CANADA

National Energy Board

Reasons for Decision

Foothills Pipe Lines (Alta.) Ltd.

GHW-1-89

June 1989

Facilities

National Energy Board

Reasons for Decision

In the Matter of

Foothills Pipe Lines (Alta.) Ltd.

Application for Facilities

GHW-1-89

June 1989

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Abbreviations

Act	*National Energy Board Act*
Board	National Energy Board
C	Celsius
CPA	Canadian Petroleum Association
FERC	(United States) Federal Energy Regulatory Commission
Foothills	Foothills Pipe Lines (Alta.) Ltd.
Foothills (Sask.)	Foothills Pipe Lines (Sask.) Ltd.
Foothills (Yukon)	Foothills Pipe Lines (Yukon) Ltd.
IPAC	Independent Petroleum Association of Canada
km	kilometre(s)
kPa	kilopascal(s)
m^3/d	cubic metre(s) per day
mm	millimetre(s)
MMcfd	million cubic feet per day
MW	megawatt(s)
NCO	North Canadian Oils Limited
Northern Border	Northern Border Pipeline Company
Northwest Alaskan	Northwest Alaskan Pipeline Company
NOVA	NOVA Corporation of Alberta
OD	outside diameter
Pan-Alberta	Pan-Alberta Gas Ltd.
Prebuild	Phase I of the Alaska Natural Gas Transportation System
Shell	Shell Canada Limited
Suncor	Suncor Inc.
United	United Gas Pipeline Company
WGML	Western Gas Marketing Limited

Recital and Submittors

IN THE MATTER OF the *National Energy Board Act* (the Act) and the Regulations made thereunder; and

IN THE MATTER OF an application dated 11 April 1989 by Foothills Pipe Lines (Alta.) Ltd. for an order, pursuant to section 58 of the Act, requesting an exemption from paragraph 30(l)(a), subsection 30(2), and section 31 of the Act, filed with the Board under File No. 1555-F6-9; and

IN THE MATTER OF National Energy Board Directions on Procedure, Order GHW-1-89, as amended.

EXAMINED by means of written submissions.

BEFORE:

A.D. Hunt	Presiding Member
J.-G. Fredette	Member
J.R. Jenkins	Member

SUBMITTORS

AEC Oil and Gas Company
Alberta Petroleum Marketing Commission
Amoco Canada Petroleum Company Ltd.
Canadian Hunter Exploration Ltd.
Canadian Petroleum Association
Foothills Pipe Lines (Alta.) Ltd.
Independent Petroleum Association of Canada
Northern Border Pipeline Company
North Canadian Oils Limited
Pan-Alberta Gas Ltd.
Pan-Alberta Resources Inc.
ProGas Limited
SaskEnergy Corporation
Shell Canada Limited
Suncor Inc.
United Gas Pipeline Company
Vector Energy Inc.
Western Gas Marketing Limited
Western Gas Marketing Limited on behalf of TCR Empress Ltd.

Chapter 1
Background

1.1 The Application

Foothills Pipe Lines (Alta.) Ltd. (Foothills) owns and operates approximately 379 kilometres (km) of pipeline and related compression facilities between a point of interconnection with the Schrader Creek compressor station facilities of NOVA Corporation of Alberta (NOVA) near Caroline, Alberta and a point of interconnection with the facilities of Foothills Pipe Lines (Sask.) Ltd. [Foothills (Sask.)] at the Alberta/Saskatchewan border near Empress, Alberta. This pipeline and related facilities comprise Zone 6 of the Eastern Leg of Phase I of the Alaska Natural Gas Transportation System (Prebuild). The balance of the Eastern Leg consists of 259 km of pipeline and related compression facilities from the Alberta/Saskatchewan border to a point of interconnection with the facilities of the Northern Border Pipeline Company (Northern Border) at a point near Monchy, Saskatchewan, on the international border. This section of the Eastern Leg and related facilities comprise Zone 9. Foothills Pipe Lines (Yukon) Ltd. [Foothills (Yukon)] owns 51 percent of Foothills and Foothills (Sask.).

On 11 April 1989, Foothills applied to the National Energy Board (the Board) for an order, pursuant to section 58 of the *National Energy Board Act* (the Act), for exemptions from paragraph 30(l)(a), subsection 30(2), and section 31 of the Act in respect of certain proposed facilities. The proposed facilities, detailed below, are intended to increase the capacity of the Eastern Leg by removing a bottleneck in the pipeline in Zone 6. Approval of the application by the Board would have the effect of authorizing the construction and operation of the proposed facilities.

Construction is scheduled to begin in the fall of 1989 and the facilities are intended to be in service by November 1990. The facilities are estimated to cost $34,513,000.

Foothills also applied to the Board for approval to include the actual costs of construction in its Zone 6 rate base, up to the limit of the estimated capital cost.

On 27 April 1989, the Board issued Order GHW-1-89 to establish the Directions on Procedure to be followed in this matter. It was amended by Order AO-1-GHW-1-89 which added a List of Issues. A copy of the List of Issues appears as Appendix 1.

1.2 Details of the Application

Foothills submitted that the applied-for facilities are required in order to:

(i) accommodate a request made by NOVA to increase the Zone 6 contractual receipt quantity at Schrader Creek by 7.0 10^6 cubic metres per day (m^3/d) [247 million cubic feet per day (MMcfd)] commencing 1 November 1990;

(ii) accommodate NOVA's projected incremental transportation requirements of 2.09 $10^6 m^3/d$ (74 MMcfd) to the Alberta/Saskatchewan border and into Zone 9; and,

(iii) enable Foothills (Sask.) to increase its contractable firm capacity on Zone 9 by approximately 7.79 $10^6 m^3/d$ (275 MMcfd) with the subsequent installation of relatively minor capital additions to accommodate anticipated requests on Zone 9.

The proposed facilities consist of:

(i) decompression/recompression facilities located adjacent to the Empress II extraction plant, estimated to cost $34,377,000; and,

(ii) a new 610-millimetre (mm) outside diameter (OD) interconnection with the NOVA pipeline system near the NOVA Princess compressor station, estimated to cost $136,000.

A map of the Prebuild appears as Appendix II.

1.3 Existing Integrated Operation

The Foothills pipeline system is currently integrated with the NOVA system between the Schrader Creek compressor station near Caroline and Empress, Alberta. A schematic illustrating the current operating configuration of these pipelines in Alberta appears as Appendix III. This integrated mode of operation is accomplished by the use of cross-over piping between the two pipeline systems on the discharge side of NOVA's Schrader Creek compressor station, on the suction and discharge sides of NOVA's Hussar compressor station, and on the suction side of NOVA'S Princess compressor station. Interconnecting facilities are also provided between the two systems at Empress on both the upstream and downstream sides of the extraction plants. The extraction plants remove heavier hydrocarbons such as ethane, propane, and butane from the gas stream.

The use of these interconnections between NOVA and Foothills and the use of NOVA's compression by Foothills result in an integrated operation of the two pipeline systems in Zone 6. Therefore, the maximum allowable operating pressure (MAOP) of the gas transported on the integrated Foothills-NOVA system is limited to the lesser of the two pipeline systems at the points of interconnection. Foothills' MAOP is 8690 kilopascals (kPa). NOVA's MAOP in this part of its system decreases from 6450 kPA at Schrader Creek to 5690 kPa east of Princess. As a result, the Foothills system is prevented from achieving the full potential of its higher MAOP .

Foothills delivers gas to NOVA near Empress at a pressure of approximately 4400 kPa. After passing through the Empress plants, the volume of gas destined for Zone 9 is measured by the NOVA meter station at McNeill, and then redelivered into the Foothills pipeline. Following the pressure drop imposed by these facilities the operating pressure in the pipeline at the Alberta/Saskatchewan border is approximately 4000 kPa.

1.4 Proposed Segregated Operation

In order to:

(i) provide the pipeline capacity for the transportation of the extra volumes requested by NOVA to the Alberta/Saskatchewan border;

(ii) remove the bottleneck in its system at Empress; and,

(iii) enable the expansion of Zone 9 with only minor further capital additions,

Foothills proposes to increase the operating pressure of its pipeline in Zone 6 to nearer to its MAOP by segregating its system from NOVA's. A schematic illustrating the proposed segregated configuration appears as Appendix IV. The segregation would be accomplished by closing the existing isolating valves on all the interconnecting facilities between the two systems downstream of NOVA's Schrader Creek compressor station, with the exception of the existing interconnection near Empress and the proposed Princess interconnection, since gas volumes would still be exchanged through these facilities.

Under this operating configuration, the delivery pressure into Foothills from NOVA's Schrader Creek compressor station and the discharge pressure from Foothills' Station 367 at Jenner would be much less constrained by the lower MAOP of the NOVA pipeline. Gas volumes would generally arrive in the Empress area at approximately 6900 kPa.

In the Empress area, most of the gas destined for Zone 9 would first be measured by NOVA's proposed Empress East meter station, which it is planning to construct on the site of its existing McNeill meter station. The gas would then be transported to the site of the Empress II extraction plant via a pipeline, approximately 1.6 km in length, which NOVA proposes to construct. At the site of the Empress II extraction plant, the gas would be decompressed prior to entering the extraction facilities, in order to comfortably meet the plant's MAOP of 4480 kPa.

Subsequent to being processed through the extraction plant, gas volumes destined for export at Monchy would be recompressed by the proposed Foothills facilities to approximately 6900 kPa. The gas would then be transported back to NOVA's McNeill meter station via another proposed 1.6 km NOVA pipeline. After being re-measured the gas would be returned to Foothills' pipeline for transportation to the Alberta/Saskatchewan border. These Empress area facilities are detailed in the Location Plan in Appendix V.

Chapter 2
Requirements and Facilities

2.1 Requirements

2.1.1 Zone 6

Foothills submitted that, assuming approval of the application, the Service Agreement Firm Service contract dated 15 February 1982 between Foothills (Yukon) and NOVA would be amended effective 1 November 1990 to incorporate an increase in the Maximum Daily Receipt Quantity from NOVA at Caroline to 30.20 $10^6m^3/d$ (1066 MMcfd).

As a consequence of the amendment to the Service Agreement Firm Service contract, NOVA's share of the Zone 6 cost of service would be increased from 58.57 percent to 63.81 percent.

2.1.2 Zone 9

With respect to the necessity for increased capacity on Zone 9, NOVA forecast that an additional 2.09 $10^6m^3/d$ (74 MMcfd) would be delivered to Zone 9, over and above the existing contractual deliveries to Zone 9 of 30.77 $10^6m^3/d$ (1086 MMcfd). However, this forecast was not supported by letters of intent, precedent agreements, or contracts.

Foothills submitted that there were firm service requests for an additional 13.88 $10^6m^3/d$ (490 MMcfd) on Zone 9 beginning 1 November 1990. Of this amount, 4.25 $10^6m^3/d$ (150 MMcfd) were identified in the submissions of Shell Canada Limited (Shell), Suncor Inc. (Suncor) and Western Gas Marketing Limited (WGML) on this subject. Foothills also pointed out that further growth of the firm service volumes on Zone 9 was anticipated in 1991-92, according to requests received from prospective shippers.

However, based on the most probable level of expansion of 4.25 $10^6m^3/d$ (150 MMcfd) on Northern Border's pipeline system, Foothills forecast an increase in deliveries on Zone 9 to Monchy to 34.7 $10^6m^3/d$ (1225 MMcfd) during 1990-91.

Views of Interested Parties

North Canadian Oils Limited (NCO) submitted that the impending release of the Board's MH-2-88 Reasons for Decision[1], in the matter of an application by NCO for service on the Foothills (Yukon) pipeline system, might have an effect on other potential shippers on Zone 9. Consequently, it suggested that the Board's decision could have a bearing on the capacity requirements for Zone 9 and on the inlet requirements into Zone 9 from Zone 6. Furthermore, NCO pointed out that this, in turn,

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[1] Reasons for Decision, North Canadian Oils Limited, MH-2-88, May 1989, Tariff and Traffic (released in June 1989).

could affect the cost allocation on Zone 6. Partly due to the above reason, NCO suggested that the time for commenting on Foothills' application be deferred.

The Independent Petroleum Association of Canada (IPAC) indicated its support of Foothills' application but also suggested that the decision on the Foothills application should be deferred until the MH-2-88 Reasons for Decision were released, since it might initiate changes that would affect the firm service requirements on Foothills' system.

United Gas Pipeline Company (United) submitted that the potential increased capacity on Zone 9 was not supported by clearly demonstrated requirements. Furthermore, United submitted that no expansion of Zone 9 capacity should take place until the future utilization of Northern Border capacity was resolved and a settlement between Pan-Alberta Gas Ltd. (Pan-Alberta) and United was achieved. Pan-Alberta and United were negotiating to replace the current two-year Interim Contract arrangement which expires on 1 July 1989.[1]

Foothills replied that it was inappropriate to wait for the settlement between United and Pan-Alberta since it would not affect the service agreement that Foothills (Yukon) has with Pan-Alberta.

Foothills further commented that the criteria for firm service were the subject of the MH-2-88 proceeding. Until the related Reasons for Decision were issued, Foothills indicated that it was unable to resolve the requests for additional firm service from prospective shippers in Saskatchewan. Foothills expected that potential shippers would execute firm service agreements or precedent agreements within a reasonable time frame following the release of the Board's MH-2-88 Reasons for Decision.

All other intervenors indicated that they did not have any concerns with the incremental requirements on Zones 6 and 9 identified by Foothills in support of this application.

2.2 Facilities

2.2.1 Foothills' Proposed Facilities

Decompression/Recompression Facilities

Foothills proposed to install decompression/recompression facilities adjacent to the Empress II extraction plant. The facilities would initially consist of one processing unit composed of twinned equipment arranged in parallel configuration. Each parallel configuration would constitute an equipment train.

On the inlet side of the decompression/ recompression facilities, gas received from the pipeline at a pressure of approximately 6900 kPa would first pass through a gas-liquid separator. To meet a desired plant inlet temperature of 10^0 Celsius (C), the gas would then be heated through gas-to-gas heat exchangers, using the recompressed residue gas as the heating agent. Subsequently, turbo-expanders

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[1] The Board notes that, on 6 June 1989, Pan-Alberta announced that it had signed a Memorandum of Understanding with United setting out terms of settlement.

would be used to reduce the pressure to 4240 kPa in order to accommodate the Empress II extraction plant's MAOP.

After experiencing further minor pressure losses through the Empress II extraction plant, the gas returning to the decompression/recompression facilities would first be partially recompressed. This partial recompression would be performed by brake compressors coupled to and driven by the turbo-expanders. The overall efficiency of the turbo expansion-recompression process is approximately 55 percent, yielding a pressure of about 5525 kPa on the discharge side of the brake compressors. Therefore, in order to fully remove the bottleneck in the design, further recompression is necessary in order to restore the design inlet pipeline pressure of 6900 kPa. Foothills proposed the use of two 7-megawatt (MW) compressors to provide this final boost to the pressure of the gas stream. The recompressed hot residue gas would be partially cooled while passing through the gas-to-gas heat exchangers that pre-heat the pipeline gas entering the decompression/recompression facilities. Supplementary cooling of the residue gas, when required, would be accomplished by routing the gas through water-cooled heat exchangers. Finally, the cooled residue gas would be returned to the pipeline at the original pipeline pressure and at a design exit temperature of less than 30^0C.

The decompression/recompression facilities would be designed to accommodate an outlet volume of 38.2 10^6m^3/d (1350 MMcfd) which corresponds to the approximate maximum contractable capacity of Zones 6 and 9 without additional compression. No expansion of the Empress II straddle plant would be necessary to accommodate these facilities. Should additional facilities be installed to increase the contractable capacity of Zone 6 or Zone 9, then a third equipment train could be added to the decompression/recompression facilities, providing for an ultimate capacity of 51.0 10^6m^3/d (1800 MMcfd).

Princess Interconnection

Under Foothills' proposed mode of operation in Zone 6, the Foothills pipeline would operate in isolation from that of NOVA until a point near the NOVA Princess compressor station. At this location, according to the flow diagrams provided by Foothills, provision would be made for a net delivery from NOVA to Foothills of 0.346 10^6m^3/day (12 MMcfd) at a pressure of 5599 kPa. Although an existing cross-over exists on the suction side of the Princess compressor station, the gas pressure at that point in the NOVA system is too low to meet the projected 5599 kPa delivery specification. Therefore, a new 610-mm OD interconnection with NOVA would be provided on the discharge side of NOVA's Princess compressor station.

Foothills would own and operate the portion of the interconnecting facilities located within its right-of-way. These facilities include a prefabricated 1067-mm OD to 610-mm OD reducing tee and associated pipe. This assembly would be designed to meet Foothills' MAOP of 8690 kPa.

Foothills conceded that the pressure limitation imposed by this proposed cross-over, although hydraulically acceptable for this level of expansion, would not be acceptable for future expansions involving the addition of compression on Zone 6.

2.2.2 Alternatives

Foothills indicated in its application that it had considered two alternatives to the proposed design of the decompression/recompression facilities.

The first alternative consisted of the installation of decompression/recompression facilities designed to accommodate an outlet volume of 51.0 $10^6 m^3/d$ (1800 MMcfd) which corresponds to the approximate capacity of the fully powered Zone 9 and Zone 6 downstream of Empress. In this case, three equipment trains would be required as opposed to the two provided for in the application. The cost of installing the third train was evaluated and compared to the construction of the facility in two stages as volumes developed, the first stage being the applied-for facilities.

The cost analysis indicated that the installation of the third equipment train, as part of the initial facility, would increase the capital cost by approximately $5.1 million over the capital cost required to install two equipment trains. Furthermore, the annual operating cost would be $1.4 million higher. Given the uncertainty about when this capacity would be needed, Foothills concluded that it would not be advantageous to install the third train at this time.

Foothills considered a second alternative, not involving decompression/recompression facilities, in order to increase the operating pressure in its pipeline in the Empress area. The second alternative consisted of the construction of a new compressor station downstream of the Empress plants. It was based on maintaining the current integrated low-pressure operating configuration in Zone 6. This alternative was termed the Low-Pressure Expansion Option as opposed to the applied-for facilities which were termed the High-Pressure Expansion Option.

The design of the proposed compressor station consisted of two 26-MW compressor units and 14 gas coolers for the initial capacity of 38.24 $10^6 m^3/d$ (1350 MMcfd). For the ultimate capacity of 51.0 $10^6 m^3/d$ (1800 MMcfd), three 26-MW compressor units and 18 gas coolers would be required.

Capital cost comparisons between the High- and Low-Pressure Expansion options were developed by Foothills for the initial and ultimate capacity. Foothills' estimates are summarized in Table 1 below. Foothills submitted that these estimates demonstrated that the High-Pressure Option would provide a clear capital cost advantage over the Low- Pressure alternative for both the initial and ultimate flow rates that were considered on Zone 9.

Table 1

Capital Costs Associated with the Low-Pressure and High-Pressure Expansion Options

Option	Capital Costs	
	Initial Capacity ($ Million)	Ultimate Capacity ($ Million)
Low-Pressure Expansion	79.1	105.5
High-Pressure Expansion	34.4	40.5

2.2.3 Scaled-Down Facilities

In response to a request from the Board, Foothills provided the details of two alternatives of the decompression/recompression facilities based on scaled-down throughputs. These alternatives are summarized in Table 2 on the next page. Each scenario is discussed in the following sections.

Table 2

Scaled-Down Facilities

Case	Design Volume		Capital Costs	Cost Penalties
	($10^6 m^3/d$)	MMcfd	($ Million)	($ Million)
Design	38.24	1350	34.4	-
Scenario 1	34.70	1225	33.5	6.6[1]
Scenario 2	32.70	1155	24.5	6 to 7[2]

1. Incurred to accommodate unspecified "greater volumes".
2. Incurred in a subsequent year to install the recompression and residual cooling.

Scenario 1

The first alternative considered involved resizing the decompression/recompression facilities to accommodate gas volumes of 34.70 $10^6 m^3/d$ (1225 MMcfd). This level of expansion would be consistent with the expansion that is anticipated to be provided by Northern Border in its application to the United States Federal Energy Regulatory Commission (FERC) dated 10 January 1989 and amended 14 April 1989. Adoption of this scenario by Foothills would result in a reduction of $0.9 million or 2.6 percent of the capital cost. However, Foothills estimated that a cost penalty of $6.6 million or 19 percent would be incurred during expansion in subsequent years to accommodate unspecified "greater volumes".

Scenario 2

The second alternative considered involved the installation of the decompression/recompression facilities proposed in the application but without the recompressors or residual cooling. In this case, Foothills submitted that gas-fired heaters would have to be installed to heat the inlet gas prior to expansion, to compensate for the reduced beat available from the residue gas. These facilities would accommodate gas volumes of 32.7 $10^6 m^3/d$ (1155 MMcfd). Foothills submitted this would be insufficient given its estimate of the likely volume for the 1990-91 gas year. Foothills expressed concern that these facilities would constrain the capacity on the rest of the Prebuild and, in order to remove this bottleneck, a lead time of 18 to 24 months would be required. Foothills estimated the capital cost of these facilities to be $24.5 million. However, an additional capital cost of $16 to $17 million would subsequently be required for the installation of the recompression and residual cooling facilities. Foothills estimated that this would result in a cost penalty of approximately $6 to $7 million over the $34.4 million estimate submitted for the applied-for facilities.

Views of Interested Parties

United submitted that, on the basis of NOVA's requirements only, the proposed facilities would not be required. United pointed out that it was obvious from the discussion in Foothills' application that NOVA's requirements could be handled by the present configuration of Zone 6. Furthermore, United stated that the proposed decompression/recompression facilities would only be required to provide for the easy expansion of Zone 9 capacity.

Foothills argued that the facilities were sufficiently justified in its submissions and were the most cost-effective and efficient means of providing the requested capacity.

The remaining interested parties did not raise any concerns related to the design of the proposed facilities.

2.3 Cost Allocation

Foothills stated that the capital cost should be included in the Zone 6 rate base since the facilities would be located in Zone 6 and would be used to accommodate increased transportation on Zone 6.

Views of Interested Parties

IPAC and the Canadian Petroleum Association (CPA) submitted that the issue should be reexamined when any use of the additional capacity on Zone 9 commenced.

United submitted that the capital cost should be allocated to the Zone 9 rate base since the facilities would be used to remove a bottleneck affecting deliveries in Zone 9.

Foothills replied that, according to the Phase I Tariff for Foothills (Yukon), which includes the calculation of a separate cost of service for each zone, the proposed facilities should be treated consistent with any other facilities in the same zone. In response to United's position, Foothills noted that the purpose of the facilities is to permit Zone 6 to operate at a higher pressure. As a consequence of this, the increased pressure available at the Alberta/Saskatchewan border would benefit Zone 9.

Foothills further commented that the proposed facilities would not exclusively be serving NOVA, the Empress II processing plant or the Zone 9 shippers. The benefit that NOVA would receive would be that of a Zone 6 shipper.

Pan-Alberta Resources Inc. and WGML on behalf of TCR Empress Ltd. agreed that the proposed facilities would not offer a direct benefit to the Empress II plant. These two parties as well as the remaining intervenors supported the inclusion of the capital cost for these facilities in the Zone 6 rate base.

Chapter 3
Views of the Board

The capacity of Foothills' pipeline in Zone 6 can be increased by closing the cross-over valves connecting it with NOVA. Operation of the pipeline in such a mode would permit Foothills to realize more of the benefits of its high-pressure design.

It is the stated policy of the Government of Alberta that wherever possible, gas leaving the province will be stripped of heavier hydrocarbons to the maximum extent feasible. In compliance with this policy, gas must be temporarily diverted from the Foothills pipeline through the Empress II extraction plant which has a MAOP of 4480 kPa. Assuming that increased capacity will soon be required on Zone 9, the Board finds that the high pressure design involving decompression/recompression facilities is more efficient and is preferable to the low-pressure alternative for passing on to Zone 9 the benefits offered by its partial isolation from NOVA on Zone 6, while maintaining provision for gas stripping at the Empress plant's limited MAOP.

With respect to the alternative high-pressure options considered, the Board agrees with Foothills that it would be premature to install a third train at this time to accommodate the fully powered capacity of the Eastern Leg. The Board finds that the scaled-down option that provides for a throughput of 34.7 $10^6m^3/d$ (1225 MMcfd) provides an insufficient capital cost saving to justify its selection. The other scaled-down option considered by Foothills provided a significant capital cost saving of approximately $10 million. However, this option provided for a throughput of only 32.58 $10^6m^3/d$ (1150 MMcfd), which is below the most likely Zone 9 contractable capacity in 1990-91, if Northern Border's application to the FERC is approved. Combined with the capital cost penalties associated with the further expansion of these facilities, the reduced capacity offered by this option diminished its attractiveness. Having carefully examined Foothills' evidence pertaining to land and environmental considerations, the Board agrees that there exist no significant identifiable land-use or environmental issues. Given the above considerations, the Board finds the applied-for configuration of the decompression/recompression facilities to be the optimum proposal under the current conditions.

The Board frequently requires contracts, precedent agreements, or letters of intent from an applicant in support of major facility additions. Although Foothills was unable to provide this information, the Board is reluctant to defer its decision pending the completion of those arrangements, due to the long lead time required for the delivery of certain equipment and because of the modest capital costs involved. Instead, the Board decided to assess the prospects for the expansion of the Northern Border pipeline and the likelihood of completing contracts for incremental capacity on Zone 9 for the 1990-91 contract year.

The evidence suggests that there is sufficient interest in incremental capacity on Zone 9 to ensure that new firm contracts, for up to 4.25 $10^6m^3/d$ (150 MMcfd) of incremental service for the 1990-91 contract year, will be executed. Supporting this evidence is the proposed settlement between Pan-Alberta and United announced on 6 June 1989. The settlement will replace the two-year Interim Contract arrangement between Pan-Alberta and United and the 1978 gas purchase contract arrangements between Pan-Alberta, Northwest Alaskan Pipeline Company (Northwest Alaskan) and United. Under the settlement, Pan-Alberta will assume all of United's rights and obligations pursuant to United's purchase contract with Northwest Alaskan. The settlement may offer the additional

stability necessary to remove the uncertainty surrounding Northern Border's 10 January 1989 application, as amended on 14 April 1989, to the FERC.

In exercising its rights under the settlement, Pan-Alberta may tap some of the incremental markets of the parties on Foothills' queue. However, given the amount of capacity currently being sought on Zone 9 for 1990-91, the Board is confident that sufficient new contracts for incremental firm service will be executed to warrant an increase in capacity on Zone 9. The Board also notes that Foothills has received further expressions of interest for capacity in 1991-92. Based on this and on current trends, the Board expects that further increases in capacity for exports at Monchy will become necessary.

Subject to the addition of some minor facilities in the future, the Board recognizes that, in the absence of firm contracts, letters of intent, or precedent agreements, it is being asked to approve advance capability on Zone 9. However, for the reasons outlined above, the Board finds that, subject to the impact on the cost of service, the provision of a certain amount of advance capability on the Eastern Leg would be in the public interest.

The Board notes that the applied-for facilities, together with the proposed mode of operation on Zone 6, would have the effect of providing for an increase in the Eastern Leg contractable capacity of approximately 25 percent to 38.2 $10^6 m^3/d$ (1350 MMcfd). However, the estimated capital cost of the applied-for facilities amount to only 6.5 percent of the average first quarter 1989 Gas Plant in Service Account, less accumulated depreciation for the Eastern Leg. On this basis, the Board finds that the costs of the applied-for facilities are modest relative to the potential benefits that they could provide.

The release of the Board's decision on MH-2-88 on 6 June 1989 and the announcement of the proposed settlement between Pan-Alberta and United, also on 6 June, removed the rationale for the suggestions of some parties to defer a decision on this matter.

Concerning Foothills' application to include the actual costs of constructing the proposed facilities in its Zone 6 rate base, up to the amount of $34,513,000, the Board notes that most of the interested parties were in favour of this treatment of the costs. The Board finds this method of recovering the costs to be appropriate at the present time.

On the basis of all of the foregoing, the Board finds that the applied-for facilities are in the public interest. Accordingly, the Board has issued Order XG-7-89 (Appendix VI), the effect of which is to authorize the construction of the proposed facilities. The Board also permits Foothills to include the actual amount of constructing the facilities, up to the amount of $34,513,000, in its Zone 6 rate base.

Chapter 4
Disposition

The foregoing chapters, together with Order XG-7-89, constitute the Board's Reasons for Decision and decisions on the application.

A.D. Hunt
Presiding Member

J.-G. Fredette
Member

J.R. Jenkins
Member

Ottawa, Canada
June 1989

Appendix I
List of Issues

List of Issues (Taken from Hearing Order GHW-1-89 as Amended)

During the hearing, the Board intends to examine but does not limit itself to the following issues in addition to those issues contained in the application itself:

1. Should long-term firm service contracts on Foothills and on upstream and downstream pipelines be required in support of the proposed incremental service in Zones 6 and 9, or is it in the public interest to provide the proposed incremental service on the basis of short-term arrangements, letters of intent, or anticipated contracts for these pipelines?

2. Having regard to the fact that Foothills was designed to operate unconstrained as an independent system in Zone 6; do the proposed facilities represent the most efficient means to provide the appropriate level of incremental service in each of Zones 6 and 9, relative to other alternatives?

3.(a) For cost allocation purposes, should the decompression/recompression facilities be regarded as serving:

   i) Foothills' Zone 6 shippers;

   ii) NOVA;

   iii) the beneficiaries of the liquids extraction process;

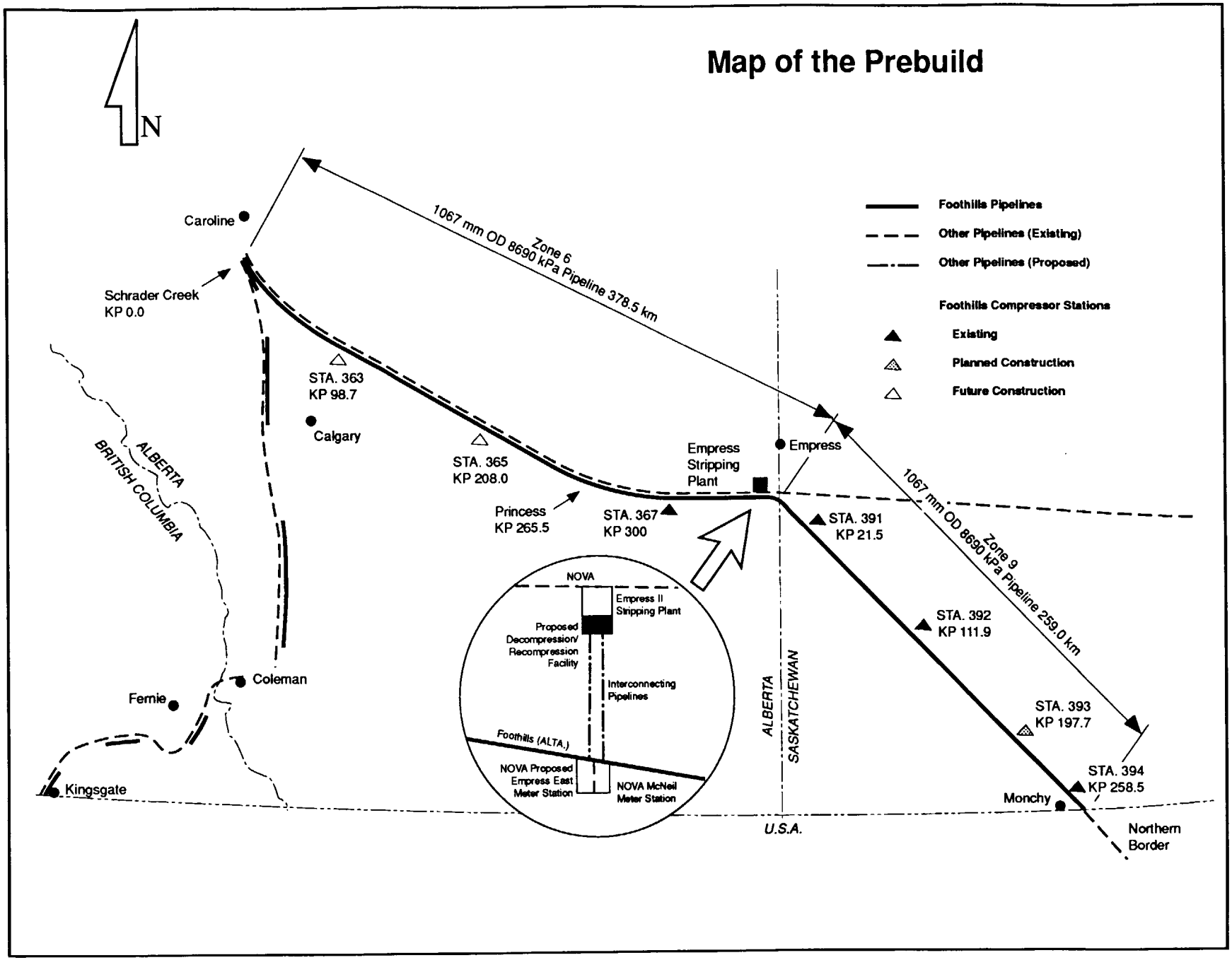
   iv) Foothills' Zone 9 shippers; or

   v) a combination of the above?

(b) To the extent that parties recommend that, for cost allocation purposes, the facilities are serving other than just the Zone 6 shippers, what is the appropriate toll methodology to reflect this?

Appendix II
Map of the Prebuild

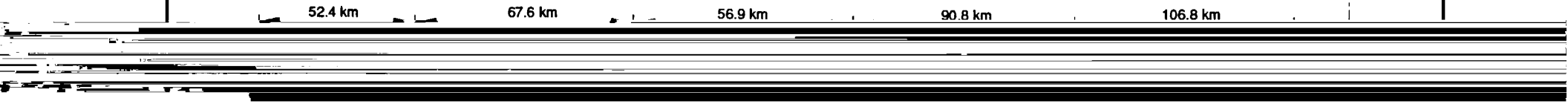
Figure a2-1


Map of the Prebuild
N
Caroline
1067 mm OD 8690 kPa Pipeline 378.5 km
Zone 6
Schrader Creek
KP 0.0
STA. 363
KP 98.7
Calgary
STA. 365
KP 208.0
Princess
KP 265.5
STA. 367
KP 300
Empress
Stripping
Plant
Empress
1067 mm OD 8690 kPa Pipeline 259.0 km
Zone 9
STA. 391
KP 21.5
STA. 392
KP 111.9
STA. 393
KP 197.7
STA. 394
KP 258.5
Monchy
Northern
Border
U.S.A.
ALBERTA
SASKATCHEWAN
ALBERTA
BRITISH COLUMBIA
Coleman
Fernie
Kingsgate
NOVA
Empress II
Stripping Plant
Proposed
Decompression/
Recompression
Facility
Interconnecting
Pipelines
Foothills (ALTA.)
NOVA Proposed
Empress East
Meter Station
NOVA McNeil
Meter Station
Foothills Pipelines
Other Pipelines (Existing)
Other Pipelines (Proposed)
Foothills Compressor Stations
Existing
Planned Construction
Future Construction

Appendix III
Schematic of Existing Foothills and NOVA Pipelines Operations

Figure a3-1

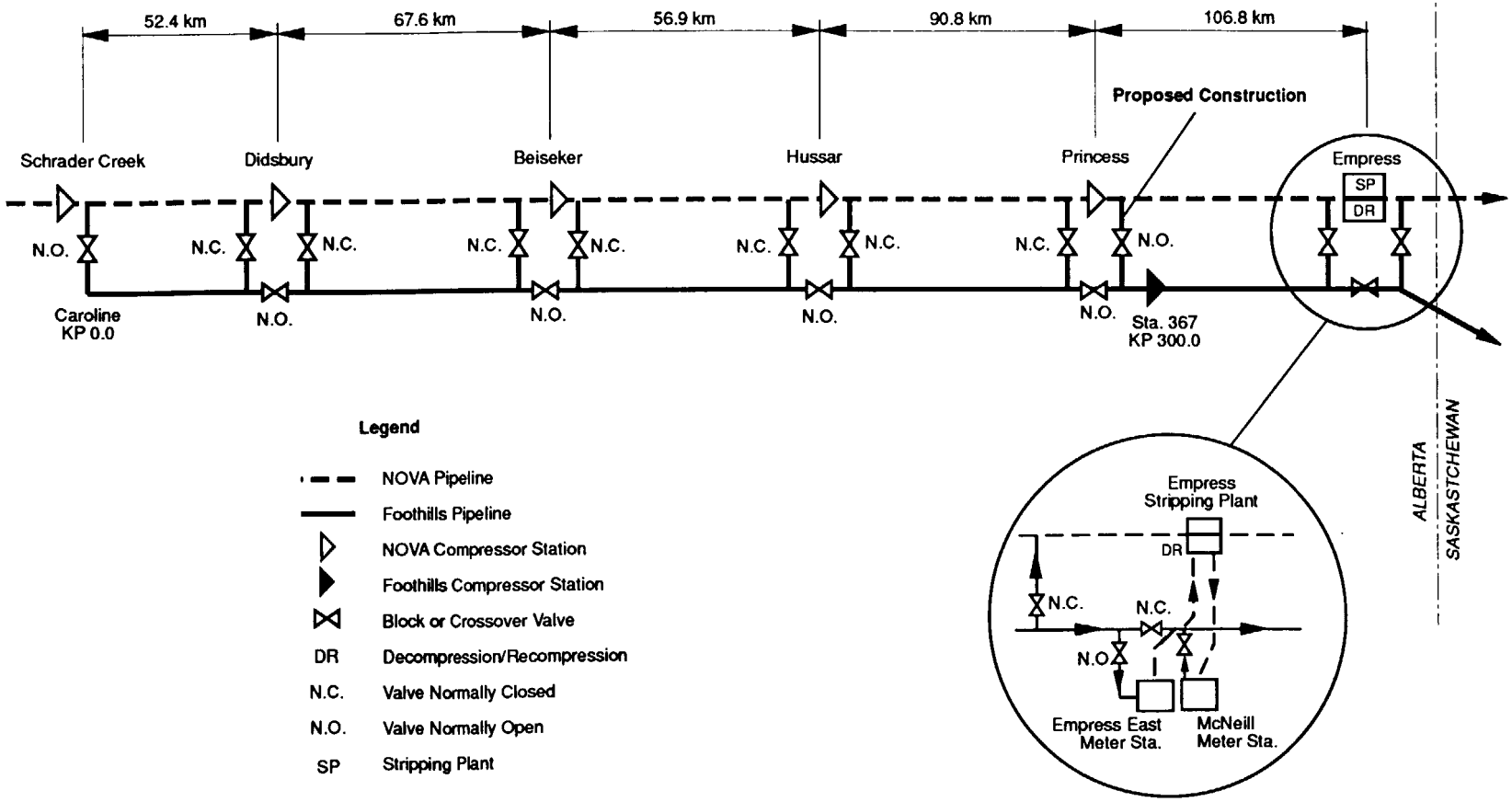
Schematic of Existing Foothills and NOVA Pipeline Operations



Appendix IV
Schematic of Proposed Foothills and NOVA Pipelines Operations

Figure a4-1

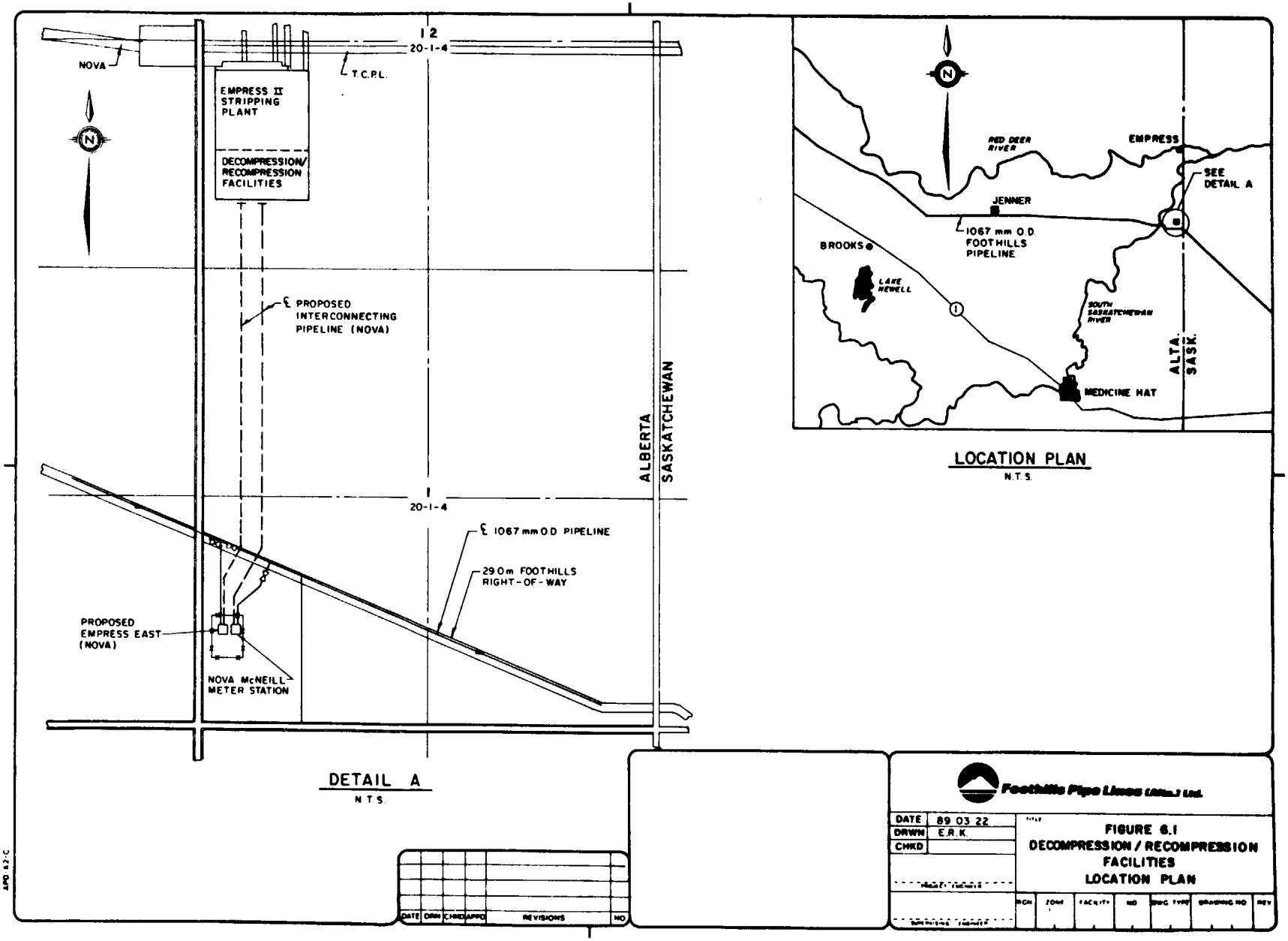
Schematic of Proposed Foothills and NOVA Pipeline Operations



Appendix V
Location Plan of the Proposed Facilities

Figure a5-1

Location Plan of Proposed Facilities



Appendix VI
Order No. XG-7-89

IN THE MATTER of the *National Energy Board Act* (the Act) and the Regulations made thereunder; and

IN THE MATTER OF an application, pursuant to Part III of the Act, by Foothills Pipe Lines (Alta.) Ltd. (Foothills) filed with the National Energy Board under File No. 1555-F6-9.

B E F O R E the Board on 29 June 1989.

WHEREAS by application dated 11 April 1989, Foothills applied to the Board for an order pursuant to Section 58 of the Act exempting Foothills from the provisions of paragraph 30(l)(a), subsection 30(2) and section 31 of the Act as more particularly described in the application; and

WHEREAS Foothills intends to install decompression/recompression facilities in the vicinity of the Empress II stripping plant in Alberta, and to make certain other modifications to its Zone 6 pipeline in Alberta as more particularly described in the application; and

WHEREAS Foothills has represented that its proposed facilities and modifications will provide *inter alia* increased transportation of gas for NOVA Corporation of Alberta (NOVA) on Zone 6; and

WHEREAS the Board considered the matter by means of written submissions filed pursuant to Hearing Order GHW-1-89, in which the Board received comments from Foothills and interested parties; and

WHEREAS the Board has found that the facilities described in Schedule "A" attached to and forming part of this order, are and will be in the present and future public convenience and necessity;

IT IS ORDERED THAT the facilities of Foothills described in Schedule "A" are exempt from the provisions of paragraph 30(l)(a), subsection 30(2), and section 31 of the Act and that interconnecting facilities under "Pipeline" in Schedule "A" are also exempt from paragraph 30(l)(b) and section 47 of the Act upon the following conditions:

1. Foothills shall, at least ten days prior to the commencement of construction of the additional facilities, file with the Board a detailed construction schedule or schedules identifying major construction activities and shall notify the Board of any modifications to the schedule or schedules as they occur for each item in Schedule "A".

2. Foothills shall, at least ten days prior to the commencement of construction, file with the Board a description of the plans and procedures for cost control of the project.

3. Foothills shall, prior to commencement of construction, file with the Board an amendment to the Service Agreement Firm Service contract between Foothills Pipe Lines (Yukon) Ltd. and NOVA for the subject receipt volumes as more particularly described in the application.

4. Unless the Board otherwise directs, Foothills shall cause the construction and installation of the additional facilities, herein referred to, to be commenced on or before 31 December 1990.

NATIONAL ENERGY BOARD

Louise Meagher
Secretary

Schedule "A"

Description	Foothills Estimated Direct Costs (1989 Dollars)
Compression	
Decompression/recompression facilities immediately south of the Empress II extraction plant in SW 1/4-12-20-1-W4M.	$34,377,000
Pipeline	
Interconnecting facilities to the downstream side of the NOVA Princess compressor station	$136,000