



ORDER NO. NP-MO-2-79

IN THE MATTER OF the Northern Pipeline
Act; and

IN THE MATTER OF a Certificate of Public
Convenience and Necessity declared to
have been issued on the 13th day of April,
1978, to Foothills Pipe Lines (North B.C.)
Ltd. pursuant to the said Act; and

IN THE MATTER OF section 2. and section 3.
of SCHEDULE III of the said Act;

Agency File No. 9125.

B E F O R E the Designated Officer on Wednesday, the 31st day of
January, 1979.

WHEREAS a Certificate of Public Convenience and Necessity
dated the 13th day of April, 1978, is declared to have been issued
pursuant to the Northern Pipeline Act to Foothills Pipe Lines (North
B.C.) Ltd. [hereinafter called "Foothills (North B.C.)"] in respect
of the pipeline defined in the said Act for that portion of the
route in the north-eastern area of the Province of British Columbia
(hereinafter called "Northern British Columbia Portion"), as more
particularly set forth in ANNEX I of SCHEDULE I of the said Act;

AND WHEREAS Foothills Pipe Lines (Yukon) Ltd., The Alberta
Gas Trunk Line (Canada) Limited, Westcoast Transmission Company Limited,
Alberta Natural Gas Company Ltd and The Alberta Gas Trunk Line Company
Limited, at a public hearing, before the National Energy Board, com-
mencing on the 12th day of April, 1976, in the City of Ottawa, in the

Province of Ontario, continued in the Town of Inuvik, in the Northwest Territories, in the City of Whitehorse, in the Yukon Territory, and in the City of Yellowknife, in the Northwest Territories, respectively, and adjourned on the 12th day of May, 1977, in the City of Ottawa, in the Province of Ontario, adduced inter alia certain evidence, gave certain undertakings and made certain commitments in respect of the said Northern Pipeline;

AND WHEREAS subsection (2) of section 21. of the said Act provides that every such undertaking is deemed to be

- "(a) an undertaking of every company in so far as the undertaking relates to the company and to the portion of the route indicated in the Agreement in respect of such company, and
- (b) a term or condition set out in Schedule III.";

AND WHEREAS section 3. of SCHEDULE III of the said Act inter alia provides that Foothills (North B.C.) shall submit to the designated officer:

- "(a) information satisfactory to him in support of final detailed design, including the results of field tests and experiments and analyses thereof;
- (b) the final detailed design of each section or part of the pipeline for his approval;
- (c) before construction commences, detailed construction specifications and procedures, as well as inspection procedures satisfactory to the designated officer; and

(d) a schedule for project control, using a scheduling system acceptable to the Agency, which schedule shall

- (i) govern the company's activities that can reasonably be anticipated in connection with the project,
- (ii) include schedules for regulatory reviews and approvals, and
- (iii) be updated at thirty day intervals or as otherwise requested by the Agency.";

AND WHEREAS it is deemed necessary that Foothills (North B.C.) provide such information and data as are hereinafter more particularly set forth;

AND WHEREAS the Minister responsible for the Northern Pipeline Agency has concurred with the issue of this Order on the 31st day of January, 1979;

1. IT IS ORDERED THAT Foothills (North B.C.) shall, prior to the construction of any part of the Northern British Columbia Portion, submit for approval by the designated officer, the detailed engineering design, including such specific operations and maintenance procedures as are relevant thereto, for each such part of the Northern British Columbia Portion, the proposed pipeline project scheduling and cost control procedures, as well as the construction and inspection specifications and procedures, for each such part of the Northern British Columbia Portion and, without limiting the generality of the foregoing, these sub-

missions shall include data, information and cost estimates as herein-
after further detailed or as may be further ordered from time to time
by the designated officer.

2. AND IT IS FURTHER ORDERED THAT Foothills (North B.C.) shall,
in the detailed engineering design, project scheduling and cost control,
construction and inspection, operation and maintenance of the Northern
British Columbia Portion, comply with the National Energy Board's Gas
Pipeline Regulations, SOR/74-233, and the National Energy Board's Pipe
Lines Companies Records Preservation Regulations, as amended, and as
these may be further amended from time to time or as otherwise may be
directed by the designated officer.

3. AND IT IS FURTHER ORDERED THAT Foothills (North B.C.) shall
follow an approach co-ordinated by Foothills Pipe Lines (Yukon) Ltd.
generally consistent with parameters adopted by Foothills Pipe Lines
(South Yukon) Ltd., Foothills Pipe Lines (Alta.) Ltd., Foothills Pipe
Lines (Sask.) Ltd., and Foothills Pipe Lines (South B.C.) Ltd. or as
directed by the designated officer in the preparation of the said:

- (a) Engineering design criteria, including operations
and maintenance procedures relevant to the said
design,
- (b) Project scheduling and cost control procedures,
and
- (c) Construction and inspection specifications and
procedures,

to be submitted to the designated officer for approval in response to

the requirements as hereinafter more particularly set forth.

4. AND IT IS FURTHER ORDERED THAT, prior to any submission for approval by the designated officer of the detailed engineering design of any part of the Northern British Columbia Portion to be constructed, Foothills (North B.C.) shall submit, for approval by the designated officer, a report or reports containing:

- (a) The objectives, planning and engineering design details of all tests related to frost heave, thaw settlement, fracture control and seismic disturbances for the Northern British Columbia Portion, including where applicable the estimated costs and the anticipated results of said tests to be undertaken, to demonstrate the validity of those facets of the design of the Northern British Columbia Portion hereinafter more particularly set forth,
- (b) Experimental verification that the design of the Northern British Columbia Portion is satisfactory in all respects for construction, operation and maintenance including, but not necessarily limited to:
 - (i) areas where the main line pipe will be operated at temperatures above the freezing point of water and could be subject to the lack of support due to thaw settle-

ment, and

- (ii) areas for which it was desirable to have appropriate Burst Tests undertaken under the most likely critical operating conditions anticipated, to demonstrate the likelihood of ductile fracture arrest for the 56-inch diameter line of pipe,
- (c) A terrain assessment of the route, identifying and evaluating those terrain conditions which might affect the integrity of the Northern British Columbia Portion and a terrain assessment of all sites for permanent above ground field facilities with particular emphasis on areas where:
 - (i) a potential exists for frost heave, thaw settlement, slope instability or seismic activities,
 - (ii) water bodies are crossed, and
 - (iii) subsurface drainage is significantly altered due to the presence of a frost bulb around the main line pipe or due to disruption of drainage works,
- (d) Verification that the design of the Northern British Columbia Portion is satisfactory in seismic activity zones where there exists the possibility of movement of the main line pipe,

- (e) Design details pertaining to:
 - (i) system flow studies with complete supporting details,
 - (ii) each such part of the main line pipe,
 - (iii) all permanent above ground field facilities, including those remote from the main line pipe,
 - (iv) river crossings at which there is a potential for significant scour or for bank instability problems, and
 - (v) all design measures to be taken to mitigate the impact of the terrain conditions upon the Northern British Columbia Portion, particularly in those areas set out in subparagraphs (i), (ii) and (iii) of paragraph (c) hereof,
- (f) Final fracture control design supported by the results of the fracture control tests for the 56-inch diameter line of pipe,
- (g) Final non-proprietary welding specifications for mill and field welding,
- (h) Final materials specifications for major items including, but not necessarily limited to, line pipe, valves, flanges and fittings,
- (i) Final quality control and inspection plans for the

manufacturing of major components of the Northern
British Columbia Portion,

- (j) A final stress analysis setting forth the determination of stresses and strains occurring in the specified line pipe when it is exposed to transportation, handling, installation, pre-operational and operational loading conditions, including loadings due to seismic activities, buoyancy control, extra depth of burial, frost heave, thaw settlement or slope instability of soils,
- (k) A reconciliation of the final stress analysis with the design criteria, and
- (l) Geotechnical design for areas of significant slope instability.

5. AND IT IS FURTHER ORDERED THAT prior to the submission for approval by the designated officer of the final project scheduling and cost control plans and procedures, a report or reports shall, as soon as possible, be submitted for review by the designated officer and shall contain:

- (a) Details of the materials scheduling and handling procedures, as well as work management and control procedures to be implemented on a continuing basis,
- (b) Details of the project cost control procedures, including the methods of handling initial cost

estimates prior to bid, bid responses, adjustments to contract costs and actual costs incurred, as well as projected future costs, and

- (c) A proposal for periodic reporting on the implementation of the procedures and the results thereof for items referred to in paragraphs (a) and (b) hereof, in accordance with subparagraph (iii) of paragraph (d) of section 3. of SCHEDULE III of the said Act.

The said report or reports shall clearly identify the various levels of responsibility, internal review procedures and checks, internal reporting format and shall include details of computer models utilized.

6. AND IT IS FURTHER ORDERED THAT, prior to the commencement of construction of each part of the Northern British Columbia Portion, Foothills (North B.C.) shall submit, for approval by the designated officer, the "Construction and Inspection Specifications and Procedures" for each such part of the Northern British Columbia Portion respecting which approval has been granted under the provisions of operative Part 4. of this Order containing:

- (a) Construction Schedules,
- (b) Construction specifications and procedures setting forth, but not limited to, specifications and procedures for the construction or installation of the Northern British Columbia Portion, including the methods of protecting, processing and handling the materials to be used in such construction or installation:

- (i) in areas of permafrost including description of construction methods and procedures for snow, granular or other pads and sources and types of materials to be used for such pads,
 - (ii) in areas where measures to mitigate the effects of frost heave, thaw settlement, seismic activity or slope instability are to be implemented,
 - (iii) in areas where drainage or erosion control is required, and
 - (iv) at non typical crossings of water bodies,
- (c) Specifications and procedures for the construction and installation of compressor and meter stations and all associated permanent above ground field facilities, including those remote from the main line pipe, and
- (d) Inspection procedures and guidelines containing but not necessarily limited to:
- (i) a description of the nature of inspection to be implemented by Foothills (North B.C.),
 - (ii) complete descriptions of the inspection duties to be carried out during each phase of construction, and
 - (iii) the organization, authority and responsibilities of the Foothills' (North B.C.)

inspection personnel.

7. AND IT IS FURTHER ORDERED THAT Foothills (North B.C.) shall
- (a) submit for approval by the designated officer a report detailing monitoring procedures for such part or parts of the Northern British Columbia Portion respecting which approvals have been granted under the provisions of operative Part 4. and operative Part 6. of this Order, which said report shall confirm that the monitoring will be consistent with the final design, and shall include plans for monitoring,
 - (i) the Northern British Columbia Portion including any structures and devices installed before operation,
 - (ii) the effectiveness of the measures taken for the protection of the Northern British Columbia Portion against those hazards referred to in operative Part 4. and operative Part 6. of this Order, including information as to the nature and the frequency of observations, and
 - (b) Foothills (North B.C.) shall commence the monitoring in accordance with the approved report, of all aspects of any part of the Northern British Columbia Portion immediately upon the completion of construction of such part.

8. AND IT IS FURTHER ORDERED THAT, prior to making application to the National Energy Board for 'Leave to Open' the Northern British Columbia Portion or any part thereof, Foothills (North B.C.) shall submit an operations and maintenance manual which shall contain information satisfactory to the designated officer including, but not necessarily limited to:


- (a) Plans and procedures for the installation and operation of monitoring devices and apparatus to be installed for the monitoring of the effectiveness of special measures taken and structures installed to protect the Northern British Columbia Portion, including the type and frequency of observations to be taken and the criteria and/or baseline data to which the observations are to be compared,
- (b) Methods and procedures to reasonably ensure that the operation of the Northern British Columbia Portion will conform at all times to the requirements of the final design,
- (c) Details of all inspections and their frequency,
- (d) Procedures for the maintenance of the Northern British Columbia Portion or any part thereof, and
- (e) Procedures to be followed under emergency conditions which might affect the public, operating personnel or the Northern British Columbia Portion.

9. AND IT IS FURTHER ORDERED THAT a copy of any report or reports as well as any submission or submissions that are made to the Minister and/or to the National Energy Board related to the detailed engineering design, project scheduling and cost control procedures, construction and inspection specifications and procedures, and operations and maintenance procedures in respect of the Northern British Columbia Portion shall be submitted at the same time to the designated officer.

NORTHERN PIPELINE AGENCY


W.A. Scotland
Designated Officer

Order No. NP-MO-2-79 is hereby concurred with on this 31st day of January, 1979.


Minister
responsible for the
Northern Pipeline Agency.

NORTHERN PIPELINE AGENCY
CANADA
EXAMINED AND CERTIFIED
TO BE A TRUE COPY OF AN ORDER
OF THE DESIGNATED OFFICER.

31 JAN 1979


NP-MO-2-79