



National Energy Board

Reasons for Decision

Interprovincial Pipe Line Inc.

OH-1-96

July 1996

Facilities and Toll Methodology

National Energy Board

Reasons for Decision

In the Matter of

Interprovincial Pipe Line Inc.

Application dated 12 January 1996, as
amended, for Facilities and Toll
Methodology

OH-1-96

July 1996

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Table of Contents

List of Tables	ii
List of Figures	ii
List of Appendices	ii
Recital and Appearances	iii
1. Introduction	1
1.1 The Application	1
1.2 Environmental Screening	1
2. Facilities	3
2.1 Expansion Facilities	3
2.1.1 Pipeline	3
2.1.2 Pumps	4
2.1.3 Line 2B Heater	4
2.1.4 Drag Reducing Agent	5
2.2 Alternatives to the Proposed Expansion	5
3. Land and Environmental Matters	8
3.1 Route and Site Selection and Land Requirements	8
3.2 Environmental Matters	9
4. Financial Matters and Tolling Treatment	10
4.1 Financial Matters	10
4.1.1 Tolling Methodology	10
4.1.2 Treatment of Costs	10
4.2 Requested Exemption from the Guidelines for Filing Requirements	10
4.3 Risk Sharing Agreement	11
5. Supply and Markets	15
5.1 Supply	15
5.2 Markets	16
5.2.1 Demand for Western Canadian Crude Oil and Equivalent	16
5.2.2 Western Canadian Crude Oil Available to IPL	18
5.2.3 Markets for Incremental Crude Oil and NGL Sales	19
5.2.4 Adequacy of Downstream Capacity	20
5.2.5 Tolls, Netbacks, and Producer Revenues	21
6. Disposition	22

List of Tables

2-1	Comparison of Selected Expansion Alternatives	6
4-1	Summary of SEP II Toll Impact Incremental Tolls	12
5-1	Forecast of Western Canadian Crude Oil Production Available to IPL	19

List of Figures

1-1	IPL System Expansion Program Phase II	2
5-1	IPL Forecast of Western Canadian Crude Oil Production	15
5-2	IPL Forecast of Western Canadian Crude Oil Disposition	17
5-3	Pipeline Capacity to Address Western Canadian Supply	18

List of Appendices

I	Schedule of Facilities	23
II	Certificate Conditions	25

Recital and Appearances

IN THE MATTER OF the National Energy Board Act and the regulations made thereunder;

AND IN THE MATTER OF an application dated 12 January 1996 by Interprovincial Pipe Line Inc. for a Certificate of public convenience and necessity under Part III of the Act, authorizing a capacity expansion of its pipeline system, and for an Order under Part IV of the Act, respecting toll design and tariffs;

AND IN THE MATTER OF Hearing Order OH-1-96;

HEARD at Calgary, Alberta on 3, 4, 5 and 7 June 1996.

BEFORE:

R.L. Andrew	Presiding Member
A. Côté-Verhaaf	Member
J.A. Snider	Member

APPEARANCES:

C.K. Yates R.A. Neufeld	Interprovincial Pipe Line Inc.
N.J. Schultz	Canadian Association of Petroleum Producers
R.W. Laidlaw	Alberta Energy Company Ltd.
F.R. Foran	Amoco Canada Petroleum Company Ltd.
L.G. Keough	Express Pipeline Ltd.
H.R. Huber	Imperial Oil Limited, Mobil Natural Gas Canada Ltd., Petro-Canada, Shell Canada Limited
K.F. Miller	Koch Oil Co. Ltd.
H.R. Huber	Murphy Oil Company Ltd.
A. Reid	Alberta Department of Energy
B. de Jonge	National Energy Board Counsel

Chapter 1

Introduction

1.1 The Application

On 12 January 1996, Interprovincial Pipe Line Inc. ("IPL" or "the Company") applied pursuant to Part III of the *National Energy Board Act* ("the Act") for a certificate of public convenience and necessity to authorize the construction of additional facilities on its pipeline system in western Canada and, pursuant to Part IV of the Act, for an Order respecting toll design and tariffs.

The applied-for System Expansion Program Phase II ("SEP II") would consist of pipeline, pump unit additions, pump modifications, pump replacements, motor replacements, and drag reducing agent ("DRA") injection connections. The proposed facilities, at an estimated cost of \$140 million, would increase delivery capability of the existing IPL system to Chicago by 19 600 m³/d (120,000 b/d). A map of the IPL system is shown in Figure 1-1.

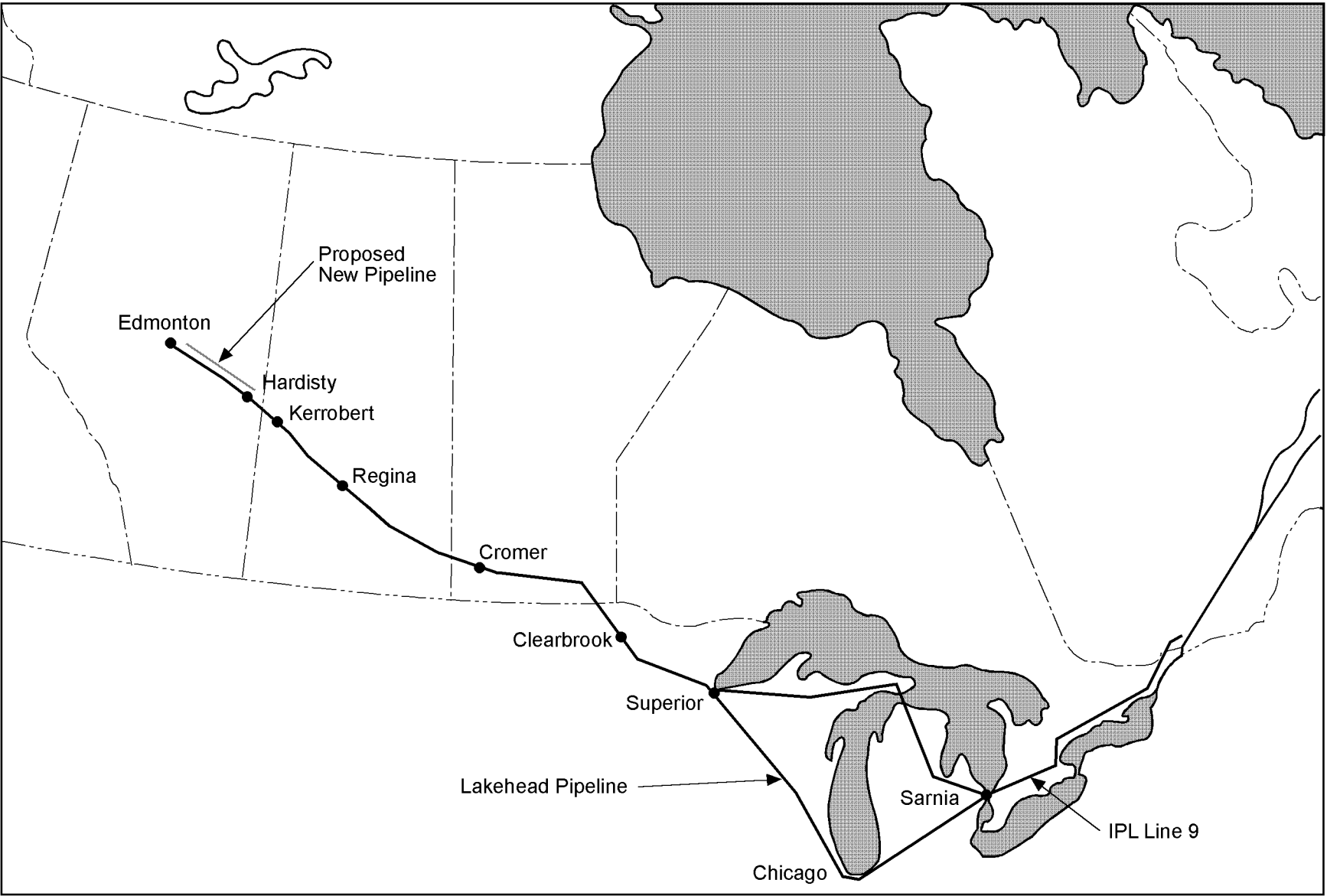
In a letter dated 31 May 1996, IPL filed with the National Energy Board ("the Board") details of a Risk Sharing Agreement ("RSA") which it, together with Lakehead Pipe Line Company ("Lakehead"), had negotiated with the Canadian Association of Petroleum Producers ("CAPP"). The RSA modified the applied-for toll treatment of the SEP II facilities to share the risk of underutilization of these facilities. IPL sought to have the RSA approved as a Non-Routine Adjustment pursuant to its Incentive Tolling Agreement.

1.2 Environmental Screening

The National Energy Board ("the Board") conducted an environmental screening of the applied-for facilities in compliance with the *Canadian Environmental Assessment Act* ("CEAA"). The Board ensured there was no duplication in requirements under the CEAA and the Board's own regulatory process.

The Board determined that, taking into account the implementation of IPL's proposed mitigative measures and those set out in the attached conditions, the project is not likely to cause significant adverse environmental effects. This represents a decision pursuant to paragraph 20(1)(a) of the CEAA.

Figure 1-1
IPL System Expansion Program Phase II



Edmonton

Proposed
New Pipeline

Hardisty

Kerrobert

Regina

Cromer

Clearbrook

Superior

Lakehead Pipeline

Chicago

Sarnia

IPL Line 9

Chapter 2

Facilities

2.1 Expansion Facilities

IPL's applied-for expansion includes the following:

- Line 1
 - construction of 148 km of 508 mm outside diameter ("O.D.") pipeline from kilometre post ("kp") 22.1 near Edmonton to kp 170 near Hardisty, Alberta;
 - replacement of four pipeline sections totalling 12 km of 508 mm O.D. pipeline between Hardisty and Herschel stations;
 - replacement of 30 motors, replacement of 30 pumps, modification of 11 pumps, addition of 11 pumping units and the construction of 12 DRA injection skids at various stations between Edmonton, Alberta and Gretna, Manitoba; and
 - construction of a new pump station, NGL prover, booster pumps and associated piping at the Edmonton Terminal.

- Line 2B
 - construction of a 21 600 MJ (6 000 kWh) line heater at Cromer station;
 - replacement of 4 pump units; and
 - the addition of 3 pump units.

- Line 13
 - reactivation of 22.1 km of 508 mm O.D. pipeline between the Edmonton Terminal and kp 22.1;
 - connection of five pump stations at Edmonton, Kingman, Metiskow, Herschel and Craik from Line 1 to Line 13 service;
 - connection of the refined products manifold, booster pumps and associated piping at the Edmonton Terminal to accommodate injections of refined products into Line 13;
 - construction of eight mainline connections between kp 22.1 and kp 687.4 (near Regina) to accommodate the transfer of 501.2 km of 508 mm pipeline from Line 1 to Line 13 service; and
 - construction of five DRA injection skids.

The proposed expansion will increase the capacity of Line 1 from 36 600 m³/d (230,000 b/d) to 49 500 m³/d (311,000 b/d) and of Line 2B from 76 300 m³/d (480,000 b/d) to 79 500 m³/d (500,000 b/d). The capacity of Line 13 of 31 000 m³/d (195,000 b/d) will not change. Upon completion of the SEP II expansion, Line 1 will be used to transport crudes such as lube light, sweet light, Synthetic and NGLs; Line 2 will transport condensate, Caroline Condensate, and crudes such as sweet light, sour light, Synthetic, Sarnia Special, and OSE; Line 3 will ship Bow River, heavy and sour light crudes and Line 13 will ship Synthetic crude and refined products. The proposed Line 13 facilities are intended to facilitate the reallocation of refined products from Line 1. A schedule summarizing the applied-for facilities is included as Appendix I.

2.1.1 Pipeline

IPL applied to construct a new 508 mm O.D. pipeline between kp 22.1 and Hardisty, Alberta. This line would be used as a new Line 1 segment, and the existing Line 1 pipeline between the Edmonton

Terminal and Hardisty (including the reactivated segment described below) would be transferred to Line 13 service. This would allow Line 13 to be operated as a continuous line from Edmonton to Clearbrook, Minnesota. IPL submitted that the new pipeline would be needed to facilitate the transfer of refined products from Line 1 to Line 13, as Line 1 is expected to become oversubscribed due to the forecast increase in NGL shipments on Line 1 of 3 200 m³/d (20,000 b/d). IPL further explained that in order to accommodate the increase in NGL shipments, either Line 1 had to be expanded or refined products had to be moved into a different line. IPL chose to move refined products into Line 13. IPL noted that the existing capacity on Lines 2 and 3 between the Edmonton Terminal and Hardisty could not be effectively utilized for refined products shipments without building a tank farm at Hardisty and moving the refined products through this tankage to be re-injected into Line 13 at Hardisty.

IPL also applied to reactivate a section of pipeline between Edmonton and kp 22.1. This segment was originally part of Line 1, but was taken out of service in 1987 as the result of a capacity expansion program. In its application, IPL requested exemption from retesting this section, pursuant to the requirements of Part V of the *Onshore Pipeline Regulations* ("the Regulations"). The pipe section was hydrotested in 1993 in preparation for IPL's 1994 capacity expansion program but subsequently was not returned to service. Although this section was internally inspected in 1972, 1980, and 1987, and corrosion excavations of select locations were conducted between 1985 and 1989, no inspection or further maintenance, beyond IPL's annual cathodic protection survey, has been conducted on this line segment since 1993 .

No parties expressed concerns with IPL's proposed pipeline construction.

2.1.2 Pumps

SEP II includes the construction of a new pump station (including four pumps) on Line 1 at the Edmonton Terminal, the addition of pump units at Strome, Hardisty, Cactus Lake, Loreburn (2 units), Bethune, Odessa, Cromer, West Souris, Glenboro, and Manitou stations, and the replacement of 30 motors and pumps and the modification of 11 pumps at various locations on Line 1. On Line 2B, new pump units would be installed at Souris, Glenboro, and Gretna stations, while one pump and motor replacement would occur at Glenboro and three at Manitou station.

No parties commented on IPL's proposed addition of pumping capacity.

2.1.3 Line 2B Heater

IPL proposed the installation of a line heater on Line 2B at Cromer, Manitoba. Heating the oil at Cromer would have the effect of reducing the viscosity of the oil, thereby increasing the throughput at that location. IPL had not undertaken the detailed design of the line heater prior to the start of the OH-1-96 hearing. However, IPL indicated that detailed design information would be provided to the Board when it became available.

Express Pipeline Ltd. ("Express") questioned the estimated operating costs of the proposed line heater, as compared to the line heater currently used by Lakehead on Line 6 at Superior, Wisconsin. IPL agreed that the annual fuel costs for the line heater would be in the range of \$750,000 to \$1,000,000, although fuel contracts had not yet been obtained.

2.1.4 Drag Reducing Agent

IPL applied to install 12 Drag Reducing Agent ("DRA") injection skids at Edmonton, Hardisty, Kerrobert, Milden, Loreburn, Bethune, Glenavon, Langbank, Cromer, West Souris, Glenboro, and Manitou stations on Line 1, and five DRA injection skids on Line 13 at Edmonton, Kingman, Metiskow, Herschel, and Craik stations. DRA is a chemical additive that reduces the pressure gradient in the section of pipe in which it has been injected. As part of the System Expansion Program Phase I (approved by the Board under Order XO-J1-1-96), IPL installed 14 DRA skids on Line 2A and 6 skids on Line 13. Together, the SEP I and SEP II applications represent a significant increase in the use of DRA on the IPL system. In response to a question by the Board, IPL confirmed that it may now be close to reaching the maximum economic limit for the use of DRA on Lines 1 and 2, although the exact economic limit had not been determined. IPL also noted that while current DRA technology does not work effectively with heavy oil, different products are being developed that may increase the application of DRA. In addition, decreases in the cost of the drag reducing material could change the economic cut-off point for its use.

Views of the Board

With respect to the construction of 148 km of new 508 mm O.D. pipeline between kp 22.1 and Hardisty, the Board agrees that IPL's proposed construction is an appropriate method of accommodating the forecast increase in natural gas liquids ("NGL") shipments from Edmonton.

With respect to the 22.1 km section of pipeline for which IPL requested an exemption from pressure testing prior to reactivation, the Board notes that section 54(1) of the Regulations requires that a pipeline be retested in accordance with Part V of the Regulations prior to reactivation, if the pipeline has been deactivated for 12 months or more. In addition, the Board notes that IPL did not apply for a deactivation of this line section as required by section 53(1) of the Regulations and that the line section has been out of service for nine years. Absent a retesting of the pipe section, the Board is not persuaded that the reactivation would provide for a level of safety at least equivalent to that generally provided for by Canadian Standards Association ("CSA") standards. Therefore, the Board will not exempt IPL from the requirement to retest this line section prior to reactivation.

Decision

IPL is directed to retest the line section between Edmonton and kp 22.1 in accordance with the requirements of Part V of the Regulations. Upon successful completion of the retesting, IPL is further directed to notify the Board of the results of the test (including the test pressures) and the desired maximum operating pressure of the line.

2.2 Alternatives to the Proposed Expansion

As part of its application, IPL provided an evaluation of three alternatives to its proposed design. Briefly, the alternatives consisted of: the addition of 84 km of 1219 mm O.D. looping on Line 3; increasing the operating pressure of Line 1; or expanding the Westspur and Portal pipeline systems

(including extending Line 13 from Clearbrook to Superior). IPL noted that none of these alternatives provided the required capacity increase of 19 600 m³/d (120,000 b/d). The alternatives were compared on the basis of capital expenditure per unit of capacity increase.

At the request of the Board, IPL provided an assessment of the incremental annual operating costs associated with each of the design alternatives, plus the annual operating costs of its proposed expansion. IPL also provided an assessment of an additional expansion alternative, consisting of sufficient 1219 mm O.D. looping on Line 3 to achieve the desired capacity increase. The incremental toll impact of each option at 100% capacity utilization (no risk sharing), and of Alternatives 4 (the sum of Alternatives 2 and 3) and 5 (the Line 3 looping) at various utilization levels with the risk sharing agreement were also provided. These comparisons are illustrated in Table 2.1.

IPL submitted that the principal drive for expanded pipeline capacity from western Canada is the forecast increase in Canadian heavy crude oil production, underpinned by a slower than anticipated decline in conventional light crude oil production. IPL noted that its design intent was to create additional space on Line 3 for the forecast heavy crude growth by moving sour and lighter crudes off Line 3 and onto other lines. Although IPL's application originally indicated that SEP II would eliminate apportionment, IPL subsequently suggested that the removal of market constraints for heavy crude (as described in section 5.2.1) would result in SEP II not being able to supply sufficient take away capacity and that further expansions of the IPL system would be necessary.

Table 2-1
Comparison of Selected Expansion Alternatives

	SEP II Design	Alternatives 2&3	Line 3 Looping
Capital Cost (C\$)	140,000,000	340,000,000	490,000,000
Capacity Increase (m ³ /d)	19 600	18 600	19 600
Incremental Annual Power Cost	19,400,000	18,500,000	8,400,000
Incremental Annual DRA Cost	3,700,000	2,600,000	0
Unit Cost (\$/m ³ /d increase)	7,143	18,300	25,000
Toll Increase (No Risk Sharing)	2¢	5¢	5¢
Toll Increase @ 100% Utilization (Risk Sharing)	3¢	6¢	6¢
Toll Increase @ 75% Utilization (Risk Sharing)	2¢	4¢	5¢

Express argued that the applied-for facilities would not do the job that they were intended to do. It noted that IPL's evidence suggested that by 1999 there would be almost no spare capacity on Line 3 to accommodate the forecast increase in heavy oil supply and that an additional expansion of IPL's system would be necessary to address the apportionment issue. Express also argued that IPL had

failed to provide any meaningful comparison of alternatives which would address the true demand for additional capacity on its system.

Views of the Board

The Board finds a comparison of viable alternatives to be germane to its assessment of the appropriateness of a proposed design. The Board notes that the proposed design is the most cost-effective of the various alternatives presented, and that the design provides some flexibility to minimize the cost of transportation if throughput were to fluctuate in the future. The Board also notes that IPL's proposed design does not appear to fully resolve the issue of capacity constraint for heavy crude shipments. However, the Board appreciates the high level of support accorded to the proposed expansion and, therefore, the Board accepts IPL's applied-for design.

Chapter 3

Land and Environmental Matters

3.1 Route and Site Selection and Land Requirements

IPL stated that its proposed expansion was designed to follow its existing pipeline corridor while at the same time avoiding or minimizing new surface disturbance and attendant negative impacts to the biophysical and socio-economic environments. IPL determined that these needs could best be met by constructing additional pipeline parallel to its pipeline corridor, by modifying its existing pipeline tie-ins, and by increasing pumping capacity at several IPL stations between Edmonton, Alberta and Gretna, Manitoba.

Two alternative pipeline routes were considered by IPL. The first alternative involved parallelling their pipelines between Edmonton and Hardisty along the north side of their existing pipeline corridor. The second alternative involved crossing over their pipeline from the north side near Kingman Pump station (kp 51.1), parallelling the corridor along the south side to kp 152.1 near Lougheed, Alberta and then crossing back to the north side for the remainder of the segment to kp 170.0 near Hardisty, Alberta. IPL chose the second alternative as it would involve acquisition of less new permanent easement than the first alternative.

With respect to the location of new facilities, other than line pipe, consideration was not given to new sites as existing sites offered the following advantages:

- the existing facilities have been in service for up to 40 years and are well known to all parties;
- no significant environmental or socio-economic constraints are associated with the existing facilities sites;
- impacts associated with new facilities on new sites would increase the amount of land disturbed by IPL operations; and
- terminal and pump station operations can be completed more efficiently from existing facilities rather than from additional facilities that are geographically separated.

IPL indicated that it would require 18.3 m of new permanent right-of-way and between 5 and 17 m of temporary working rights. IPL provided six different configurations for the various loop segments proposed as well as a summary of the new land requirements on a station by station basis.

No parties objected to the proposed routing/siting or the requirements for new land rights.

Views of the Board

The Board agrees with IPL's rationale for installing the proposed pipeline facilities either within existing easements or adjacent to its existing easement. The Board

further finds that the general routes proposed are acceptable and that IPL's anticipated requirements for permanent easements and temporary work space are reasonable.

3.2 Environmental Matters

The Board completed an Environmental Screening Report pursuant to the CEAA and the Board's own regulatory process. In accordance with Hearing Order OH-1-96, the Environmental Screening Report was released to IPL, those parties who requested a copy from the Board, and federal agencies that had provided specialist advice on the proposed facilities.

The comments received, and the Board's views, have been added to the Environmental Screening Report as Appendices I and II respectively. Copies of the Board's Environmental Screening Report are available upon request from the Board's Regulatory Support Office.

Views of the Board

The Board has considered the Environmental Screening Report, and the comments received on the report, and is of the view that the SEP II project is not likely to cause significant adverse environmental effects, when considered with the implementation of IPL's proposed mitigative measures and those set out in the attached conditions. This represents a decision pursuant to paragraph 20(1)(a) of the CEAA.

The Board is satisfied with the environmental and socio-economic information provided by IPL with regard to the potential adverse environmental effects which may result from the construction and operation of the proposed facilities and with IPL's proposed monitoring and mitigation measures.

Chapter 4

Financial Matters and Tolling Treatment

4.1 Financial Matters

4.1.1 Tolling Methodology

IPL applied for approval of an integrated toll design methodology for the SEP II facilities. The Company considered the SEP II facilities to be a capital program related to an extension of the existing services it provides to shippers.

No parties expressed concerns regarding IPL's applied-for tolling methodology.

4.1.2 Treatment of Costs

IPL requested that the Board find the costs of SEP II to be a Non-Routine Adjustment in accordance with the Principles of Settlement, filed in support of its February 1995 Incentive Toll Application.

No parties were opposed to IPL's proposed treatment of the costs of SEP II as a Non-Routine Adjustment.

Views of the Board

Since SEP II is an extension of the existing services that IPL provides to its shippers, the Board considers it appropriate that the costs of the program be rolled-in.

Furthermore, the Board agrees that these costs constitute a Non-Routine Adjustment under the terms of IPL's February 1995 Incentive Toll Agreement.

4.2 Requested Exemption from the Guidelines for Filing Requirements

In its application, IPL requested exemption from filing proforma statements of rate base and cost of service as well as proposed method and rates of depreciation by plant account contemplated in the February 1995 *Guidelines for Filing Requirements* ("the Guidelines"). IPL submitted that this information was not relevant under IPL's incentive method of financial regulation approved by the Board under Order TO-1-95.

IPL also requested exemption from filing five years of average unit transportation costs (tolls) beyond the first year after the SEP II facilities are expected to be in service. IPL stated its view that in light of the incentive method of regulation which governs IPL's operations, it is not possible to forecast tolls with reasonable reliability over a five year term. IPL further submitted that tolls would vary from year to year based on operating results, and that providing five year tolls based on a series of assumptions may not be meaningful to the Board.

IPL further sought exemption from filing proforma balance sheets, proforma financial statements, and supporting details on the proposed return on rate base and provision for income taxes because, in

IPL's view, the magnitude of the debt component of the financing was not material to IPL's financial position.

No parties opposed IPL's request for exemption from the Guidelines.

Views of the Board

The Board considers the reasons given by IPL for not filing the above information to be acceptable and, therefore, grants the requested exemptions from the Guidelines.

4.3 Risk Sharing Agreement

By letter dated 31 May 1996, IPL filed the updated evidence of Brian T. Vaasjo. In this evidence, Mr. Vaasjo stated that IPL was approached by CAPP to discuss the possibility of reaching an agreement to share the risks relating to the potential under-utilization of the SEP II facilities. The first meeting was held on 17 May 1996 and an agreement was reached on 31 May 1996.

The Risk Sharing Agreement ("RSA") relates to both IPL and Lakehead in respect of the SEP II facilities and would be subject to approval by the National Energy Board and the Federal Energy Regulatory Commission.

Under the RSA, the rate of return on the deemed equity portion of the SEP II facilities would vary based upon the level of utilization of the facilities. At 75% utilization of the facilities, or 14 700 m³/d (90,000 b/d), the return on the deemed equity component of the SEP II facilities would be the annual multi-pipeline rate as determined by the Board. If the SEP II facilities are utilized at between 0% and 50%, or up to 9 800 m³/d (60,000 b/d), the return on the deemed equity of SEP II would be the multi-pipeline rate less 3.0%, subject to a minimum rate of return of 7.5% in years 1 through 10 and 8.5% in years 11 through 15. The rate of return on SEP II deemed equity increases with facilities utilization on a straight line basis, from the multi-pipeline rate less 3.0% at 50% utilization to the multi-pipeline rate plus 3.0% at 100% utilization, subject to a maximum rate of return of 15.0% during the term of the agreement. The toll impact of the SEP II facilities is shown in Table 4-1.

The utilization level of the SEP II facilities would be calculated on a full system basis. That is, IPL would determine the total system capacity by adding the 19 600 m³/d (120,000 b/d) throughput related to the SEP II expansion to the annual capacity under the Incentive Toll Agreement. The actual throughput would then be measured and compared to this total system capacity to determine the utilization level. The percentage of the SEP II facilities utilized would determine the return level to be received by IPL for these facilities. To the extent that actual throughput was less than the total system capacity there would be a volume shortfall. For example, if that shortfall was 4 900 m³/d (30,000 b/d), the SEP II facilities would be 75% utilized and IPL would earn the annual multi-pipeline rate.

Table 4-1
Summary of SEP II Toll Impact
Incremental Tolls
 (¢/b Canadian)¹

	Total	IPL	Lakehead ²
<u>Without Risk sharing</u>			
At 100% Utilization	10	2	8
At 0% Utilization	10	2	8
<u>With Risk Sharing</u>			
At 100% Utilization	12	3	9
At 50% Utilization	6	1	5
At 0% Utilization	6	1	5

(1) Incremental light crude tolls on Edmonton to Chicago

(2) Assuming 100% tax allowance

Further expansions of the IPL system would be "stacked on top" of the SEP II facilities. In determining the utilization rates, post-SEP II expansions would be considered to be the "top" volumes and these expansions would have to go totally unused for the utilization of the SEP II facilities to fall below 100%. The return on post-SEP II expansions would be governed by IPL's Incentive Toll Agreement.

Other stipulations of the RSA include the following:

- DRA costs would flow through as a surcharge;
- all other costs including operating, interest and depreciation costs would flow through to the tariffs;
- the agreement would be subject to approval of the IPL and Lakehead Boards of Directors;
- the term of the agreement is for 15 years, commencing on the date of completion of the facilities construction; and
- the existing toll design would not be affected and point-to-point tolls would reflect a volume-distance allocation of costs.

IPL stated that it was of the view that the RSA would result in just and reasonable tolls, and that its terms should be approved by the Board as a Non-Routine Adjustment in accordance with paragraph 7.1(a)(i) of the Principles of Settlement filed in support of IPL's February 1995 Incentive Toll Application approved by Board Order TO-1-95.

No parties were opposed to the RSA. The RSA was supported by parties including Amoco and the Shippers Group¹, as well as Koch Oil on its own behalf. The Shippers Group noted that the RSA is an innovative and appropriate method of ensuring that some of the risk associated with potential under-utilization of expansion capacity would be borne by the pipeline, rather than by the shippers. Koch submitted that the RSA is a highly significant benefit for shippers on IPL, is consistent with the spirit, intent, and provisions of the February 1995 Incentive Toll settlement between IPL and CAPP and, therefore, should be approved by the Board.

The Board questioned whether the variable rate of return feature of the RSA could be accommodated as a Non-Routine Adjustment within the terms of the Principles of Settlement. Section 7.3 of the Principles of Settlement defines a Non-Routine Adjustment as the sum of three components: operating cost, capital cost, and annual income taxes. The capital cost component is itself defined in subsection 7.3(b) to include depreciation expense, annual interest expense, and:

"Annual earnings based on the common equity rate of return in effect resulting from the National Energy Board Multi-Pipeline Proceeding (RH-2-94) as adjusted from time-to-time, and applied to the applicable negotiated equity ratio set out in Article 7.3(b)(ii)."

IPL argued that this paragraph did not mean that the annual earnings component must be calculated using a rate of return equal to the multi-pipeline rate of return. Rather, it argued that the agreement provided that annual earnings would be "based on" the multi-pipeline rate of return. Since the variable rate of return provided for in the RSA is either the same as the multi-pipeline rate of return or is calculated upward or downward from the multi-pipeline rate of return, IPL argued that it was "based on" the multi-pipeline rate of return within the meaning of the Principles of Settlement. Accordingly, IPL argued that the RSA did not amount to an amendment to the Principles of Settlement, nor was an amendment to Order TO-1-95 required.

Views of the Board

Without deciding whether the interpretation put forward by IPL is a correct interpretation of section 7.3 of the Principles of Settlement, the Board is of the view that it can approve the terms of the RSA in this proceeding. The public notice of the hearing, attached as Appendix I to the Hearing Order, stated that the application sought Orders from the Board pursuant to Part IV of the Act respecting toll design and tariffs; and the preliminary list of issues attached as Appendix III to the Hearing Order included, as item #9, "The design and elements of the tolls applied for by IPL." Even though the RSA was not originally part of the application, the Board is of the view that the public notice of the hearing, together with the preliminary list of issues attached to the Hearing Order, was sufficiently broad to put interested persons on notice that toll design in respect of the applied-for facilities would be considered in this proceeding. The Board is further of the view that in disposing of that issue, it is not necessarily limited to dealing with the proposal originally made by IPL in its application. The Board therefore finds that it has jurisdiction to approve the RSA in

¹ The Shippers Group was comprised of Imperial Oil Limited, Koch Oil Co. Ltd., Mobil Natural Gas Canada Ltd., Petro-Canada, Shell Canada Limited, and Murphy Oil Company Ltd.

this proceeding, even if this would effectively amount to an amendment to the Principles of Settlement or Order TO-1-95. The Board notes that the RSA has broad shipper support and is satisfied that the settlement represented by the RSA is just and reasonable in the circumstances. The terms of the RSA are therefore approved.

Chapter 5

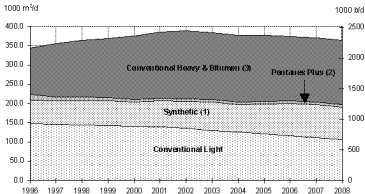
Supply and Markets

5.1 Supply

In support of its application, IPL adopted estimates of remaining established reserves of Canadian crude oil and equivalent as of 31 December 1994, as published in the Canadian Association of Petroleum Producers Statistical Handbook - August 1995. IPL also submitted a forecast of production of western Canadian crude oil to the year 2008 which was based on a 1995 survey of western Canadian crude oil producers. Respondents to the survey included crude oil producers, connected pipelines that deliver supply to the IPL system, and the provincial governments of the four western provinces. In its application, IPL stated that it made adjustments to the projection obtained in the survey to reflect light crude oil supply trends and a market constraint for heavy oil. IPL submitted that the market constraint would cause heavy oil development to fall short of its potential by 3 600 m³/d (23,000 b/d) in 1997. This development constraint would rise to 19 200 m³/d (121,000 b/d) in 2002 and then decline to 11 800 m³/d (74,000 b/d) in 2008.

During the hearing, IPL submitted a revised forecast of production of western Canadian crude oil to reflect the development of new markets in northern PADD II and the resulting removal of the constraint on heavy oil production. In this revision, IPL forecast that total production of crude oil and equivalent from western Canada would average 343 600 m³/d (2,161,000 b/d) in 1996, would increase

Figure 5-1
IPL Forecast of Western Canadian Crude Oil Production



1. Includes synthetic crudes oil produced at heavy crudes oil upgrade and mixing plants.
2. Excludes pentacres plus used as diluent.
3. Includes diluent and upgrade feedstocks.

to an average peak of 388 000 m³/d (2,440,000 b/d) in 2002, and then would decline to an average of 363 300 m³/d (2,285,000 b/d) by 2008 (see Figure 5-1). IPL did not provide a forecast of the supply of refined petroleum products or NGLs to be transported on its system. However, IPL indicated during cross-examination that the volume of NGL is projected to increase by about 3 200 m³/d (20,000 b/d), while no change is expected in the volume of refined petroleum products. No parties challenged IPL's forecasts of western Canadian crude oil production and other commodities transported on its system.

IPL's position regarding crude oil supply was supported by the Shippers Group, Koch and the ADOE. The ADOE argued that, although IPL had demonstrated that the SEP II facilities would be required based on IPL's production forecast, the Board should not "fine tune" pipeline capacity to production forecasts, as some spare capacity would benefit western Canadian producers.

Express argued that IPL had failed to adequately address the availability of diluent which would be required to transport additional volumes of heavy crude oil on its system. IPL responded that its evidence demonstrated that supply of diluent would be adequate until about 2005 and also that alternative materials could be used as diluent or IPL could raise the viscosity limit for shipments on its system, thereby reducing the requirement for diluent. IPL's view on this matter was supported by Koch.

Views of the Board

The Board recognizes the uncertainties associated with forecasts of the supply of crude oil and other commodities shipped on the IPL system. However, it accepts as reasonable the forecasts of the supply of crude oil and other commodities submitted by IPL.

With regard to the supply of diluent, the Board accepts the argument of IPL that, in the near term, adequate supplies of diluent will be available. Should the supply of pentanes plus become inadequate, the Board has confidence that IPL and its shippers will be able to find alternative sources of diluent or make operational adjustments so as to continue to ship western Canadian crude oil to market.

5.2 Markets

5.2.1 Demand for Western Canadian Crude Oil and Equivalent

In its application, IPL used the following assumptions in developing its demand forecast:

- demand in non-IPL markets, namely British Columbia, Alberta, the Northwest Territories, and Saskatchewan, and exports to Montana, North Dakota and Washington will be satisfied prior to determining deliveries through the IPL system;
- Ontario refinery demand will be satisfied by western Canadian crude oil production prior to the reversal of the Sarnia to Montréal pipeline ("Line 9");
- Line 9 will be reversed on 1 January 1998 based on IPL's supply and demand projections. The reversal volumes in 1998 are assumed to be limited to 22 200 m³/d (140,000 b/d). After 1998, volumes are assumed to be 42 100 m³/d (265,000 b/d);

- following the reversal of Line 9, the balance of western Canadian crude oil previously delivered to Ontario will be delivered and consumed in PADD II;
- markets for heavy crude oil in PADD II limit the level of heavy crude oil and bitumen production throughout the forecast;
- the PADD IV market can be satisfied with existing pipeline capacity until 2002. An additional 21 500 m³/d (135,000 b/d) of expansion capability on Rangeland, Milk River and Wascana pipelines is assumed to be available after 2002; and
- it does not take into consideration the construction of the Express pipeline.

At the commencement of the hearing, IPL submitted that there had been further developments in northern PADD II since the filing of its application. An updated analysis, using 1995 crude runs, prepared for IPL by Arthur D. Little Inc., revealed that PADD II refiners could absorb an additional 21 900 m³/d (138,000 b/d) of combined medium and heavy crude oils from Canada. IPL's original estimate was 21 300 m³/d (134,000 b/d) based on 1994 crude runs. IPL stated that the market constraint originally imposed on its forecast of heavy crude oil production had therefore been removed and it submitted revised forecasts of western Canadian crude oil disposition and production available to IPL.

Figure 5-2 illustrates IPL's revised forecast of western Canadian crude oil disposition with no market constraint in PADD II.

Figure 5-2
IPL Forecast of Western Canadian Crude Oil Disposition

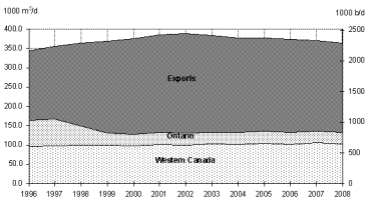


Figure 5-3
Pipeline Capacity to Address Western Canadian Supply

IPL provided evidence (see Figure 5-3) and argument that, with the removal of the market constraint for heavy oil, there would be sufficient supply to assure utilization of both the SEP II facilities and Express pipeline, or other IPL facilities additions which could be brought on-stream in a timely fashion.

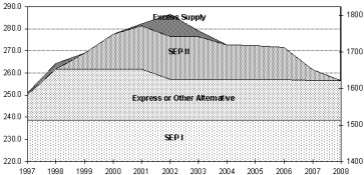
5.2.2 Western Canadian Crude Oil Available to IPL

Based on the assumptions listed above, the production available to IPL was calculated as the difference between western Canadian crude oil production and non-IPL western Canadian crude oil disposition. IPL forecast that the production of crude oil available to its system in 1999 would represent approximately 65 percent of total western Canadian crude oil production. The revised forecast of crude oil production available to IPL, reflecting the removal of the market constraint, is set out in Table 5-1.

Express argued that IPL's evidence cast doubt on whether sufficient crude oil would be available over the long-term to ensure that the SEP II facilities would be utilized at a reasonable level over their economic life. Express suggested that IPL's evidence regarding potential western Canadian crude oil supply showed a variance which amounted to 5 100 m³/d (32,000 b/d) extra production in 2002. IPL explained that the alleged variance was the result of Express' comparison of "unblended" supply with "blended" supply.

1000 m³/d

1000 b/d



Note: Express movements assumed to be at contracted capacity.

Table 5-1
Forecast of Western Canadian Crude Oil Production Available to IPL
(10³m³/d)

	1996	2000	2005	2008
Forecast Production	343.6	375.4	376.8	363.3
Less Non-IPL Demand:				
British Columbia	11.0	11.8	11.8	11.8
Alberta & NWT	59.0	60.8	64.2	64.6
Saskatchewan	20.3	18.6	22.7	19.3
Exports				
- Washington	7.9	8.8	9.3	9.3
- Montana	20.1	21.7	28.9	29.3
- North Dakota	1.4	2.0	2.0	2.0
Total Non-IPL Demand	119.7	123.7	138.9	136.3
Net Production Available to IPL	223.9	251.7	237.9	227.0

5.2.3 Markets for Incremental Crude Oil and NGL Sales

IPL stated that the highest netback market for western Canadian crude oil production is the PADD II market. Demand for western Canadian crude oil in the northern PADD II market is sufficient to accommodate forecast production plus volumes redirected due to the assumed Line 9 reversal in 1998. Additional refining capacity is available to western Canadian producers in Wood River and Patoka, Illinois, via the Mobil pipeline running south from Lakehead at Chicago.

With respect to the increase in heavy crude oil demand in PADD II, IPL submitted that BP Oil Company signed a Letter of Intent to contract delivery for a minimum of 7 900 m³/d (50,000 b/d) of heavy crude oil via the IPL system at the completion of the SEP II project in 1998. This volume could rise to 17 500 m³/d (110,000 b/d) with appropriate pipeline facilities between Stockbridge, Michigan and Toledo, Ohio. IPL noted that Koch Oil Co. Ltd. is developing plans to increase crude processing capabilities by up to 7 900 m³/d (50,000 b/d) at its Pine Bend, Minnesota refinery. This project is supported by expected increases in Canadian heavy crude oil production. The UNO-VEN Company is expected to take between 6 400 and 12 700 m³/d (40,000-80,000 b/d) of incremental Canadian crude oil, contingent on achieving acceptable supply security through construction of the SEP II facilities. Furthermore, IPL pointed to the ability of three PADD II refiners to increase heavy crude runs by more than 7 900 m³/d (50,000 b/d).

In total, these events would result in 52 400 to 68 300 m³/d (330,000 - 430,000 b/d) of additional heavy crude oil demand in PADD II. This compares to a forecast increase in production of 55 600 m³/d (350,000 b/d) from 1996 to 2001.

IPL indicated that these prospective increases in PADD II demand are directly accessible by the IPL system at transportation costs which are lower than to alternative destinations in PADD II, such as Wood River. IPL also maintained that PADD II would remain the market of choice because the refining capacity accessible by Canadian crude oil is 412 700 m³/d (2.6 million b/d), compared to 79 400 m³/d (500,000 b/d) in PADD IV and that the netbacks are higher for PADD II deliveries.

IPL stated that if the expansion facilities are approved and operational by 1999, crude oil apportionment would be reduced, transit times would be shortened, interfacial mixing would be reduced, and increased heavy crude oil volumes could be accommodated.

IPL argued that the level of support for the SEP II facilities was overwhelming and unprecedented. The supporters included 29 shippers representing more than 87 percent of IPL volumes, the governments of Saskatchewan, Manitoba and Alberta, CAPP and Small Explorers and Producers Association of Canada, and a number of refiners.

With respect to NGLs, IPL submitted that shippers could benefit from market diversification because the primary market for NGL, Sarnia, is reaching the saturation point. IPL suggested that a design could be developed which would not require breakout storage at Superior, thereby significantly reducing the cost of providing enhanced access for NGLs, or its components, and other upgraded products to other markets.

The Shippers Group and Koch concurred with IPL's assessment of demand to support this expansion, and stated that additional pipeline capacity is required to serve the premium market for western Canadian crude oil, northern PADD II.

During the proceeding, Express questioned the potential effects of the construction of the proposed Express pipeline on the need for the SEP II facilities. Express criticized IPL for not considering the Express pipeline in its application.

Express also argued that IPL had failed to address potential impacts associated with the reversal of Line 9 and that it did not present any supply, demand, cost, or netback analysis for NGLs in the market areas that would be accessed by SEP II. Further, Express argued that the letters of support filed by companies did not provide any throughput commitments.

5.2.4 Adequacy of Downstream Capacity

IPL noted that a concurrent expansion program would be required on Lakehead at an estimated cost of \$312 million (U.S.). Construction of the Lakehead portion would require regulatory approvals from several jurisdictions in the U.S. IPL filed detailed information with respect to the nature and the timing of these regulatory approvals. IPL indicated that Lakehead was in the process of negotiating with landowners and was very confident as to the outcome of these negotiations. IPL also stated that Lakehead was on schedule with the authorizations that it required to allow for a second half 1998 in-service date.

Express submitted that Lakehead would not be able to have its facilities in place prior to the end of 1998 and questioned whether it was prudent for the Board to approve the SEP II facilities so far in advance of the availability of downstream facilities.

Koch submitted that it would be advantageous to Canadian producers and IPL shippers to know with certainty that incremental capacity would be coming on stream in mid to late 1998.

5.2.5 Tolls, Netbacks, and Producer Revenues

To justify the SEP II expansion, IPL presented evidence regarding the expected impact of SEP II construction on tolls, netbacks and the net present value of producer revenues. IPL showed that the effect of SEP II on netbacks received by producers would be, all other things being equal, to lower the netback by an amount equal to the toll increase caused by the expansion. IPL indicated that, without taking into account the effects of the RSA and after construction of SEP II, its heavy crude tolls would be \$2.84/m³ lower to Wood River and \$10.28/m³ lower to Chicago than Express tolls.

IPL indicated that the SEP II expansion alone would increase the net present value of producer sector revenues by approximately \$1.8 billion. When both SEP II and Express are constructed, and Express ships its contracted volume, the net present value of producer sector revenues would increase by only \$695 million. In this second case, no additional oil is shipped, but some volumes are shipped on Express which, with higher tolls, would provide lower netbacks.

Views of the Board

In the Board's view, IPL's forecasts demonstrate that adequate supplies of crude oil would be available to the proposed expansion.

The Board is of the view that, with the removal of the market constraint for heavy oil, the PADD II market could absorb additional volumes of western Canadian crude oil in light of the available refinery capacity and the capability of these refiners to process additional heavy crude oil. The Board notes that the significant level of support from shippers, provincial governments and industry organizations demonstrates that markets are available and that the SEP II facilities will be utilized at a high level. The Board acknowledges that current apportionment on IPL indicates that there is a need for additional capacity and that these facilities will help to reduce this apportionment.

With respect to the downstream facilities, the Board is satisfied that the parties involved will seek the appropriate regulatory approvals in due course. The timing of this application is reasonable.

Chapter 6

Disposition

The foregoing constitutes our Decision and Reasons for Decision in respect of the application heard by the Board in the OH-1-96 proceeding. The Board accepts the supply and markets information provided by IPL as reasonable. In addition, the Board finds that the design of the System Expansion Program Phase II is acceptable to fulfil the demand for additional capacity on the IPL system.

With regard to Part IV matters, the Board approves a rolled-in tolling methodology for the System Expansion Program Phase II. The Board finds that the capital and operating costs relating to SEP II constitute a Non-Routine Adjustment in accordance with paragraph 7.1(a)(i) of the principles of settlement, filed in support of IPL's February 1995 Incentive Toll Application approved by NEB order TO-1-95. The Board also approves the terms of the Risk Sharing Agreement.

The Board is satisfied that the evidence indicates a strong likelihood that the facilities will be used at a reasonable level and are required by the present and future public convenience and necessity. Therefore, the Board will recommend to the Governor-in-Council that a certificate be issued. The certificate will be subject to the conditions outlined in Appendix II.

R. L. Andrew
Presiding Member

A. Côté-Verhaaf
Member

J.A. Snider
Member

Calgary, Alberta
July, 1996

Appendix I

Schedule of Facilities

Figure A1-1

Station	Units	Description
Edmonton to Hardisty	Line 1	508 mm O.D. pipeline
Edmonton	1.1, 1.2, 1.3, 1.4 Line 1 13.1, 13.2, 13.3 Line 13	Unit addition DRA skid Existing station transferred DRA skid
Kingman	13.1, 13.2 Line 13	Existing station transferred DRA skid
Strome	1.1 1.2 1.3	Modify pump, replace motor Replace pump and motor Unit addition
Hardisty	1.1, 1.2, 1.3 1.4 Line 1	Replace pump and motor Unit addition DRA skid
Metiskow	13.1, 13.2 Line 13	Existing station transferred DRA skid
Cactus Lake	1.1 1.2 1.3	Modify pump, replace motor Replace pump and motor Unit additon
Kerrobot	1.1, 1.2, 1.3 1.4 Line 1	Replace pump and motor Modify pump, replace motor DRA skid
Hershel	13.1, 13.2 Line 13	Existing station transferred DRA skid
Milden	1.1 1.2, 1.3 Line 1	Replace pump and motor Modify pump, replace motor DRA skid
Loreburn	1.1, 1.2 1.3, 1.4 Line 1	Replace pump and motor Unit additions DRA skid
Craik	13.1, 13.2 Line 13	Existing station transferred DRA skid

Bethune	1.1 1.2 1.3 Line 1	Modify pump, replace motor Replace pump and motor Unit addition DRA skid
Regina	1.1, 1.2	Replace pump and motor
White City	1.1 1.2	Replace pump, transfer motor Replace pump and motor
Odessa	1.1 1.2 1.3	Replace pump, transfer motor Replace pump and motor Unit addition
Glenavon	1.1 1.2, 1.3 Line 1	Replace pump, transfer motor Replace pump and motor DRA skid
Langbank	1.1 1.2, 1.3 Line 1	Replace pump, transfer motor Modify pump, replace motor DRA skid
Cromer	1.1 1.2 1.3 Line 1 Line 2	Replace pump Replace pump and motor Unit addition DRA skid Line heater
West Souris	1.1 1.2 1.3 Line 1	Replace pump, transfer motor Replace pump and motor Unit addition DRA skid
Souris	2.3 2.5	Modify pump Unit addition
Glenboro	1.1 1.2 1.3, 2.6 2,1 Line 1	Modify pump Modify pump, replace motor Unit addition Replace pump and motor DRA skid
Manitou	1.1 1.2, 2.1, 2.2, 2.3 1.3 Line 1	Replace pump, transfer motor Replace pump and motor Unit addition DRA skid
Gretna	1.1 1.2 1.3 2.4	Replace pump, trans. motor Replace pump Modify pump Unit addition

Appendix II

Certificate Conditions

Unless the Board otherwise directs;

1. IPL 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 with the exception of minor adjustments or changes to these practices, procedures and recommendations which may be required as a result of site conditions at the time of construction. These minor amendments to practices, procedures and recommendations will be reviewed by IPL's on-site Environmental Inspector and, providing the same standard of environmental protection is achieved, may be implemented without prior Board approval. Federal, provincial and/or the local authorities shall be consulted, where appropriate.
2. IPL shall, 15 days prior to the commencement of construction of the Eagle Creek crossing, advise the Board of the results of the Company's consultations with provincial authorities and with the Department of Fisheries and Oceans.
3. IPL shall, 15 days prior to the commencement of the hydrostatic test program, file with the Board copies of permits for the withdrawal and discharge of the hydrostatic test water.
4. IPL shall, 30 days after the in-service date, conduct noise emission surveys at each pump station where the addition of extra pumping units has occurred and file such reports with the Board. The noise emission surveys shall include actual noise level measurements at intervals along the station fence line and within 15 m of the nearest residence.
5. IPL shall, pursuant to section 58 of the National Energy Board Onshore Pipeline Regulations ("the Regulations"), file with the Board a post-construction environmental report within six months of the date that the construction is completed. 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) indicate the issues resolved and those unresolved; and
 - (b) describe the measures IPL proposes to take in respect of the unresolved environmental issues.
6. IPL shall, pursuant to section 58 of the Regulations, file with the Board, on or before the 31 December following each of the first two complete growing seasons after the post-construction environmental report referred to in condition 5 has been filed, a report containing:
 - (a) a list of the environmental issues indicated as unresolved in the previous report and any that have arisen since that report was filed; and

- (b) a description of the measures IPL proposes to take in respect of any unresolved environmental issues.
7. IPL shall, at least 10 days prior to the commencement of construction of the approved pipeline facilities between Edmonton and Hardisty, file with the Board the results of the heritage resource surveys referred to in the application, including any corresponding avoidance or mitigative measures.
 8. IPL shall, prior to the commencement of construction:
 - (a) serve the heritage resource surveys on Alberta Community Development and the Saskatchewan Heritage Branch;
 - (b) seek the opinion of each provincial agency described in subsection (a) above, concerning the acceptability or non-acceptance of the heritage resource surveys; and
 - (c) advise the Board of the respective opinions of each provincial agency described in subsection (a) above, or of IPL's inability to obtain an oral or written opinion of one or more of the provincial agencies described in subsection (a) above.
 9. IPL shall file with the Board detailed design information concerning the Line 2B heater at least 10 days prior to the scheduled in-service date of the heater.
 10. This certificate shall expire on 1 July 1999 unless the construction and installation of the proposed facilities has commenced by that date.