



**PANEL REPORTS  
TO THE MINISTER OF THE ENVIRONMENT  
ON THE PANEL PROJECTS**

1. **Nuclear Power Station at Point Lepreau, New Brunswick.  
(May 1975)**
2. **Hydro Electric Power Project, Wreck Cove, Cape Breton Island,  
Nova Scotia. (August 1976)**
3. **Alaska Highway Gas Pipeline Project, Yukon Territory.  
(Interim report, August 1977)**
4. **Eldorado Uranium Refinery Proposal, Port Granby, Ontario.  
(May 1978)**
5. **Shakwak Highway Project, Yukon Territory - British Columbia.  
(June 1978)**
6. **Eastern Arctic Offshore Drilling - South Davis Strait Project.  
(November 1978)**
7. **Lancaster Sound Offshore Drilling Project.  
(February, 1979)**
8. **Eldorado Uranium Hexafluoride Refinery, Ontario. (February, 1979)**
9. **Roberts Bank Port Expansion, British Columbia. (March, 1979)**
10. **Alaska Highway Gas Pipeline, Yukon Hearings. (August, 1979)**
11. **Banff Highway Project. (October, 1979)**
12. **Boundary Bay Airport Reactivation. (November 1979)**
13. **Eldorado Uranium Refinery, R. M. of Corman Park, Saskatchewan.  
(July 1980)**

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EXECUTIVE SUMMARY

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CHAPTER 1

ኅር 1

THE ENVIRONMENTAL  
ASSESSMENT REVIEW

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**Mr. John S. Klcnavic**  
**Panel Chairman**  
**Federal Environmental Assessment**  
**Review Office**  
**Hull, Quebec.**

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**Mr. David W.I. Marshall**  
**Panel Vice-Chairman**  
**Federal Environmental Assessment**  
**Review Office**  
**Hull, Quebec.**

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**Mr. Malcolm O. Berry**  
**Atmospheric Environment Service**  
**Department of Environment**  
**Downsview, Ontario.**

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**Mr. Don Bissett**  
**Northern Pipelines Branch**  
**Department of Indian Affairs and**  
**Northern Development**  
**Ottawa, Ontario.**

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**Dr. Richard G.B. Brown**  
**Canadian Wildlife Service**  
**Department of Environment**  
**Dartmouth, Nova Scotia.**

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**Mr. Robert W Hornal**  
**Northern Affairs Program**  
**Department of Indian Affairs and**  
**Northern Development**  
**Yellowknife, Northwest Territories.**

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**Mr. Rod Morrison**  
**Department of Economic**  
**Development and Tourism**  
**Government of the Northwest Territories**  
**Yellowknife, Northwest Territories.**

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**Brief biographies of Panel Members may be found in Appendix I.**

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**Mr. Bob Connelly, Federal Environmental Assessment Review Office, served as Executive Secretary to the Panel.**

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CHAPTER 2

ክር 2

PROJECT DESCRIPTION

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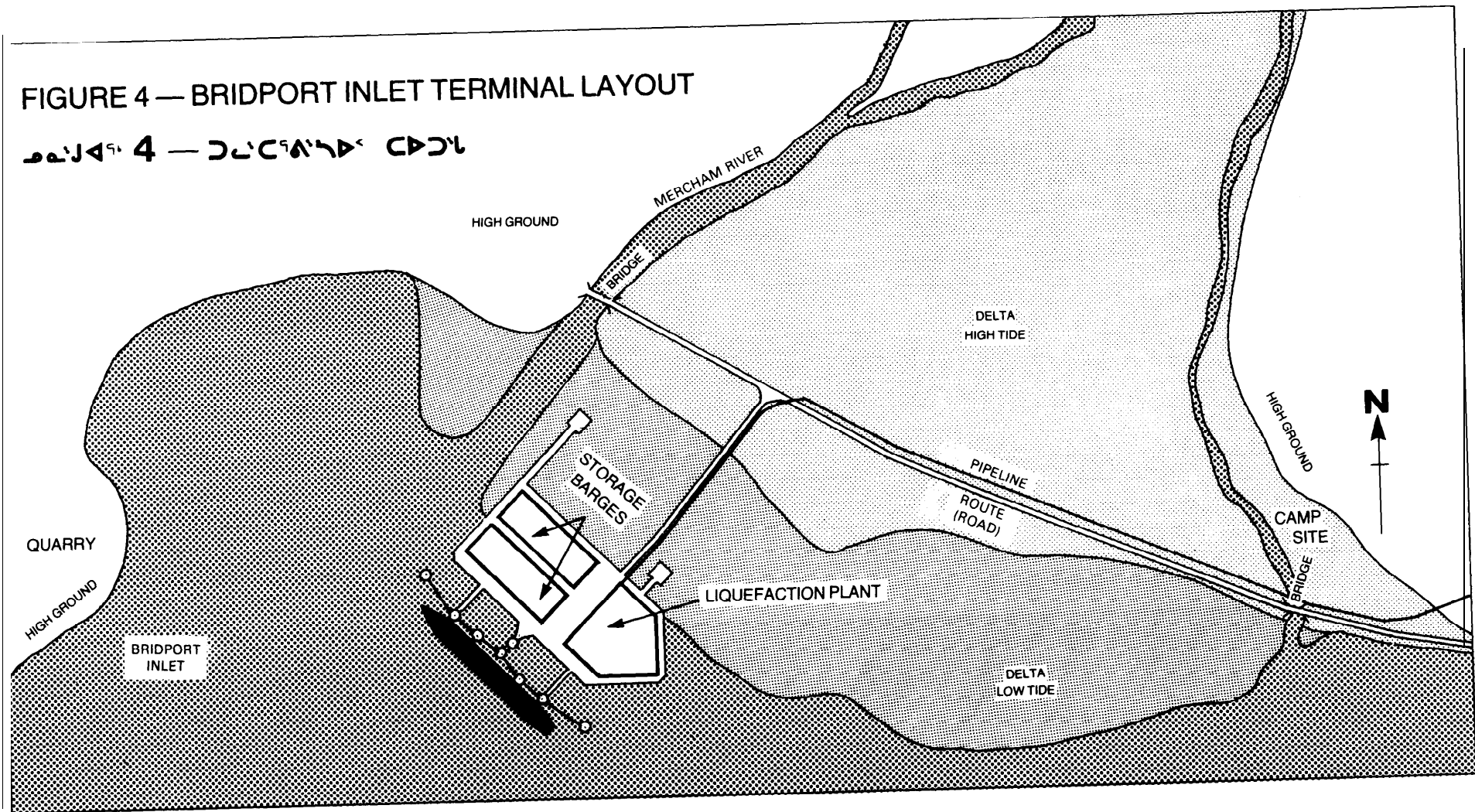






FIGURE 4 — BRIDPORT INLET TERMINAL LAYOUT

טכניקת הברידפורט — תוכנית 4





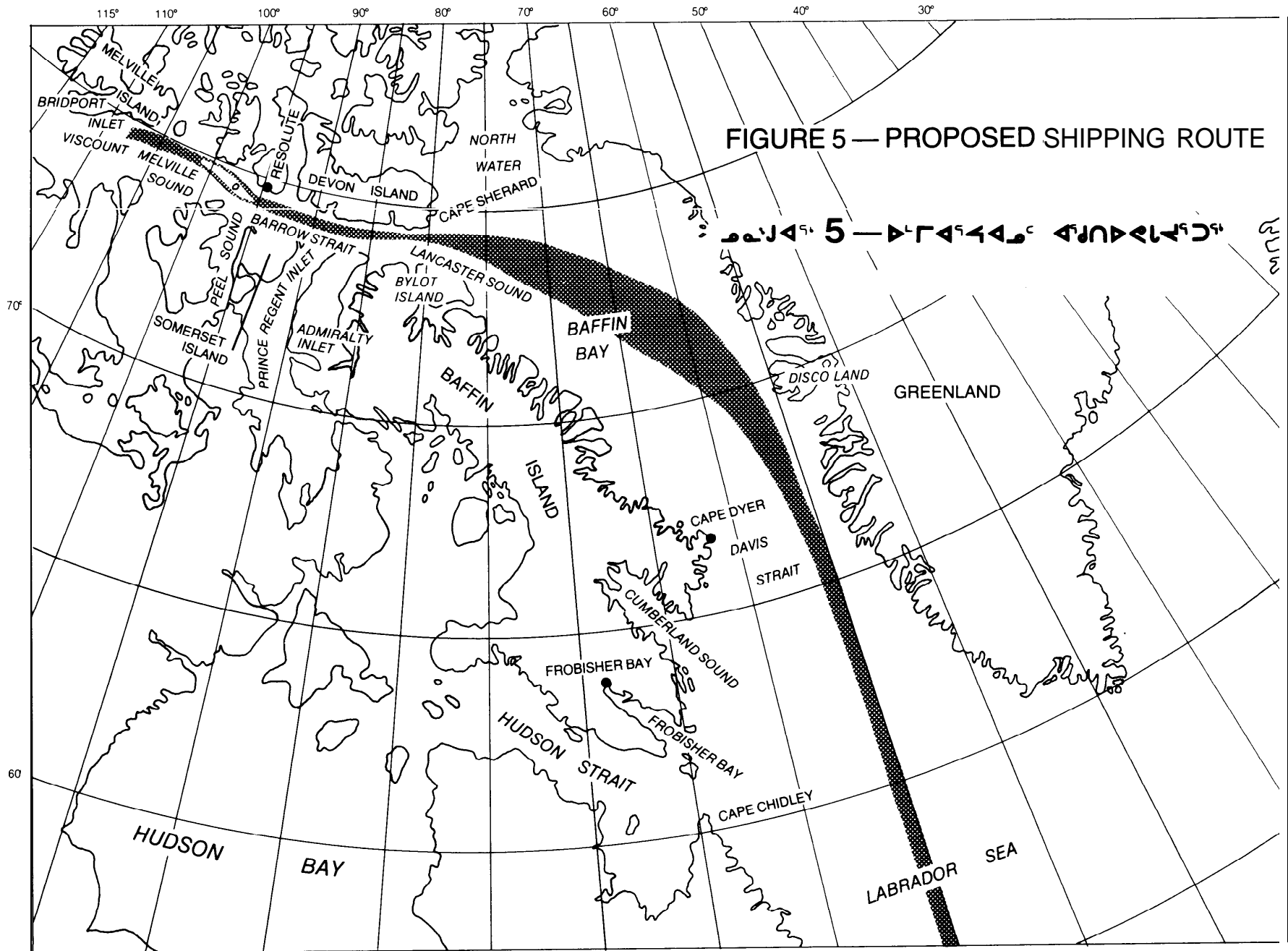


FIGURE 5 — PROPOSED SHIPPING ROUTE







CHAPTER 3

3C 3

ISSUES

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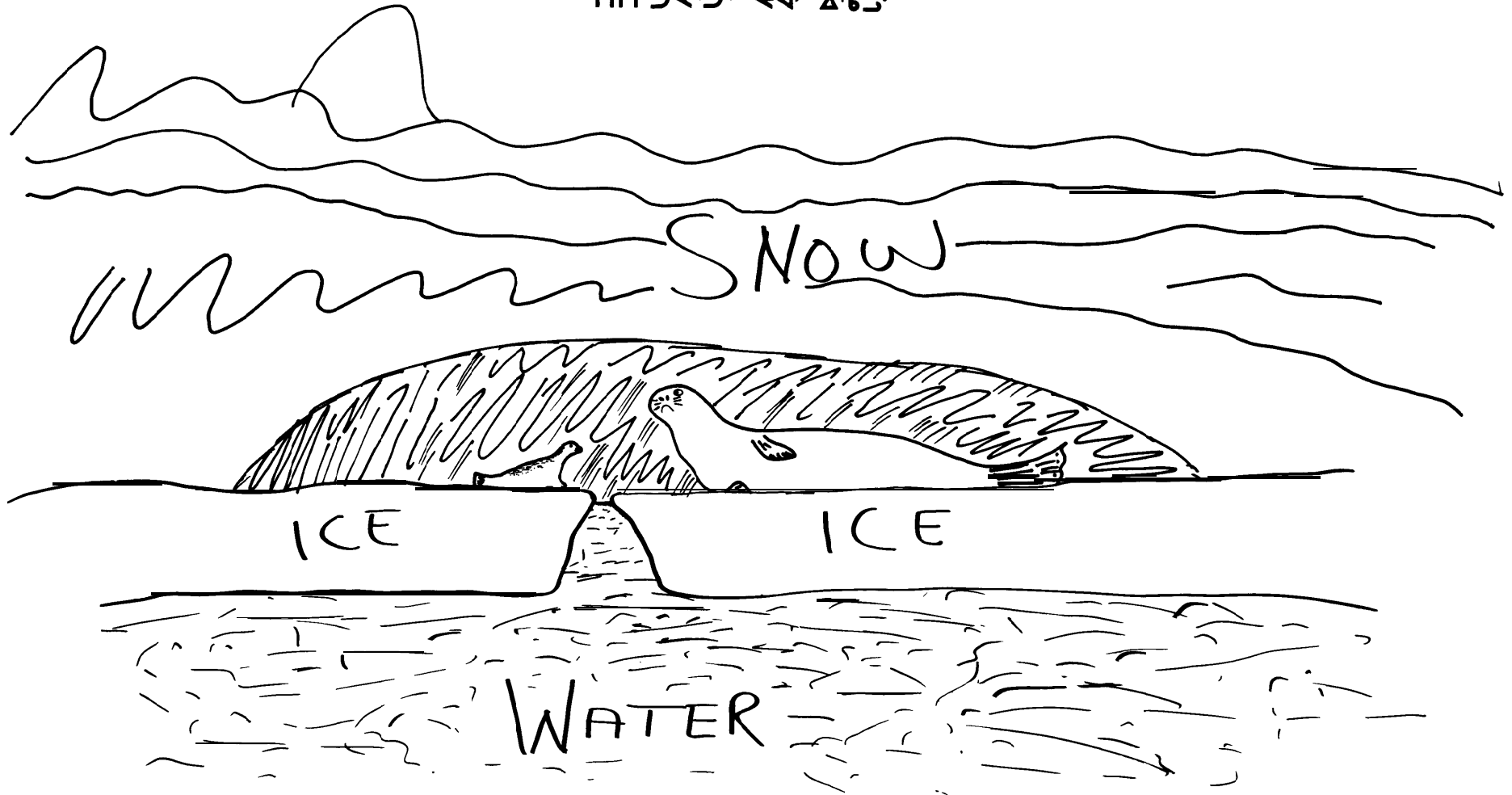




SEAL DEN BY GEORGE ECKALOOK

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"I would say, as far as the influence of the physical environment goes, whatever the 30 passages, and even if it's a double number of passages back and forth through the area, may amount to in influence on the physical environment, that is going to be negligible compared with what nature does anyhow."

Fritz Mueller.  
Zurich, Switzerland

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"According to our understanding, and our way of life, it would be better if these ships took the same route time after time."

Alan Maktar  
Pond Inlet

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local people and government scientists and without a monitoring and control mechanism for the selection of the shipping routes, the Panel is unable to recommend that it is environmentally acceptable.

The Panel believes that the authority would not require a large government infrastructure in the short term. The Panel does believe, however, that with the lead time required for ship and pipeline construction the government can be anticipatory to this matter rather than reactive to it after shipping starts. The responsibilities of this authority should be reviewed periodically and strengthened if necessary.

The government may wish to consider a cost recovery mechanism for its studies and administrative costs. This could be applied over a number of years to the ships using Parry Channel.

3.6 HUMAN ENVIRONMENT

3.6.1 Introduction

This section considers the potential socio-economic impact that the project would have in the Arctic. The Panel notes first of all that the Socio-economic Statement of the application and subsequent filings to be lacking in analysis or impact forecasting. The Proponent has used data of limited accuracy and which was outdated in many instances. In the absence of adequate socio-economic material the Panel has been forced to use other sources in attempts to estimate the likely impacts of the project. The community meetings and technical meetings have indicated a

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3.6 የግብርናው ጥሬ ገቢ ማረጋገጫ

3.6.1 የግብርናው ጥሬ ገቢ

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CHAPTER 4

כ"ד 4

CONCLUSIONS AND  
RECOMMENDATIONS

סיכומים ומומלצות









**4.2.3.2 Pipeline**

**Conclusion:**

The proposed pipeline can be constructed and operated in an environmentally acceptable manner.

**Reasons:**

1. The pipeline can be designed and installed to minimize structural failures principally caused by ground cracking.
2. The pipeline might have some effect on the active layer with resultant slope movement or soil erosion; it is unlikely that this would affect the pipeline integrity.
3. The Proponent demonstrated the acceptability of its preferred pipeline route over other alternate routes on Melville Island.
4. The adverse effects of pipeline construction and operation on the Peary caribou and the muskoxen would be minimal.
5. The Proponent demonstrated satisfactorily the merits of a buried pipeline as compared with an above-ground pipeline.
6. There are a number of design considerations with respect to the pipeline that need further consideration; these can be resolved during the design phases of the project by adequate consultation with the regulatory agencies.

**Recommended Conditions:**

1. During the summer months, only emergency repairs to the

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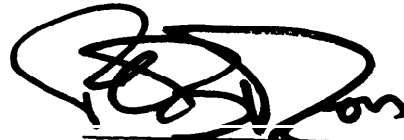


ARCTIC PILOT PROJECT  
ENVIRONMENTAL ASSESSMENT PANEL

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John S. Klenavic  
Chairman

  
David W.I. Marshall  
Vice-Chairman

  
Richard G.B. Brown

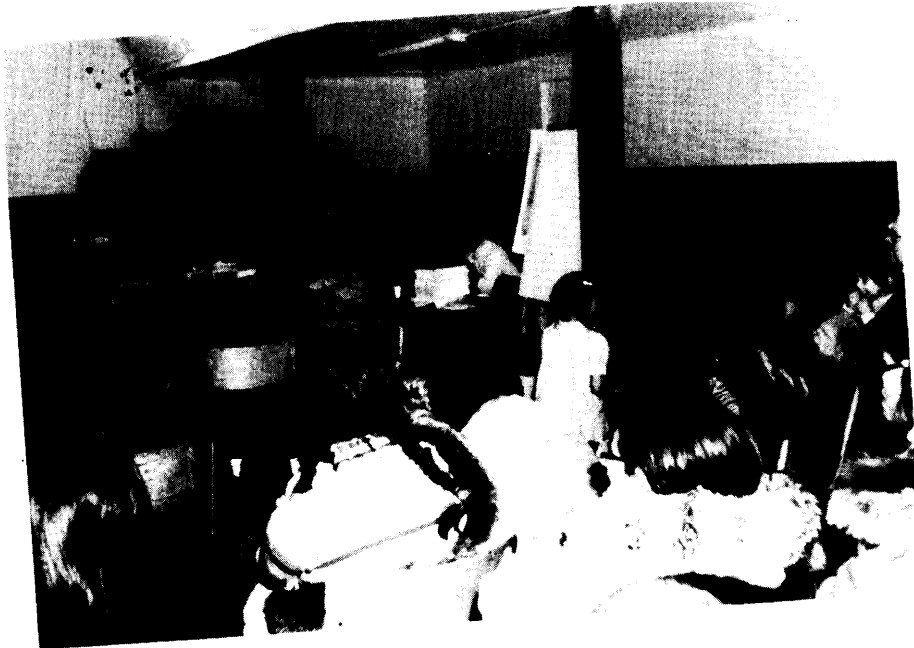
  
Malcolm O. Berry

  
Robert W. Hornal

  
Don Bissett

  
Rod Morrison





APPENDICES



APPENDIX I - BIOGRAPHY OF PANEL MEMBERS

CHAIRMAN

JOHN S. KLENAVIC, Federal Environmental Assessment Review Office, Hull, Quebec.

Mr. Klenavic was born in St. Catherines, Ontario and attended schools in Ontario, British Columbia and Manitoba. He graduated from the Royal Military College, Kingston, and Queen's University with a degree in Chemical Engineering (B.Sc.).

He served in the Canadian and British Armies from 1960 to 1968 and subsequently worked as an industrial engineer and quality control chemist in the food processing industry in Toronto. In 1973 he was appointed Acting Director of the Environmental Emergency Branch, Environmental Protection Service of the Federal Department of the Environment. This Branch is concerned with the prevention of, and response to, spills of pollutants into the environment.

Mr. Klenavic was appointed to his present position of Associate Executive Chairman, Federal Environmental Assessment Review Office in mid-1977 and is currently chairman of ten Environmental Assessment Panels.

Mr. Klenavic is a member of the Association of Professional Engineers of Ontario.

VICE-CHAIRMAN

D.WI. MARSHALL, Federal Environmental Assessment Review Office, Hull, Québec.

Mr. Marshall was born in Ottawa and graduated from Queen's University at Kingston with a degree in Chemical Engineering (B.Sc.).

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## APPENDIX I I - REVIEW DOCUMENTS

- A. Documents submitted by the Arctic Pilot Project to the Environmental Assessment Panel.**
1. **Summary - Environmental Statement - January, 1979.**
  2. **Environmental Statement - Melville Island Components - January, 1979.**
  3. **Environmental Statement - Shipping Component - January, 1979.**
  4. **Environmental Atlas - January, 1979.**
  5. **Environmental Statement - Supplementary Information - November 30, 1979.**
  6. **Environmental Overview - Gas Production Component - March, 1980.**
  7. **Socio-Economic Statement North of 60" Latitude - November, 1978.**
  8. **Geotechnical Evaluation Report (Volumes 1-2), Prepared by EBA Engineering.**
  9. **Slope Stability Analysis of Proposed Offshore Embankments, Proposed LNG Facilities, Bridport Inlet, Melville Island, N.W.T., Prepared by Geocon.**
  10. **Conceptual Design for Bridport Inlet Harbour Facilities (Volumes 1-2), Prepared by Fenco.**
  11. **Bathymetry and Geotechnical Surveys for Proposed LNG Dock Facilities, Bridport Inlet, Melville Island, N.W.T., Prepared by Geocon.**
  12. **Seismic Parameters for Designing the Proposed LNG Facilities Bridport Inlet, Prepared by Geocon.**
  13. **Study of Influence of Shipping on Break-Up and Freeze-Up in Lancaster Sound. Appendix A, Prepared by Arctec.**
  14. **Preliminary Risk Analysis LNG Carrier System - A.P.P., Prepared by Arctec.**
  15. **Final Reports of Preliminary Contingency Plans - LNG Carrier System - A.P.P., Prepared by Arctec.**
  16. **Proposal for Winter Baseline Studies at Bridport Inlet, Prepared by Norcor.**
  17. **The Air Environment of the Proposed Natural Gas Pipeline Route on Melville Island, N.W.T., Prepared by Western Research.**
  18. **An Analysis of the Air Environment of Bridport Inlet, Prepared by Western Research.**
  19. **Comparisons of Wind and Temperature Data Collected on Melville Island at Bridport Inlet, Beverly Inlet and Rea Point Over the Period of July 15, 1977 to May 31, 1978, Prepared by Western Research.**
  20. **Capacity Plan.**
  21. **Steel Qualities.**
  22. **LNG Safety Analysis for the A.P.P., April 1978, Prepared by R & D Associates.**
  23. **Track Bridging, Prepared by Arctec Canada Limited.**
  24. **Observations of Marine Mammal and Sea Bird Interaction with Icebreaking Activities in the High Arctic, Prepared by C. Hatfield Consultants.**
  25. **Ice Management within Bridport Inlet Executive Summary Report, Prepared by Acres Consulting Services.**

26. **Environmental Impact of Thermal Discharge, Prepared by Acres Consulting Services.**
  27. **Environmental Assessment of Selected Freshwater Resources Near the Proposed Petro-Canada LNG Project, Melville Island, N.W.T., Prepared by Hatfield Consultants.**
  28. **Survey of the Marine Environment of Bridport Inlet, Melville Island, Prepared by LGL Limited.**
  29. **Active Layer Detachment Slides on King Christian Island and The Sabine Lowland in the High Arctic, Prepared by Hamilton and Bliss.**
  30. **An Oceanographic Study of the Bridport Inlet, Melville Island, N.W.T. (Part II and III), Prepared by Frozen Sea Research Group.**
  31. **Studies of Terrestrial Mammals on Eastern Melville Island, Prepared by LGL Limited.**
  32. **Helium-Tritium Analysis, Bridport Inlet, Melville Island, N.W.T., Prepared by Zafer Top.**
  33. **Pipe Burial Test Section Construction and Monitoring May to September, 1979, Prepared by EBA Engineering Consultants.**
  34. **Archeological Site Survey... of Bridport Inlet and the Proposed Interior Pipeline Corridor, Melville Island, N.W.T., Prepared by Dr. Peter Schledermann.**
  35. **Landscape Survey, Eastern Melville Island 1978 Unpublished Report, Prepared by R.M Hardy and Associates Limited.**
  36. **Number and Distribution of Birds on Eastern Melville Island, July-August, 1977 Unpublished Report, Prepared by LGL Limited.**
  37. **Number and Distribution of Marine Mammals Along the Coasts on Eastern Melville Island, July - August, 1977 Unpublished Report, Prepared by LGL Limited.**
  38. **Studies on Ice Management a Summary Report - December, 1979, Prepared by Acres Consulting Limited.**
- B. Documents issued by the Environmental Assessment Panel.**
1. **Draft Guidelines for the Completion of the Environmental Assessment issued by the Environmental Assessment Panel and Submissions on the Petro-Canada Environmental Statement, (June 1979).**
  2. **Comments presented to the Environmental Assessment Panel on the Draft Guidelines for the Completion of the Environmental Assessment for the Arctic Pilot Project, (September 1979).**
  3. **Guidelines for the Completion of the Environmental Assessment for the Arctic Pilot Project, (September 1979).**
  4. **A Compendium of Briefs presented to the Arctic Pilot Project Environmental Assessment Panel, 28 March, 1980.**
  5. **Transcripts of the Proceedings of the Federal Environmental Assessment Review Panel in the matter of the Arctic Pilot Project at Resolute, Northwest Territories (Volumes 1-13), April, 1980.**

**APPENDIX III - APPEARANCES BEFORE THE  
PANEL**

**Robin Abercrombie  
Arctic Pilot Project**

**Dr. Paul Addison  
Department of Environment**

**Peter Aglak  
Pond Inlet**

**Simon Akpaleapik  
Grise Fiord**

**Simionic Alainga  
Baffin Region Inuit Association**

**Titus Allooioo  
Pond Inlet**

**Simonie Amrualik  
Resolute**

**Patrick Anderson  
Arctic Pilot Project**

**James Arvaluk  
Frobisher Bay**

**Simon Awa  
Baffin Region Inuit Association**

**Martin Barnett  
Department of Indian Affairs and  
Northern Development**

**John Bennett  
Bennett Environmental Consultants Ltd.**

**Prof. William Bowes  
Technical Witness**

**Douglas Bowie  
Arctic Pilot Project**

**George Braden  
Member, Legislative Assembly  
Northwest Territories**

**Douglas Bruchet  
Arctic Pilot Project**

**Tom Byerley  
Department of Transport**

**Thomas Dafoc  
Department of Environment**

**Dr. Rolph Davis  
LGL Limited**

**Robert Dick  
Arctic Pilot Project**

**Judith Donaldson  
Baffin Region Inuit Association**

**George Eckalook  
Mayor, Resolute**

**Einer Einarsson  
Department of Environment**

**Bruce Fallis  
Department of Fisheries and Oceans**

**Lindsay Franklin  
Panarctic Oils Ltd.**

**Donald Ganble  
Canadian Arctic Resources Committee**

**Captain Andrew Geddes  
Department of Transport**

**David Gilday  
Government of the Northwest Territories**

**Dr. Shawn Gill  
Department of Transport**

**Chris Hatfield  
Hatfield Consultants Ltd.**

**Donald Hayley  
EBA Engineering Consultants Ltd.**

**Alan Heggibottom  
Department of Energy, Mines & Resources**

**Dr. Igor Holubec**  
Geocon Ltd.

Menno Homan  
Arctic Pilot Project

**Peter Ittinuar**  
Member of Parliament  
Riding of Nunatsiaq

**Paul Koolerk**  
Pond Inlet

**Tookeckee Kuguktak**  
Grise Fiord

**Kutsi Kuppa**  
Arctic Bay

**Robert Lake**  
Technical Witness

**Dr. Herb Lawler**  
Department of Fisheries and Oceans

**Michael Lawrence**  
Department of Fisheries and Oceans

**Dr. Douglas Leahey**  
Western Research and Development Ltd.

**Dr. Olaf Loken**  
Department of Indian Affairs and  
Northern Development

**Captain Robert Lumsden**  
Arctic Pilot Project Consultant

**Fred MacFarlane**  
Department of Indian Affairs and  
Northern Development

**Dr. Andrew Macpherson**  
Department of Environment

Allan Maktar  
Pond Inlet

**Margaret McLaren**  
LGL Consultants Ltd.

**Dawson (Dusty) Miller**  
Arctic Pilot Project

**Allen Milne**  
Technical Witness

**Kevin Milne**  
Arctic Pilot Project

**Dr. Fritz Müller**  
Swiss Federal Institute of Technology,  
Zurich

**Abe Okpik**  
Baffin Regional Council

**Caleb Ootovo**  
Pond Inlet

**John O'Shea**  
Department of Environment

**Peter Poole**  
Inuit Tapirisat of Canada

**Ludy Pudluk**  
Member, Legislative Assembly,  
Northwest Territories

**Captain Thomas Pullen**  
Technical Witness

**Iniaq Qavavauq**  
Arctic Bay

**Allie Salluvinig**  
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**Edward Weick**  
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**Dr. Peter J. Williams**  
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**Donald M Wolcott**  
**Arctic Pilot Project**

**APPENDIX IV - BACKGROUND DOCUMENTS  
SUBMITTED TO THE PANEL**

- **Liquid Natural Gas Transportation in Parry Channel - Possible Environmental Hazards, Allen Milne and Brian Smiley, Institute of Ocean Sciences, Department of Fisheries and Oceans.**
- **Petro-Canada Arctic Communities Meetings, Resolute Bay, N.W.T., January 29, 1980.**
- **Lancaster Sound, Issues and Responsibilities, Canadian Arctic Resources Committee, 1980.**
- **Supplementary Socio-Economic Regional Setting Information, Arctic Pilot Project, April, 1980.**
- **North Water Project, Project Reports II - VI, by Fritz Muller, ETH Zurich and McGill University.**
- **Environmental Research and Development Workshop, Banff, Alberta, Arctic Pilot Project, February 26-28, 1980.**
- **Regional Conference in Resolute, May 19, 1979 and Phillips - Marathon LNG Plant May 20-22, Arctic Pilot Project.**
- **Arctic Pilot Project Research and Development Program Objectives.**
- **Policy Position Paper on Social and Economic Policy Issues for Petro-Canada's Arctic Pilot Project (October 1978).**
- **General Environmental Policy Statement, April, 1980, Arctic Pilot Project.**
- **Update to the Arctic Pilot Project's Community Liaison and Consultation Program**
- **Design Modification to Icebreaking LNG Carriers - Substitution of Gaseous Fuel for Liquid Oil.**
- **Arctic Seas Bulletin, Volumes 1 and 2, Canadian Arctic Resources Committee.**
- **Marine Transportation and High Arctic Development: Policy Framework and Priorities, Symposium Proceedings, Canadian Arctic Resources Committee, March, 1979.**
- **Marine Transportation and High Arctic Development: A Bibliography by M.J. Dunbar, published by Canadian Arctic Resources Committee, 1980.**
- **Bivalve Mollusks of the Western Beaufort Sea, by F.R. Bernard, July, 1979, Contributions in Science, Natural History Museum of Los Angeles County.**
- **Inuvik Snow Road Construction, Testing and Environmental Assessment 1973-1974, Inuvik, Northwest Territories. (Northern Engineering Services Company Ltd.)**
- **Correspondence to Petro-Canada from R.M Hardy regarding the subject of revegetation on Melville Island.**
- **Correspondence to Petro-Canada from R.M Hardy regarding the subject of air quality impacts from the proposed LNG facilities at Bridport Inlet.**
- **Preliminary implementation plan for the manpower delivery program - Arctic Pilot Project.**
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- **Forecasts of Marine Shipments of Arctic Oil and Gas, Transport Canada, September, 1979.**
- **Marine Delivery Systems for Alaskan Offshore Oil and Gas, Dome Petroleum Ltd.**
- **A Rational and Economical Solution for the Transportation of North Slope of Alaska and Northern Canadian Oil and Natural Gas to the Canadian and U.S. East Coast Markets, Ravi N. Tikoo, Financial Post Conference, March, 1980, Toronto.**
- **Arctic Oil Spill Countermeasures Logistics Study: Summary Report, Environment Canada, December, 1978.**
- **Environmental Overview, Beaufort Sea Development, Working Draft, January, 1980, Dome Petroleum Limited.**
- **Dome Petroleum Limited, Five Years of Progress, February, 1980.**
- **Response to E.M.R. regarding ice formation on the outer hull of the LNG carrier due to heat flux from the cargo, Arctic Pilot Project.**
- **Polynyas - As a part of the physical environment of special concern regarding transportation in the channels of the Queen Elizabeth Islands and in Northern Baffin Bay, Fritz Mueller, April 1980.**
- **Arctic Canada Traffic System (or Nordreg Canada), Notice to Mariners.**
- **Responses to position statements, Department of the Environment, Regional Hydrocarbon Committee, February 1980, Arctic Pilot Project.**
- **Baffin Bay - Davis Strait, Arctic Pilot Supplementary Submission, Canadian Arctic Resources Committee, May, 1980.**
- **Some Considerations on the Impact of LNG Tankers in Barrow Strait on Food Harvesting Activities of the Inuit at Resolute Bay, Robert Lanari, Department of Indian Affairs and Northern Development, January, 1979.**
- **Comments on permafrost and seismic considerations relating to the Gas Production Component on Melville Island, May, 1980, Department of Energy, Mines and Resources.**
- **Closing statement, May 1980, Department of Energy, Mines and Resources.**
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- **Marine Mammals Inhabiting the Baffin Bay Northwater in Winter** by Kerwin 3. Finley and Wayne G. Renaud, LGL Limited, January, 1980.
- **Recent Observations of the Bowhead Whale in the Eastern Canadian High Arctic**, Rolph A. Davis and William R. Koski, LGL Limited, June 1979.
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- **Closing statement to the Resolute Bay hearings, Department of Indian Affairs and Northern Development, May, 1980.**
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