UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Northwest Alaskan Pipeline Company)	Docket No. CP78-123, _et al._
Northern Border Pipeline Company)	CP78-124

INITIAL BRIEF

OF

NORTHERN BORDER PIPELINE COMPANY

(Phase II and Final Summation, All Issues)

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GLOSSARY OF SHORT FORM PROPER NAMES

FULL NAME	SHORT FORM
Northern Border Pipeline Company	Northern Border
Northwest Alaskan Pipeline Company	Northwest Alaskan
Alaskan Northwest Pipeline Company	Alaskan Northwest
Northern Natural Gas Company	Northern
Panhandle Eastern Pipeline Company	Panhandle
United Gas Pipe Line Company	United
ANB Gas Company	ANB
Pan-Alberta Gas Company	Pan-Alberta
TransCanada Pipeline Limited	TransCanada
Consolidated Natural Gas Company	Consolidated
Foothills Pipelines, Limited (and subsidiaries)	Foothills
Tennessee Gas Pipe Line Company (division of Tenneco Inc.)	Tennessee
Texas Eastern Transmission Corporation	Texas Eastern
Michigan-Wisconsin Pipeline Company	Michigan-Wisconsin
Natural Gas Pipeline Company of America	Natural
TransCanada Border Pipeline Company	TransCanada Border
Great Lakes Transmission Company	Great Lakes
Pacific Gas Transmission Company	PGT

National Energy Board of Canada	NEB
Federal Energy Regulatory Commission	Commission
Commission Staff	Staff

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I.

INTRODUCTION

The Commission has already received a number of Briefs in these proceedings addressing Phase I issues, certain Phase II issues principally related to appropriate shipper tariff "tracking" arrangements, and certain issues common to both the Eastern (Northern Border) and Western (PGT) Legs of ANGTS which previously became ripe for decision; the Commission has already issued Orders (principally the Order of January 11, 1980, issuing the Western Leg Certificate to PGT, and the Order of January 4, 1980, addressing certain Capital Cost Estimate issues) resolving certain Eastern Leg issues, and providing guidance on certain other issues. Issues argued in prior briefs, or decided by the Commission, will not be reargued here.

A brief description of the content of such prior briefs, and of issues resolved by the Order of January 11, 1980, is provided in the Brief of Northwest Alaskan, so that such prior briefs may be reviewed further if the Commission wishes. In addition, the shippers of Pan-Alberta gas through Northern Border are providing briefs addressing such remaining Phase II issues as are applicable to them. A TransCanada Brief will supplement this Brief, addressing TransCanada's views with greater particularity.

This Brief, therefore, will confine itself to a discussion and argument of the three dominant issues remaining: 1) the Northern Border financing plan; 2) Northern Border's proposed depreciation methodology; and 3) the Northern Border capital cost estimates and the function of such estimates in the IROR mechanism as applied to Northern Border.[1] We also request the Certificate be issued so as to conform to the proof, and that this Brief be treated as a Motion to that effect. Specific details are provided in Section V hereof.

1/ Of the issues enumerated by the Commission in its Order of April 20, 1979, for consideration in Phase II (Order, p. 8), we submit:

a) Those related to the Pan-Alberta-Northwest Alaska gas purchase contracts, the desirability of those imports from a policy standpoint, and gas supplies have been resolved by the January 11, 1980, Order issuing the Western Leg Certificate;

b) No new issues are posed which were not covered in the <u>President's Decision</u> with respect to facilities, right-of-way, and the environment since the facilities and route remain the same, except for the two minor deviations requested to be authorized in Section V hereof;

c) Those related to downstream transportation and exchange arrangements for Pan-Alberta gas, and the resale (including marketability) of such gas, have been or are being addressed by the shippers;

d) Tariff related issues for the Northern Border tariff have been resolved by agreement with Staff (see Exhibit NB-20, and 20A-D), except for the substantive issue of depreciation practices which is part of the financing plan and addressed in Section IV hereof.

II.

The Northern Border Financing Plan

The specifics of the Northern Border financing plan are clearly set forth on the record. Certain orders and actions are needed to effectuate those plans. We start with the specifics.

A.

Specifics of the Financing Plan

The plan contemplates an approximate debt-equity ratio of 70-30%, with funds drawn down on an equal dollar basis between equity and debt until the full equity commitment is met. Debt funds will complete the cash draw downs after all equity is paid, until the total amount contemplated by the escalated Certification Cost Estimate is expended. If that amount is overrun, the increment between 100% and 110% thereof also will be provided on a 70-30% debt-equity ratio, and the increment between 110% and 120% on a 50-50% debt equity ratio. If cost overruns should exceed 120% of the escalated Certification Cost Estimate, all such excess funds will be provided by the equity sponsors. Based on Exhibit NB-16 (escalated Certification Cost Estimate) and a financing-economic assumption of a 10% overrun,[2/] equity requirements will approximate $420 million, and debt requirements $990 million. (Meierhenry, Tr. 4, Phase II-B/198). The economic statements (balance sheets and income accounts, cash flow, cost of service, etc., presented in Exhibits NB-24 and 25A through 28A) all reflect the 10% overrun assumption.

2/ The 10% overrun assumption is an arbitrary financing assumption included as a conservative planning measure in view of the inherent risks in the one year construction schedule to be undertaken; it is not an opinion or forecast that such an overrun will occur.

The plan is solidly buttressed by the essential commitments: these include the Tariff (Exhibit NB-20, as modified by 20A through 20D pursuant to agreements with staff),[3] letters of intent with Pan-Alberta gas shippers and TransCanada (Exhibit NB-21) to execute the service agreements to ship gas contained in the Tariff, equity commitment letters (Exhibit NB-22) from the Northern Border sponsors, and a Summary of Terms of an offer to provide the debt funds tendered by Canadian Imperial Bank of Commerce (CIBC) (Exhibit NB-23A). Northern Border has accepted the NB-23A Summary of Terms, and an extract of the resolution of such acceptance has been filed with the Commission; a copy is attached as Appendix "A" hereto. All such commitments are subject to receipt of both U.S. and Canadian regulatory approvals on terms satisfactory to the signatories, and a comprehensive loan agreement embodying the Summary of Terms must be prepared; the lending offer also requires certain assurances from sponsors that the line will be completed (see Exhibit NB-23A, p. 4, Security, (4)), and that export-import licenses are in place for specified minimum quantities of gas. Further "backstopping" the loan offer are certain commitments by TransCanada to CIBC set forth in the letters of record as Exhibit NB-23B.

No one questions the adequacy and sufficiency of these documents to establish Northern Border's ability to finance the "pre-build" project, always assuming, of course, that satisfactory regulatory authorizations are forthcoming from essential U.S. and Canadian authorities. Unfortunately, the export licenses granted by NEB in Canada in December, 1979, did not provide assurance of sufficient volumes of gas for export through Northern Border to enable it (or its connecting Canadian transporter, Foothills) to finance the

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3/ Northern Border and Staff are now in agreement on tariff language in all respects; a substantive issue remains for Commission decision on depreciation provisions.

"pre-build" system (see Jiorle, Tr. 3, Phase II-B/168-170; Meierhenry, Tr. 4, Phase II-B/203). A review of the development of the financial plan over time, and the adjustments made to meet changing circumstances and conditions, may be helpful to a full understanding of the present posture of the financing plan.

B.
Evolution of the Financing Plan

Originally, Northern Border's plans were based upon receipt of an annual volume of 292 Bcf of Canadian export gas (average day volumes of 800,000 Mcf) over a 12-year term, as contemplated by the Pan-Alberta-Northwest Alaskan gas purchase contract, and the resale contracts from Northwest Alaskan to Panhandle, Northern and ANB. On that volume, with an annual straight-line depreciation rate of 8.33% (reflecting the 12-year economic life of the project), the sponsors were willing to commit for the necessary equity, and were advised by the banking advisors that the necessary debt funds could be made available by bank loans.

Subsequently, it became apparent that the prospects of obtaining assurance of that volume for the full 12-year term from NEB were quite dim. It was at this stage that TransCanada came into the picture, with its offer to become a sponsoring partner.

TransCanada advised the partners that in its opinion an assured export volume of Pan-Alberta gas would be granted only for 6 years rather than 12 years, and, to protect against the possibility that Alaskan gas would not begin to flow by the end of that period, offered to "backstop" the system by assuring transportation of TransCanada gas (or paying for such transportation in any event) if deliveries of Pan-Alberta gas terminate; TransCanada Border also offered to arrange for debt financing for the project under such conditions. These offers were accepted, and are now embodied in Articles VIII and X of the First Supplement to the Partnership Agreement (Exhibit NB-18, Tab. 1; Tab 2 is the full amended Partnership Agreement after incorporation of the relevant provisions of the First Supplement); the "backstop" provisions are included in the

TransCanada Service Agreement which is now part of the Northern Border Tariff (Exhibit NB-20). In order to make the risk of possible extended "backstopping" acceptable, and to ensure its ability to obtain the debt financing it agreed to negotiate, TransCanada required adoption of the depreciation proposal now embodied in Northern Border's Tariff. That proposal charges depreciation on a unit of throughput basis predicated on a total throughput of 4.164 Tcf, with depreciation charges to be abated commencing during any contract year of Northern Border's first ten (10) years of operation, up to a total of four (4) contract years, if Pan-Alberta gas deliveries through Northern Border are less than 100 Bcf and total deliveries through Northern Border are less than 250 Bcf (Johnson, Tr. 4, Phase II-B/263-4).

In addition to the Pan-Alberta export applications then pending before NEB, applications also were pending by Consolidated Natural Gas Ltd. (a Canadian subsidiary of Northern) to export for sale to Northern certain volumes commencing at 200,000 Mcf/d, with declining amounts in later years, and by ProGas, Ltd., to export for sale to Tennessee, Texas Eastern, Michigan-Wisconsin, and Natural, a total initial volume of 300,000 Mcf/d, with declining amounts in later years. Both Consolidated and ProGas proposed to export such gas by shipment in Canada through TransCanada to Emerson, and in the United States through Great Lakes, for ultimate delivery to the designated buyers. During the course of proceedings in these consolidated dockets, both ProGas and the prospective purchasers from ProGas voluntarily appeared to testify to their willingness to ship their gas (or a portion thereof) through Northern Border after it became operational, if such should become necessary in order to assure the viability of the "pre-build" project. Consolidated and Northern, in responses to interrogatories in Canada and the U.S., expressed the same willingness, provided an equitable distribution of the ProGas and Consolidated volumes to be shipped through Northern Border was arranged. Prior to issuance of the NEB Licenses authorizing exports, it was not known whether any quantities of ProGas or Consolidated volumes would be required to be shipped through Northern Border to make the "pre-build" project viable.

C.
The NEB Licenses Authorizing Exports

The NEB licenses authorizing exports issued in December, 1979, undermined the Northern Border financing plan; the volume of gas authorized for shipment through Northern Border over the term of the licenses was not adequate to support the financing, even with the TransCanada "backstop." Northern Border, together with TransCanada and CIBC, promptly set about determining what would be needed to restore Northern Border's ability to finance, and then to take all possible steps to meet those needs. Pending the outcome of those efforts, all financing and "backstopping" arrangements were allowed to remain in effect. This is what is needed (see Meierhenry, Tr. 4, Phase II-B/203):

(a) Export authorization by NEB to Pan-Alberta to sell and deliver the full total Eastern Leg contract sales volume of 800,000 Mcf/d (292 Bcf/yr) for a term of five years, and approximately one-half that annual amount (133 Bcf) in the sixth year.

(b) NEB amendment to Licenses GL-56 and GL-61, respectively, adding Monchy, Saskatchewan, as an additional point on the international boundary from which ProGas and Consolidated may export their authorized export volumes, for transportation through Northern Border.

(c) Authority for Pan-Alberta to deliver in the sixth year of operation, and if need be in the seventh year, any volumes undelivered in the first year of the export license by reason of failure to complete Northern Border by November 1, 1981.

D.
Present Posture of the Financing Plan

Steps have already been taken to obtain these necessary Canadian authorizations for export, and the agreements of the various parties for shipment of the required ProGas and Consolidated volumes through Northern Border. All those involved, whether government agencies or private parties, U.S. and Canadian, are fully aware of the critical time constraints Northern Border faces in its efforts to commence service by November 1, 1981, and every effort is being made to resolve these matters and assure Northern Border's financing at an early date. Canadian NEB and governmental action can be expected on a time frame compatible with action by this Commission in these dockets, and it clearly would be appropriate for the Commission to issue certificate and import authorizations now, but conditioned upon issuance of satisfactory Canadian export authorizations.

Arrangements for transporting ProGas and Consolidated volumes through Northern Border must be formulated in order to meet the severe time contraints imposed by the need for early completion. Assuming satisfactory export authorizations by NEB, we submit all requisite Commission authorizations can be issued on a time frame which will meet construction objectives. The following analysis suggests a schedule of filings by parties and Commission Orders which should permit that to be done.

First, a final Commission decision containing a Canadian condition, and making definitive findings on the evidence and issues presented on the present record, is imperative at an early date. In particular, a decision is required on the three issues on which Northern Border's ability and willingness to proceed depend: (1) the depreciation methodology proposed; (2) determination of the capital cost figures to be employed in the March, 1977, estimate repriced in 1979 dollars (Exhibit NB-12), and in the Certification Cost Estimate (NB-13), and the Center Point calculation derived from those figures for implementation of the IROR mechanism; and (3) approval of the proposed shipper "tracking" tariff provisions. It is assumed this decision will be available by April 1, 1980.

Second, it should be noted the record already contains substantial evidence of the willingness of the purchasers of Canadian export gas involved in this proceeding to ship through Northern Border under the circumstances which now obtain, and of the need of all such purchasers for the volumes sought to be imported.[4/] Northern Border's Exhibits NB-25A through 28A estimate the average unit cost of transportation service based on transport of such volumes as are estimated to be exported through Monchy, and on inclusion in the rate base of the cost of the additional Northern Border compressor station which may be required. Since all such gas is being offered for import through Northern Border in support of the "pre-building" of that part of ANGTS, all such imports clearly are "related to" ANGTS.

Third, the record must be supplemented by: (1) an application by Northern Border to construct an additional compressor station (if one should be required), and to transport gas for the purchasers of the Consolidated and ProGas volumes; (2) amendments to import applications by Northern and ProGas purchasers to import gas at Port of Morgan, Montana, as well as at Emerson; and (3) applications for construction of any facilities required on other systems to effect delivery from Northern Border to such purchasers, and to deliver or exchange gas to achieve that end. This procedural analysis assumes all such applications, agreements and data could be filed no later than March 31, 1980.

The present record abundantly supports the issuance of a Certificate to Northern Border for construction and operation of the "pre-build" facilities, subject to a second condition requiring (1) the filing of the applications described above (or taking cognizance thereof if previously filed), and (2) a determination that grant of said applications described above on the terms proposed (or such modification of such terms as might be be deemed necessary) was required by the public convenience and necessity. With adoption of such expeditious measures as the Commission has heretofore directed in this proceeding, we submit the Commission could issue findings that all conditions had been satisfied (or not) by May 15, 1980.

4/ See Briefs of Northern, Panhandle and United with respect to Pan-Alberta and Consolidated gas, and the Phase III record for ProGas gas.

III.

Capital Cost Estimates and IROR Mechanism

This is by far the most critical issue presented in this case. The manner in which other issues are resolved, particularly export-import gas volumes and depreciation methodology, will decide only whether Northern Border is able and willing to proceed with the "pre-build" proposal. By contrast, the decisions on the capital cost estimate-IROR mechanism made here will apply with equal force to the construction of the entire Eastern Leg for transportation of Alaskan gas. Decisions on this issue now which disable the Northern Border sponsors from proceeding with "pre-build" could be expected to have the same effect on any later effort to construct the full Eastern Leg for transportation of Alaskan gas, and obviously the entire ANGTS would then be in jeopardy.

The Center Point calculation derived from the final corrected figures for Exhibits NB-12 and NB-13 shown at Tr. 9, Phase II-B/865 and 874, is:

$$1.1 \times \frac{\$1,226,583}{1,094,191} = 1.233095$$

The controversy between Staff and Northern Border on the methodology employed for and dollar level of the respective estimates[5] centers on two fundamental points: (1) whether normal contingency allowances are to be included in the March, 1977, Estimate repriced in base year dollars (Exhibits NB-12 and 12A, and S-40) and in the Certification Cost Estimate (Exhibits NB-13 and S-41); and (2) the appropriate methodology to be employed in repricing the March, 1977, Estimate in base year dollars. Base year dollars are 1979 dollars.

5/ Only Northern Border and Staff tendered evidence on this issue on the record. No other party questioned Northern Border's estimates on the record.

A.
Inclusion of Normal Contingency Allowances

Staff witnesses Hart (S-40, the repriced 1977 estimate) and Stancil (S-41, Certification Cost Estimate) stated simply that each eliminated any contingency allowance "on the advice of Staff Counsel who interpreted the intent of Orders 31 and 31-B as precluding contingency from estimates which are to be used to calculate the Center Point" (Tr. 8, Phase II-B/747 and 753). Staff Counsel rendering the opinion is not identified, the opinion presumably was oral since no written opinion was filed and neither witness mentioned a written opinion, and the Judge shut off inquiry into the subject (Tr. 8, Phase II-B/814). We, therefore, must consider the question _de novo_, rather than by response to a defined position.

It is incontrovertibly clear that all Northern Border estimates in _El Paso Alaska, et al_. (the source for all original estimates considered by the _President's Decision_) included contingency allowances, as did all estimates of all other parties for all proposals (and there were many) there involved, as does _every_ Certificate Application estimate of which we are aware, and as probably does every cost estimate for any type of substantial construction. Such contingency allowances are as integral and _normal_ a part of the cost estimate as pipe itself. Had they not been included the March, 1977, estimate, the total dollar level of that estimate could not have been presented or attested as a reasonable figure by the estimators sponsoring that estimate. In addition, those advisors who reported to the President analyzing the cost data of the various applicants in _El Paso Alaska_ would have started from lower base figures, and their evaluation of the probable cost overruns to be experienced by the various proposals would have been higher. Those evaluations in turn found their way into the _President's Decision_, and now are reflected as a constant in the formula approach for determining the center point. In Northern Border's case, the constant of 1.1 employed in its formula would have become a higher figure. Elimination of the contingency allowance without an upward revision of the Center Point calculation constant certainly would be grossly inequitable, and utterly inconsistent with the intent of the _President's Decision_ and the formula methodology adopted in Order 31, Condition 12.

While it is true that these points are peculiarly applicable to the repriced March, 1977, estimate rather than to the Certification Cost Estimate, surely the only rational approach is to treat the two on a consistent basis, and to include the contingency in both.

Nowhere has the Commission evidenced <u>any</u> intent to exclude normal contingency allowances. In specifying the manner in which the repriced 1977 estimate and the Certification Cost Estimate should be prepared in Order 31, the Commission nowhere, either specifically or by inference, excluded normal contingency allowances. Since such allowances were known to be part of the 1977 estimates, and also known to be part of every Certificate Application Exhibit K estimate filed with the Commission, there can be no question that the Commission intended such allowances should be included.[6/]

Nor does Order 31-B alter this conclusion in any way. That Order does not address the inclusion of contingency allowances of any kind where the formula approach is elected, as Northern Border has done, and indeed, where Order 31-B discussed contingencies with respect to the

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6/ Normal contingency allowances were included both in the repriced original estimate and in the Certification Cost Estimate for the Western Leg; in fact, the proposed allowance was increased to 7% on Staff's recommendation (Tr. 1, Phase II-B, Western Leg/11). The Northern Border allowance is set at 6.1%.

alternate approach of Alaskan Northwest, it discussed only abnormal contingencies. Nothing contained in that Order 31-B discussion relates either to use of the formula method or to normal contingency provisions.[7]

Insofar as Northern Border is concerned, the issue has been laid to rest conclusively by the provisions of the Order of January 4, 1980, in this proceeding. At p. 5 of that Order (directing Northern Border to file its repriced 1977 estimate on a one year construction schedule, now Exhibit NB-12A), the Commission directed: "7) Contingencies--to be computed in exact same manner as is done for certification estimate." That direction is utterly meaningless if the Commission had previously ruled that contingencies should be excluded altogether from the certification estimate. Clearly, the Commission intended that both the certification estimate and the repriced 1977 estimate should include normal contingency allowances computed in the same manner. Any other interpretation defies reason.

B.
Repricing Methodology

The basic controversy between Northern Border and Staff relates to the methodology to be employed in repricing the March, 1977, estimate in 1979 dollars (Exhibits NB-12 and 12A, supported by Messrs. Pyle and Reynolds; S-40,

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7/ The Order refers solely to events characterized as "abnormal," "unexpected" and "unauthorized," none of which customarily would be included in a normal contingency allowance, which is precisely why Alaskan Northwest raised its questions in terms of allowable Changes in Scope, not normal contingency provisions. Order 31 cites (as examples, of items outside Change of Scope, at p. 126) floods, fire, landslides, etc., none of which would be reflected in a normal contingency; similar examples would be 100 year storms, earthquakes, terrorist activities, etc., which cannot be reflected in normal contingencies. Normal contingencies reflect weather conditions worse than average but not of the 100 or 50 year variety, delays in delivery schedules, equipment breakdowns, illness of supervisory personnel, etc.

supported by Mr. Hart). There is little conflict over the Certification Cost Estimate (Exhibit NB-13, also supported by Messrs. Pyle and Reynolds; S-31, supported by Mr. Stancil), so we will deal with it first.

Mr. Stancil (Exhibit S-41) proposed only four adjustments to NB-13, which, in order of dollar magnitude are:

1) Elimination of contingency allowance: $61 million. This has already been discussed.

2) Elimination of the cost of right-of-way (ROW) in Dunn County, North Dakota, representing the value of minerals (coal) underlying the land ($41 million), offset by the cost of rerouting to avoid the coal deposit ($11 million): $30 million net. This is really a non-issue, since Northern Border itself intends to make that adjustment (employing its own figures for rerouting cost) with the Federal Inspector when all permits to reroute are obtained, so the final Certification Cost Estimate will not include the value of the coal if Northern Border can reroute to avoid it. Mr. Stancil is merely premature, and the value should be retained in NB-13 to ensure fairness in the Center Point calculation. (see Tr. 7, Phase II-B/559).[8/]

3) Reduction in project management costs attributable to overhead allowance for Omaha office ($2.8 million), and in construction management for supervision of meter stations ($0.3 million): total reduction $3.1 million. Mr. Stancil is simply wrong in alleging that Northern Border's overhead allowance for Omaha Office services exceeds the norm today. No specific contracts were produced to support

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8/ Since the cost of the coal must be included in NB-12, as we shall demonstrate, Northern Border would receive an unearned advantage in the Center Point calculation by removing it from NB-13.

his opinion, although requested by Northen Border (Tr. 7, Phase II-B/710 et seq.); he cites none in his testimony. Mr. Reynolds presented the only substantial evidence, relying on much more extensive current experience, and cited examples of current contracts employing higher "overhead" charges than those assessed for the Omaha office. The costs are real, and should be included. As for the meter stations, Mr. Stancil is wrong there, also, since the costs are required to insure adequate supervision of construction, and reduction of supervisory crews for meter stations from three to one could preclude minority business participation. (Tr. 7, Phase II-B/560).

4) Reduced Finance Charge: \$2.6 million. This results from a mere arithmetical calculation employing the deductions and eliminations listed in (1) through (3) above.

In short, except for item 3 above, Mr. Stancil has verified the unit prices employed in Exhibit NB-13, and since these are the same unit prices as Order 31 requires to be employed in the repricing of the March, 1977, estimate, the unit prices of Exhibit NB-12 are verified also. On this record, the unit prices employed in Exhibits NB-12 and NB-13 are not at issue, and NB-13 is not at issue as to total dollars except for the minor amounts involved in Item 3.

C.
NB-12 Versus S-40

NB-12 falls in a different category; there is little or no agreement between that Exhibit and its Staff counterpart, S-40, either as to methodology or results obtained. In the first place, NB-12 conforms to the requirements of Order 31, by repricing the "March, 1977," estimate in 1979 dollars, employing the quantities of material and labor used to develop the 1977 estimate (NB-11), and pricing those quantities at the same unit prices as appear in NB-13. Staff makes no pretense of conforming to that procedure in S-40, admittedly going to mere escalation of 1975 dollars (taken from NB-11) to 1979 dollars by employing certain inflation indices, despite the admission that the method is inferior[9/] and is contrary to Order 31. To make matters worse, even the inefficient and disapproved method they employ is replete with errors and omissions, which, if corrected using relevant available data, would produce a result much closer to NB-12 than to S-40.[10/]

A certain amount of background information is in order. Northern Border filed its capital cost exhibits on November 15 and 21, 1979. On November 29, Staff filed its Motion to Reject, complaining of the adequacy of Northern Border's Exhibits NB-11 and NB-12, in particular, and suggesting adoption of the inflation methodology now employed in S-40. Northern Border's Answer denied Staff's allegations. On January 4, 1980, the Commission issued its Order requiring the filing of Exhibit NB-12A, but, although the Commission noted Staff's complaints of lack of detail as to quantities in the 1977 estimate and Staff's suggestion to inflate 1975 dollar costs to 1979 levels, the Commission ignored that suggestion. Despite the Commission's refusal to adopt the Staff's suggestions, the Staff evidence essentially reiterates (through Mr. Hart) the same complaints as voiced in the November 29 Motion, and presents S-40 employing the inflation adjustment methodology.

Staff's complaints are succinctly stated by Mr. Hart at Tr. 8, Phase II-B/747, lines 34-39: "NB-12 and 12A were supposed to convert the March 1977 estimate into base year (or 1979) prices by applying base year prices to the quantities shown in NB-11. In general, Northern Border could not do so because of the lack of detail for 1975 quantities of material and labor provided in its NB-11."

9/ Staff Motion to Reject, filed November 29, 1979, p. 9.

10/ It would still produce substantially less accurate results, of course, but would approximate reality. See Appendix "B", and the later analysis in sub-section "D" of this Section.

The Northern Border rebuttal case completely and conclusively disproves those complaints. First, Messrs. Pyle and Reynolds address the language quoted above directly (Tr. 7, Phase II-B/546, lines 4-15):

"Q. Do you agree?

"A. "No. Mr. Hart seems to be playing a technical point to death. It has been explained many times that Northern Border indeed cannot find a complete set of documents that contain both detail quantities and unit costs that together sum to the March 1977 estimate. However, Northern Border has provided a mass of work papers to the FERC staff both by hand in a Technical Conference and by express, that completely refute Mr. Hart's conclusions that Northern Border lacks the detail quantities themselves in usable and identifiable form. Mr. Hart did not attend the Technical Conference where the work papers were explained, and that may be one part of his problem."

Messrs. Pyle and Reynolds then proceed to present a series of exhibits (NB-32 through NB-37) consisting of reproduced work papers and computations, with a comprehensive explanation of how these work papers provide the detail quantities required to enable them to reprice 1975 quantities in 1979 dollars.[11/] The presentation culminates in Exhibit NB-37, which summarizes all source data and puts into proper perspective how much of the NB-12 quantity estimate is derived directly from sources conclusively verified as being those quantities employed in the 1977 estimate (NB-11). All quantity items for the pipeline itself are verified beyond question, and when priced in 1979 dollars these alone comprise 82.2% of NB-12's total dollars; smaller items (columns 4, 7 and 9) whose quantities are unquestionably verified raise the total percentage priced in 1979 dollars to 94.5%. Only those quantity items listed in Source 6 derive directly from NB-13, and comprise but 3.1% of the dollar total, but 85% of the amount attributable to Source 6 (NB-13) comes from Non-Traditional Project Management Costs required by present Government mandates not applicable when NB-11 was prepared (Tr. 7, Phase II-B/559), so the only source available is NB-13, which reflects today's requirements for compliance with Government mandates.

The prepared rebuttal testimony itself does a far better job of explanation than could be achieved by brief; it is lucid, comprehensive, understandable to a lay reader, and completely convincing. No one reading that testimony could doubt Northern Border does have detailed data for the quantities employed in NB-11, and that NB-12 faithfully reflects those quantities. (Tr. 7, Phase II-B/554-559).

Any tribunal faces a difficult task in evaluating directly conflicting technical evidence. It must decide which technical presentation is accurate and which is not, and in doing so it must consider the qualifications of those witnesses who prepared and presented the conflicting sets of evidence.

11/ In the process, Exhibit NB-12 is corrected (Exhibit NB-12B), because while undertaking to understand and identify Mr. Hart's problem, it was discovered that the dollars for River Crossings materials shown in NB-12 were inadvertantly copied from the NB-13 work sheet instead of the NB-12 work sheet. The correction resulted in a small increase in the NB-12 total estimate.

Here, Messrs. Pyle and Reynolds support Northern Border's assertion that adequate quantity detail is available and has been employed correctly, whereas Mr. Hart alone asserts Staff's position that such detail is not available. Both Messrs. Pyle and Reynolds have years of experience in pipeline engineering, pipeline construction, and pipeline cost estimating. Their qualifications appear at Tr. 7, Phase II-B/526 (for Mr. Reynolds), and at Tr. 3, Phase I/352-3 (for Mr. Pyle).

By contrast, Mr. Hart, who sponsored S-40 and whose testimony stands alone on the record in criticizing NB-12 for lack of detailed quantities, possesses no qualifications whatsoever, literally none at all, for that task. He lacks even so much as a day's experience with pipelines, and lacks even so much as a day's experience in construction. His own statement of his qualifications appears at Tr. 1, Phase II-B, Western Leg/44. It verifies the complete accuracy of our characterization.[12/]

Pipeline construction is a specialized field unto itself, in which even those with substantial general construction experience would be lost, as would those whose pipeline experience was limited to non-construction assignments. Mr. Hart's handicap was compounded by the fact that Mr. Hart was assigned a task that would challenge a fully-qualified staff: analysis of the resurrection and repricing of an ancient estimate.

D.
S-40 Corrected for Errors and Omissions

Once Mr. Hart's criticisms of Northern Border fall, Staff's answering case goes with it, for no one contends Staff's methodology should be employed where

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12/ The word "construction" in Mr. Hart's title at Minerac is not a construction qualification. He was there approximately one year, and the plant (a relatively small chemical plant), was in operation during that time. (Tr. 8, Phase II-B/768-9).

adequate quantitative data is available for the 1977 estimate. As a final precaution, however, we have corrected Mr. Hart's Exhibit S-40 to reflect record data, the exercise being merely a mathematical calculation of principles or data taken from the record. The result shows a total estimate of $1,233,981 for S-40, as compared to a final corrected total of $1,226,583,000 for NB-12 (Tr. 9, Phase II-B/874); the computation itself appears in Appendix "B", but the items involving the substantial dollar corrections are described below.[13/]

The major deficiency in the use of any general inflation index is that it fails to reflect loss of productivity (see Alaskan Delegates Report of August 3, 1979, Chapter IV, Section A, p. 20). Mr. Hart conceded on cross-examination that (all references are to Tr. 8, Phase II-B):

1) He did not know how to measure productivity losses (p. 796);

13/ In our discussion of the capital cost estimates, we have largely ignored Exhibit NB-12A, a counterpoint of NB-12 except that it reflects a one-year construction schedule instead of the two-year schedule employed for NB-12. The reasons for this are detailed at length in the prepared testimony of Messrs. Pyle and Reynolds (Tr. 7, Phase II-B/536-41), supported by Mr. Schulz and Mr. Feiler. The basic reason is that the March, 1977, estimate in fact employed a two-year schedule, and would have done so even if "pre-build" had been contemplated at that time. As explained, the one-year schedule was forced on Northern Border. Staff has agreed on this point: "Accordingly, I agree with Northern Border that a two year construction schedule is appropriate since that was the assumption used in the March 1977 estimate. The fact that the present construction schedule is 1 year is irrelevant to a repricing of the March 1977 estimate." (Tr. 8, Phase II-B/751).

2) He agreed with the statement of the Alaska Delegate at p. 20 of that Report, as cited above (P. 798);

3) If he had available a productivity measure and used it, it would give a more accurate result than using mere inflationary indices without considering productivity (p. 801).

There can be no question that productivity losses are as critical a factor as inflation if one is to undertake to inflate 1975 dollars to 1979 dollars (which is all Staff's S-40 does) for installation costs of pipelines or other structures. Northern Border did seek data on this subject from pipeline contractors, who do the installation work. One contractor commented only that labor productivity had decreased "astronomically" during the past five years. The second responder, however, had actually measured and charted his productivity since 1948 (with 32 years of experience, he obviously is not only an experienced, but also a successful contractor). The productivity curve for his operation showed a productivity loss of 30.2% from 1975 to 1979, which calculates to a productivity loss cost impact of 43.3%. While this reflects the experience of only one major pipeline contractor, Mr. Reynolds pointed out that his data was in line with recent published information on general construction productivity (Tr. 7, Phase II-B/641-2; 701-2), and that if one inflated 1975 dollar costs to 1979 dollars, a 43% correction factor should be employed for productivity loss alone. That one factor would increase the S-40 total by about $82 million.

The second largest item omitted by S-40 is the contingency allowance, which if computed at Northern Border's 6.1% rate would add about another $66 million to S-40. The reason for this adjustment has been fully discussed, supra, in Subsection "A" of this Section.

The next largest item requiring adjustment is Mr. Hart's elimination of $41 million of ROW costs for the value of the coal (mineral) rights underlying the ROW in Dunn County, North Dakota. Mr Hart's explanation on direct of the basis for doing so is no more than a statement that he did not wish to give Northern Border credit for so large a cost (see Tr. 8, Phase II-B/751).[14/] On cross-examination, however, Mr. Hart agreed that the coal certainly was there (underlying the ROW) in 1975, that the quantity of ROW is the same now as it was then, that coal and mineral rights are part of ROW costs, and, finally (Tr. 8, Phase II-B/802):

> "Q. Now, if you bought that right-of-way today, repriced in 1979 dollars, should you not reflect the value of the minerals for which you are going to have to pay?
>
> "A. If you were to make that estimate today, yes, you would include it."

We cannot improve on that statement; that is precisely what Order 31 requires, and what Northern Border has done in NB-12.

The next largest single item to be adjusted, amounting to about $29 million in total, is new or increased state and local ad valorem and excise taxes imposed since 1975.[15/] Mr. Hart did not calculate these as a separate item, but only considered them as part of the costs of pipeline, compressor station, river crossings, communication systems, etc., which he inflated by his general indices. Mr. Hart agreed on cross-examination that the methodology he

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14/ Mr. Hart, unlike Mr. Stancil, did not even give Northern Border credit for the costs of deviating around the coal deposits. The two Staff witnesses are thus in conflict on this important item. If one accepted Mr. Hart at face value, there would be an empty gap in the pipeline of several miles.

15/ These are ad valorem and excise taxes imposed during the construction period on materials, supplies, equipment, etc., brought into local taxing districts.

employed would not reflect the effect of such new or additional taxes (Tr. 8, Phase II-B/807-8). Obviously, such taxes must be paid, and their cost must be reflected in any estimate showing quantities repriced in 1979 dollars.

The next largest single item to be adjusted is Project Management Costs. Following his methodology, Mr. Hart simply inflated the 1975 dollars in the March, 1977, estimate to 1979 levels, ignoring the fact that new governmental requirements imposed since 1975 have vastly expanded the scope of the management assignment. These are what Northern Border referred to as "non-traditional" and government mandate management costs in its analysis (see Exhibit NB-36 for details of these items, also summarized in NB-37, columns 4 and 6). As can be seen, the "traditional" cost alone, derived from quantities taken from NB-11 and underlying work papers, is $38.5 million, as compared to Staff's total figure for all management costs of about $34 million in S-40. Obviously, Staff's figure does not meet 1979 requirements for Project Management attributable solely to increased governmental requirements, and equally obviously they should do so.[16/] This adjustment, when "non-traditional" and governmental mandate costs are also included, amounts to about $21 million. (See Appendix "B".)

The next largest single item requiring adjustment, amounting to about $24 million, is 42" Line Pipe. In this one instance, Staff departed from its inflation escalation methodology to attempt to apply the correct methodology directed by Order 31 of repricing the quantities taken from the 1977 estimate in 1979 dollars. Their error in this instance lies not in methodology, or in quantities, but in repricing the wrong pipe. The price quotation Staff used was for U.S. Steel TI-1, 42", X-65 pipe. The TI-1 designation refers to toughness factor, and means no toughness index factor, thus employing a pipe specification that Northern

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16/ The Commission recognized this principle in the Order of January 4, 1980, where it directed the inclusion of the same quantities for this item as in NB-13. In NB-12, Northern Border merely adjusted those quantities to a two-year construction schedule. Staff has ignored them.

Border could not use. Northern Border's specifications for line pipe, on which its bid prices for both NB-12 and NB-13 were based, requires substantial toughness index factor, and it would not use pipe failing to meet that specification. Quite obviously, the pipe quantities that are to be priced in 1979 dollars must be quantities of usable pipe. The adjustment is mandatory.[17/]

Two additional adjustments, of about $7 million each, are required. The first is for government agency costs, being fees and reimbursements to government agencies for costs such agencies are authorized to charge to or recover from the pipeline. How Staff arrived at the figure

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17/ Staff undertook to justify its estimate on the ground that the 1977 estimate employed U.S.S. TI-1 pipe for pricing purposes. That did not indicate any intent to use TI-1 pipe for construction. At that time, Northern Border had not developed its pipe specifications, but used the U.S.S. TI-1 price for all pipe because it was then substantially higher priced than that of other vendors. Northern Border knew a toughness index factor would be required, but also knew pipe would be supplied by more than one vendor. By pricing all the pipe at the price level of the highest quote for pipe with no toughness index factor it was felt that a reasonable figure was developed for pipe of adequate toughness index factor from several vendors. This is explained at some length by Mr. Pyle at Tr. 7, Phase II-B/683-9, Mr. Pyle having been closely involved in the pricing decision for line pipe at the time of preparation of the 1977 estimate. Staff now simply perpetuates the pricing as all U.S. Steel TI-1 pipe, thus perpetuating what was at best a "stop gap" pricing method for want of a complete pipe specification.

in S-40 is unknown, but it is about $7 million less than Northern Border estimates it will be required to pay government agencies. The other item is elimination of the contractor's contingency (some $3.5 million in NB-11), which in Staff's methodology should be escalated to 1979 levels.[18/] Messrs. Pyle and Reynolds explain why this is necessary at Tr. 7, Phase II-B/544-5, and Mr. Stancil in effect confirms this at Tr. 8, Phase II-B/816-17.

18/ This item represents a contractor's contingency allowance employed in the 1977 estimate when contractor's bids were not available, and the total dollar level of contractor bids had to be estimated. Clearly, since contractors included contingency allowances in preparing their bids, such an item has to be included to obtain a valid estimate of what a contractor would bid if requested to do so. Actual contractor bids are now available, and those total dollar amounts were employed in the NB-12 and NB-13 estimates, so there is no identification in those exhibits of the contingency amounts employed by the contractors themselves in arriving at their total dollar bids.

IV.

Depreciation Methodology

As previously indicated, Northern Border has altered its originally proposed 12 year, straight line annual depreciation allowance to a unit of throughput (UOT) method based on a total throughput of 4.164 Tcf, (being 800,000 Mcf/d x 15 years x 95% load factor). This provision complies with the requirements of the First Supplement (NB-18, Tab 1) and the TransCanada Service Agreement (contained in NB-20), and is essential to the "backstopping" provided by TransCanada under those documents.

Staff objects to Northern Border's proposal on three counts: (1) Staff argues that Alaskan gas volumes should be included in the total, a position which equates with their earlier Phase I position that a 3.7% annual depreciation rate should be employed; (2) Staff objects to abatement of depreciation in years when Pan-Alberta gas volumes total less than 100 Bcf and total gas volumes are less than 250 Bcf; (3) Staff would require, if Northern Border's proposal should be accepted, revision of the present depreciation provisions to conform to Alaskan depreciation levels when construction of the Alaska segment begins, rather than when Alaskan gas flows commence, as proposed by Northern Border.

A.
The Record Fully Supports Approval of the Proposed Methodology

At the outset, it should be recognized that the depreciation proposal is essential to the financing of the "pre-build" system as proposed here, and without approval of the depreciation proposal there is no financing plan. TransCanada has made it as clear and certain as can be done in the English language that it cannot and will not undertake its "backstopping" agreements except on the basis of the depreciation proposal advanced, and without that "backstop" all commitments for funds terminate.

However, the Commission need not decide the matter on a "take it or leave it" proposition, because the record demonstrates Northern Border's depreciation proposal is eminently fair, strikes a reasonable balance between the interests of investors and consumers, is consistent with approved regulatory practice, and should be adopted and approved on its own merits even if some other choice were available. The TransCanada Brief deals much more extensively with this position.

B. The Fallacies and Inequities Inherent in Staff's Position are Obvious

The objections to inclusion of Alaskan gas volumes were argued in our Phase I Brief, and need little reiteration here. The Commission appears to have resolved that issue in its January 11, 1980, Western Leg Order, where it found against inclusion of the Alaskan volumes (see Jeter, Tr. 6, Phase II-B/461-2). As an addendum, it should be noted that Mr. Johnson calculated it could require 60 years to recover the investment if Alaskan gas should not be transported through Northern Border (Tr. 4, Phase II-B/270), and that the present proposal is less burdensome to U.S. consumers than the original Northern Border proposal (Tr. 4, Phase II-B/265-267, and Exhibits NB-29, 30 and 30A).

Staff's objection to the abatement of depreciation provision is hard to understand, since it applies exactly the same principle as that espoused by Staff in support of an interim rate during the initial operating period: temporary rate relief during periods of low utilization of installed facilities (Jeter, Tr. 6, Phase II-B/262-3). As for Staff's argument that the abatement provision is inequitable (as favoring TransCanada), and that shippers during abatement periods should be required to pay "make-up" charges once Alaskan gas begins to flow, Staff's position contradicts any concept of equitable treatment we have ever before encountered. The "make-up" argument was labeled by Mr. Jeter as "so inequitable as to be unconscionable" (Tr. 6, Phase II-B/464; see also 463, Q and A beginning at line 13, and Johnson, Tr. 4, Phase II-B/271-2, pointing out that even with abatement TransCanada would pay higher charges than U.S. customers). Mr. Jeter pointed out also that in just one year, when TransCanada was obliged to provide "backstopping," failure to abate depreciation would increase their obligation by $40 million (Tr. 6, Phase II-B/501), from $146 to $186 million. It should be clear that TransCanada already is assuming significant risks of failure to transport Alaskan gas on a timely basis, requiring "backstopping" at large cost, and that modest alleviation of that cost if Alaskan gas does not flow is not only equitable, but understandably mandatory from TransCanada's viewpoint.

Staff's final point, that the depreciation provision should be changed when Alaskan construction commences, rather than when Alaskan gas flows,[19/] has been rebutted conclusively by both Messrs. Jeter and Johnson. Mr. Jeter points out that such a change would have the effect of transferring some of the risk of Alaskan completion to Northern Border (at least some of whose partners already would be subject to part of that risk as Alaskan partners), and, in addition, would reduce the amount of cash available for investment in the Alaskan segment by those who were partners in both segments (Tr. 6, Phase II-B/463-4). Mr. Johnson pointed out the significant difference between Northern Border and the Western Leg, where the Commission's Order of January 11, 1980, required the Western Leg to adjust depreciation on commencement of Alaskan construction. (Tr. 4, Phase II-B/275). On Northern Border, the U.S. shippers are obligated only for the amount of Canadian gas authorized for the term of the license, and TransCanada "backstops" for additional volumes or years. There is no such undertaking on the Western Leg as that of TransCanada for Northern Border; on the Western Leg, its sponsors and/or customers would bear the cost of the "pre-build" facilities if Alaskan gas did not flow or was unduly delayed.

19/ Northern Border has always proposed to adjust its depreciation rate to reflect Alaskan gas when that begins to flow, and in addition to propose an equitable method for allocating to Canadian gas shippers some of the benefits provided Alaskan gas shippers by means of the "pre-build." This remains Northern Border policy.

V

Authorizations Requested

Pursuant to the provisions of Section 1.11(b) of the Commission's Regulations, Northern Border requests that (1) its Application herein be amended to conform to the proof of record in these consolidated dockets; (2) that the Commission transfer all previous authorizations issued to the original Northern Border partnership under the President's Decision and prior commission Orders to the present Northern Border Pipeline Company; and (3) that Northern Border be authorized to:

A. Construct and operate approximately 821 miles of 42", X-70 pipeline within the corridor and along the route described in the President's Decision and further depicted in Exhibit NB-4 herein, except that Northern Border shall deviate from such route (1) in the vicinity of the Ordway Memorial Prairie in South Dakota to follow the route depicted in Item A herein so as to avoid said Ordway Memorial Prairie, and (2) in Dunn County, North Dakota, to follow the route depicted in Exhibit NB-8 herein so as to avoid certain coal deposits; and

B. Construct and operate one 16,000 horsepower gas turbine compressor station at station site 4, as shown on Exhibit NB-4; and

C. File the tariff filed herein as Exhibit NB-20, as modified by the tariff sheets filed as Exhibits NB-20A, B, C, and D, as an initial tariff to become effective on the date the Commission's Certificate Order is issued, and thereafter to bill thereunder as provided in said tariff; and

D. Transport in interstate commerce those volumes of gas permitted to be imported from Canada at Port of Morgan, Montana; and

E. Transport for TransCanada PipeLines Limited or any person designated by TransCanada, any volumes of gas elected or required to be transported pursuant to the terms of the TransCanada Service Agreement contained in the tariff; provided, that neither TransCanada nor its designee shall import or transport through Northern Border any volumes unless and until all regulatory orders and authorizations required to deliver such gas from the Northern Border delivery point to the point at which TransCanada or its designee shall take possession thereof are in full force and effect; and

F. Construct, pursuant to Executive Order 10485, facilities at the International Border near Port of Morgan, Montana, to enable Northern Border to receive Canadian gas at that point.

VI

Conclusion

Few projects have survived so stormy a course as this Northern Border "pre-build" has sailed since its filing. Faced initially with the task of financing the largest single gas pipeline project yet undertaken in this country, and that in compliance with a rate mechanism (IROR) never before employed anywhere, it saw those difficulties compounded by the emergence of near chaotic financial conditions. Despite that, the financing is in place.

The need to telescope a reasonable two-year construction program into a high risk one-year schedule, again in conjunction with a first-time employment of an IROR mechanism, posed risks to the equity sponsors never before encountered for a new project of any kind. The risks have been accepted.

The 12-year gas supply on which the project originally relied faded to a probable six-year supply, requiring the high risk acceptance of payment obligations without the assurance of adequate gas supply for a six-year period. TransCanada came forward to take that risk and "backstop" the needed supply.

Even the six-year supply proved not to be forthcoming, and preservation of the project now hinges on the cooperation of importers of other Canadian gas, and some modification to NEB Licenses to increase the assured supply. Substantial progress has been made in negotiations with other importers, and the NEB has scheduled hearings on the requested modifications. We believe the necessary assistance will be forthcoming.

We catalogue these major unique problems encountered and overcome (or sought to be overcome in the last case) because the extraordinary effort to retain the viability of this project is at once the simplest and most dramatic testament to its national importance we can offer. The companies and individuals (U.S. and Canadian) responsible for this project firmly believe it to be critical to the energy security of the nation. Of itself, it represents an important energy supply for this country, but, more importantly, it will offer great assistance to the completion of the entire ANGTS, in order to deliver both the enormous proved Alaskan reserves and those which surely will be proved in the future. The assistance provided includes the tremendous psychological benefit of <u>starting</u> the ANGTS, as well as the more finite benefits described in our Phase I Brief. On these bases, those associated with this project believe it to be the most important single energy supply project yet proposed in this troubled time of energy crises.

But we do not ask for certification merely because the project is important. We have a documented record in this case that fully supports every position we have taken. We are not just <u>willing</u> to be judged, we <u>ask</u> to be judged squarely on the facts of record. We have no concern over a decision that faithfully tracks precisely what the record proves.

Respectfully submitted,
Northern Border Pipeline Company

By: R. Clyde Hargrove
R. Clyde Hargrove, Its Attorney

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March 13, 1980

APPENDIX A

The following is an extract from the minutes of a meeting of the Management Committee of Northern Border Pipeline Company, a partnership, held in Salt Lake City, Utah, on February 28, 1980:

> "The Management Committee next considered the financing plan for the pre-build facilities. Mr. Beddome recommended formal approval of the 'Summary of Terms' negotiated with a syndicate of Canadian and U.S. banks led by the Canadian Imperial Bank of Commerce.
>
> "After full and complete discussion, on motion of Mr. McMillian, second by Mr. Brown, the Management Committee unanimously approved and accepted on behalf of Northern Border the 'Summary of Terms' as the basis for financing the pre-build facilities, subject to preparation and execution of acceptable documentation to implement the provisions thereof."

Gordon L. Severa

Gordon L. Severa, Chairman
Management Committee, Northern
Border Pipeline Company, a partnership

APPENDIX B
ADJUSTMENTS TO STAFF
ESCALATION OF MARCH 1977 ESTIMATE
(THOUSAND DOLLARS)

	STAFF NB-12 (S-40)	ADJUSTMENTS	ADJUSTED TOTAL	REASONS FOR ADJUSTMENTS
42" Line Pipe				
Type A	465,899	21,876	487,775	Specifications and
Type B	5,323	608	5,931	Suppliers[3]
Type C	18,362	1,629	19,991	
	489,584	24,113	513,697	
All Other Pipeline Material	101,044		101,044	
Pipeline Installation	182,222	78,902	261,124	Productivity - 43.3 %[1]
River Crossings Material				
Missouri River	584		584	
Little Missouri River	1,218		1,218	
Oahe Reservoir	1,811		1,811	
River Crossings Installation				
Missouri River	740	320	1,060	Productivity - 43.3%[1]
Little Missouri River	603	261	864	Productivity - 43.3%[1]
Oahe Reservoir	1,522	659	2,181	Productivity - 43.3%[1]
Compressor Station				
Material	4,978		4,978	
Installation	1,645	712	2,357	Productivity - 43.3%[1]
Land R.O.W. Permits	22,807	41,323	64,130	Minerals[2]
Measurement Station-Materials				
Aberdeen, S.D.	52		52	
Welcome, MN.	154		154	
Ventura, IA.	1,516		1,516	
Measurement Station Installation	984	426	1,410	Productivity - 43.3%[1]
Communication System				
Material	7,591		7,591	
Installation	2,005	868	2,873	Productivity - 43.3%[1]
Operation & Maintenance Equipment	4,499		4,499	
Survey & Mapping	3,204		3,204	
		13,999)		Non-Traditional & Govern-
Project Management	34,294	7,351)	55,644	ment Mandate[4]
Subtotal	863,057	168,934	1,031,991	
Study Group & Preliminary Engineering	2,273		2,273	
Government Agency Costs	2,278	7,416	9,694	Government Agency[5]
Finance Charge	88,622		88,622	
TOTAL	956,230	176,350	1,132,580	
STAFF OMISSIONS				
Contractor Contingency		6,466	6,466	Staff Omitted[6]
Ad Valorem Taxes		26,664	26,664	Staff Omitted[7]
State Excise Taxes		2,421	2,421	Staff Omitted[8]
General Contingency		65,850	65,850	Staff Omitted[9]
ADJUSTED TOTAL	956,230	277,751	1,233,981	

<u>NOTES TO SUMMARY CALCULATION</u>

1. Brief, pp. 20-21
2. Brief, pp. 21-22
3. Brief, pp. 23-24
4. Brief, p. 23
5. Brief, p. 24-25
6. Brief, p. 25
7. Brief, pp. 22-23
8. Brief, pp. 22-23
9. Brief, Section III, A.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each party designated on the official service list compiled by the Secretary in this proceeding in accordance with the requirements of Section 1.17 of the Rules of Practice and Procedure.

Dated at Washington, D.C. this 13th day of March, 1980.

R. Clyde Hargrove
Attorney for Northern Border
Pipeline Company