National Energy Board

Reasons for Decision

TransCanada PipeLines Limited

GH-3-98

November 1998

Facilities

National Energy Board

Reasons for Decision

In the Matter of

TransCanada PipeLines Limited

Application dated 29 April 1998, as amended, for 1999 Facilities

GH-3-98

November 1998

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Abbreviations

$10^3m^3/d$	thousand cubic metres per day
10^6m^3	million cubic metres
10^9m^3	billion cubic metres
$10^{12}m^3$	trillion cubic metres
ADOE	Alberta Department of Energy
AEC	Alberta Energy Company Ltd.
Alliance	Alliance Energy Services Partnership
Androscoggin	Androscoggin Energy LLC
ANR	ANR Pipeline Company
ARC	Aboriginal Resource Consortium
Bcf	billion cubic feet
Board (or NEB)	National Energy Board
CAPP	Canadian Association of Petroleum Producers
CBM	coalbed methane
CEAA	*Canadian Environmental Assessment Act*
Centra	Centra Gas Ontario Inc.
certificate	certificate of public convenience and necessity
CLFN	Constance Lake First Nation
CoEnergy	CoEnergy Trading Company
Conoco	Conoco Canada Limited
Consumers	The Consumers' Gas Company Limited
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Department of Fisheries and Oceans
DLE	dry low-emission

ECTR	Enron Capital & Trade Resources
Enron	Enron Capital & Trade Resources Canada Corp.
FST	firm service tendered
FT	firm transportation
Gaz Métropolitain	Gaz Métropolitain and Company, Limited Partnership
g/GJ	grams per gigajoule
GJ	gigajoule(s)
GPUAR	*Gas Pipeline Uniform Accounting Regulations*
Great Lakes	Great Lakes Gas Transmission Limited Partnership
Kamine	Kamine Development Corp.
Kirkland Lake	Kirkland Lake Power Corp.
km	kilometre(s)
kPa	kiloPascal(s)
LDC	Local Distribution Company
m	metre(s)
MLV	mainline valve
mm	millimetre(s)
MMcfd	million cubic feet per day
MW	megawatt(s)
NEB Act	*National Energy Board Act*
NIMO	Niagara Mohawk Power Corporation
NOVA	NOVA Gas Transmission Limited
NO_x	oxides of nitrogen
OPCC	Ontario Pipeline Coordination Committee
PA(s)	Precedent Agreement(s)

PanCanadian	PanCanadian Petroleum Limited
Petro-Canada	Petro-Canada Oil and Gas
PJ	petajoule(s)
PNGTS	Portland Natural Gas Transmission System
PPBoR	plans, profiles and books of reference
Progas	Progas Limited
Report (the)	Environmental Screening Report
RFP	Request for Proposals
SERM	Saskatchewan Environment and Resource Management
Sproule	Sproule Associates Limited
STS	Storage Transportation Service
T-Values	transportation values
TBO	Transportation by Others
Tcf	trillion cubic feet
Toyota	Toyota Motor Manufacturing North America, Inc.
TQM	Trans Québec & Maritimes Pipeline Inc.
TransCanada	TransCanada PipeLines Limited
Treaty 4	Treaty 4 Task Force
TTF	Tolls Task Force
Union	Union Gas Limited /Centra Gas Ontario Inc.
U.S.	United States of America
Vector	Vector Pipeline Limited Partnership
WCSB	Western Canada Sedimentary Basin

Definitions

Alternative Mechanism	Arrangements, other than the construction of facilities, that would enable TransCanada to meet its net incremental requirements.
Expansion Capacity	The combined capacity that will be provided by TransCanada's proposed 1999 facilities and the Alternative Mechanism.
GH-2-97	Hearing Order GH-2-97 in respect of TransCanada's 1998 Facilities Application.
GHW-1-97	Hearing Order GHW-1-97 in respect of various applications for natural gas export licences.
Part III	The part of the *National Energy Board Act* which deals with the construction and operation of pipelines.
Part IV	The part of the *National Energy Board Act* which deals with traffic, tolls and tariffs.

Recital and Appearances

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

IN THE MATTER OF an application by TransCanada PipeLines Limited, dated 29 April 1998, and subsequent revisions thereto, pursuant to section 52 of the NEB Act, for a certificate of public convenience and necessity authorizing the construction of additional facilities on its mainline, and for an order, pursuant to section 58 of the NEB Act, for an exemption from the provisions of paragraphs 31(c), 31(d) and sections 33 and 47 of the NEB Act in respect of the construction and installation of certain pipeline facilities.

IN THE MATTER OF the National Energy Board Hearing Order GH-3-98;

HEARD at Calgary, Alberta from 5 to 9 October 1998;

BEFORE:

D. Valiela	Presiding Member
A. Côté-Verhaaf	Member
C.M. Ozirny	Member

APPEARANCES:

A.C. Reid	TransCanada PipeLines Limited
G.M. Laplante	Aboriginal Resource Consortium
N.J. Schultz	Canadian Association of Petroleum Producers
C.K. Yates	Alliance Pipeline Limited
C.G. Worthy	Amoco Canada Petroleum Company Ltd.
T.G. Kane, Q.C.	ANR Pipeline Company
H.T. Soudek	The Consumers' Gas Company Ltd.
W.T. Houston	Constance Lake First Nation
S. Munnoch	Foothills Pipe Lines Ltd.
E.S. Decter	Pan-Alberta Gas Limited

N. Gretener S. McDonough	PanCanadian Petroleum Limited
A.S. Hollingworth	Portland Natural Gas Transmission System
G. Cameron	Union Gas Limited
L.E. Smith	The U.S. Northeast Group (Alberta Northeast Gas Limited and Boundary Gas, Inc.)
G.M. Nettleton	Vector Pipeline Limited Partnership
R. Forget	On behalf of Ms. S. Downey
M.C. Phillips	Treaty 4 Task Force
C.J.C. Page	Alberta Department of Energy
G. Delisle	Board Counsel

Overview

(Note: This overview is provided solely for the convenience of the reader and does not constitute part of the Decision or Reasons, to which readers are referred for detailed text and tables.)

The Application

TransCanada PipeLines Limited ("TransCanada") filed its 1999 Facilities Application with the National Energy Board (“NEB” or “Board”) on 29 April 1998. The application was revised substantially on 22 July 1998 and on 21 August 1998. TransCanada requested a certificate of public convenience and necessity pursuant to Part III of the *National Energy Board Act* ("NEB Act") for authorization to construct facilities on its natural gas pipeline system in Saskatchewan, Manitoba and Ontario in order to meet projected aggregate requirements.

TransCanada sought approval for facilities including 156.1 km of pipeline looping, four new 28.3 MW compressor units, an aftercooler at one compressor station, manifolds at one compressor station and compression related items. The estimated capital cost of the proposed facilities is $402.9 million (1998 dollars). TransCanada’s Eastern Zone toll (without fuel but including electricity costs) at 100 percent load factor in the year 2000 would be 95.5¢/GJ, 0.1¢/GJ higher than without the proposed new facilities and corresponding services. TransCanada proposed to construct 90.3 km of pipeline looping on the Central Section in the winter of 1998-1999, and 11.5 km of looping on the North Bay Shortcut in either the winter of 1998-1999 or the summer of 1999. The remainder of the facilities would be constructed in the summer of 1999. The planned in-service date of the proposed facilities is 1 November 1999.

TransCanada indicated that it intended to construct facilities for an additional capacity that would provide less than the forecast net incremental requirements for the 1999-2000 contract year. TransCanada intends to rely on arrangements other than constructing facilities, referred to as the Alternative Mechanism, to satisfy the remaining volumes. These arrangements would include temporary or long-term acquisition of capacity on the secondary market, capacity exchanges, capacity loans or any other arrangement proposed by gas market participants.

Other Regulatory Authorizations

TransCanada requested that the Board conduct an assessment of the environmental effects of the 1999 facilities under the *Canadian Environmental Assessment Act* (“CEAA”) and Regulations.

TransCanada also requested exemption, pursuant to section 58 of the NEB Act, from the provisions of paragraphs 31(c), 31(d) and sections 33 and 47 of the NEB Act with respect to the installation of each of the proposed facilities.

Highlights of the Board’s Decision

The Board completed an Environmental Screening Report pursuant to the CEAA and the Board’s regulatory process. The Board has determined that, taking into account the implementation of the proposed mitigative measures and those set out in the conditions imposed by the Board, TransCanada’s

proposed 1999 facilities are not likely to cause significant adverse environmental effects. The Board made a decision to this effect pursuant to paragraph 20(1)(a) of the CEAA.

The Board found that TransCanada's reliance on the Alternative Mechanism, in this instance, is an appropriate means of reducing the risk associated with firm service customers not renewing their contracts in April 1999 as well as reducing the risk associated with pipe and compressor cancellation costs.

With respect to TransCanada's application pursuant to sections 52 and 58 of the Act, the Board is satisfied that the proposed facilities are and will be required by the present and future public convenience and necessity and is prepared to issue a certificate, subject to the approval of the Governor in Council. The Board determined that TransCanada's proposed expansion was economically feasible, given the likelihood that the facilities would be used at a reasonable level over their economic life and the likelihood that the demand charges would be paid. The Board's certificate will include conditions to ensure that only those facilities needed to meet the aggregate firm service requirements will be built and that construction will occur in a technically and environmentally acceptable manner.

Chapter 1

Introduction

1.1 1999 Facilities Application

TransCanada PipeLines Limited ("TransCanada") filed its 1999 Facilities Application with the National Energy Board (“NEB” or “Board”) on 29 April 1998. The application was revised substantially on 22 July 1998[1] and again on 21 August 1998[2]. TransCanada requested a certificate of public convenience and necessity (“certificate”) pursuant to Part III of the *National Energy Board Act* ("NEB Act") for authorization to construct facilities to meet projected aggregate requirements on its natural gas pipeline system in Saskatchewan, Manitoba and Ontario. TransCanada also requested exemption, pursuant to section 58 of the NEB Act, from the provisions of paragraphs 31(c), 31(d) and sections 33 and 47 of the NEB Act with respect to the installation of each of the proposed facilities.

TransCanada sought approval for facilities including 156.1 km of pipeline looping, four new 28.3 MW compressor units, an aftercooler at one compressor station, manifolds at one compressor station and compression related items. TransCanada proposed to construct 90.3 km of pipeline looping on the Central Section in the winter of 1998-1999, and 11.5 km of looping on the North Bay Shortcut in either the winter of 1998-1999 or the summer of 1999. The remainder of the facilities would be constructed in the summer of 1999. The planned in-service date of the proposed facilities is 1 November 1999. The estimated capital cost of the proposed facilities is $402.9 million (1998 dollars). The Eastern Zone toll (without fuel but including electricity costs) at 100 percent load factor in the year 2000 would be 95.5¢/GJ, 0.1¢/GJ higher than without the proposed new facilities and corresponding services.

The proposed expansion of TransCanada’s system, along with proposed alternative arrangements to constructing facilities, referred to as the “Alternative Mechanism", would enable TransCanada to meet its net incremental requirements of 3 787.5 $10^3m^3/d$ (133.7 MMcfd) of natural gas.

TransCanada’s incremental requirements consist of:

- a total of 1 492.9 $10^3m^3/d$ (52.7 MMcfd) of additional firm transportation (“FT”) service as part of the process of changing nominations from volume to energy, pursuant to an agreement with shippers;

---

[1] The 1999 Facilities Application, as originally filed on 29 April 1998, was for an increase in incremental firm transportation services of 7 755.0 $10^3m^3/d$ (273.8 MMcfd), and included the proposed construction of 560.4 km of pipeline looping and four 28.3 MW compressors for a total cost of $984 million. By letter dated 5 June 1998, the NEB required TransCanada to address certain deficiencies or to request appropriate relief. TransCanada addressed the Board’s letter of deficiency when it filed the 22 July 1998 revision to its application.

[2] The 21 August 1998 revision reflected a total decrease of 3 967.5 $10^3m^3/d$ (140.1 MMcfd) from the requirements as originally filed.

- a total of 3 085.0 $10^3m^3/d$ (108.9 MMcfd) of new service, 1 971.7 $10^3m^3/d$ (69.6 MMcfd), or 64 percent, for domestic customers in Ontario and Quebec, and the remaining 1 113.3 $10^3m^3/d$ (39.3 MMcfd), or 36 percent, for export customers; and

- minor adjustments, small volumes and early services totalling 470.3 $10^3m^3/d$ (16.6 MMcfd).

These requirements are offset by capacity relinquishments totalling 1 257.8 $10^3m^3/d$ (44.4 MMcfd).

1.2 Alternative Mechanism

TransCanada indicated that it intended to construct facilities for 3 059.5 $10^3m^3/d$ (108.0 MMcfd) of additional capacity, which would provide less than the forecast net incremental requirements of 3 787.5 $10^3m^3/d$ (133.7 MMcfd) for the 1999-2000 contract year. TransCanada indicated that it would rely on the Alternative Mechanism to satisfy the remaining volumes of 728.0 $10^3m^3/d$ (25.7 MMcfd). The Alternative Mechanism would involve arrangements such as temporary or long-term acquisition of capacity on the secondary market, capacity exchanges, capacity loans or any other arrangement proposed by gas market participants. TransCanada justified the proposed use of the Alternative Mechanism on the basis of changing market conditions that developed in the spring of 1998, such as the decrease in transportation values ("T-Values") on the secondary market and the potential reduction in its requirements following the Niagara Mohawk Power Corporation ("NIMO") restructuring negotiations with power producers.

1.3 Environmental Screening

The Board conducted an environmental screening in compliance with the *Canadian Environmental Assessment Act* ("CEAA") and completed an Environmental Screening Report pursuant to the CEAA and the Board's regulatory process.

Chapter 2

Changing Market Conditions

2.1 Background

In the original filing of the 1999 Facilities Application, TransCanada indicated that its incremental requirements were 7 755.0 $10^3m^3/d$ (273.8 MMcfd). Following a reassessment of its expansion plans for 1999, TransCanada filed the first of two substantial revisions to its application on 22 July 1998. TransCanada indicated, at that time, that its incremental requirements were 5 892.4 $10^3m^3/d$ (208.0 MMcfd). The reduction in incremental requirements of 1 862.6 $10^3m^3/d$ (65.8 MMcfd) related to the relinquishment of capacity and a reduction in Union Gas Limited's ("Union")[1] service request.

TransCanada explained that this reduction in its incremental requirements was the result of market conditions that developed in the spring of 1998. These conditions included the decrease in T-Values[2] and the potential for a reduction in TransCanada's requirements following the NIMO restructuring negotiations with power producers. In recognition of these market conditions, TransCanada decided in May 1998 to formally offer its shippers an opportunity to permanently relinquish capacity, which some shippers accepted. This relinquishment of capacity was partially offset by new service requests for small volumes, for a net reduction in requirements of 787.5 $10^3m^3/d$ (27.8 MMcfd).

With respect to the reduction in Union's service request of 1 076.5 $10^3m^3/d$ (38.0 MMcfd), TransCanada indicated that Union had been able to find capacity in the secondary market for a portion of its incremental requirements at a cost that was less than TransCanada's toll.

TransCanada indicated that, in light of the forecast of a decline in T-Values, it had investigated the means by which it could meet its firm service requirements, minimize any pipe cancellation charges, and utilize 54 km of stock-piled pipe that had been ordered in 1997. TransCanada stated that it was mindful, at the same time, of the uncertainty of some supporting precedent agreements, particularly the CoEnergy Trading Company ("CoEnergy") and the Kirkland Lake Power Corp. ("Kirkland Lake") projects, the uncertainty associated with TransCanada's forecast of aggregate requirements, and the amount of contracted capacity subject to renewal in 1999.

TransCanada indicated that it also took into account a perceived need for some incremental pipeline capacity from the Western Canada Sedimentary Basin ("WCSB") as well as the need to make a decision in June/July 1998 in order to obtain necessary regulatory approvals and have the proposed facilities in service by 1 November 1999.

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[1] Effective 1 January 1998, Union Gas Limited and Centra Gas Ontario Inc. merged and are now called Union Gas Limited.

[2] TransCanada noted that T-Values, measured by the difference between natural gas prices at Empress and Dawn, were at or below the TransCanada toll for May/June 1998, with price forecasts suggesting further erosion of T-Values relative to the toll.

TransCanada explained that, because of the uncertainty surrounding the design requirements at the time that a decision relating to its application had to be made, it decided to use the Alternative Mechanism as a risk mitigation measure. TransCanada identified these risks as being the risk of firm service customers not renewing their contracts in April 1999 and the risk of incurring pipe and compressor cancellation costs should the new facilities become unnecessary due to a reduction in its aggregate requirements.

2.2 Alternative Mechanism

The new facilities proposed in TransCanada's 22 July 1998 revision to its application would not enable TransCanada to meet its forecast of aggregate requirements for the 1999-2000 contract year. To satisfy the balance of the 1999-2000 aggregate requirements, TransCanada proposed to rely on the Alternative Mechanism. The Alternative Mechanism would involve pursuing arrangements other than constructing additional facilities, such as temporary or long-term acquisition of capacity on the secondary market, capacity exchanges, capacity loans or any other arrangement proposed by gas market participants.

Considering both the uncertainty related to its requirements and the ongoing negotiations with its pipe suppliers, TransCanada determined at that time that the appropriate design approach would be to construct facilities to meet a net increase in firm service requirements of 3 059.5 $10^3m^3/d$ (108.0 MMcfd) and to rely on the Alternative Mechanism to provide 2 832.9 $10^3m^3/d$ (100.0 MMcfd) of capacity to meet the remaining increase in firm service requirements.

TransCanada further reduced its forecast of aggregate requirements for 1999-2000 in the 21 August 1998 revision to its application, reflecting the removal of the Kirkland Lake and the CoEnergy projects. TransCanada indicated that the Kirkland Lake project had been delayed by one year and removed from the 1999 contract year queue. TransCanada indicated that the precedent agreement between TransCanada and CoEnergy terminated on 9 August 1998 because CoEnergy failed to provide TransCanada with additional gas supply information. As a result of the removal of these projects, the net incremental firm service requirements considered in TransCanada's application were reduced to 3 787.5 $10^3m^3/d$ (133.7 MMcfd). TransCanada indicated that due to its reliance on the Alternative Mechanism, the removal of these projects, along with other minor contract adjustments, would not change its construction plans. Instead, its use of the Alternative Mechanism would be reduced by a total of 2 104.9 $10^3m^3/d$ (74.3 MMcfd) to 728.0 $10^3m^3/d$ (25.7 MMcfd).

TransCanada indicated that the volumes to be served via the Alternative Mechanism could change further due to the possibility of changes in the heat content of the gas delivered to TransCanada's system. Should the heat content of the gas decrease as forecast, TransCanada explained that it may require additional capacity which could be acquired quickly and on a short-term basis via the Alternative Mechanism.

In balancing the capacity to be provided by new facilities with the capacity to be provided by the Alternative Mechanism, TransCanada stated that it proceeded cautiously, noting that it could be at risk should it not be able to obtain sufficient capacity to meet its firm service obligations at a reasonable price.

TransCanada stated that it intended to consult with its stakeholders and the Tolls Task Force ("TTF") before contracting for the Alternative Mechanism. This consultation would include consideration of

the scope of the Alternative Mechanism, any arrangements or approvals that TransCanada may require, and an appropriate request for proposals ("RFP") process. TransCanada indicated that issues related to the potential impact of the Alternative Mechanism on the secondary markets and on gas commodity trading would also be discussed with parties.

The Canadian Association of Petroleum Producers ("CAPP") stated that it supports the creation of capacity in a cost-efficient manner. CAPP noted that the Alternative Mechanism raises a number of questions that should be the subject of discussion at the TTF prior to implementation.

PanCanadian Petroleum Limited ("PanCanadian") indicated that TransCanada's application should be approved without prejudicing a full and fair exploration of the Alternative Mechanism through the TTF and a subsequent Part IV proceeding.

2.3 Request for Proposals Process

The Consumers' Gas Company Limited ("Consumers")[1] was of the view that TransCanada's current facilities planning process is inadequate. Consumers' position was that TransCanada should issue an RFP for the provision of acquired capacity prior to its annual determination of the need for additional facilities. This acquired capacity, either on its own or together with new facilities, would serve TransCanada's incremental requirements.

Consumers proposed that TransCanada should be required to include in its facilities applications a complete and detailed description of the options available, as well as an explanation of how it determined the appropriate mix of facilities and acquired capacity. Consumers stated that, without such an exercise, it could not be satisfied that TransCanada's proposed set of facilities were optimal to meet the underpinning requirements.

Vector Pipeline Limited Partnership ("Vector") explained that, as a new entrant in the marketplace, it was facing substantial challenges in offering competitive transportation services, given TransCanada's market dominance and also TransCanada's ability to roll the costs of new expansions into its overall cost of service. Vector argued that, in the absence of competition, the Board must create a surrogate for competition. Vector submitted that, in the context of the current regulatory framework, this required the Board to direct TransCanada to seek the most economic solution between the construction of new facilities and the acquisition of transportation rights from other providers.

Vector proposed the use of an RFP to solicit Alternative Mechanism proposals and questioned whether the Board should approve TransCanada's application without first requiring TransCanada to conduct such an RFP. Vector suggested that the primary factor of relevance in the selection of proposals should be the incremental cost of constructing new facilities compared to the incremental cost of acquiring capacity through the Alternative Mechanism. Vector proposed that other relevant factors should include the term of financial commitment, flexibility and reliability, but that TransCanada should justify any selection that does not represent the lowest incremental cost.

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[1] The Consumers' Gas Company Limited changed its name to Enbridge Consumers Gas, effective 6 October 1998.

In the present case, Vector argued that TransCanada's facilities design approach was fundamentally flawed for two reasons. Firstly, TransCanada did not solicit proposals for Alternative Mechanism capacity in advance of making its decision regarding the level of facilities to construct. Secondly, TransCanada will not solicit proposals for Alternative Mechanism capacity until after the completion of the GH-3-98 proceeding, effectively eliminating any meaningful consideration of Alternative Mechanism proposals in relation to the need and justification for TransCanada's proposed 1999 facilities.

Union submitted that it will be watchful to ensure that TransCanada will be exhaustive in exploring all options, rather than only the construction of incremental facilities, when considering how to meet its future requirements. Union questioned the wisdom of compelling TransCanada to institute any particular process to ensure that TransCanada will be thorough in this regard, and did not believe that a Board order was necessary.

2.4 Request for Capacity Relinquishment and Capacity Relinquishment Policy

CAPP took the position that TransCanada should immediately canvass its shippers to determine if there was additional capacity that shippers may be prepared to relinquish. This proposal would mitigate the uncertainty regarding the incremental requirements justifying the expansion. CAPP suggested that TransCanada should not put its expansion project on hold while it canvassed shippers, but that it should proceed with an RFP for capacity relinquishment in parallel with the development of its expansion project.

CAPP took the position also that a capacity relinquishment policy was desirable because the secondary market may not always be capable of matching capacity supply and demand. As an example, CAPP pointed to TransCanada's own evidence concerning the relinquishment of capacity by Kamine Development Corp. ("Kamine").

PanCanadian supported CAPP's proposal that TransCanada should expeditiously canvass its shippers for additional relinquishment of capacity, on the grounds that such an exercise would be useful and prudent in the context of rapidly changing market conditions.

Union suggested that TransCanada should develop a capacity relinquishment policy that would include the requirement for a formal request for capacity relinquishment before future facilities applications were filed by TransCanada.

Vector submitted that certain terms and conditions specified in TransCanada's capacity relinquishment open season, conducted between 25 May and 9 June 1998, were unduly restrictive. Vector questioned whether potential respondents were afforded sufficient time to take advantage of TransCanada's offer to accept capacity relinquishment.

TransCanada objected to the Board imposing any RFP process on TransCanada prior to the approval of its current application or any future facilities application. TransCanada argued that, from a fairness perspective, it would be inappropriate for the Board to give TransCanada direction on such matters as a capacity relinquishment policy, or the consideration of transportation options on other pipelines,

without dealing at the same time with the most fundamental of system planning issues, those being the contract renewal policy and the notice period.

TransCanada suggested that Vector was a pipeline seeking shippers and that the shippers supporting TransCanada's application could have chosen Vector's system during its open season. TransCanada argued that Vector's proposed RFP process for the Alternative Mechanism was an attempt to delay the construction of facilities that would enable TransCanada to compete in Vector's targeted market.

With respect to the need for the development of a capacity relinquishment policy, TransCanada agreed that further discussion was required. However, TransCanada did not agree with CAPP's proposal that TransCanada should further canvass its shippers for relinquishment of capacity at this time. TransCanada submitted that parties have elected to contract with TransCanada for transportation service on the understanding that TransCanada will construct physical pipeline capacity to serve their market needs. According to TransCanada, this was evidence that incremental pipeline capacity is required to serve the needs of a growing market for natural gas. TransCanada suggested that this need was further demonstrated by the small volume of capacity relinquished to TransCanada via the capacity relinquishment process conducted in the summer of 1998, and by the number of shippers that have provided TransCanada with early renewal notices.

Views of the Board

The Board finds that TransCanada's reliance on the Alternative Mechanism is, in this instance, an appropriate means of reducing the risk of firm service customers not renewing their contracts in April 1999 and as well as reducing the risk associated with pipe and compressor cancellation costs due to a possible reduction in aggregate requirements.

The Board notes TransCanada's plan to consult with its stakeholders and its TTF to consider several aspects of the Alternative Mechanism.

Consumers proposed that the Board should order TransCanada to enter into an RFP process for the acquired capacity prior to the filing of future facility applications. Vector proposed that the Board should order TransCanada to enter into an RFP process for acquired capacity prior to the approval of the current facilities application. Furthermore, Vector argued that the Board must create a surrogate for competition. In the present case, however, the Board does not see that it is necessary to go to the extent of requiring TransCanada to seek proposals for capacity from its competitors for the purpose of promoting competition.

The Board believes that under the proper conditions, competition can produce more and better choices for customers as well as lower prices. The Board, however, is not convinced that either Vector's or Consumers' proposal would achieve these results. Firstly, customers would not have more or better choices because TransCanada would ultimately remain the provider of their transportation services. Secondly, it has not been demonstrated that the effect of these proposals on TransCanada's tolls would be favourable or even measurable.

Vector and Consumers suggested that TransCanada's facilities planning process is inadequate and made proposals that would address their concerns. In this regard, the Board notes TransCanada's position that it would be inappropriate for the Board to provide directions to TransCanada on its system planning process without, at the same time, allowing TransCanada to deal with some of the main causes of the surrounding uncertainty, those being issues related to contract renewal policy and the renewal notice period. These issues, however, were outside the scope of the GH-3-98 proceeding.

With respect to the proposals by CAPP and PanCanadian that TransCanada should immediately canvass its shippers to determine whether there is additional capacity that shippers may be prepared to relinquish, the Board notes that TransCanada held such a request for relinquishment of capacity in 1998. The Board also notes the result of TransCanada's request for early renewals that took place in the summer of 1998 whereby no shipper indicated an intention to relinquish its capacity with respect to contracts that are to expire in 1999. The Board is of the view that TransCanada has made a reasonable effort to ascertain its future capacity requirements. Accordingly, the Board will not, in this instance, direct TransCanada to further canvass its shippers for the relinquishment of capacity.

The Board encourages TransCanada to pursue its plan to discuss with interested parties the development of a capacity relinquishment policy. The development of such a policy would clarify the expectations and obligations of all parties with respect to TransCanada's transportation contracts, and could potentially resolve capacity relinquishment issues prior to any request for the relinquishment of capacity that TransCanada may hold in the future.

Chapter 3

Overall Gas Supply and Demand

3.1 Overall Gas Supply

TransCanada relied upon the study prepared by Sproule Associates Limited ("Sproule") entitled *The Future Natural Gas Supply Capability of the Western Canada Sedimentary Basin 1997-2019*, dated April 1998, as evidence of overall gas supply. The Sproule study uses TransCanada's proprietary supply model, developed by Sproule, which projects future productive capacity and return on investments to the upstream sector based on a specific gas price forecast, a gas demand forecast, cost, gas available from existing pools and gas expected to be available from reserves additions.

Sproule prepared sensitivity analyses around alternative projections of future reserves additions, which Sproule considers, at this time, to be the most critical issue in assessing future productive capacity from Western Canada. For the "Base Case", Sproule adopted a reserves addition equation that extends from the 26-year historical rate of 27.7 10^3m^3 per metre (295 Mcf per foot) of gas-intent drilling with a gradual decline to zero at the ultimate resource estimate of 9.3 $10^{12}m^3$ (329 Tcf). "Sensitivity 1" (the high reserves additions case) assumed that the 26-year historical trend in reserves additions would be sustained at 27.7 10^3m^3 per metre (295 Mcf per foot) of gas-intent drilling, while "Sensitivity 2" (the low reserves additions case) utilized a reserves addition equation that retained the same exponential structure as that used in previous reports, the latter being a more conservative approach.

The "Base Case" analysis for conventional resources in the WCSB identified a supply/demand cross-over in year 2016 with a deficit in production relative to demand of 3.4 10^9m^3 (0.1 Tcf) in the year 2019. The supply/demand cross-over for the "Sensitivity 1" analysis was projected to occur after the year 2019, while a cross-over in year 2007 was reported for the "Sensitivity 2" analysis. Peak annual production in the "Base Case" was projected at 218 10^9m^3 (7.7 Tcf), while peak annual production in the "Sensitivity 1" and "Sensitivity 2" analyses was projected at 221 10^9m^3 (7.8 Tcf) and 207 10^9m^3 (7.3 Tcf), respectively.

The Sproule report also included an analysis of the coalbed methane ("CBM") potential of the Alberta Plains. The unconstrained CBM resource potential of the Alberta Plains was estimated at 18.9 $10^{12}m^3$ (668.6 Tcf) of gas-in-place, while the technically constrained resource potential was estimated at 6.1 $10^{12}m^3$ (214.3 Tcf). At a constant price of $1.90/GJ ($2.00/Mcf), Sproule estimated that the CBM reserve potential for the Alberta Plains would be some 225 10^9m^3 (8 Tcf). In Sproule's opinion, the CBM reserve potential in the Alberta Foothills and British Columbia is at least equal to that of the Alberta Plains.

The evidence tendered with respect to overall gas supply was unchallenged.

Views of the Board

The Board is satisfied with the methodology used and the scenarios presented by TransCanada in its analysis of the overall supply capability of the WCSB. The study demonstrated that there will be sufficient supply, over the long term, to ensure the

adequate utilization of the TransCanada pipeline system, including the proposed facilities.

3.2 Long-term Domestic Markets

TransCanada projected that gas demand in Manitoba, Ontario and Quebec will grow at an average annual rate of 1.8 percent over the forecast period, increasing from 1 373 PJ in 1996 to 1 752 PJ in 2010. TransCanada projected that the growth in natural gas demand in these provinces will exceed projected contracted pipeline deliveries through the TransCanada system. TransCanada's evidence indicated that additional capacity on the TransCanada system beyond that applied for, additional imports, or additional Canadian supplies transported on competing pipelines, will be required to meet the projected shortfall.

Views of the Board

The Board finds that TransCanada's forecast of gas demand for Manitoba, Ontario and Quebec is reasonable. The Board notes that TransCanada's forecast, and TransCanada's ability to compete with other gas pipelines in serving these markets, were unchallenged.

3.3 Long-term Export Markets

To demonstrate the long-term nature of gas demand in the U.S. Midwest and U.S. Northeast export markets, TransCanada relied on the forecasts prepared by DRI/McGraw Hill, the Gas Research Institute, the U.S. Department of Energy/Energy Information Administration and the American Gas Association. TransCanada noted that these forecasts indicate that annual growth rates for gas demand over the forecast period 1996 to 2010 will range between 0.87 and 1.63 percent in the U.S. Midwest, and between 1.56 and 2.51 percent in the U.S. Northeast. TransCanada concluded that these forecasts demonstrate that total natural gas demand in the U.S. Midwest and the U.S. Northeast is expected to grow over the long term and that there will continue to be a long-term need for the natural gas which TransCanada plans to transport to these markets.

Views of the Board

The Board accepts TransCanada's evidence regarding the long-term gas demand in the U.S. Midwest and U.S. Northeast markets. The Board notes that TransCanada's evidence regarding the ability of Canadian-sourced gas to compete with other gas supply sources in these markets was unchallenged. The Board finds that there is a reasonable expectation that shippers will rely on the TransCanada system to meet some of the projected increase in demand in the U.S. Midwest and U.S. Northeast markets.

Chapter 4

Specific Transportation Services

4.1 TransCanada's Requirements Forecast

TransCanada provided a forecast of winter maximum daily and annual deliveries for the two contract years commencing 1 November 1998 and 1 November 1999, as summarized in Table 4-1 below. TransCanada submitted that its forecast of winter maximum daily deliveries is based upon its existing transportation service contracts and upon executed precedent agreements with prospective shippers. TransCanada's forecast of annual deliveries is based upon survey questionnaire results and discussions with existing and prospective shippers. TransCanada's export forecast assumes that existing export licenses and contracts will be extended beyond their current expiry dates.

Table 4-1
TransCanada's Forecast of Winter Maximum Daily and Annual Deliveries

A. Winter Maximum Daily Deliveries

Contract Year	Domestic		Export		Total	
	(10^6m^3)	(MMcf)	(10^6m^3)	(MMcf)	(10^6m^3)	(MMcf)
1998-99	114.8	4 052	112.1	3 957	226.9	8 009
1999-00	118.4	4 179	112.4	3 968	230.8	8 147
B. Annual Deliveries						
l998-99	36.3	1 281	39.6	1 398	75.9	2 679
l999-00	37.3	1 317	39.8	1 405	77.1	2 722

Source: TransCanada's 1999 Facilities Application, Tab "Gas Markets", Sub-tab 2, Tables 2A, 2B, 3A and 3B (revised 30 July 1998 and Table 3B revised 21 August 1998). These volumes are comprised of firm transportation service ("FT"), firm service tendered (" FST"), and storage transportation service ("STS") volumes, excluding all company fuel requirements, losses and other uses.

TransCanada indicated that the capacity to be provided by its proposed 1999 facilities, when combined with the Alternative Mechanism capability (together "the expansion capacity"), will enable TransCanada to satisfy the projected requirements under existing transportation service contracts and new firm, domestic and export service requirements. The expansion capacity will also provide a total of 1 492.9 $10^3m^3/d$ (52.7 MMcfd) of additional FT service, pursuant to an agreement with shippers, to accommodate the industry-wide process of converting nominations from volume to energy. This one-time nominations change to an energy basis was to take effect 1 November 1998, although the resulting net increase in requirements will not begin until 1 November 1999 when the proposed expansion capacity becomes available.

A net reduction in base requirements[1] of 787.5 $10^3m^3/d$ (27.8 MMcfd) is also included in the incremental design requirements. This reduction in base requirements is the result of certain shippers relinquishing transportation service as of 1 November 1999, and is partially offset by other shippers either commencing new service, as of November 1997 and 1998, or making adjustments to existing contracts.

TransCanada will be able to satisfy its projected aggregate requirements, including the incremental net requirements which total 3 787.5 $10^3m^3/d$ (133.7 MMcfd), by combining the expansion capacity with existing capacity, the capacity resulting from the installation of previously authorized but not yet constructed facilities and services to be provided on other pipeline systems. The other pipeline systems include Alberta Energy Company Ltd. ("AEC"), ANR Pipeline Company ("ANR"), Great Lakes Gas Transmission Limited Partnership ("Great Lakes"), NOVA Gas Transmission Limited ("NOVA"), Union and Trans Québec & Maritimes Pipeline Inc. ("TQM"). Refer to Table 4-2 which provides an overview of the net incremental design requirements in support of TransCanada's 1999 Facilities Application.

4.2 Upstream Transportation

All the gas supply for the projects included in TransCanada's 1999 Facilities Application will be delivered to TransCanada's system at Empress, Alberta via the NOVA system. TransCanada stated that it advised NOVA of the total transportation requirements to Empress for the 1999-2000 contract year. TransCanada submitted that NOVA's system is designed on the assumption that the maximum day delivery volume at its delivery points will not exceed the lesser of the capacity of the downstream pipeline or the aggregate of firm service agreements on NOVA's system at a particular delivery point.

The availability of incremental capacity on NOVA's system was unchallenged.

4.3 Downstream Transportation

A portion of the new domestic and export requirements will be transported on the Union and TQM systems. The remaining requirements, consisting of export projects, include transportation service to East Hereford, Quebec for deliveries into the proposed Portland Natural Gas Transmission System ("PNGTS") and transportation service to Emerson (II), Manitoba and St. Clair, Michigan, both for deliveries into the Great Lakes system.

Union

TransCanada stated that the existing facilities on Union's system, with the exception of one interconnect, are sufficient to transport any additional volumes included in TransCanada's 1999 Facilities Application. In respect of the new service to Ontario Hydro, TransCanada stated that Union received Ontario Energy Board approval on 4 May 1998 to construct an interconnect between TransCanada's Montreal Line and the Lennox Generating Station.

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[1] Base requirements include transportation services which are currently available and transportation services for which the facilities necessary to enable the service to commence have been certified but not yet constructed.

Table 4-2
Net Incremental Design Requirements

	Volume $10^3m^3/d$	Volume MMcfd	Delivery Area
A. Changes to Base Requirements			
Minor Contract Adjustments and Small Volumes/Early Services	**470**	**16.6**	
Volume to Energy Conversion	**1 493**	**52.7**	
B. New FT Services			
Centra Gas Ontario Inc. ("Centra")	175	6.2	Centra Northern
Centra	68	2.4	Centra Sault St. Marie
Centra	156	5.5	Centra Eastern
Union Gas Limited	567	20.0	Union Central
Gaz Métropolitain	643	22.7	Gaz Métro Eastern
Ontario Hydro	283	10.0	Eastern
Toyota Motor Manufacturing N.A., Inc.	78	2.8	Union Central
Total Domestic	1 972	69.6	
City of Duluth	184	6.5	Emerson II
Enron Capital & Trade Resources Canada Corp.	567	20.0	St. Clair
Androscoggin Energy LLC	363	12.8	East Hereford
Total Export	1 113	39.3	
Total New Services	**3 085**	**108.9**	
C. Relinquished Capacity - Kamine			
Sycracuse L.P.	- 462	-16.3	Empress to Chippawa
Beaver Falls L.P.	- 456	-16.1	Empress to Waddington
Natural Dam L.P.	- 340	-12.0	Empress to Waddington
Total Relinquished Capacity	**-1 258**	**-44.4**	
Total Net Requirements	**3 788**	**133.7**	

Note: 1) With the exception of the minor contract adjustments and the small volume/early service contracts, all contracts have a 1 November 1999 commencement date. All contracts have a ten-year term.
2) Numbers may not add due to rounding.

Great Lakes

TransCanada submitted that Great Lakes filed an application with the Federal Energy Regulatory Commission on 17 November 1997 for new services, including service required by the City of Duluth, to commence 1 November 1999. TransCanada further submitted that deliveries related to Enron Capital & Trade Resources Canada Corp. ("Enron") to St. Clair, Michigan will not require any additional facilities on Great Lakes since the service required by Enron will involve back-haul transportation.

TQM

TQM's PNGTS Extension was recently approved by the Board for service commencing 1 November 1998 from Lachenaie, Quebec to East Hereford, Quebec. TransCanada indicated that the PNGTS Extension has sufficient capacity to accommodate the service requested by Gaz Métropolitain and Company, Limited Partnership ("Gaz Métropolitain") and Androscoggin Energy LLC ("Androscoggin").

PNGTS

TransCanada stated that PNGTS has received all required regulatory authorizations and that PNGTS was expected to commence service on 1 November 1998. Additional capacity on PNGTS is not required to accommodate the Androscoggin project.

4.4 New Domestic Services

The proposed facilities are supported by seven domestic projects which require incremental service totalling 1 971.7 $10^3m^3/d$ (69.6 MMcfd), or 64 percent of the total 3 085.0 $10^3m^3/d$ (108.9 MMcfd), of new firm service from Empress. Refer to Tables 4-2 and 4-3.

4.5 New Export Services

The proposed facilities are supported by three new export projects which require incremental service totalling 1 113.3 $10^3m^3/d$ (39.3 MMcfd) or 36 percent of the total new firm service from Empress. Refer to Tables 4-2 and 4-3.

Views of TransCanada

TransCanada submitted that it relied on the best available information and that its requirements, which are supported by precedent agreements ("PAs"), justify the proposed facilities. TransCanada stated that it would convert all of the remaining PAs to FT service contracts, when questioned whether or not it would do so given the uncertainty related to the level of Alternative Mechanism requirement.

TransCanada submitted that the WCSB will continue to be a competitive source of natural gas supply and that TransCanada's system will continue to provide competitive transportation service to the markets it serves. TransCanada stated that, because of its concern regarding contract renewals, it recognizes that it must continue to offer valuable services in order to remain competitive and fully utilized.

Table 4-3
Summary of Underpinning Projects

Shipper (Domestic)	Volume ($10^3m^3/d$)	Volume (MMcfd)	Delivery Area	Supply	Market
Centra Gas Ontario Inc. ("Centra") Centra Centra Union Gas Limited ("Union")	175 68 156 567	6.2 2.4 5.5 20.0	Northern Sault St. Marie Eastern Central	Portfolio of gas supply contracts used to meet requirements. Union/Centra will use a competitive tendering process to procure additional supply. The service requests are further supported by a macro supply/demand forecast.	Normal market growth in Union/Centra's Eastern Canadian franchise area.
Ontario Hydro	283	10.0	Eastern	Master Gas Purchase and Sale Agreement with its supplier, Petro-Canada, for a 10-year term. Petro-Canada's uncontracted Alberta gas supply was submitted as evidence.	Required to convert two of the Lennox Generating Station's 550 MW units to burn natural gas as well as oil.
Gaz Métropolitain and Company, L.P. ("Gaz Métropolitain")	643	22.7	Eastern	Gaz Métropolitain's core market requirements will be supplied via a combination of an existing supply contract and an RFP process. The remainder of the requested capacity is for industrial use. The industrial market is responsible for acquiring its own supply.	Normal market growth in Gaz Métropolitain's franchise area
Toyota Motor Manufacturing North America, Inc. ("Toyota")	78	2.8	Central	Executed Gas Sales/Purchase Contract with Alliance Energy Services Partnership ("Alliance"), for a 10-year term. Alliance Energy submitted Conoco Canada Limited's ("Conoco") Alberta Corporate Supply pool as evidence. Alliance and Conoco have formed a general partnership.	Gas to be utilized by Toyota at its plant in Cambridge, Ontario.
Total Domestic	**1 792**	**69.6**			

Table 4-3 (continued)					
Shipper (Export)	**Volume ($10^3m^3/d$)**	**Volume (MMcfd)**	**Delivery Area**	**Supply**	**Market**
City of Duluth	184	6.5	Emerson II	Executed Draft Term Sheet with ProGas Limited (“ProGas”) for a term of 10 years. ProGas will be supplying the gas for its requirements, including this project, from its producer supported supply pool.	Required by the City of Duluth LDC system to satisfy long-term market requirements.
Enron Capital & Trade Resources Canada Corp. ("Enron")	567	20.0	St. Clair	Executed Master Firm Gas Purchase/Sale Agreement and Confirmation Letter with PanCanadian Petroleum Limited for a term of 10 years.	Enfolio Master Firm Purchase/Sales Agreement and Confirmation Letter with Enron Capital & Trade Resources Corp. ("ECTR"), a U.S. affiliated company; required as part of ECTR’s overall corporate supply portfolio to serve approximately 10 Bcfd of commitments.
Androscoggin Energy LLC ("Androscoggin")	363	12.8	East Hereford	Executed Gas Sales Agreements with Beau Canada Exploration Ltd., Producers Marketing Ltd., Renaissance Energy Ltd., Rio Alto Ltd. and Alta Gas Services Inc. for terms of 10 years. Supply incorporated by reference from the GH-2-97 proceeding. Supply has been examined in both the GH-2-97 and GHW-1-97 proceedings.	Androscoggin’s 150 MW cogeneration facility in Jay, Maine will produce and sell electricity and thermal power to International Paper Company pursuant to an Energy Service Agreement; this volume represents an additional requirement to the original 1997 service request for 895 $10^3m^3/d$ (31.6 MMcfd), for which service is to commence 1/11/98; any remaining electrical power will be sold to the New England Power Pool and to wholesale buyers.
Total Export	**1 113**	**39.3**			

Note: 1) 1 November 1999 commencement and a ten-year term.

2) Numbers may not add due to rounding.

TransCanada acknowledged that there was a level of uncertainty in its requirements related to the renewal of existing FT service contracts. However, TransCanada contended that the 1999 incremental requirements have been verified by a capacity relinquishment open season and by responses from shippers to TransCanada's early renewal notice request. TransCanada noted that no shipper had indicated that it planned to terminate transportation service contracts.

With respect to Union's reduced PA service requirement and the termination of the PA between TransCanada and CoEnergy, referred to in Section 2.2, Alternative Mechanism, TransCanada stated that it had decided not to pursue the original PA obligations. TransCanada contended that it decided to adjust design requirements, prior to expanding its system, rather than possibly ending up with excess capacity. TransCanada noted that Union is a large customer with some service volumes under one-year contracts. These contracts require only six months notice to be terminated. TransCanada submitted that if it had insisted upon Union maintaining the original PA obligation, Union could simply have reduced its total capacity commitment by giving termination notice in respect of some of its short-term capacity. TransCanada further noted that CoEnergy could have assigned its capacity to other shippers with existing short-term capacity and these shippers, in turn, could have given termination notice in respect of some of their short-term capacity. TransCanada explained that it preferred to ascertain its design requirements as early as possible in order to make adjustments as it did, rather than being notified of non-renewals only six months before the facilities are scheduled to commence service, when cancellation costs would be much higher.

TransCanada indicated that it has not foreclosed any option in respect of pursuing recourse against shippers where PAs have been terminated subsequent to the original application.

Views of Other Parties

The projects underpinning the proposed facilities were unchallenged. CAPP, PanCanadian and Union supported the proposed facilities, subject to various comments and concerns.

CAPP indicated that the termination of some PAs raises questions about the nature of PAs, particularly where costs have been incurred by TransCanada in reliance on the PAs. CAPP submitted that this is a Part IV matter and, therefore, should be discussed by parties when TransCanada makes a request to recover the cost of cancelled facilities.

Consumers submitted that it was not satisfied that the proposed set of facilities were optimal to serve the underpinning requirements. With respect to Union's reduced service requirement and the termination of the PA between TransCanada and CoEnergy, Consumers argued that TransCanada's planning process is inadequate given the changing market environment. Consumers suggested that the Board should adjust the way in which it evaluates TransCanada's facilities applications to ensure that expansions are economic and optimal.

Union submitted that it would be reasonable for the Board to require, as a certificate condition, that TransCanada execute FT service contracts with all of the shippers whose projects underpin the expansion capacity, which includes both the 3 059 $10^3m^3/d$ (108 MMcfd) of capacity to be provided by the proposed facilities and the 737 $10^3m^3/d$ (26 MMcfd) of capacity to be obtained via the Alternative Mechanism.

Views of the Board

The Board is satisfied with TransCanada's supply and market forecasting methodologies and its approach to independent verification of the information furnished by prospective shippers. The Board is generally satisfied with the gas supply arrangements outlined for domestic and export shippers. The Board finds that the project-specific supply information is sufficient to make a determination that adequate natural gas supply exists to support the long-term utilization of the pipeline.

The Board is satisfied that the capacity required by Union and Gaz Métropolitain of 966.0 $10^3m^3/d$ (34.1 MMcfd) and 643.1 $10^3m^3/d$ (22.7 MMcfd), respectively, reflects normal market growth within their franchise areas. The Board, accordingly, has not required detailed gas supply information in support of Union's and Gaz Métropolitain's services.

The Board finds that the new domestic and export transportation projects are sufficiently advanced, with respect to gas supply, upstream and downstream transportation arrangements, gas purchase and gas sales arrangements, and the securing of Canadian and U.S. regulatory approvals, to support TransCanada's facilities design.

The Board is of the view that the termination, postponement or reduction of some PAs between TransCanada and potential shippers raises some doubt concerning the reliability of PAs. The Board notes CAPP's suggestion that this matter should be discussed by TransCanada with interested parties in an effort to resolve future uncertainty related to its PAs, particularly with respect to costs incurred by TransCanada in reliance on PAs. The Board is of the view that TransCanada acted appropriately in deciding to adjust its design requirements early in the expansion process, rather than pursuing the original PA obligations and possibly receiving notice of the non-renewal of contracts six months prior to the scheduled commencement of service.

With respect to Union's request for the Board to require TransCanada to execute FT service contracts with all of the shippers whose projects underpin the expansion capacity to be provided by both the proposed facilities and the Alternative Mechanism, the Board notes that TransCanada confirmed that it would execute all of the FT service contracts related to the total incremental service requirements. However, in light of the uncertainty with respect to TransCanada's renewals and noting TransCanada's proposed winter construction program, the Board is concerned that the proposed facilities could provide capacity in excess of TransCanada's requirements should some existing FT service contracts be terminated in the spring of 1999. The Board is of the view that it is necessary to condition any certificate granted to ensure that the proposed facilities, if approved, are used efficiently over the long term and to ensure that all of the underpinning PAs are converted to FT service contracts.

The Board is of the view, in the present case, that the project and service requirements that underpin the expansion capacity represent a total of 4 577.9 $10^3m^3/d$ (161.6 MMcfd) of incremental requirements, including volumes of 3 085.0 $10^3m^3/d$ (108.9 MMcfd) related to new services commencing 1 November 1999 and

1 492.9 $10^3m^3/d$ (52.7 MMcfd) related to energy conversion. For the purpose of the certificate condition, the Board finds that the 470.3 $10^3m^3/d$ (16.6 MMcfd) of service requirements, associated with small volume and early services, should be excluded from the total underpinning volume as these services commenced in November 1997 and November 1998, under ten-year FT service contracts.

The Board will, accordingly, condition any certificate granted to require TransCanada to demonstrate:

- with respect to the 3085.0 $10^3m^3/d$ (108.9 MMcfd) related to new firm service, that the firm transportation service contracts have been executed; and

- with respect to existing firm service, that the firm transportation service contracts have been amended to reflect the energy conversion requirements.

Words to this effect are contained in Condition 12 in Appendix II to these Reasons, to be included in any certificate granted. This condition has been modified from the certificate condition typically included in certificates issued by the Board with respect to TransCanada's recent facilities applications.

The Board is satisfied that this condition will ensure that only firm requirements underpin the construction of new facilities. However, if the facilities are certificated, and should TransCanada request relief from this condition, TransCanada will be placed at risk for the recovery of any unpaid demand charges related to any unconverted underpinning PAs and to energy conversion capacity.

Chapter 5

Facilities

5.1 Specific Facilities

The proposed facilities included in TransCanada's revised 1999 Facilities Application consist of 156.1 km of pipeline looping, four 28.3 MW turbocompressor units (at Stations 2, 30, 58, and 112), one aftercooler at Station 2, manifolding at Station 88, aero assemblies and spares. The estimated total capital cost of the applied-for facilities is $402.9 million (1998 dollars). Details regarding the locations and costs of these facilities are provided in Figure 5-1 and Table 5-1, respectively.

TransCanada proposed to construct 90.3 km of pipeline looping on the Central Section in the winter of 1998-1999 and 11.5 km of looping on the North Bay Shortcut in either the winter of 1998-1999 or the summer of 1999. The remainder of the facilities would be constructed in the summer of 1999. The planned in-service date of the proposed facilities is 1 November 1999. The facilities which TransCanada proposed to construct in winter are as follows.

Central Section	Line 100-4	MLV 46 + 5.6 km to MLV 47 MLV 71 + 5.8 km to MLV 72 MLV 83 to MLV 84 MLV 88 to MLV 89
North Bay Shortcut	Line 100-4	MLV 1205 to MLV 1205 + 11.5 km[1]

TransCanada indicated that the proposed facilities would not be sufficient to meet its current forecast of aggregate requirements as of 1 November 1999, and proposed to meet the balance of its requirements by way of the Alternative Mechanism.

TransCanada submitted that the design and construction of the proposed facilities would be in accordance with the Board's *Onshore Pipeline Regulations*, the requirements of the Canadian Standards Association Z662-96, *Oil and Gas Pipeline Systems*, and TransCanada's Standards and Specifications on file with the Board.

5.2 Appropriateness of Design

In determining the optimum facilities for the proposed expansion of the Western and Central Sections, TransCanada indicated that it uses a computer program called OPTO to generate feasible design alternatives on the Western and Central Sections. This program also selects the most economic combination of facilities by considering a balance between pipeline looping and compression. TransCanada does not use OPTO for the design of new facilities in the Barry/North Bay Shortcut/ Montreal Line triangle.

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[1] TransCanada indicated that the decision on when to construct this loop would be based on the prices received from the contractors for construction during the winter tender period, and would also be based on confirmation through the permitting process that all environmental concerns have been mitigated.

Figure 5-1
TransCanada PipeLines Limited
Location of Proposed Facilities

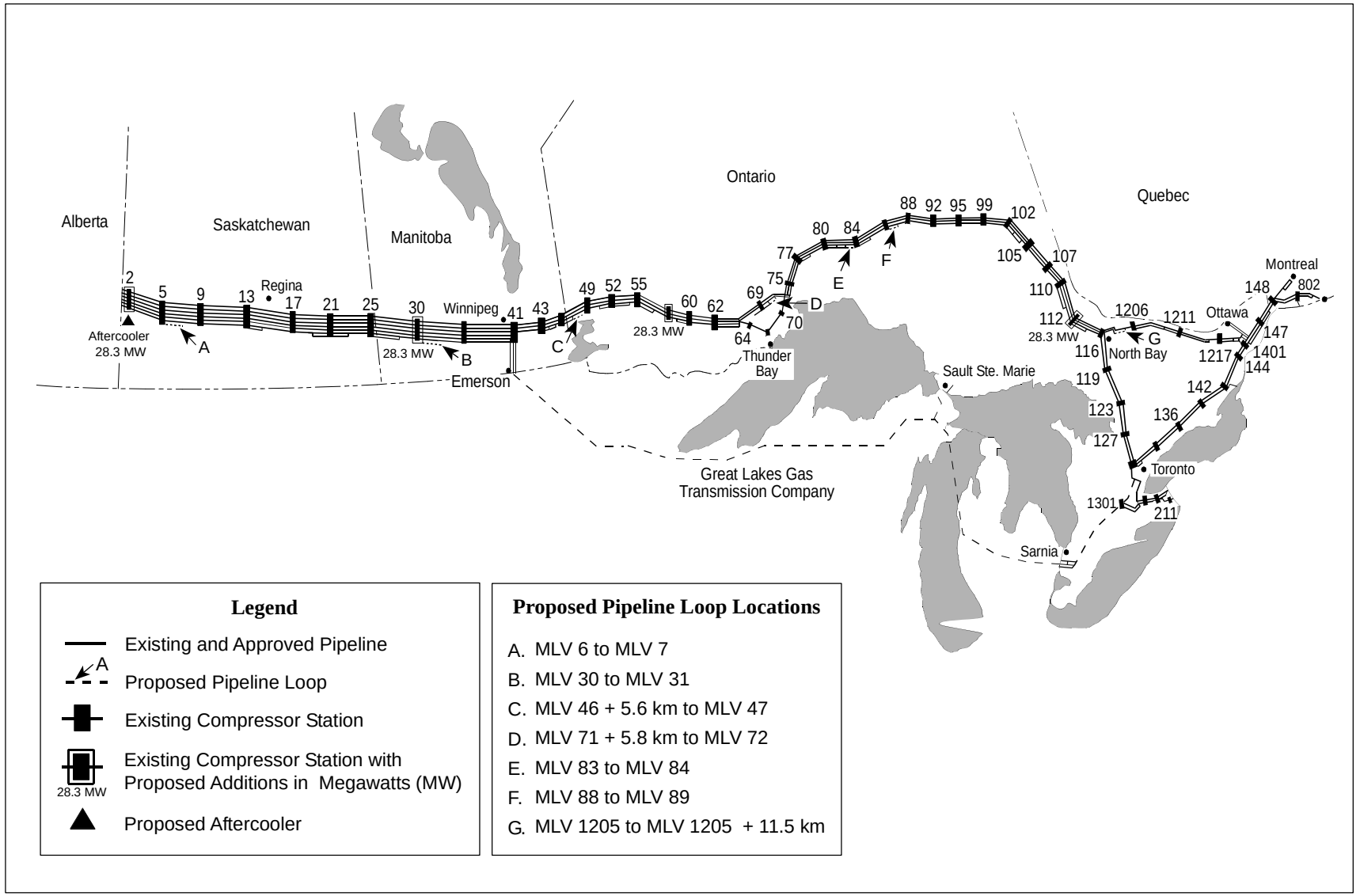

Table 5-1
Description and Estimated Cost of the Proposed Facilities

Line	Location	Length (km)	Direct Cost ($000)
Western Section			
100-7	MLV 6 to MLV 7	29.3	31,588
100-7	MLV 30 to MLV 31	25.0	29,086
Central Section			
100-4	MLV 46 + 5.6 km to MLV 47	22.8	39,138
100-4	MLV 71 + 5.8 km to MLV 72	18.6	26,297
100-4	MLV 83 to MLV 84	19.1	27,918
100-4	MLV 88 to MLV 89	29.8	47,386
North Bay Shortcut			
1200-2	MLV 1205 to MLV 1205 + 11.5 km	11.5	19,336
	Total Pipeline	156.1	220,749

Compressor Plant Additions and Piping Modifications	**Power**	**Direct Cost ($000)**
Western Section		
Station 2J	28.3 MW	33,738
Station 30E	28.3 MW	30,295
Aftercooler Unit at Station 2J		10,034
Standby Plant and Spares		250
Central Section		
Station 58C	28.3 MW	29,187
Station 112C	28.3 MW	30,536
Manifolding at Station 88		1,055
Standby Plant and Spares		7,250
1 - Aero Assembly		710
Total Compression and Piping Modification		143,055
Total Direct Costs (Pipeline, Compression and Piping Modifications)		363,804
Associated Indirect Costs		39,092
Total Capital Cost		**402,896**

The design alternatives generated using the OPTO program for the Western Section included two cases. The first case, referred to as a balanced design case, consisted of two compressor units, one aftercooler and 54.3 km of pipeline looping. The second case was a compression-intensive design with four compressor units and one aftercooler. The design alternatives generated using the OPTO program for the Central Section included three cases. The first case was a balanced design case with two compressor units and 86.3 km of looping. The second case was a loop-intensive case that consisted of 180.6 km of looping, and the third case was the compression-intensive case with four compressor units and 54.0 km of looping. TransCanada selected the balanced design cases as the optimum designs for both the Western and Central Sections, since they result in the lowest capital cost and the lowest present worth of the incremental annual owning and operating costs.

After the optimum theoretical facilities were identified, TransCanada adjusted the design to reflect practical operating considerations. In some cases, loop lengths were extended so that the pipe sections could be tied into the existing system at appropriate locations. In other cases, the theoretical design was refined to allow compressor stations to discharge at pressures lower than the maximum allowable operating pressure, which resulted in less upstream looping requirements. Another design adjustment was TransCanada's proposed installation of 28.3 MW standard size compressor units, allowing for accessibility to spare parts and standby plants. Design adjustments were also included to account for pipe cancellation charges and the use of the 54 km of 1 219 mm (48 inch) diameter pipe purchased in 1997.

TransCanada indicated that its 1999 Facilities Application did not include a flow-split analysis on the Great Lakes system because Great Lakes would not be able to construct additional facilities to commence service for November 1999. TransCanada noted, however, that after performing a flow-split analysis in the fall of 1997, construction through Northern Ontario was determined to be the most economic alternative.

Views of TransCanada

TransCanada submitted that on 1 June 1998 the cancellation cost for the 526 km of pipe, as originally proposed, would have been $108 million. In the 22 July 1998 revision to its application, TransCanada indicated that it had reduced the requirement for pipe by 420 km which, in accordance with the contracts with the pipe mills, could have resulted in a cancellation cost of approximately $87 million. Through discussions and negotiations with the pipe mills, the cancellation cost was reduced to $9.9 million, included as part of the capital cost in TransCanada's 1999 Facilities Application.

In its application, TransCanada proposed the installation of 54.3 km of pre-purchased 1 219 mm (48 inch) diameter pipe, the acquisition of which had been approved by the Board in the GH-2-97 proceeding. TransCanada clarified that in September 1997, shortly before the GH-2-97 hearing, one of the shippers cancelled its request for service. TransCanada, accordingly, reduced the amount of looping proposed in its 1998 Facilities Application by approximately 54 km, the length of two proposed loops on the Western Section. TransCanada, however, did not cancel the order with the pipe mill because it anticipated that pipe mill space would be scarce, that pipe prices would increase in 1998 and that the 54 km of pipe would subsequently be utilized in facilities replacements or expansions.

TransCanada submitted that the optimum theoretical design generated using OPTO for the revised TransCanada's 1999 Facilities Application included a total of 54.3 km of pipe in two loops on the

Western Section, and that the 54 km of 1 219 mm (48 inch) diameter pipe purchased in 1997 would be used for these two loops. TransCanada indicated that no facility expansion scenario offered a better design alternative than the one which took advantage of the relatively inexpensive 54 km of pipe for the Western Section and facilities downstream that would be required to make use of the hydraulic capacity of this new loop.

TransCanada submitted that as a result of purchasing the 54 km of pipe in 1997 the net cost saving to shippers is about $4.2 million. This net cost saving includes the increase in pipe prices for 1998 and the cost of freight, since the pipe available for purchase in 1998 would have been manufactured by different pipe mills.

Views of Other Parties

Consumers was of the view that the OPTO program played very little role, if any, in choosing the optimum facilities design on TransCanada's Western Section. Consumers submitted that the 54 km of pre-purchased pipe and TransCanada's liability for additional cancellation charges were the primary factors that influenced its final facilities design decision by dictating the minimum level of facilities that was proposed. Consumers submitted that TransCanada's decision regarding the appropriate level of capacity to be acquired through the Alternative Mechanism was also influenced by these two factors.

Consumers suggested that TransCanada should have put all the available options on the table at the start of its decision making process, including options that comprised less than the minimum set of facilities dictated by the pre-purchased pipe and the exposure to future cancellation charges.

Views of the Board

The Board notes Consumers' position that the OPTO program does not appear to have played a significant role in determining the appropriate design facilities to be built on TransCanada's Western and Central Sections. The Board, however, also notes TransCanada's assertion that various design alternatives were considered and that the design which included the 54 km of pipe was a superior design to any other design alternative for providing the incremental capacity.

The Board is of the view that issues related to TransCanada's actions with respect to pipeline cancellation costs, and whether or not these cancellation costs should be permitted in the company's cost of service, is a Part IV matter under the NEB Act and will therefore be subject to examination in a future Part IV proceeding.

The Board finds that TransCanada's proposed facilities design is appropriate for the expansion of TransCanada's system at this time.

The Board is satisfied, with the inclusion in any certificate granted of the conditions listed in Appendix II to these Reasons, that all design and construction activities will comply with the applicable standards and regulatory requirements.

5.3 Retirement of Compressors

TransCanada proposed to retire the Station 2 "A" Plant, Units 1 to 4 (TLA-10 type, 2.7 MW each) and Units 5 and 6 (GMWC-10 type, 2.5 MW each) during the 1999-2000 operating year, as these units incur higher operating costs and produce higher emission levels in comparison to modern units. In this regard, TransCanada indicated that these units currently produce NO_x emissions between 4 500 and 5 600 g/GJ compared to 140 g/GJ for the proposed replacement unit.

TransCanada proposed that these retirements be treated as "ordinary retirements" in accordance with the *Gas Pipeline Uniform Accounting Regulations* ("GPUAR").

Views of the Board

The Board accepts TransCanada's rationale for retiring the above-noted compressor units. The Board finds that the proposed compressor unit retirements fall within the guidelines set out under section 39 of the GPUAR and, accordingly, may be treated as "ordinary retirements" in the event that a certificate is granted.

5.4 Exemption from the Leave to Open Provisions of the NEB Act

TransCanada requested exemption, pursuant to section 58 of the NEB Act, from the provisions of section 47 of the NEB Act in respect of the requirements for leave to open for the applied-for looped sections of the pipeline.

Views of the Board

In the event that a certificate is granted, the Board will exempt TransCanada's proposed looping facilities from the provisions of section 47 of the NEB Act, with the exception of looping in Class 3 locations as described in subsection 4.3.2 of Canadian Standard Association Z662-96, *Oil and Gas Pipeline Systems.*

Chapter 6

Land Use, Environmental and Socio-Economic Matters

6.1 Route Selection and Land Requirements

6.1.1 Route Selection

TransCanada proposed to construct seven pipeline loop sections, one in Saskatchewan, one in Manitoba, and five in Ontario. The locations, lengths and land requirements for the proposed loops are shown in Table 6-1. The proposed looping is contiguous to TransCanada's existing rights-of-way with the exception of four short departures from the rights-of-way. These departures, referred to in TransCanada's application as "deviations from the existing right-of-way", are described in Section 6.1.3.

6.1.2 Land Requirements

Station Facilities

TransCanada proposed the installation of four new turbocompressor units at its existing stations at Burstall, Saskatchewan; Rapid City, Manitoba; Ignace, Ontario; and Marten River, Ontario. The construction of the station facilities would take place on TransCanada's fee simple lands and no additional lands are required for construction and operation of the station facilities.

Easements

TransCanada requested approval of new permanent right-of-way for the looping. The new right-of-way will be from 10 to 30 metres wide and located adjacent to the existing right-of-way except as noted in Section 6.1.3. The proposed looping from MLV 1205 to MLV 1205 + 11.5 km would be constructed within the existing right-of-way and therefore additional new right-of-way is not required for this section of looping.

Temporary Work Space

TransCanada requested approval for temporary work space for machinery movement, storage of topsoil and subsoil and for consideration of environmental, landowner and tenant interests. The temporary workspace would be adjacent to the new and existing rights-of-way and would range in width from 10 to 30 metres.

Table 6-1
Land Requirements

Location	Length (km)	Permanent Easement Width (m)	Permanent Easement Length (km)	Temporary Workspace Width (m)	Temporary Workspace Length (km)
Saskatchewan - 7th Loop					
MLV 6 to MLV 7	29.3	20	29.3	20	29.3
Manitoba - 7th Loop					
MLV 30 to MLV 31	25.0	20	25	20	25
Ontario - 4th Loop					
MLV 46 + 5.6 km to MLV 47	22.8	10/15/20/30	22.8	10	22.8
MLV 71 + 5.8 km to MLV 72	18.6	10/15	18.6	10	18.6
MLV 83 to MLV 84	19.1	15/30	19.1	10	19.1
MLV 88 to MLV 89	29.8	15/20/30	29.8	10/15	29.8
Ontario - 2nd Loop					
MLV 1205 to MLV 1205 + 11.5 km	11.5	10	11.5	20	11.5

6.1.3 Departures from Existing Rights-of-Way

MLV 30 to MLV 31 (Manitoba)

TransCanada proposed two departures from the existing right-of-way in Manitoba in order to avoid farmyards. These would occur from MLV 30 + 7.2 km to MLV 30 + 8.9 km and from MLV 30 + 11 km to MLV 30 + 13.4 km. TransCanada stated that it has been conducting detailed field work from the time that the crops were harvested from these lands and that it has been working with the landowners to assess mitigative measures to reduce impacts from the proposed looping.

MLV 46 to MLV 47 (Ontario)

TransCanada proposed a departure from the existing right-of-way from MLV 46 + 15.1 km to MLV 46 + 17.1 km in Ontario in order to avoid a concentration of registered archaeological sites and to address additional concerns related to construction. TransCanada explained that there are two archaeological sites that would be encountered if this portion of the loop were constructed adjacent to the existing right-of-way. Furthermore, there would be insufficient room for construction of the loop adjacent to the existing right-of-way because of the proximity to Lake of Two Mountains. This proposed departure from the existing right-of-way would address these two concerns.

MLV 83 to MLV 84 (Ontario)

TransCanada proposed a departure from the existing right-of-way from MLV 83 + 10.8 km to MLV 83+ 12.8 in order to avoid reaches of Hoiles Creek that are proximate to the existing right-of-way.

Views of the Board

The Board finds that the proposed looping facilities and requirements for easements and temporary work space adjacent to existing easements are appropriate, and approves the general routes submitted by TransCanada.

The Board notes that the proposed rights-of-way are not contiguous with the existing rights-of-way for their entire lengths due to environmental, construction or land use reasons, and accepts the reasons for TransCanada's proposed departures from the existing rights-of-way.

6.1.4 Requirements of the NEB Act in Respect of Routing of New Pipeline Facilities

Subsection 33(1) of the NEB Act requires that, where the Board has issued a certificate of public convenience and necessity to a company, the company shall submit the plans, profiles and books of reference ("PPBoR") of the pipeline to the Board. The PPBoR describes the detailed route of the pipeline, the lands to be crossed and the details of land ownership. Paragraphs 31(c) and 31(d) of the NEB Act require that no company shall begin construction of a pipeline unless a PPBoR of the section or part of the proposed line have been approved by the Board, and copies have been deposited in the appropriate land titles offices along the route of the pipeline.

In its application, TransCanada requested exemption under section 58 of the NEB Act from the requirements of paragraphs 31(c), 31(d) and section 33 of the NEB Act. TransCanada indicated that it would comply with the condition requiring it to demonstrate to the Board that all required land rights has been obtained along the entire loop section. In the event that all the rights could not be obtained, TransCanada would demonstrate that the rights of the landowners for those portions of the loop section where the land rights have not been obtained will not be prejudiced by construction of the loop section.

Views of the Board

The Board recognizes the rights of those landowners whose land would be crossed by the proposed facilities. The Board also recognizes the potential problems for TransCanada if it is not able to obtain all the necessary land rights for the proposed facilities construction. The Board would therefore grant the requested exemption subject to the condition that construction can only commence when TransCanada has obtained all the required land rights along any specific loop section. In the event that the land rights have not been obtained, TransCanada shall be required demonstrate to the satisfaction of the Board that the landowner's rights, as prescribed in the NEB Act, will not be prejudiced. The Board considers the wording of the exemption order condition proposed by TransCanada, included in Appendix II to these Reasons, to be

satisfactory. The condition protects the rights of landowners while it allows TransCanada flexibility in proceeding with the right-of-entry process.

With respect to TransCanada's request for exemption from the requirements of paragraphs 31(c), 31(d) and section 33 of the NEB Act, the Board has considered the rights of adjacent landowners who might be affected by the construction of the proposed facilities. The Board is of the view that as the construction would be either adjacent to existing easement or would depart from the existing right-of-way for short distances, it is unlikely that those landowners would be adversely affected in the long term by the construction and operation of the proposed facilities.

Upon issuance of a certificate, the Board would grant TransCanada exemption from the provisions of paragraphs 31(c), 31(d) and section 33 of the NEB Act, with respect to the acquisition of land rights, subject to the exemption order condition included at the end of Appendix II to these Reasons.

6.2 Public Concerns

During the GH-3-98 proceeding, comments and concerns regarding land use, environment and socio-economic matters were expressed by Ms. Downey, the Treaty 4 Task Force ("Treaty 4"), the Aboriginal Resource Consortium ("ARC") and the Constance Lake First Nation ("CLFN").

6.2.1 Ms. Downey

Counsel for Ms. Downey indicated that his client was concerned about the potential adverse effects of construction of the proposed facilities on her log cabins and her residence, which are located on the north shore of Lydia Lake. He stated that Ms. Downey's buildings had previously sustained damage which she believes was caused by construction of TransCanada's Line 100-3. At the closest point, these buildings are located approximately 300 m south of the proposed pipeline construction. Counsel for Ms. Downey questioned TransCanada regarding the likelihood that TransCanada's blasting operations would cause damage to Ms. Downey's log cabins, and asked TransCanada what it would do if any problems occurred as a result of the blasting operations.

TransCanada stated that it would retain a structural and blasting consultant to conduct a pre-construction inspection of Ms. Downey's property, to carry out continual monitoring during blasting activities, and to conduct a post-construction inspection of her property following the completion of blasting activities. TransCanada submitted that blasting operations would be strictly controlled because of the proximity of its existing pipelines. TransCanada committed to rectify any damage that might occur to Ms. Downey's property as a result of blasting activities.

6.2.2 Treaty 4 Task Force

Treaty 4 stated that it did not object to TransCanada's proposed facilities, but wished to promote First Nations employment and participation in the construction of the facilities. Treaty 4 submitted that it is the responsibility of the Board to establish employment targets and guidelines for First Nations involvement in the oil and gas pipeline construction industry. It submitted that a target of 10 to 12 percent representation by First Nations in the pipeline construction industry workforce would

be appropriate. Treaty 4 subsequently indicated that it had reached agreement with TransCanada on a process for the consideration of First Nations for 1999 facilities construction contracts.

TransCanada stated that it is developing an Aboriginal policy, that it had consulted with First Nations, and that the views obtained from that consultation were incorporated into the 1999 Facilities Application. TransCanada also confirmed that it entered into an agreement with Treaty 4 on a process for consideration of First Nations in construction contracts.

6.2.3 Aboriginal Resource Consortium

ARC expressed concern regarding contract opportunities for First Nations in TransCanada's facilities construction. It submitted that there has been a historical disadvantage that has prevented Aboriginal businesses from meaningful participation in construction contracts. ARC stated that Aboriginal people and contractors should be entitled to participate in the construction and restoration phases of oil and gas pipeline development as a matter of right. ARC expressed support for the project, subject to First Nations involvement in meaningful contract opportunities.

ARC requested that the Board include a condition in any certificate granted with respect to the Application such that "TransCanada Pipelines must ensure meaningful inclusion of qualified Aboriginal contractors in the construction of its mainline and related facilities which impact Aboriginal lands". The condition would further require that TransCanada file with the Board copies of its plan for Aboriginal inclusion. ARC also requested that the condition require TransCanada to provide an indication of tenders awarded to Aboriginal contractors and an explanation where Aboriginal Contractors were not successful in the tender process. ARC also expressed a concern that there had not been adequate consultation with the Makominising Anishnabeg community regarding access to TransCanada's Station 112, located at Marten River.

TransCanada contended that it should not be required to specify First Nations contractors in its bidding process. TransCanada indicated that it planned to bid the work competitively to those contractors who are pre-qualified and that it would award contracts to the best commercial and technical tender. TransCanada further indicated that it is receptive to the involvement of First Nations contractors provided that they meet TransCanada's standards.

6.2.4 Constance Lake First Nation

CLFN stated that the scope of its interest in the GH-3-98 proceeding included environmental impact review, social impact review, archaeological impact review and the economic development opportunities that may be available to CLFN. CLFN appeared at the hearing to state that it had reached an agreement with TransCanada regarding construction between MLV 88 and MLV 89. TransCanada confirmed that it had entered into this agreement.

Views of the Board

The Board notes the concerns of Treaty 4, ARC and CLFN with respect to the involvement of First Nations in oil and gas resource development and pipeline projects. The Board notes that the First Nations were supportive of the TransCanada facilities expansion subject to their involvement in construction opportunities and that Treaty 4 and CLFN have reached agreement with TransCanada on a protocol for

including First Nations in the construction contract process. The Board further notes that TransCanada considers the agreement as an undertaking to be complied with under the requirements of proposed certificate Condition 3, included in Appendix II to these Reasons.

The Board considers this to be an important issue and will require, as a condition in any certificate granted, that TransCanada report to the Board on the progress of the development and implementation of its Aboriginal Policy, and on any negotiations with Treaty 4, CLFN and ARC.

The Board notes that TransCanada has entered into two arrangements with First Nations and has indicated that it is in the process of developing a policy in this regard. The Board finds that it is not appropriate to require TransCanada to develop employment and contracting guidelines at this time.

The Board notes the concerns of Ms. Downey regarding TransCanada's blasting operations. The Board notes that TransCanada would pay particular attention to these concerns. The Board finds TransCanada's proposed mitigation techniques to be an appropriate means of addressing these concerns.

6.3 Environmental Matters

6.3.1 Environmental Screening Report

The Board completed an environmental screening and an Environmental Screening Report ("the Report") pursuant to the CEAA and the Board's regulatory process. The Board provided copies of the Report to those federal agencies that provided specialist advice on the proposed project, to provincial regulatory agencies that submitted letters of comment, to parties referenced in the Report, and to TransCanada. The Report provides information regarding the environmental conditions to be included in any certificate granted. The conditions are included in Appendix II to these Reasons.

The Board has considered the Report and comments received on the Report in accordance with the GH-3-98 Directions on Procedure and is of the view that, taking into account the implementation of the proposed mitigative measures and the requirements of the attached conditions, the work proposed in TransCanada's 1999 Facilities Application is not likely to cause significant adverse environmental effects. This constitutes a decision pursuant to paragraph 20(1)(a) of the CEAA, which was taken prior to making a decision under Part III of the NEB Act in respect of the applied-for facilities.

The CEAA determination and a summary of the comments received are included in Section 6 of the Report. Copies of the comments received have been added as Appendix 5 to the Report. Copies of the Report are available upon request from the Board's Regulatory Support Office.

6.3.2 Minister of Energy, Science and Technology for Ontario

By letter dated 1 September 1998, the Minister of Energy, Science and Technology for Ontario asked TransCanada if it would agree to be bound by the Undertakings to the Ontario Pipeline Coordination Committee ("OPCC") submitted in the GH-3-98 proceeding. TransCanada acknowledged, in its

response dated 29 September 1998, that it would abide by the Undertakings to the OPCC. The list of these undertakings is included in Appendix 2 to the Report.

Views of the Board

While the Board encourages and supports agreements between other regulatory agencies and pipeline companies, the Board notes that such agreements or undertakings do not involve the Board. Where the public interest is served, however, the Board may reference the subject matter of such undertakings in the Report. The Board notes that in this proceeding TransCanada has agreed to be bound by its undertakings to the OPCC.

6.3.3 Saskatchewan Environment and Resource Management ("SERM")

In its letter of comment dated 21 September 1998, SERM identified concerns regarding air quality, seed mixes, introduction of weed species, streams and wetlands, pre-construction field surveys, regulatory requirements, and the role and authority of TransCanada's environmental inspectors. TransCanada responded to SERM's concerns by letter dated 5 October 1998. SERM's concerns and TransCanada's responses to these concerns are addressed in the Report.

TransCanada would resolve potential conflicts that may arise during final project design and construction with SERM's Grasslands (Swift Current) Region and SERM's regional contacts.

Views of the Board

The Board notes that TransCanada intends to discuss outstanding environmental issues with SERM. As well, TransCanada must respond to specific concerns with regard to authorizations issued by provincial authorities, Committee on the Status of Endangered Wildlife in Canada ("COSEWIC") species, breeding birds, seed mixes and air quality as outlined in Conditions 9, 10, 16 to 21, 28 and 29 in Appendix II to these Reasons, to be included in any certificate granted.

6.3.4 Environment Canada

Environment Canada submitted a letter of comment, dated 23 September 1998, regarding the proposed 1999 Facilities Application. Environment Canada indicated that its advice was provided to the Board in the context of specialist department information and knowledge pursuant to subsection 12(3) of the CEAA and paragraph 6(1)(c) of the *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements.*

In its letter, Environment Canada provided a summary list of 17 concerns, recommendations and observations regarding the issues of air quality, greenhouse gases, migratory birds, wildlife habitat and species of concern, water crossings, seed mixes and revegetation of disturbed areas. In a letter dated 5 October 1998, TransCanada responded to Environment Canada's letter of comment. Environment Canada's concerns and TransCanada's responses are addressed within the Report.

Environment Canada reviewed the Report and submitted comments by letter dated 13 November 1998. Environment Canada paid particular attention to those proposed certificate conditions for which the

department would have some future input. Environment Canada stated that it is generally in agreement with those portions of the Report pertaining to its interests.

Views of the Board

The Board notes that TransCanada intends to discuss any available options with Environment Canada. The results of TransCanada's discussions and consultations, with regard to the issues noted above, shall be included with the summary of discussions with federal, provincial and other permitting agencies, as referred to in Condition 6 in Appendix II to these Reasons, which will be included in any certificate granted. As well, TransCanada must respond to specific concerns with regard to COSEWIC species, breeding birds, seed mixes and air quality as outlined in Conditions 9, 10, 15 to 21, 28 and 29 in Appendix II to these Reasons, to be included in any certificate granted.

6.3.5 Department of Fisheries and Oceans ("DFO"), Manitoba and Saskatchewan Area

DFO, Saskatchewan and Manitoba Area, submitted a letter of comment dated 16 September 1998 in which specialist advice was provided to the Board pursuant to the CEAA. DFO concluded that, in general, TransCanada has proposed appropriate "dry" crossing techniques and mitigative measures. DFO also recommended nine specific mitigation measures for further certainty and clarification. In its response to DFO, TransCanada confirmed that these mitigative measures would be implemented for the work proposed in the 1999 Facilities Application.

Views of the Board

The Board notes that TransCanada will implement the nine specific mitigative measures recommended by DFO, Manitoba and Saskatchewan Area. Furthermore, TransCanada must respond to specific concerns with regard to fish and fish habitat as outlined in Conditions 7 and 8 in Appendix II to these Reasons, to be included in any certificate granted.

6.3.6 DFO, Ontario Area

DFO, Ontario Area, submitted a letter of comment dated 29 September 1998. DFO expressed concern regarding in-water work, which is proposed to occur within timing restrictions for a number of watercourse crossings that support coldwater fisheries. DFO also expressed concern about the destruction of aquatic macrophytes during pipeline installation at crossings in warmwater systems during the winter construction period. TransCanada responded to DFO's letter of comment in a letter dated 5 October 1998. DFO's concerns and TransCanada's responses are addressed within the Report.

DFO further indicated that an authorization pursuant to subsection 35(2) of the *Fisheries Act* would be required because TransCanada proposes to use "wet" crossing techniques for some of its crossings. In addition, a *Fisheries Act* authorization pursuant to section 32 would be required for those watercourse crossings that may require the use of explosives in waters frequented by fish. A decision to issue an authorization for either *Fisheries Act* section would trigger a CEAA review and DFO would become a Responsible Authority. DFO requested that a copy of the Board's CEAA screening report be forwarded to DFO to provide assistance in completing its screening requirements.

DFO reviewed the Report and submitted comments by letter dated 4 November 1998 with respect to the environmental protection, mitigative measures and monitoring proposed by TransCanada. DFO indicated that, in general, it is satisfied with the Report and the proposed certificate conditions.

Views of the Board

The Board notes that TransCanada intends to discuss fish and fish habitat issues with DFO, Ontario Area. The results of TransCanada's discussions with regard to the issues noted above shall be included with the summary of discussions with federal, provincial and other permitting agencies referred to in Condition 6 in Appendix II to these Reasons. Furthermore, TransCanada must respond to specific concerns with regard to fish and fish habitat as outlined in Conditions 7 and 8 in Appendix II to these Reasons, to be included in any certificate granted.

Chapter 7

Economic Feasibility

The Board examines the economic feasibility of facilities by assessing the likelihood of facilities being used at a reasonable level over their economic life, and by determining whether the demand charges will be paid. In the course of its examination, the Board considers several factors, all of which were addressed in TransCanada's evidence as follows.

With respect to gas supply, TransCanada submitted a report by Sproule Associates Limited, entitled *The Future Natural Gas Supply Capability of the Western Canada Sedimentary Basin 1997-2019*. The report showed that there will likely be sufficient long-term gas supply to keep the pipeline utilized at a reasonable level over its economic life.

With respect to markets, TransCanada projected that gas demand in Manitoba, Ontario and Quebec will grow at an average annual rate of 1.8 percent over the forecast period 1996 to 2010. TransCanada estimated that gas demand in Manitoba, Ontario and Quebec will exceed current projected contracted deliveries through the TransCanada system. The construction of additional pipeline capacity beyond that applied for, imports or additional Canadian gas supplies transported on competing pipelines would be required to meet the projected shortfall.

To demonstrate the long-term nature of gas demand in the U.S. Midwest and U.S. Northeast markets served by its pipeline system, TransCanada presented several long-term gas demand forecasts which showed that annual growth rates, over the forecast period 1996 to 2010, will range between 0.87 and 1.63 percent in the U.S. Midwest and between 1.56 and 2.51 percent in the U.S. Northeast.

TransCanada submitted that it has demonstrated the economic feasibility of the proposed facilities by indicating that overall gas supply and project-specific supply are adequate and that TransCanada will continue to be a competitive transportation option in its traditional markets. Furthermore, TransCanada anticipated that the toll impact associated with its 1999 Facilities Application will not have a material impact on the demand for service on the TransCanada system.

TransCanada noted that its evidence on the economic feasibility of the proposed facilities and on the markets that it currently serves was not seriously challenged during the proceeding. Although TransCanada had only minor capacity turnback in response to its capacity relinquishment open season, and had no indication that shippers would not renew contracts that expire in 1999, it acknowledged the uncertainty of its requirements. TransCanada suggested that the Alternative Mechanism was a means of mitigating the risk associated with this uncertainty.

Views of the Board

The Board finds, on the basis of the evidence before it, that the proposed facilities are economically feasible, given the existence of long-term gas supply and demand. The Board is also satisfied that there is a strong likelihood that the facilities will be used at a reasonable level over their economic life and that the demand charges will be paid.

The Board recognizes that there is some uncertainty with respect to TransCanada's future requirements but accepts TransCanada's position that the use of the Alternative Mechanism, in this instance, is an adequate means of mitigating the risk associated with this uncertainty.

In the event that a certificate is granted, the Board is of the view that certificate Condition 12, included in Appendix II to these Reasons, will ensure that all necessary gas supply and transportation service contracts and regulatory approvals will be in place prior to the commencement of construction of the proposed facilities.

Chapter 8

Disposition

The foregoing constitutes our Reasons for Decision in respect of the application heard before the Board in the GH-3-98 proceeding. The Board is satisfied, on the evidence, that the proposed facilities are and will be required by the present and future public convenience and necessity.

The Board approves TransCanada's application made pursuant to section 52 of the NEB Act for new pipeline facilities and will recommend to the Governor in Council that a certificate be issued, subject to the conditions set out in Appendix II.

Upon issuance of a certificate, the Board will issue an order pursuant to section 58 of the NEB Act exempting each of the proposed facilities from paragraphs 31(c), 31(d), and sections 33 and 47 of the NEB Act, subject to the exemption order condition included at the end of Appendix II.

D. Valiela
Presiding Member

A. Côté-Verhaaf
Member

C.M. Ozirny
Member

November 1998
Calgary, Alberta

Appendix I

List of Issues

1. The economic feasibility of the proposed facilities.

2. The appropriateness of the design of the proposed facilities.

3. The safety of the design and operation of the proposed facilities.

4. The potential environmental and socio-economic effects of the proposed facilities, including those factors outlined in subsection 16(1) of the *Canadian Environmental Assessment Act*.

5. The appropriate terms and conditions to be included in any approval which may be granted.

6. The appropriateness of TransCanada's reliance on the Alternative Mechanism.

Appendix II

Certificate and Exemption Order Conditions

1. The pipeline facilities in respect of which this certificate is issued shall be the property of and shall be operated by TransCanada.

2. Unless the Board otherwise directs:

   (a) TransCanada shall cause the approved facilities to be designed, manufactured, located, constructed and installed in accordance with those specifications, drawings and other information or data set forth in its application, or as otherwise adduced in evidence before the Board, except as varied in accordance with subsection (b) hereof; and

   (b) TransCanada shall cause no variation to be made to the specifications, drawings or other information or data referred to in subsection (a) without the prior approval of the Board.

3. Unless the Board otherwise directs, TransCanada shall implement or cause to be implemented all of the policies, practices, recommendations and procedures for the protection of the environment included in or referred to in its application, the environmental reports filed as part of its application, its undertakings made to other government agencies, or as otherwise adduced in evidence before the Board during the GH-3-98 proceedings.

Prior to Construction

4. Unless the Board otherwise directs, TransCanada shall, at least 10 days prior to the commencement of construction of the approved 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.

5. Unless the Board otherwise directs, TransCanada shall file with the Board, at least 10 days prior to the commencement of construction, a detailed list, including job descriptions and qualifications, of the personnel who will be responsible for the inspection of the various pipeline construction operations.

6. Unless the Board otherwise directs, TransCanada shall file with the Board copies of any permits, approvals or authorizations, which contain environmental conditions, issued by federal, provincial and other permitting agencies for the applied-for facilities, along with an update list showing the status of these permits, approvals or authorizations, as they are received. In addition, TransCanada shall maintain up to date files containing any such information at relevant construction offices.

7. Unless the Board otherwise directs, TransCanada shall, at least 10 days prior to the start of construction of any watercourse crossing, file for Board approval additional on-site evaluations conducted for each watercourse crossing. These evaluations shall be conducted within 45 days prior to the start of construction and shall include:

(a) a fish and fish habitat assessment and any new mitigative measures TransCanada would implement resulting from the assessment;

(b) the assessment of the environmental impact on fish habitat and resources at the crossing site and downstream referred to in (a) shall include, without limitation, the following:

(i) the distribution of cold and warm water species;
(ii) the presence of cold and warm water species in a tributary;
(iii) the presence of spawning grounds for warm and cold water species within 100 m of a watercourse crossing;
(iv) the presence of an endangered or threatened species;
(v) the presence of a spawning migration;
(vi) a sensitive spawning and nursery habitat downstream; and
(vii) the risk of sediment transport;

(c) in respect to those watercourse crossings which have been found to be sensitive, as a result of the assessment in (b) above:

(i) the exact location and area of spawning grounds found within 100 m of the watercourse crossing;
(ii) the percentage of the spawning grounds that would be affected by construction;
(iii) the species spawning at these sites;
(iv) the egg incubation period for each species noted in (iii);
(v) the scheduled dates of construction;
(vi) the in-stream timing restrictions;
(vii) a detailed description of the construction method to be used;
(viii) sedimentation and erosion control plans;
(ix) estimates of the habitat loss and/or diminished productivity, including the destruction of aquatic macrophytes;
(x) development of a follow-up program on the productivity of the spawning grounds after construction;
(xi) site-specific mitigative and restorative measures to be employed as a result of undertakings to regulatory agencies;
(xii) evidence to demonstrate that all issues raised by regulatory agencies have been satisfactorily resolved, as well as updated environmental assessments for those areas where deficiencies were noted; and
(xiii) status of authorizations, including the wording of the environmental conditions.

8. Unless the Board otherwise directs, TransCanada shall, at least 5 days prior to the commencement of construction:

(a) provide copies to the Board of all correspondence from Department of Fisheries and Oceans and the Ontario Ministry of Natural Resources regarding the acceptability of the fishery resource assessments referred to in Condition 7; and

(b) file with the Board evidence to demonstrate that all permits or authorizations required by regulatory agencies, such as the Department of Fisheries and Oceans and the Ontario Ministry of Natural Resources, have been obtained, including a statement of concurrence and adherence to all site-specific mitigative and restorative measures and conditions related to any approvals.

9. Unless the Board otherwise directs, in the case of loops to be constructed or restored in fallow, abandoned or previously undisturbed areas during spring or summer, TransCanada shall undertake surveys for species listed by the Committee on the Status of Endangered Wildlife in Canada ("COSEWIC"), and those designated with special status under provincial legislation, in the appropriate season within 12 months prior to construction or restoration activities. The surveys shall be undertaken by a qualified wildlife biologist and shall be filed with the Board and Environment Canada upon their completion. If any of the species referred to above were found within the right-of-way by the wildlife biologist, an appropriate buffer distance shall be established for construction and construction related activities in consultation with Environment Canada wildlife experts.

10. Unless the Board otherwise directs, in the case of loops to be constructed or restored in fallow, abandoned or previously undisturbed areas during spring or summer, TransCanada shall undertake surveys of breeding birds in the appropriate season and within 12 months prior to construction or restoration activities. The surveys shall be undertaken by a qualified avian biologist and shall be filed with the Board and Environment Canada upon their completion. If active nests are found by the avian biologist within the right-of-way, they shall not be disturbed until the young have fledged and an appropriate buffer shall be established around each nest in consultation with Environment Canada wildlife experts.

11. Unless the Board otherwise directs, TransCanada shall, at least 21 days prior to the commencement of the hydrostatic testing portion of the project, file with the Board the information required by section 33 of the Board's *Onshore Pipeline Regulations* and any specific mitigative measures that TransCanada intends to use for hydrostatic testing.

12. Unless the Board otherwise directs, TransCanada shall, prior to the commencement of construction of any of the approved facilities, demonstrate to the Board's satisfaction that:

(a) in respect of new firm export volumes, all necessary United States and Canadian federal regulatory approvals, including applicable long-term Canadian export authorizations, have been granted; and

(b) in respect of the transportation services of new firm volumes on the TransCanada system:

(i) transportation contracts which total 3085.0 $10^3m^3/d$ (108.9 MMcfd) have been executed;
(ii) all necessary United States and Canadian regulatory approvals have been granted in respect of any necessary downstream facilities or transportation services;

(iii) gas supply contracts have been executed; and

(c) in respect of the transportation service contracts for existing firm service, the firm transportation service contracts have been amended to reflect the energy conversion volumes.

13. Unless the Board otherwise directs, TransCanada shall, prior to the commencement of construction of any of the approved facilities, submit for Board approval:

(a) requirements tables in the same format as Tables 2, 3 and 5 of Sub-tab 2 under the Tab "Gas Markets" of Exhibit B-1 of the GH-3-98 proceeding, showing the base case requirements and those requirements for which Condition 12 has been satisfied; and

(b) flow schematics of the TransCanada system demonstrating that those approved facilities which are to be released for construction are necessary to transport the requirements referred to in subsection (a).

During Construction

14. Unless the Board otherwise directs, TransCanada shall, during construction, maintain for audit purposes at each construction site, a copy of the welding procedures and non-destructive testing procedures used on the project together with all supporting documentation.

15. Unless the Board otherwise directs, TransCanada shall abide by the following construction timing restrictions:

(a) for MLV 6 to 7 and MLV 30 to 31, 15 April to 15 July where migratory birds are nesting;

(b) for MLV 46 to 47, MLV 71 to 72, MLV 83 to 84 and MLV 88 to 89, 1 May to 31 July where migratory birds are nesting; and

(c) for MLV 1205 to 1206, 15 April to 31 July where migratory birds are nesting.

16. Unless the Board otherwise directs, TransCanada shall not use Birdsfoot Trefoil (*Lotus corniculatus* Leo) in Seed Mix A for unimproved land within MLV 83 + 11.0 km to MLV 84.

17. Unless the Board otherwise directs, TransCanada shall not use Smooth Brome Grass (*Bromus inermis*) in Seed Mix A for unimproved land.

18. Unless the Board otherwise directs, TransCanada shall not use the Reed Canary Grass cultivar *Phalaris arundicacea* (Venture) or Manna Grass (*Glyceria maxima*) in Seed Mix B/D for water crossings.

19. Unless the Board otherwise directs, TransCanada shall develop site-specific seed mixes that exclude invasive non-native species.

20. Unless the Board otherwise directs, TransCanada shall file with the Board and Environment Canada, prior to seeding, any variations in the recommended seed mixes or other revegetation actions required in the revegetation of work sites as outlined in the assessment reports, that

may have occurred as a result of discussions with Saskatchewan Environment and Resource Management, Manitoba Natural Resources, and the Ontario Ministry of Natural Resources.

21. Unless the Board otherwise directs, in the event that any specialized habitat for wildlife, significant plant communities, or any plants or wildlife with a designated status are discovered during construction, TransCanada shall, in consultation with the appropriate regulatory agencies, implement the appropriate mitigative measures. The results of any consultation shall be filed with the Board.

22. Unless the Board otherwise directs, TransCanada shall, during construction, ensure that any wetlands disturbed by construction and construction-related activities are restored to their original contours.

23. Unless the Board otherwise directs, TransCanada shall file with the Board a report on the results of the salvage of any archaeological site encountered during construction.

24. Unless the Board otherwise directs, TransCanada shall file with the Board a report on the results of leachate monitoring for the Sherwood Waste Disposal Site (MLV 46 + 18 km) and the Klotz Lake Waste Disposal Site (MLV 83 + 14.5 km). If landfill leachate is identified, TransCanada shall also file contingency measures to be implemented to manage and contain any landfill leachate which may migrate to the trench.

Post-Construction

25. Unless the Board otherwise directs, TransCanada shall, within six months of placing any of the approved facilities into service, file with the Board a report providing a breakdown of the costs incurred in the construction of the approved facilities, in the format used in Schedules 3 through 11 of Sub-tab 2 under Tab "Cost of Facilities" of Exhibit B-1 of the GH-3-98 proceeding, setting forth actual versus estimated costs, including reasons for significant differences from estimates.

26. Unless the Board otherwise directs, TransCanada shall file with the Board and submit to Environment Canada and the Department of Fisheries and Oceans a post-construction environmental report within six months of the date that each approved facility, including each separate pipeline loop, is placed in service. The post-construction environmental report shall set out the environmental issues that have arisen up to the date on which the report is filed and shall:

    (a) provide a description of all minor amendments to practices, procedures and recommendations which have been implemented during the construction process;

    (b) indicate the issues resolved and those unresolved; and

    (c) describe the measures TransCanada proposes to take in respect of the unresolved issues.

27. Unless the Board otherwise directs, TransCanada shall file with the Board and submit to Environment Canada and the Department of Fisheries and Oceans, on or before the 31 January

that follows each of the first two complete growing seasons following the filing of the post-construction environmental report referred to in Condition 26:

(a) a list of the environmental issues indicated as unresolved in the report and any that have arisen since the report was filed; and

(b) a description of the measures TransCanada proposes to take in respect of any unresolved environmental issues.

28. Unless the Board otherwise directs, TransCanada shall, for Compressor Station 2, develop, in cooperation with Environment Canada, an air quality monitoring program to determine the existing, interim, and final operating effects of the compressor unit installations on air quality. TransCanada shall file with the Board and Environment Canada:

(a) the air quality monitoring program methodology for each operating scenario;

(b) the results of the 12-month on-site ambient air quality monitoring program for Station 2;

(c) the results of the on-site ambient air quality monitoring program, as developed in cooperation with Environment Canada, for the interim operating scenarios for Compressor Station 2, when four of the six Plant A units are placed on critical standby and Plant H is completed;

(d) the results of the on-site ambient air quality monitoring program, as developed in cooperation with Environment Canada, for the final operating scenario for Compressor Station 2, when the six Plant A units are retired and Plant J is completed; and

(e) the mitigative measures to be applied after each air quality survey for Compressor Stations 2, as required in order to meet the Federal Air Quality Objective "Maximum Acceptable Level" as established pursuant to the *Canadian Environmental Protection Act*.

29. Unless the Board otherwise directs, TransCanada shall, for Compressor Station 30:

(a) carry out stack testing, in cooperation with Environment Canada, to determine adherence to the National Emissions Guidelines for Stationary Combustion Turbines (December 1992, CCME-EPC/AITG-49E);

(b) conduct ambient air quality modelling using the results of the stack testing to determine the ambient air quality at Station 30 when operating in a "low emission mode" and when operating in a DLE mode, within one-year after the commencement of operation of the upgraded facility;

(c) file with the Board and Environment Canada the results of the stack testing and the air quality modelling;

(d) should the results of the stack testing indicate that the new compressor unit does not meet the National Emissions Guidelines for Stationary Combustion Turbines (December 1992, CCME-EPC/AITG-49E), inform the Board of the continuous consultations with the vendor regarding the mechanical improvements made to the DLE gas turbine;

(e) should the results of the air quality dispersion modelling determine that Station 30 exceeds the Federal Maximum Acceptable Ambient Air Quality Objectives:

(i) determine the need for or develop in consultation with Environment Canada an ambient air quality program at Station 30; or

(ii) in lieu of subsection (i) determine the mitigative measures required in consultation with Environment Canada to meet Federal Maximum Acceptable Ambient Air Quality Objectives and file with the Board and Environment Canada confirmation that these objectives have been met.

30. Unless the Board otherwise directs, TransCanada shall file with the Board, within eight months after the commencement of operation of the applied-for upgrades to the station facilities, environmental noise assessment surveys indicating whether post construction noise levels resulting from all equipment operating at full power are in accordance with the environmental noise guidelines as stipulated in TransCanada's Noise Management Guidelines for Mainline Operations.

31. Unless the Board otherwise directs, TransCanada shall within one year after the commissioning of new compression facilities proposed within the application, file with the Board a status report of any noise complaints received as a result of station operations, including the mitigative measures TransCanada would undertake to address those complaints.

General

32. Unless the Board otherwise directs, TransCanada shall report to the Board on the progress of its Aboriginal Policy and on any negotiations with the Treaty 4 Task Force, Constance Lake First Nation and the Aboriginal Resource Consortium. TransCanada shall report in accordance with the following schedule: upon publishing the policy; upon implementation of the policy; and on or about 1 May 2000.

33. Unless the Board otherwise directs prior to 31 December 2000, this certificate shall expire on 31 December 2000 unless the construction and installation with respect to each of the additional facilities has commenced by that date.

EXEMPTION ORDER CONDITION

1. Unless the Board otherwise directs, for any specific loop section referred to in this Order, this exemption order will not be effective until the following conditions are satisfied:

   (a) except as provided in subsection (b) hereof, TransCanada shall demonstrate to the satisfaction of the Board that all required land rights have been obtained along the entire loop section; and

   (b) in the event that all required land rights have not been acquired within a specific loop section referred to in this Order, any portion or portions thereof may be constructed provided that, prior to commencing construction on any portion or portions of the loop section, TransCanada shall demonstrate to the satisfaction of the Board that the rights, as prescribed in the NEB Act, of the landowners along the portion or portions of the loop section for which TransCanada has not yet obtained the required land rights will not be prejudiced by the construction of the portion or portions of the loop section.