion for the Arctic Gas proposal and \$6.6 billion for the El Paso proposal.

The lowest total cost is a major advantage. The Alcan Project will almost certainly be easier to finance. Capital, like natural gas, is a resource that is limited but very necessary.

This lower total cost makes Alcan transportation costs lower. Figures filed with the Federal Power Commission show that Alcan will be able to transport Alaskan gas to the U.S. at a lower cost than either of the competing projects. We estimate the transportation cost of our service to markets in the lower U.S. to be \$1.35 per million BTU, compared to \$1.59 per million BTU for Arctic Gas, 24-cents higher than Alcan. El Paso's transportation costs, on a comparable basis, are expected to be \$1.69 per million BTU, 34-cents higher than Alcan.

There are many reasons for Alcan's lower total cost and lower transportation cost figures. One is that Alcan is following existing highway and utility corridors all the way. Additionally, use of the existing oil pipeline construction work pad, communications system, airfields and all-weather roads will allow work to begin immediately with a minimum of preliminary construction.

Transporting equipment and supplies to the construction site is a major logistical problem. Without existing roads, the problem is multiplied many times.

New Construction Pad

Arctic Gas proposes construction of snow roads and would have to bring much equipment in by air. Under the Arctic Gas plan, pipeline construction would take place from snow roads during the short winter construction periods.

However the northern reaches of Canada and the area along Alaska's North Slope are semi-arid regions, with precipitation measuring

only about 10 inches per year and occurring mostly in summer.

Therefore, annual snowfall would be insufficient for the construction of snow roads and the manufacture of artificial snow would be required. However, Arctic Gas has no prototype machine to produce the snow necessary for the roads.

Even if it were possible, most experts doubt that the snow roads would prevent damage to the highly sensitive arctic soil. They also doubt that there's enough water to make the snow to construct the roads and even if the water can be found, utilizing it in this fashion would almost certainly damage fish populations irrevocably. Use of ocean water is clearly impossible because the high salt content would create permanent damage to the arctic soil and wildlife. In short, Arctic Gas is relying on a totally unproven concept.

El Paso's prime route generally follows the Alyeska oil line but would require construction of a new work pad. El Paso has filed an alternative route which would utilize 79 per cent of the Alyeska work pad, but still proposes its prime route which would lead to much duplicated work and increased environmental impact.

When the Alcan route departs from the

Cost of the Alcan Pipeline Project is \$4.1 billion less than that of Arctic Gas and \$300 million below El Paso's project.





Alcan delivery cost per million BTU, an all-important cost to the consumer, is the lowest.

route of the oil line near Delta Junction and continues southeast following the Haines pipeline corridor and the Alcan Highway, the highway itself will provide access to all construction areas and will enable Northwest to get supplies and equipment to the work site more quickly and with less expense.

We believe that utilizing facilities presently available is an important way to keep costs down.

Another area in which we adhere to this philosophy is in the utilization of existing Canadian pipelines. Our Alcan route would tie in to West-coast Transmission Company facilities at Ft. Nelson, British Columbia and to Alberta Gas Trunk Line facilities near Zama Lake, Alberta. These Canadian lines have excess capacity at present and can be "looped" to handle more of the Alaskan gas as it comes on stream.

Unlike Arctic Gas, we see little reason for an entirely new pipeline in areas where existing pipelines can do the job. This is another reason why Northwest can deliver the gas two years sooner than Arctic Gas or El Paso.

Time Means Money

Those two years mean money. If men and equipment are on the job two years longer, it simply stands to reason that costs will be substantially higher, not only because of the amount of time but because of inflated unit costs of labor and equipment.

Constructing the Alcan route as quickly as possible is another way we plan to hold costs down.

Our Canadian associates in the Alcan Project have North America's greatest experience in gas pipeline construction through permafrost. This experience will enable them to hold costs down and complete construction on schedule.

We also chose the 42-inch pipeline because it is the most economical method of transporting a daily volume of from 2.0 to 2.5 billion cubic feet of gas, as projected by Prudhoe Bay producers. Total recoverable reserves in the field are estimated at 26 trillion cubic feet, but Prudhoe Bay is essentially an oil field — not a gas field — and gas production above certain levels may cause an irreplaceable loss of oil in the gas cap. The State of Alaska has the responsibility of deciding how much oil and gas will be produced from the field, and one of the considerations is to adopt a plan which prevents undue loss of oil. For this reason it will be some time before the Prudhoe Bay field produces large volumes of gas. Our system is the only one with flexibility to handle small gas production rates and build up to the volumes which are realistically expected to be produced from the Prudhoe Bay field.

Half for Canada

Arctic Gas is proposing a 48-inch pipeline to carry up to 4.5 billion cubic feet daily. One-half of this capacity is dedicated to Canadian use for transportation of Mackenzie Delta reserves, destined exclusively for Canadian markets. Therefore, Arctic Gas is transporting only 2.25 billion cubic feet daily for U.S. markets. This compares with 2.4 billion cubic feet per day for the Alcan Project. We estimate that the Alcan line is adequate to carry all of the gas production which may be realistically expected from the Prudhoe Bay oil field.

Although Northwest's proposal does not need Canadian gas to operate profitably, it should be pointed out that the Alcan Project is compatible with Canadian plans to develop Mackenzie Delta gas at a later date.

It is definitely in the U.S. national interest to develop Alaskan North Slope reserves quickly and to transport them to energy-hungry U.S. markets. But is it in Canadian interests to develop Mackenzie Delta reserves immediately? This is a question that only Canada can answer.

Some facts are known. The Arctic Gas proposal would force development of Mackenzie Delta gas in the early 1980's. However because of increasing prices and a corresponding reduction in demand — in conjunction with increasing supplies in British Columbia and Alberta — it may not be in Canada's national interest to develop the Mackenzie Delta reserves at this time.

Northwest's proposal gives Canada the option of developing these reserves at a time when they will be most needed to meet the country's long-term requirements. The Canadians have made quite a point of wanting to reserve Canadian gas for domestic use and it is highly unlikely that additional imports from Canada to the U.S. are forthcoming. The Alcan Project can be approved to deliver Prudhoe Bay gas independent of Canada's policy for developing frontier gas.

Environmental Advantages of the Alcan Plan

The pipeline route chosen by Alcan and Northwest has been widely acclaimed as environmentally superior to the other two alternatives. The Federal Power Commission environmental staff and the Department of Interior both favor the Alcan Highway route. This route also has won the support of the Sierra Club, Friends of the Earth, National Audubon Society, Wilderness Society and others, and some of their comments have been included in this brochure.

The reasons for their objections to the Arctic Gas proposal are primarily that it would gouge a pipeline corridor directly across the coastal plain of the Arctic National Wildlife Range, the only large, pristine arctic wilderness area and the largest of our national wildlife refuges.

Environmental and safety objections have prompted their opposition to the El Paso proposal. El Paso is proposing a complex system.

*Caribou calving grounds
in the Arctic National Wildlife Range.*





Alcan would affect no undisturbed wilderness areas.

of gas liquefaction, transportation and regasification in environmentally sensitive areas on a scale never before attempted and not yet proven.

Which brings up another point. These ingredients: new technology, sensitive environments and a large scale relative to previous projects are the major ingredients for mammoth-sized cost overruns. Dr. Arlon Tussing, former chief economist of the Senate Interior Committee and a professor at the University of Alaska, has said that he would not be surprised to see the cost of either the El Paso or Arctic Gas projects exceed \$20 billion.

The Alcan Project, however, has all of the ingredients for realistic costs and the lowest probability for cost overruns. Alcan proposes conventional technology — a 42-inch diameter line at normal pipeline pressures and only traverses environments where construction experience exists.

Environmentalists prefer route of the Alcan Pipeline Project



"(The Wilderness Society) is most pleased to see the filing by Northwest Pipeline Company — at the Federal Power Commission — to construct a transportation system along the existing TAPS Corridor and the Alcan Highway to connect with existing distribution systems in Canada. This route appears to us to be the most environmentally sound."

—Brec Cooke, The Wilderness Society

"The Fairbanks-Alcan corridor appears to be the most environmentally acceptable alternative because it uses a developed transportation corridor which will not degrade the wilderness character of the Arctic National Wildlife Range and obviates the inherent long-term risks of an All-Alaska, LNG system."

—Pamela Rich, Friends of the Earth

"A less elaborate system (than that proposed by either Arctic Gas or El Paso Alaska Company) would certainly benefit the consumer, and a proposal which utilizes existing corridors would have far fewer adverse environmental effects, lower operating and maintenance costs, and less chance of cost overruns than either of those proposed."

—Barbara Heller, Environmental Policy Center

"... there is increasing evidence that the Alcan Highway routing may be the most environmentally preferable of all the alternatives now before us."

—Brock Evans, The Sierra Club



Sheenjek River Valley of the Arctic National Wildlife Range.

"We believe that the Fairbanks highway alternative deserves further analysis and review so that it can be compared with the other two proposed routes. If your (the Senate Commerce Committee's) purpose is to assure more direct delivery of natural gas to the Midwest or Northeast, the Fairbanks route would do it."

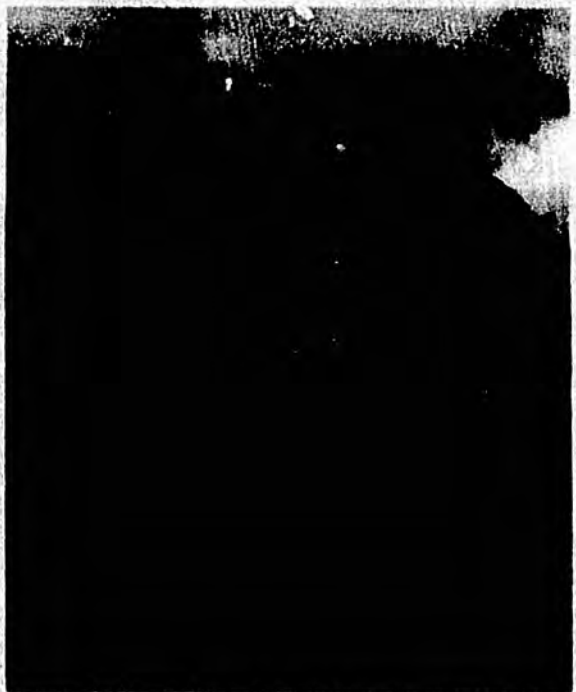
—Cynthia E. Wilson, The National Audubon Society

"... the Center favors construction of the gas pipeline in a utility corridor that is already in use with the provision that the pipeline should utilize to the maximum extent facilities that are already built, including highways, construction pad, access roads, material sites, camps, etc."

—Peter Scholes, Alaska Center For The Environment

"The staff concludes that ... the Fairbanks Alternative ... is the most environmentally acceptable system to transport Prudhoe Bay gas to the lower 48 states."

—Environmental Staff, The Federal Power Commission





"The Fairbanks Route, because it follows the Alyeska Oil Pipeline and other transportation routes through Alaska and Canada, would avoid some of the impacts associated with the Applicant's (Arctic Gas) proposal, the Offshore, Coastal, Interior, and Cross Delta Routes."

—The Department of Interior

"The Fairbanks-Alcan route may be the least environmentally damaging . . . while, at the same time, be economically comparable to the two other basic proposals."

—Thomas L. Kimball, National Wildlife Federation

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Alcan will utilize the Alyaska work pod.

Other Objections Cited

There have been other objections to the El Paso proposal. El Paso has proposed an LNG liquefaction plant site in an active earthquake zone at Prince William Sound in Alaska. In contrast the Alcan route follows a relatively placid zone north of the most active earthquake areas.

No less eminent a scientist than Dr. Edward Teller of the University of California called for a re-examination of the LNG safety issue. LNG tankers of the size proposed by El Paso have never before been built.

El Paso has proposed an LNG terminal at Point Conception, California, but faces considerable opposition. The Friends of The Earth organization recently reaffirmed its opposition to El Paso's proposed LNG plant sitings at either the undisturbed beach area of Point Conception or the alternative Los Angeles Harbor, which already is overly congested.

Also in order to site its LNG regasification plant at Point Conception, El Paso must receive approval from a number of California state regulatory agencies.

Uses Less Gas

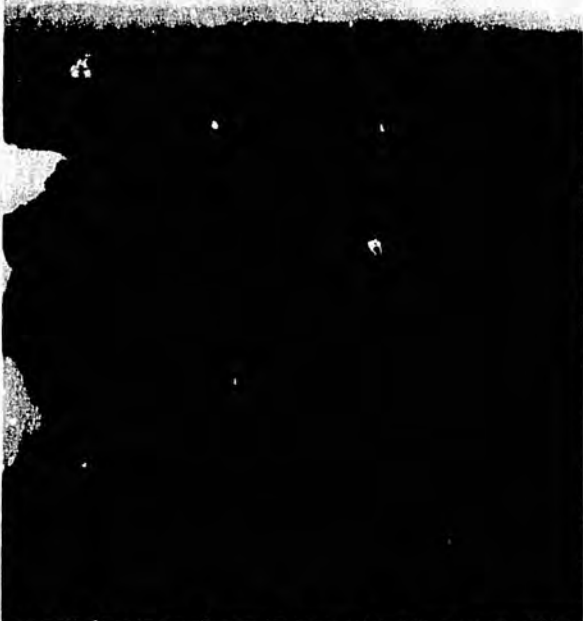
Few doubt that Alcan will use less gas for transportation than El Paso. Not only does El Paso use gas for transportation but also for liquefaction operations. The pipeline system is also more reliable. Bad weather and rough seas could easily delay shipping, and under the El Paso plan the gas would stop moving.

The pipeline would continue carrying gas in all kinds of weather, and has the added advantage, should a mishap halt service temporarily, of having gas flow restored quickly.

In summary, Northwest's Alcan Project avoids the Arctic National Wildlife Range, disrupts no other wilderness areas, avoids earthquake zones, is more reliable than an LNG system, and would deliver the natural gas where it's needed and when it's needed.



Alcan follows Alyeska oil line for 539 miles from Prudhoe Bay to Delta Junction south of Fairbanks.



Alcan pipeline will follow the Alcan Highway from Delta Junction to the Yukon/British Columbia border.

Canadian Issue

Supporters of El Paso have occasionally made exaggerated and sometimes outrageous claims about Canadian interests, institutions and intentions. They would have everyone believe that Alaskan gas will not be secure once it is in transmission systems owned by Canadian companies, that Canada will unfairly tax or otherwise impede the flow of Prudhoe Bay gas to the lower 48.

However, the U.S. and Canada recently initiated a treaty which protects the flow of Alaskan gas in transit through Canada and provides that any provincial taxes and duties must be nondiscriminatory. The movement and the rate of return allowed for transporting the gas will be regulated by Canada's National Energy Board (equivalent to our FPC), not by the provinces. The NEB has exclusive jurisdiction over the pipeline of our Canadian partners.

Both Alberta and British Columbia have ad valorem taxes, as do the individual states in America, and British Columbia has a fuel tax. Like taxes in the U.S., these taxes would be applicable to the Alcan Project, but only as they are applicable to Canadian gas facilities. In both Alberta and British Columbia, Alaskan gas will be co-mingled with Canadian gas and, as a practical matter, the provinces cannot tax Alaskan gas without taxing the transportation of Canadian gas.

The proposed gas flow is merely a part of the huge economic trade that passes daily between the U.S. and Canada. For example, the oil flow from western to eastern Canada, some 510,000 barrels of crude per day, goes through pipelines in the United States. At Portland, Maine, Canada imports 437,000 barrels of crude oil per day, which are transported to Montreal through the United States. All of these 947,000 barrels of oil are under the control of our federal government. Canada also transports approximately 40 percent of its natural gas supplies, or 815 million cubic feet daily, through transmission lines across U.S. corridors. All of this gas is under U.S. government control.

We at Northwest Pipeline believe it's totally unrealistic to talk of Canada discriminating against U.S. gas flowing through its provinces.

Gas For Alaska

The Alcan Pipeline Project would provide a sound and stable energy base for an expanding Alaskan economy. It is the only plan which provides a high degree of flexibility and is not locked into huge front-end investments.

Since Alcan's capital costs are lower, Alcan management can respond more quickly and positively to Alaska's future industrial requirements. Alcan provides many options for the development and delivery of Alaskan gas. One option is a spur line down the industrial corridor through Anchorage into the Cook Inlet area. Or if gas were discovered along the southern coastal area along the Gulf of Alaska, a spur could be run back to the Alcan line for redelivery of the gas to markets elsewhere in Alaska or to the lower 48 states. The Alcan system also has the flexibility to accommodate new gas discoveries in central Alaska.

As noted, the Alcan Pipeline will follow the old Haines pipeline as far as Haines Junction. If Alaska so desires, the existing spur from Haines Junction to the Haines/Skagway area could be put into service. The Haines line has the potential for transporting about 50 million cubic feet of gas per day. If Alaska decides to develop small industries in this area, Alcan will be able to supply the energy required.

These are only a few examples. There are dozens of other possibilities that could contribute to the long-term growth and stability of Alaska, including development of the petrochemical industry in Alaska and development of Alaska's vast mineral resources. The steps Alaska should take to develop new industry are for Alaska to decide. However industrial, mineral and agricultural development will surely follow gas availability, and in the long-term, this will provide the jobs and the economic base for orderly and continuing growth in Alaska.

Conclusion

If American Energy Independence is to become a reality, we must carefully consider the selection of a route and system for bringing North Slope gas to markets in the lower 48 states.

Northwest's Alcan Pipeline Project is the responsible, practical choice. The Alcan plan is in the best interests of the United States because it will bring the Prudhoe Bay gas reserves on stream two years earlier than the proposals of the Arctic Gas or El Paso, and our project will cost billions of dollars less than either of the two alternatives.

We also recognize the need to protect the state of Alaska from haphazard development, and we have designed our Alcan Pipeline in such a way that it will reliably supply the U.S. with vitally needed gas and not invade lands that are not already developed.

In Canada, we will follow the Alcan Highway through the Yukon and British Columbia and, therefore, will not invade Canada's wilderness areas. Because the Alcan Pipeline will not require additional volumes of Canadian gas to operate economically, our plan also will permit the orderly development of the frontier gas reserves at a time of Canada's choosing.

Northwest's Alcan Pipeline Project is superior in several ways: it saves time, money and the environment, and provides for the earliest delivery of Alaskan gas to U.S. markets.

We're convinced Alcan is the best plan — for Alaska, for the nation and for future generations throughout America.





**NORTHWEST PIPELINE
CORPORATION**

A wholly-owned subsidiary of
Northwest Energy Company.

General Offices:

P.O. Box 1526, Salt Lake City, Utah 84110.

Telephone 801/534-3600.

TESTIMONY-ALCAN PIPELINE COMPANY

PRESENTED BY MORRIS THOMPSON, VICE PRESIDENT

Yesterday, Federal Power Commission Administrative Law Judge Nahum Litt handed down his decision. We have seen an eleven page FPC news release on this decision. Several issues were raised concerning the Alcan pipeline route. Judge Litt asserted that Alcan's design is neither efficient nor economic since its proposed pipeline is undersized; that Alcan's three-year phased-in construction schedule is not credible; and that Alcan's proposed summer construction cannot be accomplished without unacceptable environmental impact.

The Administrative Law Judge's decision is but one step in the certification of the route to deliver Prudhoe Bay natural gas. Northwest Pipeline Corporation and its wholly-owned subsidiary, Alcan Pipeline Company, believing their proposed route to be a viable alternative, entered the FPC proceeding in July of 1976. We feel Judge Litt did not thoroughly review all of our evidence and new material. We feel that we have adequately addressed the issue of the size of our proposed line in filings before the NEB where we agree to look at varying pipeline sizes and pressures. We would only point out that currently there are no gas pipelines in the United States or Canada which operate at a pressure in excess of 1,000 psi. We propose a line which operates at 1250 psi, feeling that this is the next logical and practical advance in pipeline construction. El Paso proposes a line which operates at 1440 psi and Arctic one which operates at 1680 psi.

We believe our construction schedule is reasonable; however, in light of the Judges findings this will be reviewed. As to the proposed summer construction schedule, we feel with the experience of Alyeska Pipeline Service Company and the State and Federal surveillance there will be no environmental degradation.

We would like to raise and discuss the issues we feel the legislature should consider on the proposed royalty gas sales. Using the minimum/maximum values set forth in the Jensen Associates

Report prepared for the legislature, the value of this resource ranges from 660 million dollars to in excess of 6.6 billion dollars. The contracts presently before the Legislature sell Alaska's Royalty Gas to three companies in exchange for an unspecified amount of political support for the El Paso Pipeline System.

The realities of the situation are as follows: The Commission Staff of the FPC has recommended the Arctic Gas Pipeline route -- an all land route. The FPC Administrative Law Judge just yesterday recommended the Arctic Gas route. The people of the State of California and the Public Utilities Commission of the State of California in their brief filed with the Federal Power Commission have come out in favor of the Arctic Gas Proposal -- an all-land route. The Sierra Club, the Wilderness Society, the National Audobon Society, and the Alaska Conservation Society in their brief filed with the Federal Power Commission have come out in favor of the Alcan route. It is absolutely clear that the final decision is going to be an all-land pipeline. A significant problem facing the Arctic proposal is the Native Claims issue. The resolution of the Native Claims problems in the Alcan project is less difficult.

Turning to the contracts, they commit the State's royalty gas to three buyers. As a general rule in the gas industry, an owner of natural gas will not make a commitment to sell its gas until the price is known; the point of delivery, costs of delivery and conditions of delivery are known; and in any event, when you are a minority owner, as is the State in this instance, at the latest possible date in order to maximize your contract income by being able to capitalize on the terms given others, and minimize your losses due to changes in the political and regulatory environs. The State has committed its gas without knowing the price, associated cost or point of delivery, nor what the other sellers will achieve. The price is critical. If the price is too low, the producers will not sell their gas, but will re-inject it to gain additional oil recovery. In view of the above we feel it would not be prudent for the State of Alaska to sell its gas at this time.

Approval of the contracts will substantially reduce royalty revenues to the State because the transportation system the State has selected to support costs more to build; the markets of Tenneco and Southern Natural Gas are more remote than that of Northwest Pipeline Corporation which increases transportation costs; and there is a substantial possibility of deregulation which will create substantially different marketing opportunities than we face today. If the average cost of transportation to the "lower 48" markets is 24¢ less expensive with Alcan than with El Paso, as found by Judge Litt, then 24¢ more per mcf could be received at the wellhead or almost \$800 million for the State's royalty share. Therefore, the net economic benefit for the Alcan project to the people of the State of Alaska must be greater than that of the El Paso project.

Article 12 of the "General Terms and Conditions" of the Contracts attempts to provide that any more favorable terms negotiated in the producer sale contracts will be included in the State's contract, but, it is narrowly limited to sections 3, 5, and 6 of the "General Terms and Conditions" which in and of themselves are narrow and limited to matters relating to measurement practices and billing procedures. This provision should be extended to the entire contract insofar as practical.

An additional problem with the contracts is the fact there is no set plan or performance criteria from which to measure the support provided by the purchasers for the El Paso project. The addition to the contracts of a defined plan, a budget and performance criteria will insure compliance with the State's major objective for the sale. Further, to insure all out support, the contracts should be automatically terminated if El Paso is not certificated or if the State switches its support to another route.

It can be expected that the FPC will attempt to charge Alaska for any "carrying charges" associated with excess capacity in the Prudhoe gas transportation system which is occasioned by the withdrawal of the royalty gas. The FPC is simply not going to let the "lower 48" consumer pay for capacity required to serve the varying

needs of the State. The State is not protected from bearing these charges under the proposed contracts. The contract should be amended so the State has this protection.

The proposed contracts are not necessarily deficient in what they provide, but rather in what they fail to provide.

The contract does "mortgage future discoveries that can be transported through the "pipeline" by giving the Buyers a right of first refusal to buy future discoveries up to one and a half times the amount of Prudhoe royalty gas that the State has taken under the reservation features of the contract. Northwest's preliminary offer included no such "mortgaging" provision.

Under paragraph 3.7(a) of the Contract, Alaska grants the Buyers the right to buy additional surplus gas"... at the highest price available to Seller for such gas from any other interstate bona fide purchaser". With the Buyers having a right of first refusal, it will be extremely difficult to get serious bids from other buyers because they recognize that they will simply be setting a price which the Buyers will match. Other, more beneficial terms which may be forthcoming from other purchasers, such as advance payments, are not even considered in this right of first refusal.

At the time the State takes a portion of its reserved gas, it is obligated to purchase from the Buyers a proportionate percentage of the field facilities, that is, the gathering, compression, treating and dehydration facilities which the Buyers have paid for to handle the State's gas. We believe it would have been far better for the State, as an option, for the Buyers to retain ownership of these facilities and only charge the State a cost-of-service for their use. The State would thus avoid a capital expenditure in utilizing its gas.

The limitation on processing in paragraph 9.1 of the Contract to a residue gas quality of 1000 BTU per cubic foot may effectively limit the State's ability to extract a significant portion of the liquids, particularly if any volume of inerts such as CO₂ and/or

nitrogen remain in the stream. In the "Lower 48", it is common to accept gas having a heating value of 950 BTU per cubic foot.

In an effort to gain "political support" for a pipeline system the State has failed in its charge to fully survey the market opportunities. The following issues should be considered:

- 1) What are the possibilities of direct sales to high priority, industrial "end users"?
- 2) Can the State obtain advance payments from markets unregulated by the FPC? Depending upon the regulations of a particular state, a pipeline or distributor may have an opportunity to include advance payments in its rate base, and it is not at all probable that the FPC will preclude transportation of such gas because of the advance payment feature. Certain payments of this type are currently being offered by interstate pipelines and their unregulated customers.
- 3) What are the possibilities that gas will be deregulated in the near future? It is fine to say that your contract protects you in the regulated environment, but we are on the threshold of deregulation, and the possibilities are many and varied.
- 4) What has been done to insure that the gas will be delivered by the pipeline system on a basis consistent with the widely ranging daily needs of small distribution systems and limited industrial markets?
- 5) What provisions could have been negotiated with the Buyers and/or transporters to provide gas liquids extraction, storage and distribution networks?

Representative Gruening in his opening remarks set forth two critical issues: what will the state give up and what will it gain in return. We feel the State will give up its opportunity to gain maximum benefits from the future sale of its royalty gas and will gain an unspecified amount of political clout.

We thank you for the opportunity to testify on this very important issue.

ALCAN PIPELINE COMPANY

MORRIS THOMPSON
VICE PRESIDENT

310 K STREET, SUITE 504
ANCHORAGE, ALASKA 99501
TELEPHONE 907-237-9547

December 29, 1976

The Honorable John L. Rader
Alaska State Senate
Box 2068
Anchorage, Alaska 99501

Dear Senator Rader:

Perhaps one of the most critical issues to be faced by the Alaska Legislature during the upcoming session deals with the State's sale of its royalty gas and the ultimate certification of a route to transport Prudhoe Bay gas from Alaska to markets in the lower 48. As you are aware, the Federal Power Commission has recently completed hearings on the three competing proposals, and a decision is expected from FPC Judge Litt around the middle of January.

To assist you in your preparation for this complex decision, I am forwarding several reports pertaining to the construction of the gas pipeline. The enclosed reports are: (1) the Federal Power Commission staff recommendation; (2) a brief filed by the Sierra Club, the Wilderness Society, the National Audubon Society, and the Alaska Conservation Society; and (3) a brief filed by the California Public Utilities Commission.

As you know, Northwest Energy Company has recently opened an office in Anchorage to be in a position to explain our project, answer any questions, and represent our company in Alaska. We stand ready to work with you and the people of Alaska to the ultimate conclusion of this complex issue.

Sincerely,



Morris Thompson

MT/odw
Enclosure



Foster natural Report gas

NO. 1096

... for week ended
March 17, 1977

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(which declined to restrict the use of intrastate gas from other sources as boiler fuel) is "reasonable, appropriate on these facts, and consistent with past practice."

One further transaction considered by FPC Judge Southworth in his initial decision involved an application by Ammonia Enterprises Pipeline, Inc. (CP75-268) -- a newly formed and wholly-owned subsidiary of Continental Oil Co. -- to construct and/or acquire approximately 61 miles of line, at an estimated cost of \$18 million, in order to transport gas owned by Continental from West Cameron Block 66 to Continental's West Gillis, Louisiana gas processing plant and, after processing, to deliver residue gas to an ammonia plant of Olin Mathieson Chemical Corp. in Lake Charles, Louisiana. Ammonia Enterprises proposed to transport approximately 25,000 Mcf/d, representing 100% of Continental's interest in the West Cameron Block 66 reserves, and to charge Continental 26¢/Mcf for transportation service, including a proposed return of 11.25%. The Law Judge recommended dismissal of the application because of the lack of any provision for sale of a portion of the gas in the interstate market. Ammonia Enterprises subsequently requested withdrawal of its application.

Alcan Files 48-Inch Alternative Alaskan Gas Transportation Proposal; FPC Accepts Alternative Filing for Consideration and Provides for Submission of Supplemental Information on All Pending Projects by March 12

On 3/8/77 Alcan Pipeline Co. filed an alternative 48-inch Alaskan gas transportation proposal for FPC consideration under the Alaska Natural Gas Transportation Act of 1976 (RM77-6). The 48-inch proposal -- which involves an express line from the North Slope to the Lower 48 States with no commingling of Alaskan and Canadian gas -- is an alternative to Alcan's original 42-inch project in the El Paso Alaska (CP75-96 et al.), which entailed transportation of Alaskan gas in Canada partly through new facilities and partly through existing systems of Westcoast Transmission Co. Ltd. and Alberta Gas Trunk Line Co. Ltd. Pursuant to procedures prescribed in the Alaska Transportation Act, the Commission suspended the El Paso Alaska proceeding upon issuance of Judge Nahum Litt's initial decision on 2/1/77. ^{1/}

Concurrently, Alcan filed a motion requesting the Commission to receive and consider the 48-inch alternative proposal prior to preparation of its report and recommendation to the President on selection of an Alaskan gas transportation

^{1/} The Alaska Gas Transportation Act of 1976, among other things, directed the FPC to "suspend" all proceedings relating to the transportation of Alaskan gas pending on the date of enactment "as soon as the Commission determines to be practicable after such date," to review all applications to transport Alaskan gas pending on the enactment date, and to submit a report to the President by 5/1/77 on the selection of a natural gas transportation route from Alaska's North Slope to the Lower 48 States. Such report shall recommend either a particular transportation system or no decision at this time. Any recommendation for an all-land pipeline transportation system, or a transportation system involving water transportation, must "include provision for new facilities to the extent necessary to assure direct pipeline delivery of Alaskan natural gas contemporaneously to points both east and west of the Rocky Mountains in the lower continental United States."

In addition, the FPC was authorized to provide, by rule, for the "presentation of data, views, and arguments" pursuant to such procedures as the Commission determines to be appropriate, with such rule to apply "notwithstanding any provision of law that would otherwise have applied to the presentation of data, views, and arguments." (See REPORT NO. 1076, pp9-11.)

system, due 5/1/77. Alcan contended that the Alaska Natural Gas Transportation Act directed the Commission to consider not only applications under review at the time of enactment, but also any amendments and reasonable alternatives thereto. Alcan also referred to a Senate Committee report on the Alaskan gas bill which stated the Committee's intent that the Commission "undertake detailed consideration of the El Paso, Arctic Gas, Northwest Pipeline and Methanol proposals, together with any reasonable variations and combinations, without reference to sponsors or lack thereof." A similar intent, Alcan said, was expressed in a House Committee report which made clear that the Commission was to have full procedural flexibility to consider all reasonable alternatives prior to submitting a recommendation to the President. Therefore, Alcan declared, the Alaska Gas Transportation Act clearly abolished any procedural obstacles which might otherwise have prevented consideration of the 48-inch alternative -- which is clearly a "reasonable alternative" to previous proposals.

A few days earlier, on 3/2/77, Alcan also petitioned the FPC to schedule five days of oral proceedings (at the end of March) to allow the three applicants proposing competing Alaskan gas transportation projects and other major parties an opportunity to present data, views and arguments. Alcan stated that many new facts and developments have surfaced since the close of the record in the El Paso Alaska case -- including a redesign of certain features of the Arctic Gas project recently outlined in a filing to the NEB, and Alcan's proposed 48-inch express alternative -- and that this new information should be considered by the Commission. Alcan suggested that each applicant be allowed one full day to explain its proposal (including the significance of any new developments), that other major parties be allowed a day to present their views, and that a fifth day be devoted to rebuttal.

In response to the above filings, the FPC on 3/11/77 issued Order No. 558-C (RM77-6) amending prior procedural orders -- which provided for the appointment of delegates to receive data and communications from other federal agencies and from persons, and groups in the private sector, except the three applicants in the El Paso Alaska case -- to enable the Commission and its delegates to receive and consider supplemental information from the applicants. The FPC specifically accepted Alcan's alternative proposal filed on 3/8/77 for consideration, and invited the applicants and other parties in the El Paso Alaska case to submit in writing any supplemental information relating to their respective proposals by 3/22/77. Statements in response to this supplemental information may be filed by 3/30/77. ^{1/} The Commission emphasized that it is concerned only with new information or data which were developed or became available after the close of the hearing record in the El Paso Alaska case on 11/12/76. Information or arguments repetitious to those contained in the record or briefs already filed with the Commission will not be considered.

The Commission further stated that, because of the shortness of time, it will be necessary to use some technical staff members who participated in the El Paso Alaska proceeding to perform technical and environmental analyses of the supplemental information. Any reports prepared by such Staff members will be placed in the public files at the time of presentation to the Commission. Also, in evaluating these reports, the Commission "will be cognizant of any positions previously taken by such persons."

^{1/} Arctic Gas subsequently advised that it would respond to Alcan's new filing to the extent possible by 3/30/77. However, Arctic Gas asserted, written responses will afford insufficient opportunity for clarification. Arctic Gas therefore suggested that an on-the-record conference, with Judge Litt presiding, be set for 3/24/77 to explore Alcan's 48-inch alternative.

Alcan's original 42-inch proposal in the El Paso Alaska case was sharply criticized by Judge Litt in his initial decision of 2/1/77. The Law Judge concluded that Arctic Gas was superior in nearly every respect to the El Paso Alaska proposal, that El Paso Alaska nevertheless had a "viable plan" which could be approved if Arctic Gas were unable to accept a certificate, but that the Alcan project did not have even a "possibility" of authorization. Judge Litt particularly criticized the inclusion of Westcoast Transmission Ltd. in the Alcan project because of the arbitrary assignment of volumes for transportation through the Westcoast system and higher costs of transportation which would result for U.S. consumers. Specifically, he said, the proposed 30%-70% split of volumes in Canada -- i.e., delivery of approximately 30% of the Prudhoe Bay gas to Westcoast at Fort Nelson, British Columbia for redelivery by Westcoast through expanded facilities to Sumas, and delivery of the remaining 70% to existing facilities of Alberta Gas Trunk Line at Zama Lake, Alberta for ultimate delivery largely to Northern Border at Monchy, Saskatchewan and possibly in part to Kingsgate, British Columbia -- was apparently adopted, in the first instance, to secure Westcoast's participation in the Alcan project by assuring that the Westcoast line below Fort Nelson, British Columbia "would be allocated a sufficient volume of gas to fill existing excess capacity, thereby warranting construction of additional loop facilities which would inure to the ultimate benefit of Canadian customers." Also, he noted the cost of deliveries by Westcoast to Sumas would exceed the cost of deliveries to Kingsgate. The Law Judge further declared that the tariffs of both Westcoast and AGTL disclosed an "overt Canadian bias" and contained cost allocation provisions "totally unacceptable" to U.S. consumers.

In addition, Judge Litt concluded that two critical elements of Alcan's proposal -- construction in a three-year period (with completion in 1981) and financing in a separate time frame from the Maple Leaf project (sponsored by the same Canadian companies which are participants in Alcan) -- were totally unsupported. Completion of the Alcan project by 1981 simply "cannot occur," he stated, and the financing arrangements proposed for Alcan and Maple Leaf require "intricate timing" which lacks any evidentiary support. Accordingly, "as presently proposed, even with Alcan's willingness to build anything anyone wants (as long as it does not oust Westcoast and AGTL from their Maple Leaf project), there is not enough left of its original proposal to serve as a basis for granting its application." (See REPORT NO. 1090, pp9-11 and App. ppl-23.)

Extensive exceptions were filed by Alcan and other parties to Judge Litt's initial decision on 3/1/77. Among other things, Alcan requested that the initial decision be disregarded by the Commission because of its "pervasive bias" against Alcan. (See REPORT NO. 1095, App. ppl-26.)

Alcan 48-Inch Alternative Proposal

Alcan expressed the view that its original 42-inch project (with an average day design capacity of 2.4 Bcf/d) was optimally sized to transport initial and ultimate volumes expected to be available in northern Alaska (2.0 Bcf/d), and afforded ample expansibility (to 2.9 Bcf/d) with the addition of compression facilities. However, Alcan decided to submit a 48-inch express line alternative in view of suggestions by various parties -- including the NEB, the FPC Staff and others -- that such design might be preferable. While entailing increased capital costs, Alcan said, a 48-inch express line provides "identifiable advantages" in terms of fuel savings, expansibility and lower transportation cost of service. Equally important, these advantages are achieved without loss of the substantial benefits inherent in a Fairbanks Corridor route.

Unlike Alcan's 42-inch project, the 48-inch alternative would involve no commingling of Canadian gas, although segments in Canada would be owned and operated by Foothills Pipe Lines (in the Yukon and Saskatchewan), Westcoast (in British Columbia) and AGTL (in Alberta). The route of the proposed alternative would be the same as the original project in Alaska and the Yukon, but would deviate in British Columbia and Alberta. Specifically, the alternative route would extend 833 miles from Watson Lake on the Yukon-British Columbia border to James River, Alberta -- somewhat south of the 42-inch route via Fort Nelson, British Columbia and Zama Lake, Alberta -- where the line would divide, with one leg to extend to Kingsgate, British Columbia and the other to Monchy, Saskatchewan via Empress, Alberta. With the volumes destined for each Lower 48 market region presently unknown, Alcan assumed delivery of 659 MMcf/d to Kingsgate as shown in Pacific Gas Transmission's pending application and the remaining 1,569 MMcf/d to Monchy, resulting in a 29%-71% split.

Alcan assumes commencement of deliveries at a level of 1.6 Bcf/d on 10/1/81, building up over a 15-month period to 2.4 Bcf/d by 1/1/83 and thereafter. With the addition of compression, Alcan said, the alternative system could be expanded to 3.2 Bcf/d on an average day basis (or 3.4 Bcf/d on a peak day basis).

Alcan estimated the total capital cost of the 48-inch alternative, including facilities required in the Lower 48 States, at \$6.7 billion in 1975 dollars and \$9.6 billion escalated through the year of construction. While these figures are somewhat higher than the estimated costs of the 42-inch project (\$6.3 billion and \$8.7 billion, respectively), Alcan said, the 48-inch alternative would require only 6.4% of input volumes for fuel compared to 13.2% in the case of the 42-inch proposal. Moreover, this reduced fuel consumption would more than offset higher annual costs due to greater capital costs, thereby resulting in a lower average unit cost of service. Specifically, the average cost of service of the 42-inch proposal over the 1983-1987 period is estimated at \$1.61/Mcf in 1975 dollars (\$2.20 in escalated dollars), whereas the estimated average cost of service of the 48-inch alternative over the same period is \$1.43/Mcf (or \$2.05 in escalated dollars).

Further, Alcan declared, the 48-inch alternative can deliver gas to Lower 48 markets at a lower unit transportation cost than either Arctic Gas or El Paso. For example, in 1984-1987 (the first four years of full operation for all three projects), the escalated transportation cost for the 48-inch alternative will be 19¢/MMBtu less than Arctic Gas and \$1.02/MMBtu less than El Paso.

Beyond the unit cost and fuel consumption advantages over the Arctic Gas and El Paso Alaska proposals, Alcan stressed that the 48-inch alternative -- like its 42-inch project -- had several additional advantages, including (1) the ability to commence deliveries two years earlier than either of the other applicants; (2) less susceptibility to construction delays and cost overruns; (3) less operation and maintenance risk due to yearround surface access to the route on all-weather roads; and (4) environmental avoidance of unique wilderness areas such as the Arctic National Wildlife Range and Chugach National Forest.

The Mackenzie Valley Pipeline

*File
Canadian
Native
Land
Claims*

HUGH McCULLUM

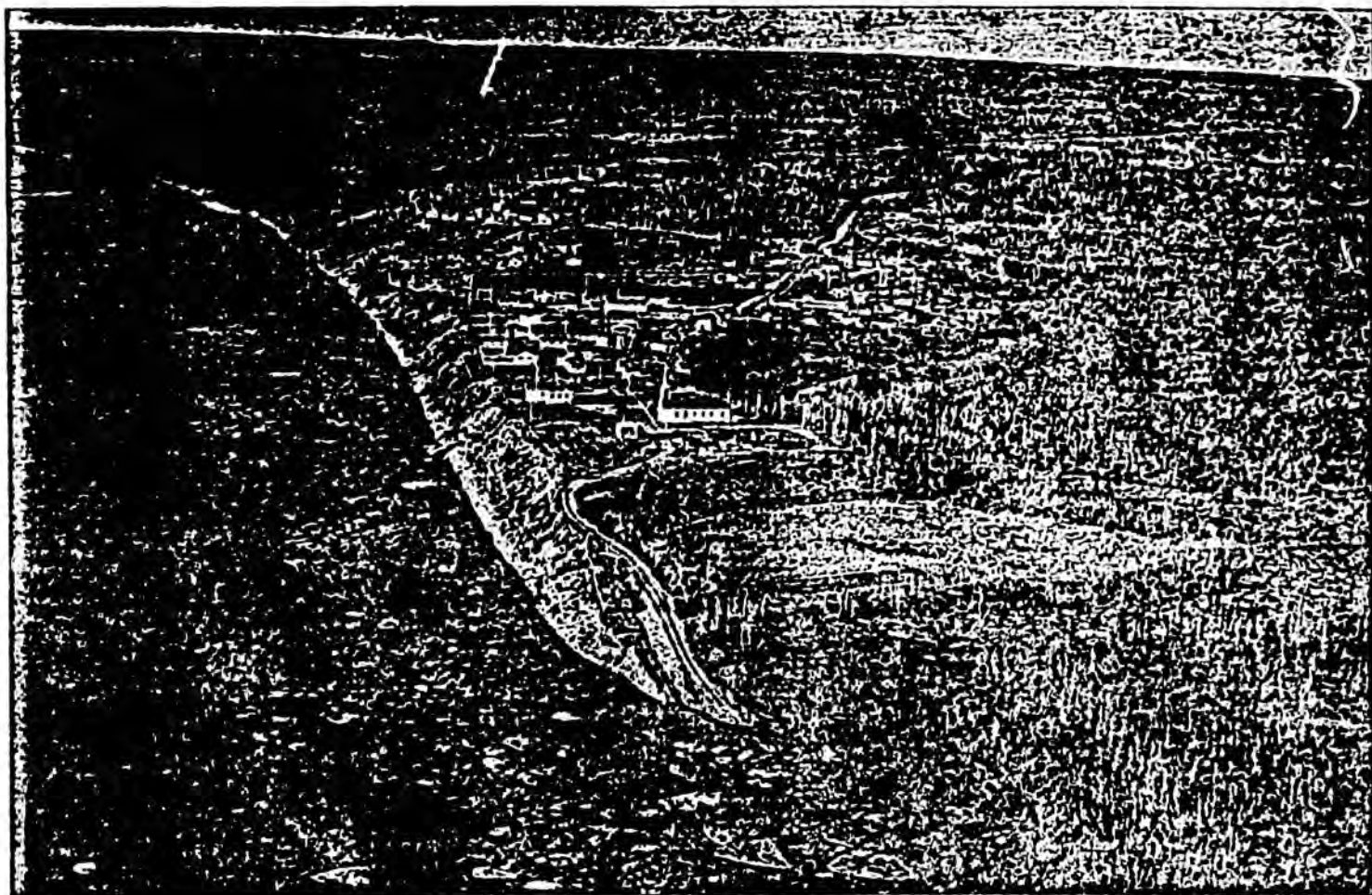


Photo by R. Farnsworth

Fort Good Hope on the Mackenzie River, about twenty miles south of the Arctic Circle.

The hearings droned on in the plush Explorer Hotel as they had off and on for sixteen months. The pipeline people were telling the royal commissioner what a great thing it would be for the Native people of Canada's last frontier if a huge natural-gas pipeline were built down the 2,800 miles of the Mackenzie Valley—career opportunities, a chance to get off welfare and into the wage economy, a chance to participate in the "development" of Canada's North.

Outside, in the rocky city of Yellowknife (population 9,000), situated on the north shore of Great Slave Lake in

Canada's vast Northwest Territories, the ambulances started to scream. A mile away from the gleaming white hotel and the carefully muted and very polite hearings, down in the part of town where the middle-class white bureaucrats don't live, an eighty-four-year-old Indian, his two grandchildren and a young Native girl lay dying from gunshot wounds. A young white man from southern Canada was subsequently charged with their murders.

To some it was just another outburst of insensate violence, perhaps associated with booze or the frustrations that so often mar life in the North. To connect it with the largest industrial development project to date in Canada's history was emotional nonsense, pro-

ponents of the pipeline would argue. But a couple of days later, before going to bury his slain parishioners, a French Roman Catholic priest who has spent more than twenty years of his life with the Native people of the Northwest Territories, stood before the commissioner, Mr. Justice Thomas Rodney Berger of the Supreme Court of British Columbia, and dedicated his testimony to the victims:

They were not shot by a killer; they were the victims of the so-called development that has taken place in the North for the last thirty or forty years, which created miserable and unjust conditions for the poor people of this district.

Hugh McCullum is a Canadian journalist based in Toronto.

Mr. Justice Berger has been accustomed to such unusual testimony during his tenure as the sole commissioner of the Mackenzie Valley Pipeline Inquiry, a "royal commission" set up by the Canadian government to determine the terms and conditions that should be attached to the construction of a natural-gas pipeline through Canada's enormous, thinly populated and fragile sub-Arctic. The royal commission is an institution unique to the British parliamentary system. Designed to investigate and make recommendations to Parliament and the government on specific issues, royal commissions are independent, investigative bodies with the power to recommend action, but without the power to enforce their recommendations. They have quasi-judicial powers, such as the right to hear evidence under oath and to subpoena witnesses. They can have one or more commissioners and are given sufficient funds to employ staff, travel and hold enough hearings to complete the work assigned to them under the terms set down for them by the government. The Mackenzie Valley Pipeline Inquiry has but one commissioner—Mr. Justice Berger. It cannot decide whether a pipeline should be built; nor is the government bound to accept its recommendations. But the process of the inquiry, rather than the final recommendations—important as they will be—is the key to the commission's importance. By allowing a broad spectrum of opinion to express itself, including that of industry, environmentalists and Native peoples, it has opened up the issues of Canada's northern development and Native claims in a way no other forum could have done.

The 17,000 Indians and Metis (people of mixed ancestry), 3,000 Inuit (Eskimos) and 9,000 whites who are scattered along the proposed route for the Mackenzie Valley pipeline present a social situation unique in North America, for nowhere else on the continent are Native peoples in the majority. The proposed pipeline has become a source of considerable tension between the Natives, almost all of whom oppose the project, and the whites, who are among its most ardent supporters. The whites see it as yet one more chance to open up and develop the frontier. The Natives see it as the end of their cultures. As they have

told Berger over and over: "Our land is our life, our mother; if you destroy that, you destroy us."

The project is immense by any standards. Even the pipeline comparies, who sometimes compare it to "a thread across a football field" ("More like a slash across the Mona Lisa," one ecologist scoffed), boast that it is



A Dogrib Indian girl from the village of Dettah.

the largest project ever undertaken by private enterprise anywhere in the world. Of course, more than just a gas pipeline is being considered. Berger's inquiry, for example, is charged with considering possible development of a mighty transportation corridor that could include railroads, highways and power lines within the next decade or so.

Canadian Arctic Gas Pipeline Ltd., a consortium of major oil, gas and utility corporations in the U.S. and Canada (The number of participating corporations fluctuates dramatically. Originally there were about twenty-seven, but the number has dropped as low as twelve and is currently thought to be about fifteen), wishes to build a forty-eight-inch, 2,600-mile pipeline to carry natural gas across the Alaska North Slope and the Mackenzie Delta to markets in Canada and the southern United States. The original cost of the Arctic Gas Line has been estimated at \$8.3 billion; undoubtedly inflation has

increased this forecast to more than \$10 billion. The pipeline would have a capacity of 4.5 billion cubic feet of gas a day, enough to heat 45,000 homes for an entire year. The line would originate at Prudhoe Bay in Alaska, head east across the North Slope and Arctic National Wildlife Range, and cross the extreme northern Yukon to the Mackenzie River Delta on the shore of the Arctic Ocean. Here, it would pick up Canadian gas and continue south along the river, crossing finally into Alberta, where delivery lines would transport gas to markets in Canada and the U.S.

A second consortium, Foothills Pipe Lines Ltd., a largely Canadian group, wishes to build a "Maple Leaf" line to bring Mackenzie Delta gas to Canadian markets via a smaller forty-two-inch line costing, they estimate, some \$4.5 billion, but after inflation, probably closer to \$5 billion.

Both lines would be buried and carry chilled gas. Both lines would be constructed during winter months only over a three-year period. Each line is currently the object of intense scrutiny in Canada by the National Energy Board, a federal regulatory agency that will decide if there is current need for and sufficient supply of the gas and will finally recommend to the Trudeau government if, and to whom, a certificate of public convenience and necessity should be granted. Its hearings, already the subject of legal actions and contradictory testimony as to supplies and demands, are not expected to conclude before March 1977, even though Arctic Gas had hoped for a decision last year.

To understand the impact of the Mackenzie Valley natural-gas pipeline on the environment, two phases of the inquiry were set aside to examine the physical and living impacts. Arctic Gas spent almost \$40 million on environmental studies that have been severely criticized by the Canadian Arctic Resources Committee (CARC) and the Northern Assessment Group, the two major environmental interveners in the inquiry. Among the unanswered questions was the effect of the pipeline on animal migration patterns, how noise would affect bird migration and how the more than 300 river crossings would affect the fish and other marine life. Gravel scooped from streams for construction purposes is expected to have a serious effect on

spawning grounds. The effects of possible blowouts and ruptures on the permafrost and tundra are still unknown.

Arctic Gas experts have been forced repeatedly to admit they lack complete environmental data and that there will indeed be some environmental impact. But they assure everyone that the impact "would be minimized" and that they will know more about the potential problems by the time the pipeline is started.

CARC remains highly skeptical:

Those concerned for the environment and for the people of the North will receive cold comfort from the realization that the Canadian Arctic Pipeline Ltd. consultants did the best they could to develop appropriate methods within the constraints of economics and in the face of an unprecedented task. Nor can they receive solace from the assurance that the bugs will be solved by the time of the final design.

The environmental impact of the project is enormous. A summary of the potential impacts is frightening. An outline of the impacts prepared by the

autonomous Environmental Protection Board indicates the following potential damage, unless stringent conditions are placed on the applicants by the findings of the Berger inquiry—conditions which, of course, would have to be imposed ultimately by the federal cabinet:

- North of the sixtieth parallel, the project will scar the land with its right-of-way 120 feet wide and 1,350 miles long. It will bring to previously undisturbed areas the noise and activity of 6,000 workers and 3,000 pieces of major equipment. Roads and access bases will make the land more accessible, and less and less land will remain in its natural state.

- Enormous impact can be expected on bird populations through aircraft, construction activities, human presence, pollution, habitation destruction and hunting. Swans, geese and ducks face the most serious disruption and, of course, the effect of possible gas leaks is still unknown.

- Caribou, marine mammal and sheep populations could be seriously depleted by excessive noise, hunting and harassment by construction crews,

as well as by possible changes in migratory patterns.

- Fish numbers could be reduced through excess fishing, introduction of toxic materials into the water, destruction of spawning beds, and generally easier access to lakes and streams.

The board, whose report is deliberately low key, also lists a score of other dangers ranging from removal of archaeological sites to rather minimal effects of the project on air and water. According to the board, the effects could be minimized if time and money were spent by the applicants to build the pipeline with environmental safeguards and if the Canadian government were prepared to strengthen its regulation and enforcement mechanisms. The board expressed little hope that either of these eventualities might occur.

The main thrust of its report is the almost total lack of adequate environmental technology to protect the fragile ecology of the North and the lack of experience or precedent in building such a project through Arctic and sub-Arctic terrain.

The El Paso Gas Company of Houston, Texas, presented yet another plan to the United States Federal Power Commission in 1974, whereby Prudhoe Bay gas would be piped south to Valdez along the same route as the Alaskan oil pipeline. There it would be liquefied and loaded into specially built tankers, and shipped to ports on the West Coast. El Paso claimed that the proposed line would deviate no more than a mile from the oil line and that the same environmental factors would apply. Arctic Gas disputed this, claiming that many mountain passes enroute were too narrow to accommodate more than one pipeline. The company said that El Paso Gas would have to reroute more than a hundred miles, thereby requiring additional studies and delays, which would in turn increase the cost of the project. Environmentalists tended to prefer the El Paso route because it would avoid the Arctic National Wildlife Range and utilize an existing corridor, but at the same time they foresaw problems with the construction of additional facilities at Gravina Point near Valdez and new ones in California, where the gas would be shipped.

Then, in May 1976, at the eleventh hour and as debate continued over the first two routes, another consortium

NATURE IN PORCELAIN by BURGUES



YOUNG WALRUS
(*Odobenus rosmarus*)

Languidly basking in the sun on his own ice floe.
9" wide x 5 1/2" high, an issue of 950, \$225.

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BankAmericard, American Express, Master Charge accepted.
Write for complimentary brochure illustrating other
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Dogrib Indians ice fishing on Great Slave Lake, source of the Mackenzie River.



A woman of the Hare tribe tans a moose hide near Fort Good Hope.

formally applied to Canada's National Energy Board and the U.S. Federal Power Commission for a third route, one that environmentalists had been advocating for some time. A U.S. company—Northwest Pipeline—and three Canadian companies—West-coast Transmission, Alberta Gas Trunk, and Foothills Pipelines—proposed to build a gas pipeline utilizing the existing oil corridor south to Fairbanks, then following the Alaska Highway through the Yukon to Fort Nelson, British Columbia, and Zama Lake, Alberta. Here the gas would enter existing Canadian transmission facilities and flow directly to markets in the American Midwest. For Canada,

this proposal would postpone the unwelcome decision whether, when, how and by whom a Mackenzie pipeline should be built. It would also avoid most of the environmental and social problems associated with the Arctic Gas proposal. Finally, initial capital cost would be \$5-6 billion, about half the cost of the Mackenzie Valley route. Both the government of B.C. and the territorial government of the Yukon enthusiastically endorsed the Alaska Highway proposal, but the Council for Yukon Indians, in its final statement to the Berger inquiry in November 1976, said it wanted no pipeline in the southern Yukon until native land claims were settled and implemented.

Scheduled to report early this year, Berger's commission is the most ambitious public inquiry ever conducted in Canada. For sixteen months now, and 40,000 pages of transcripts later, the man everyone in the North knows simply as "the Judge," has heard testimony on the impact this pipeline will have on the people and the environment of the Mackenzie Valley, an area of some 450,000 square miles stretching from the Beaufort Sea in the north to the sixtieth parallel in the south.

A precise man, Tom Berger conducted the inquiry into the pipeline's engineering, environmental and social problems with strict rules of procedure, often getting tough with the high-priced legal talent and costly consultants who flew in and out of Yellowknife for a daily fee plus expenses. But even the most objective observer could not fail to notice the difference between the formal and the community hearings. To many of the Native people scattered through the vastness of bush and streams, lakes and tundra, Judge Berger had become a kind of folk hero. To the young people, who stood around a little defiantly, waiting, and the old people, who had never seen so many strangers before, the Judge had something the people of the North recognize—integrity. They saw him as honest, decent and fair, and above all he listened. Even when, in the countless, drafty community halls and schools the hearings went on until 2 a.m., and the visiting press groaned and yawned as yet another witness shuffled forward—even then he sat and listened intently. He has used

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Mackenzie Valley Pipeline

Continued from page 7

freighter canoes, float planes, ancient DC-3s and helicopters to conduct hearings in twenty-eight Arctic settlements, almost all of which, except Yellowknife, have Native majorities. He has listened with awesome patience and politeness to endless hours of testimony in English, Slavey, Dogrib, Loucheux, Hare, Chippewyan and Inuktitut, the language of the Eskimo.

The testimony of the experts over the last several months has elicited serious questions about the pipeline construction from the engineering as well as environmental and sociological points of view. Conflicting testimony has left undetermined the possibility that in sensitive permafrost zones, the pipeline may buckle and damage the environment. Both applicants for the Mackenzie line want to bring in 6,000 construction workers with enormous machines, equipment and staging areas to lay the pipeline. Environmental witnesses, drawing on the experience of the Alyeska oil pipeline crossing similar terrain in Alaska, have raised serious questions that construction companies, trying to meet completion deadlines, would shatter the delicate ecological balance. A number of other technical experts have questioned the safety and proposed size and composition of the pipeline.

Overshadowing the battery of technological evidence, however, has been the complex question of Native land claims, an issue entangled with an incredibly insensitive and archaic bureaucracy in Ottawa designed to administer the lives of Canada's Natives. Simply put, the Natives of the North want their land claims settled before one spadeful of earth is moved, and they do not want them settled by selling off their rights for cash. They want some form of self-determination, development of renewable resources, protection of the environment, their own economic involvement with Northern development and, above all, control of the land they have occupied "since time immemorial."

And so, the Native people have tried to organize themselves and have claimed all 450,000 miles of the Mackenzie Valley as theirs. They are saying that the real question for Canadians to decide is whether Canadian justice can

accommodate them. Can they survive as the first people of this country with special rights, or must they be assimilated and forever cease to exist as a cultural entity? For Native people know, clearly and unequivocally, that in order for them to be themselves, the land and the animals and the birds and the fish must continue to be part of their lives.

If white people come with bulldozers, seismic lines, helicopters, and pipes, then lakes will be blasted and fish and animals most certainly killed. People and machinery will scare away the caribou and the fox. Traditional rutting, nesting and calving areas will be disrupted. If the land is threatened, then so are the Native cultures.

In testimony last April during the socio-economic phase of the Berger inquiry the Natives painstakingly laid out evidence that was a shocking indictment of past injustices in the North by paternalistic federal and territorial governments. They presented an overview of the colonial patterns of resource development and a blueprint for an Indian-controlled future that they claim is constitutional, practical and essential to their very survival. At the center of their struggle is the Dene Declaration, a proclamation that states that the Indian peoples have the right to self-determination within Canada and to a measure of control over their own lives. (*Dene* is an Indian word meaning "people" and common to the Mackenzie.)

Reaction of white northerners

Spurred on by the former Minister of Indian Affairs and Northern Development, Judd Buchanan, who described the document as "gobbledygook" that could have been written by a tenth-grade student, many of the white northern population reacted by leveling accusations of "creeping socialism" and "insurrection" against the Dene, branding them separatists or worse. (Warren Allmand, the new minister, has not committed himself about the pipeline and says he will place a great deal of weight on the Berger Commission report.) Other white northerners, although sensitive to the Natives' claims to the land, feared that if a pipeline were not built they would lose a once-in-a-lifetime chance for better jobs and a healthier economy. And if the Natives were given control over the land, they asked, what would happen to whites? Would they be pushed aside?

The Indian and Metis people themselves did not escape the tremendous pressure exerted upon their lives and communities by the proponents of the Mackenzie Valley pipeline. A small group of Native people, predominantly Metis, who had until recently supported the Dene Declaration and were working in unison to develop a joint land claim, broke away, claiming a separate identity and a desire to develop their own land-claims proposal. A pipeline, they say, is closely linked to their economic future.

Impasse continues

The impasse shows little sign of moderating. In an atmosphere of division and suspicion on the part of Native groups and hostility and confrontation by whites, the government could exert pressure on the Native people to settle their land claims quickly, issue a license to build the pipeline, and start the construction whenever it wished. The result of such an action would be politically explosive. Some Natives have promised quite calmly to lay down their lives for the land. Opposition to the pipeline from southern supporters of Native rights, such as the churches, environmentalists and other public-interest groups, would be enormous. The National Energy Board is already hearing evidence that a pipeline with a life expectancy of twenty years at best, and more likely ten, is only postponing the inevitable day when alternative energy sources and far stricter conservation measures must be taken.

During its southern hearings, the Berger inquiry heard hundreds of citizen-produced briefs supporting the idea of stopping the pipeline altogether or delaying it until further examination of the issues could be undertaken. A church-supported idea for a suggested ten-year moratorium rapidly caught the imagination of Canadians wherever Berger went. In essence, the moratorium would do four things: settle land claims justly for the Native peoples; develop environmental technology and experience in the North so that questions of ecological safety could be guaranteed; allow Native peoples to develop their own economic development programs using renewable rather than nonrenewable resources and to engage in public development of energy policies in Canada based on conservation rather than consumption.

Industry and government quickly

moved to quell support for the proposed moratorium by claiming it to be unrealistic, and by threatening southern Canadians and Americans with "freezing to death in the dark" because of acute energy shortages. Indeed, serious pressures from American consumers in the Midwest have put the issues of environmental protection and Native rights in Canada in the position of being dealt with hastily, inadequately and as secondary to the economic needs of the U.S. But even considering the shortages of natural gas that have plagued the American Midwest and East during this, the coldest of recorded winters, a Mackenzie pipeline is not the only, or even the best, solution. The recently proposed Alaska Highway route would deliver gas to the same region more cheaply and without the attendant social and economic disruption.

The Arctic Gas proposal, one senior Ottawa energy official admitted, is primarily to bring U.S. gas from Alaska across Canada to American markets; any "piggybacking" is window-dressing, for the reserves of gas in Canada are insufficient at this time to warrant a pipeline. Nor are Canadians desperately short of gas. Reserves from conventional fields in the south could probably meet Canadian needs for the next thirty years if deliverability and conservation regulations were improved.

Increasingly nationalistic, many Canadians are sensitive to any further American involvement (already more than seventy-five percent) in their economy. There is fear that the decisions for the Arctic Gas pipeline are to be made in Washington, rather than Ottawa, because of the enormous political persuasion of the giant multinational oil companies, which control most major Canadian producers. Ottawa seems to lack the will to resist. Prime Minister Trudeau went on record two years ago as favoring the Arctic Gas proposal and may think the pipeline is a foregone conclusion.

Berger's decision

Government officials have attempted to undermine Berger's inquiry by saying it is too long (almost two years before completion) or too expensive (an estimated \$3 billion). He gets a little testy with that: "If I'm going to conduct this inquiry, I'm going to do it right. It takes time, but if Canada can't take time to make an informed decision about what is going to happen to our last wilderness and its people in the northland, then what has Canada got time for?"

What Berger will recommend is still a matter for speculation. Many think he will call for a halt until land claims are settled. It seems clear he will require stringent conditions to assure environmental protection. Some peo-

ple hope for a full moratorium. What the government will do with his report is anyone's guess. Undoubtedly Berger's high profile will make it difficult to ignore his recommendations. But regardless of reports, conditions, high-level international politics, energy shortages or national feelings, the people of the Mackenzie and their land remain inseparable. The question for them is clear and it is repeated over and over. It is a question of survival.

Chief Frank T'Selie of Fort Good Hope told Judge Berger and the presidents of Arctic Gas and Foothills how he saw it:

There is a life-and-death struggle going on between us, between you and me. Somehow in your carpeted boardrooms you are plotting to take away from me the very center of my existence. You are stealing my soul. By scheming to torture my land, you are torturing me. By plotting to invade my land, you are invading me. If you ever dig this trench through my land you are cutting through me.

You are the twentieth-century General Custers. You have come to destroy the Dene nation. You are coming with your troops to slaughter us and to steal land that is rightfully ours.

You are coming to destroy a people who have a history of 30,000 years. Why? For twenty years of gas? Are you really that insane?

Our Dene nation is like this great river. It has been flowing before any of us can remember. We take our strength and our wisdom and our ways from the flow and direction that has been established by ancestors we never knew. We will live out our lives as we must and we will die in peace because we will know that our people and this river will flow on after us.

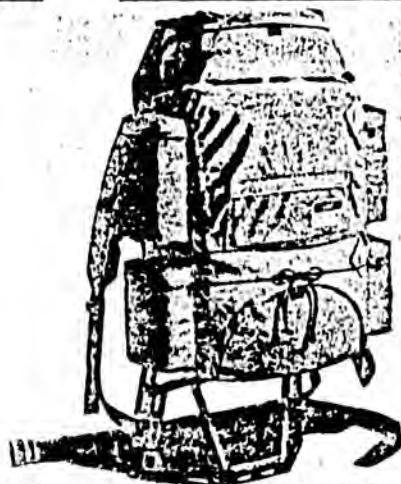
We know that our grandchildren will look after this land and protect it and that 500 years from now someone with skin my color and moccasins on his feet will climb up these ramparts and rest and look out at the river and feel that he too has a place in this universe, and he will thank the same spirits that I thank, that his ancestors have looked after his land well and he will be proud to be a Dene.

It is for this unborn child, Mr. Berger, that my nation will stop this pipeline, it is so that this unborn child can know the freedom of this land that I am willing to lay down my life.

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