

Foundation for a Sustainable Northern Future

REPORT OF THE JOINT REVIEW PANEL FOR THE MACKENZIE GAS PROJECT

VOLUME I — CHAPTERS 1 TO 10

DECEMBER 2009



Joint Review Panel
for the Mackenzie Gas Project

Foundation for a Sustainable Northern Future

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For the purposes of identifying references, please consider the following examples:

J-INAC-00177, p. 11

J	Joint Review Panel
INAC	acronym assigned to each participant, group of participants or government department/regulatory agency (Other examples: OHP – Other Hearing Participants, LOC – Letter of Comment)
00177	number assigned to each filing on the public registry
p. 11	.pdf* page number

HT V28, p. 2539

HT	hearing transcript
V28	hearing transcript volume number
p. 2539	hardcopy page number

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Foundation for a Sustainable Northern Future:
Report of the Joint Review Panel for the Mackenzie Gas Project

Published under the authority of the Minister of Environment, Government of Canada.

March 2010

www.ceaa-acee.gc.ca

Paper: ISBN En106-87/2009E

Cat. no.: 978-1-100-14372-9

PDF: ISBN En106-87/2009E-PDF

Cat. no.: 978-1-100-14373-6

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This report was written and transmitted in English. This report has been translated into French. Audio-Interpretation of the Executive Summary is available in Inuvialuktun, Gwich'in, North Dene, South Dene and Dene Tha'.

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Northern Gas Project Secretariat offices

Yellowknife: 5114 - 49th Street, Yellowknife NT X1A 1P8 Canada
Inuvik: Box 2412, Suite 302, 125 Mackenzie Road, Inuvik NT X0E 0T0 Canada
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E-Mail Address: publications@ceaa-acee.gc.ca
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Inuvialuit Game Council

Box 2120, Inuvik NT X0E 0T0 Canada
Telephone: (867) 777-2828
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Mackenzie Valley Environmental Impact Review Board

200 Scotia Centre, Box 938, 5102-50th Ave, Yellowknife, NT X1A 2N7 Canada
Telephone: (867) 766-7050
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National Energy Board

Publications Office, 444 Seventh Avenue SE, Calgary, AB T2P 0X8 Canada
Telephone: (403) 299-3562 Toll Free: 1-800-899-1265
Electronic version of this report is also available at <http://www.neb-one.gc.ca>

Design and Layout by AN Design Communications

French translation by Renaud Expertise Inc

Printed and bound in Canada on recycled paper

Front Cover Photos: Elder (Terry Halifax), landscape (NGPS), caribou (Steven Baryluk), drift wood (JRP), Bison (JRP), grass (NGPS). Back Cover Photo: JRP members (Paula Pacholek)



Suite 302, 125 Mackenzie Road
P.O. Box 2412
Inuvik, NT X0E 0T0
Phone: (867) 678-8604; Fax: (867) 777-3105

December 30, 2009

The Honourable Jim Prentice
Minister of Environment

The Honourable J. Michael Miltenberger
Minister of Environment and Natural Resources

The Honourable Chuck Strahl
Minister of Indian Affairs and Northern Development

Mr. Richard Edjericon
Chairperson, Mackenzie Valley Environmental Review Board

The Honourable Gail Shea
Minister of Fisheries and Oceans

Mr. Frank Pokiak
Chair, Inuvialuit Game Council

The Honourable John Baird
Minister of Transport

Mr. Gaétan Caron
Chair, National Energy Board

Dear Madam and Sirs:

In accordance with the Joint Review Panel Agreement issued on August 18, 2004, the Joint Review Panel has completed its environmental assessment of the Mackenzie Gas Project and the associated Northwest Alberta Facilities.

The Joint Review Panel is pleased to submit its report for your consideration. Subject to the full implementation of the Panel's recommendations, the Panel has concluded that the adverse impacts of the Mackenzie Gas Project and the Northwest Alberta Facilities would not likely be significant and that the Project and those Facilities would likely make a positive contribution towards sustainability.

The Panel is of the view that the Mackenzie Gas Project could provide a foundation for a sustainable northern future.

Yours truly,

Handwritten signature of Gina Dolphus in black ink.

Gina Dolphus

Handwritten signature of Barry Greenland in black ink.

Barry Greenland

Handwritten signature of Percy Hardisty in black ink.

Percy Hardisty

Handwritten signature of Rowland J. Harrison, Q. C. in black ink.

Rowland J. Harrison, Q. C.

Handwritten signature of Tyson Pertschy in black ink.

Tyson Pertschy

Handwritten signature of Peter J. Usher in black ink.

Peter J. Usher

Handwritten signature of Robert Hornal in black ink.

Robert Hornal

3.4 OTHER FUTURE SCENARIOS

3.4.1 CANADIAN ARCTIC RESOURCES COMMITTEE'S SUBMISSION

The Canadian Arctic Resources Committee (CARC) filed a detailed submission entitled *A Choice of Futures: Cumulative Impact Scenarios of the Mackenzie Gas Project* (referred to as the CARC Report), dated October 24, 2005. The submission incorporated the results of cumulative effects mapping that was undertaken for CARC by Cizek Environmental Services, based on data from the GLJ Report. The mapping in the CARC Report also incorporated a review and critique of various filings and data provided by the Proponents on the Project's cumulative footprint.

The CARC Report also incorporated data from a study by geological and petroleum engineering consultants Sproule Associates Limited. On June 1, 2005, a study by Sproule

Associates entitled *Natural Gas Resource Assessments and Deliverability Forecasts, Beaufort-Mackenzie and Selected Northern Canadian Basins* (referred to as the Sproule Study) was filed with the NEB. The Sproule Study was commissioned by the Mackenzie Explorer Group, representing seven companies holding oil and gas exploration rights in the NWT. The Sproule Study was filed with the Panel by Kevin O'Reilly.

The assumptions and results of the CARC Report are set out in Table 3-2.

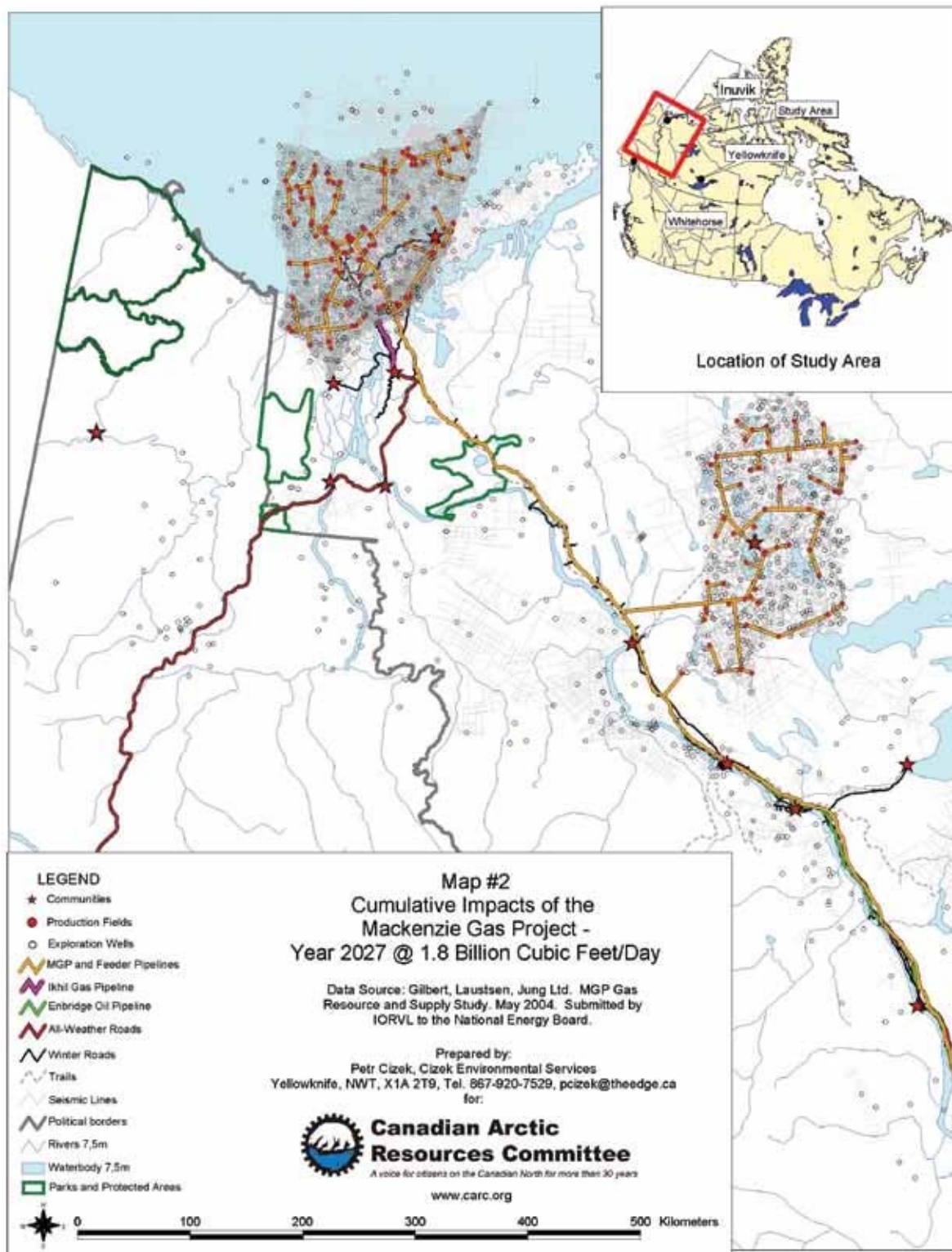
Figure 3-8 through Figure 3-11 show, for illustrative purposes only, the CARC Report's maps of potential cumulative environmental impacts of the project at 1.8 Bcf/d in 2027, at 1.8 Bcf/d in 2059, at 2.5–3.0 Bcf/d in 2059 and at 4.0 Bcf/d in 2059.

Table 3-2 Assumptions and Results of CARC's Mapping Project

Year	Original Data Contained in GLJ Study			Derived Data	
	Contingent Resources (Existing Fields with Proven Gas)	Prospective Resources		New Seismic Lines (Linear Kilometres)	Cumulative Length of Trunk and Feeder Pipelines
		New Production Fields	Total New Exploration Wells (Production Wells + Dry Wells)		
2027	Parsons Lake, Taglu,	53 (Colville Hills)	384 (Colville Hills)	21,888 km (Colville Hills)	3,813 km
	Niglintgak (Anchor Fields);	13 (Basin Margin)	108 (Basin Margin)	19,656 km (Basin Margin)	
	Adgo, Yaya, Garry North,	17 (Listric Fault —	62 (Listric Fault —	19,110 km (Listric Fault —	
	Garry South, Hansen,	Onshore)	Onshore)	Onshore)	
	Kumak, Maillik, Pelly,	31 (Listric Fault —	130 (Listric Fault —	26,930 km (Listric Fault —	
Reindeer, Titalik, Tuk, Unak,	Offshore)	Offshore)	Offshore)		
Unipkat, Ya Ya North, and	114 (Cumulative Total)	684 (Cumulative Total)	87,584 km (Cumulative Total)		
Ya Ya South (Mackenzie Delta); Bele, Tedji, Tweed (Colville Hills); Amauligak, Issungnak, Itiyok, South Isserk, Ukalerk, Kadluk, Kiggavik, Minuk, Netserk, South Nipterk (Beaufort Sea Offshore)					
31 (Cumulative Total)					

Source: Adapted from J-CARC-00021, Table 1

Figure 3-8 Cumulative Impacts of the Mackenzie Gas Project: Year 2027 @ 1.8 Billion Cubic Feet/Day



View1

Figure 3-9 Cumulative Impacts of the Mackenzie Gas Project: Year 2059 @ 1.8 Billion Cubic Feet/Day

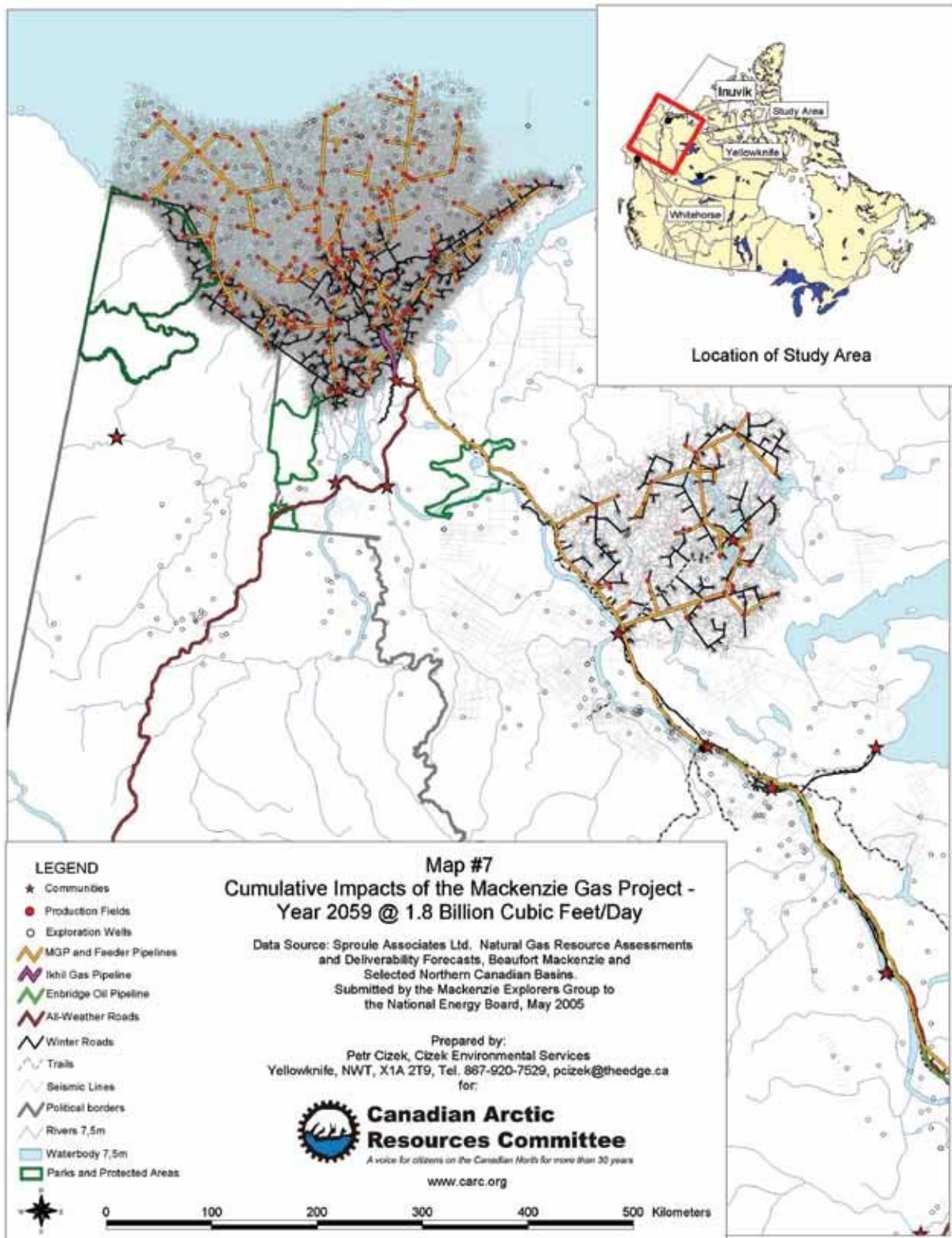


Figure 3-10 Cumulative Impacts of the Mackenzie Gas Project: Year 2059 @ 2.5–3.0 Billion Cubic Feet/Day

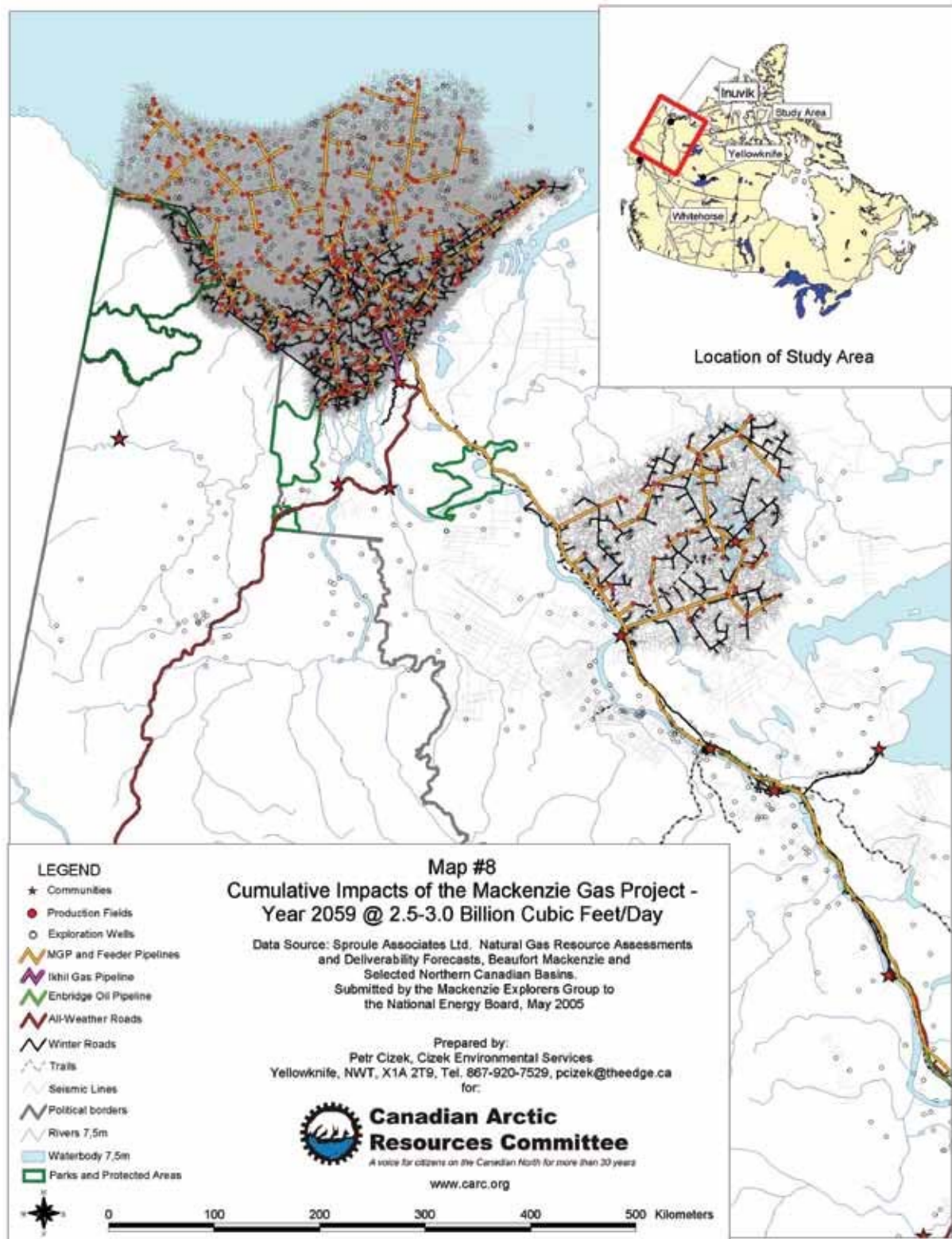
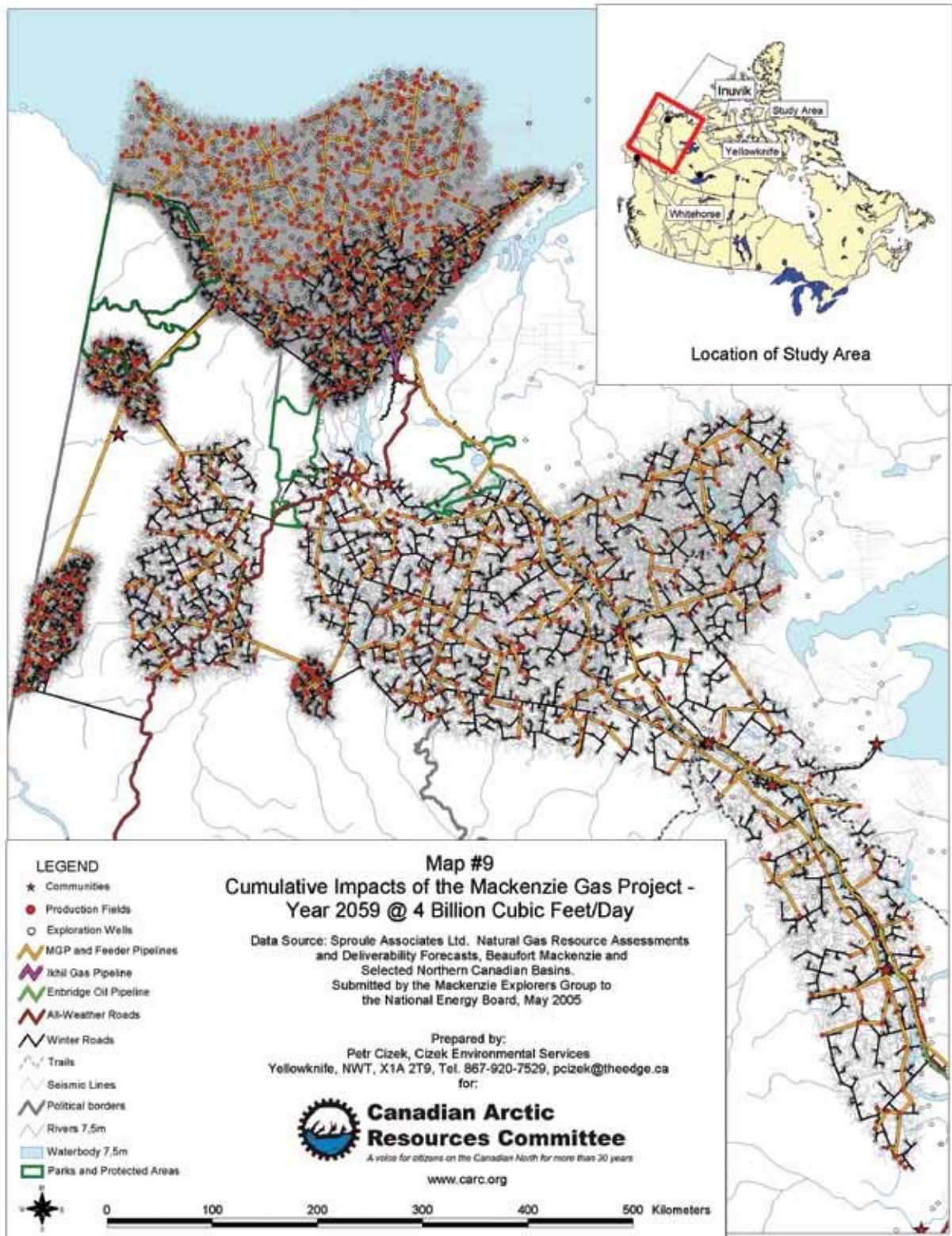


Figure 3-11 Cumulative Impacts of the Mackenzie Gas Project: Year 2059 @ 4 Billion Cubic Feet/Day



3.4.2 OTHER VIEWS

The Panel heard a wide range of other views on potential future developments that could follow construction of the Project as Filed. Some of these developments may be highly likely, such as the development of additional gas fields to support throughput on the MVP at its capacity of 1.2 Bcf/d. However, even in this case, the individual fields and their locations were not identified, and therefore their project-specific impacts have not been reviewed by the Panel. At the other end of the range of views, some potential developments were entirely speculative. In the middle were possible developments that might be “reasonably foreseeable.” It followed that the information submitted to the Panel about the cumulative impacts of potential future developments also ranged from somewhat detailed to wholly speculative.

In the Panel’s view, these scenarios were generally presented as just that — views of various Interveners and other participants on possible future developments that could follow from the pipeline. The Panel expresses no view on the likelihood that any of them would come to pass. At the same time, in assessing the potential cumulative impacts of the Project and the contribution of the Project to sustainability, the Panel has had regard to what the future could look like if the Project were to proceed.

As noted, the Panel has not assessed the likelihood of any of these scenarios coming to pass. In the Panel’s view, however, the preceding maps in particular suggest that exploration, development and production activities to support the Expansion Capacity Scenario would most likely occur in the Inuvialuit Settlement Region and the Sahtu Settlement Area and not in the Dehcho Region.

3.4.3 “BASIN-OPENING” PROJECT

Throughout the Panel’s review process, the Mackenzie Gas Project was frequently referred to as a basin-opening project. In response to a specific question from the Panel, IORVL stated that, in its view, “basin-opening” described a “pipeline that provides the ability to sell natural gas that’s been discovered and developed [and that opens] up a new region to development.” (Randy Ottenbreit, HT V2, p. 139) Shell and ConocoPhillips each used the term in their opening statements to the Panel but did not expand on its meaning.

Most other parties also did not elaborate on what exactly they meant by the term. Many failed to recognize that there is more than one geologic “basin” with oil and gas potential in the NWT. However, it appeared to the Panel that most parties who used the term inferred a meaning that went beyond the narrow definition offered by IORVL. The common element seemed to be a view that the Project would lead to further developments beyond those required to support its initial capacity of 1.2 Bcf/d. For some, those further developments might encompass the full development of a natural gas exploration, development and

production industry; for others, full exploitation of the oil and gas resources of the NWT, including the Beaufort Sea; and for yet others, the general industrialization of the North.

Given this range of meanings, the Panel concluded that describing the Project as a basin-opening project is of little assistance. Therefore, the Panel has not reviewed the Project as a basin-opening project as such. It has, however, considered the submissions of various parties on possible future scenarios and potential cumulative impacts that could follow the Project.

Scenarios going beyond the Expansion Capacity Scenario of the Mackenzie Valley Pipeline are generically referred to by the Panel as Other Future Scenarios. They have been considered by the Panel on the assumption that the Project would first be built to the initial capacity of the Project as Filed and would later be expanded to the Expansion Capacity Scenario. The Panel has, therefore, considered the Other Future Scenarios as extensions of, and not as alternatives to, the Project as Filed.

3.5 SUMMARY

In summary, the Panel has approached its review as follows:

- (a) The Panel reviewed the Project as Filed, including the *Supplemental Information — Project Update* filed in 2007. The Project as Filed includes:
 - development of and production from the three Anchor Fields at a rate of 830 Mcf/d, together with the other components of the Mackenzie Gathering System;
 - the Mackenzie Valley Pipeline, with three compressor stations, one heater station and associated facilities, with a capacity of 1.2 Bcf/d; and
 - the Northwest Alberta Facilities.

(The Panel recognizes that, until gas production in addition to the initial production from the Anchor Fields at the rate of 830 Mcf/d is committed to the MVP, some of the facilities included in the Project as Filed would not be built and that, therefore, the actual capacity of the MVP at start-up might be less than 1.2 Bcf/d.) The Panel has undertaken a comprehensive review of Project-specific impacts and cumulative impacts of the Project as Filed. The Panel has not reviewed the direct impacts associated with any identified exploration, development and production activities that would be required to increase throughput on the MVP from 830 Mcf/d to 1.2 Bcf/d.

- (b) As required by its Mandate, the Panel then considered the Project as expanded to a capacity of 1.8 Bcf/d (the Expansion Capacity Scenario). The Expansion Capacity Scenario would include 11 more compressor stations and supporting infrastructure on the MVP, as well as associated gas exploration, and development projects and undertakings

to support throughput at that capacity. The Panel concluded that the Expansion Capacity Scenario is a reasonably foreseeable development for the purpose of considering potential cumulative impacts and the Project's contributions to sustainability.

The Proponents described their hypothetical scenario of natural gas developments that would support throughput at the level of 1.8 Bcf/d as being "for illustration only [and] highly uncertain." They undertook a qualified assessment of the cumulative effects of the scenario but did not come to any conclusions on the significance of those effects "because of the uncertainties associated with the hypothetical scenario." (J-IORVL-00085, Section 11, p. 5) Therefore, with respect to the Expansion Capacity Scenario,

the Panel has generally considered the impacts on the biophysical and socio-economic environment of facilities that would be added to the Project by the Proponents (mainly the additional compressor stations and supporting infrastructure) and, with the limited information available on future developments, has considered the impacts of those developments in combination with the impacts of the Project.

- (c) The Panel also considered the Project in combination with other additional hydrocarbon exploration, development, production and transportation undertakings, and other activities in the region (the Other Future Scenarios). In this case, the Panel considered the comments heard during its review process on hypothetical future scenarios and the cumulative impacts that might occur in combination with the Project and their contribution to sustainability.

Future gas projects in the Mackenzie Delta region that might be induced by the project are also included in the cumulative effects assessment. A gas project is considered induced if its development is contingent on the development of the Mackenzie Gas Project. **A project is included in the cumulative effects assessment if a precedent agreement exists for that project to ship gas on Mackenzie Gas Project pipelines.** [emphasis added] (EIS, V1, Section 2, p. 35)

This qualifier, emphasized above, is important. The Proponents identified only the following developments as reasonably foreseeable in preparing their cumulative impacts assessment:

- the Devon Canada Corporation's Beaufort Sea exploration drilling program;
- the Deh Cho Corporation Mackenzie River bridge at Fort Providence;
- the De Beers Snap Lake diamond mine; and
- the GNWT Mackenzie River winter bridges.

In response to a Panel request, the Proponents described a future scenario of induced development which they considered hypothetical. The Proponents concluded that including the induced development in the cumulative impact assessment would not result in a Class I significance designation (i.e. potentially threatened sustainability of a valued component) for any of the cumulative effects assessed.

The Proponents stated that the list of reasonably foreseeable projects was complete and appropriate at the time. They stated that an assessment of hypothetical land uses had been performed that included the seismic and drilling activity associated with potential future exploration activity. They also noted that a conservative precautionary approach was used in conducting the assessment of the potential impacts of reasonably foreseeable projects. The Proponents therefore disagreed with statements by INAC and Environment Canada that the predicted cumulative effects had been underestimated in the assessment.

Many participants were of the view that potential cumulative effects of the MGP are of great concern and that the cumulative impact assessment done by the Proponents was insufficient. The SCC argued that by not including potential future induced development in their analysis, the Proponents had failed to meet the EIS Terms of Reference provisions, which required that they employ best practices.

Participants advocated that the Panel should recommend that a scenario-based cumulative impact assessment be done to gain insight into the implications for impacts of future induced development on the sustainability of valued components. This issue is addressed in Chapter 18, "Monitoring, Follow-up and Management Plans."

Environment Canada asserted that the Proponents had not used best practices in the cumulative impact assessment. The view of the department was that there were some likely projects that were not addressed in the cumulative impact assessment and should have been, and that the cumulative impact assessment analysis did not address all valued components that should have been included, specifically the Kendall Island Bird Sanctuary.

The Panel notes that the Proponents' focus on Project-specific cumulative effects resulted in a narrow scoping in regard to the spatial extent of the analysis and the identification of reasonably foreseeable future developments. The spatial extent of the cumulative impact assessment is the same as that employed for the EIS. An approach that focused on the conditions of valued components and the impact of the Project on those conditions would have resulted in spatial boundaries broader than those considered by the Proponents. The Proponents' criteria for identifying "reasonably foreseeable" developments likewise served to limit the scope of its cumulative impact assessment.

The Panel accepts that the Proponents' approach to considering induced developments in the cumulative impact assessment was consistent with the 1994 *Reference Guide for the Canadian Environmental Assessment Act — Addressing Cumulative Environmental Effects*, which states that in most cases induced development will not be considered as part of a cumulative impact assessment.

However, the Panel also notes that other, more recent guidance advocates the consideration of induced developments in a cumulative impact assessment, specifically the 1999 *Operational Policy Statement — Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act*, the 1999 *Cumulative Effects Assessment Practitioners Guide*, and the guidance prepared for assessments conducted under the requirements of the *Alberta Environmental Protection and Enhancement Act* and that for the *Mackenzie Valley Resource Management Act* (MVRMA).

The 2004 *Environmental Impact Assessment Guidelines* issued by the MVEIRB for preparation of environmental impact assessments under the MVRMA indicates that "[i]dentifying reasonably foreseeable future developments involves a broad prediction for which less detail is expected than when identifying present or past human activities."

The 2004 Guidelines direct Proponents to include as reasonably foreseeable "other developments that have not been formally proposed but can be reasonably foreseen" and, in discussing an example of a proposed pipeline through a previously inaccessible area with little existing development, asserts that:

if looking at similar cases indicated that a certain type and intensity of induced development routinely followed, then these types of induced developments should be considered reasonably foreseeable for the proposed development, even though no applications for them have been submitted. (MVEIRB EIA Guidelines, March 2004, pp. 81–82)