



National Energy
Board

Office national
de l'énergie

Reasons for Decision

NOVA Gas Transmission Ltd.

GH-2-2011

February 2012

Facilities

Canada

National Energy Board

Reasons for Decision

In the Matter of

NOVA Gas Transmission Ltd.

Application dated 29 April 2011 for the
Northwest Mainline Expansion

GH-2-2011

February 2012

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Abbreviations

Aboriginal Communities	First Nation and Métis Communities
ACCS	Alberta Culture and Community Services
Applicant or the Company application	NOVA Gas Transmission Ltd. Application to the Board, pursuant to sections 58 and 52 of the <i>National Energy Board Act</i> for a Certificate of Public Convenience and Necessity for the Northwest Mainline Expansion
Bcf/d	billion cubic feet per day
BC MFLNRO	British Columbia Ministry of Forests, Lands and Natural Resource Operations
Board or NEB	National Energy Board
Board's April 2002 Letter	Board letter dated 24 April 2002 to all oil and gas companies under the Board's jurisdiction regarding Security and Emergency Preparedness and Response Programs
CEA Act	<i>Canadian Environmental Assessment Act</i>
Certificate	Certificate of Public Convenience and Necessity issued under section 52 of the <i>National Energy Board Act</i> authorizing the construction and operation of a facility
CHRP	Caribou Habitat Restoration Plan
CP	cathodic protection
CPP	Caribou Protection Plan
CSA	Canadian Standards Association
CSA Z662	Canadian Standards Association Z662, Oil and Gas Pipeline Systems
DFO	Fisheries and Oceans Canada
EA	environmental assessment pursuant to the <i>Canadian Environmental Assessment Act</i>
EAE	Enhanced Aboriginal Engagement
EC	Environment Canada
EPP	Environmental Protection Plan

EPR	Emergency Preparedness and Response
ESA	NGTL's Environmental and Socio-Economic Assessment
ESR	Environmental Screening Report pursuant to the <i>Canadian Environmental Assessment Act</i>
FA	Federal Authority
Filing Manual	National Energy Board Filing Manual, as revised from time-to-time
FT-R	Firm Transportation - Receipt
HDD	Horizontal Directional Drill
IMP	Integrity Management Program
IPA	TransCanada's Integrated Public Awareness program
km	kilometre
kPa	kilopascals
LNG	liquefied natural gas
LSA	Local Study Area
m	metre
m ³ /d	cubic metres per day
Mcf/d	thousand cubic feet per day
mm	millimetre
MMcf/d	million cubic feet per day
MOP	maximum operating pressure
MPMO	Major Projects Management Office
NEB or Board	National Energy Board
NEB Act	<i>National Energy Board Act</i>
NGTL	NOVA Gas Transmission Ltd.
NPS	nominal pipe size (in inches)
OCC	TransCanada Operations Control Centre
OD	outside diameter

O&M	Operations and Maintenance
OPR-99	<i>Onshore Pipeline Regulations, 1999</i>
PFP	Participant Funding Program
Project	Northwest Mainline Expansion
RA	Responsible Authority, as defined in subsection 2(1) of the <i>Canadian Environmental Assessment Act</i>
Reasons	Reasons for Decision
RoW	right-of-way
RSA	Regional Study Area
Section 58 Facilities	The proposed stockpile sites, contractor yards and construction camps for the Project
Spectra System	Spectra Energy Transmission facilities
TC	Transport Canada
Tcf	trillion cubic feet
TEK	Traditional Ecological Knowledge
TLU	traditional land use
TransCanada	TransCanada PipeLines Limited
TWS	temporary workspace
WCSB	Western Canada Sedimentary Basin

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* (NEB Act) and the Regulations made thereunder;

IN THE MATTER OF an application by NOVA Gas Transmission Ltd. (NGTL) dated 29 April 2011 under file OF-Fac-Gas-N081-2010-16 02 for the Northwest Mainline Expansion, in which NGTL requests the following relief:

- a) the National Energy Board (NEB or Board) issue a Certificate of Public Convenience and Necessity under section 52 of the NEB Act, authorizing the construction and operation of approximately 111 km of pipeline and associated facilities to provide additional capacity to transport sweet natural gas;
- b) the NEB issue an order, pursuant to section 58 of the NEB Act, exempting NGTL from the requirements of subsections 31(c), 31(d) and section 33 of the NEB Act in relation to stockpile sites, contractor yards and construction camps; and
- c) the NEB grant such further and other relief as NGTL may request or the Board may consider appropriate; and

IN THE MATTER OF NEB Order GH-2-2011 dated 10 June 2011;

HEARD in Fort Nelson, British Columbia on 29 and 30 November 2011;

BEFORE:

R.R. George	Presiding Member
L. Mercier	Member
S. Leggett	Member

Appearances

Participants

Witnesses

S. Denstedt
S. Duncanson
J. Forrest

NOVA Gas Transmission Ltd.

H. Backus
H. Bishop
R. Kendel
T. Petter
D. Schultz

G. Ducommun

Métis Nation British Columbia

J. Tate

Fort Nelson First Nation

C. Candler
L. Lowe
B. Makowski

M. Haug
J. Nicholson

National Energy Board
National Energy Board

Chapter 1

Disposition

The National Energy Board (NEB or Board) has considered the evidence and submissions made by all participants in the GH-2-2011 proceeding. The Board's views and conclusions on individual matters which fall within the scope of the requested authorizations are contained in the following chapters, and constitute our Reasons for Decision (Reasons) in respect of this matter.

Having considered and weighed all of the evidence before it, the Board finds that the Northwest Mainline Expansion (the Project), as proposed by NOVA Gas Transmission Ltd. (NGTL or Applicant), is and will be required by the present and future public convenience and necessity and finds that approval of the Project is in the public interest.

The Board made its determination under the *Canadian Environmental Assessment Act* (CEA Act) that the Project is not likely to cause significant adverse environmental effects. The Board will recommend to Governor in Council that a Certificate of Public Convenience and Necessity (Certificate) be issued. Subject to Governor in Council approval, the Board will issue a Certificate for the Project, incorporating the terms and conditions found in Appendix II of these Reasons for Decision, pursuant to Part III of the *National Energy Board Act* (NEB Act).

The Board grants NGTL exemption order XG-N081-003-2012, pursuant to section 58 of the NEB Act, the effect of which is to authorize the construction and operation of the stockpile sites, contractor yards and construction camps for the Project (the Section 58 Facilities). The Board grants NGTL exemption from paragraphs 31(c) and 31(d), and section 33 of the NEB Act, subject to the conditions contained in the order. Given the interrelated nature of the applications, the attached order will only come into effect upon the Board's issuance of the Certificate for the Project.



R.R. George
Presiding Member



L. Mercier
Member



S. Leggett
Member

Calgary, Alberta
February 2012

Chapter 2

Introduction

2.1 The Application

On 29 April 2011, NGTL, applied to the NEB, pursuant to the NEB Act for a Certificate to construct and operate the Project. The Project is a proposed expansion of NGTL's existing Alberta System in Alberta and British Columbia. NGTL's Alberta System consists of approximately 24,000 km of natural gas pipeline within Alberta and British Columbia. NGTL is a wholly-owned subsidiary of TransCanada PipeLines Limited (TransCanada), which operates the Alberta System, pursuant to an operating agreement between TransCanada and NGTL.

The Project includes the construction and operation of three gas pipeline loops totalling 111.2 km of new pipeline. The pipeline loops would be contiguous (alongside) to existing rights-of-way (RoW) and other linear disturbances for approximately 103.8 km. The Project would require a minimum 32 m-wide construction RoW for its entire length.

NGTL is proposing to begin construction in August of 2012. The in-service date for the Project would be 1 April 2013. Figure 2-1 provides an overview of the Project facilities and pipeline routing.

NGTL has applied to the Board for:

- a Certificate, pursuant to section 52 of the NEB Act, for the construction and operation of the Northwest Mainline Expansion;
- an order, pursuant to section 58 of the NEB Act, exempting NGTL from the requirements of subsections 31(c), 31(d) and section 33 of the NEB Act in relation to the stockpile sites, contractor yards and construction camps; and
- any other relief as NGTL may request or the Board may consider appropriate.

2.1.1 Project Facilities and Location

NGTL proposes to construct the pipeline loop segments that are discussed below. Facilities associated with the pipeline segments include tie-ins, valves and cathodic protection (CP) systems with embedded communication and control equipment, and a temporary construction camp, and temporary access roads. NGTL stated that the Project would be decommissioned and abandoned in accordance with all applicable regulatory requirements at the time of decommissioning and abandonment.

The Kyklo Creek Section

The Kyklo Creek section of the Horn River Mainline Loop (Kyklo Creek section) includes approximately 29.1 km of 1067 mm (nominal pipe size (NPS) 42) outside diameter (OD) pipe

and related facilities in British Columbia. The route of this section would be from the Sierra Gas Plant located at Unit 25, Block K, Group 94-I-11, eastward to a point located at Unit 97, Block F, Group 94-I-10. This section would be contiguous to existing pipeline RoW for 25.1 km. This section would be approximately 80 km southeast of Fort Nelson at its closest point.

The Timberwolf Section

The Timberwolf section of the Northwest Mainline Loop (Timberwolf section) includes approximately 49.8 km of 1219 mm (NPS 48) OD pipe and related facilities in Alberta. The route of this section would be from a point located at NW 03-109-12-W6M on the Northwest Mainline, southward to a point located at NW 06-104-12-W6M adjacent to the Snowfall Creek Meter Station. All but 1.4 km of the route would be contiguous to existing RoWs. This section would be approximately 30 km southwest of Rainbow Lake at its closest point.

The Cranberry Section

The Cranberry section of the Tanghe Creek Lateral Loop No. 2 (Cranberry section) includes approximately 32.3 km of 1219 mm (NPS 48) OD pipe and related facilities in Alberta. The route of this section would be from a point on the Tanghe Creek Lateral Loop located at NE 13-096-05-W6M, adjacent to the Chinchaga Meter Station, eastward to a point located at SW 31-096-07-W6M. A portion of this section, 2.0 km in length, would not be contiguous to existing RoWs. This section would be located approximately 76 km northwest of Manning at its nearest point.

2.2 GH-2-2011 Hearing Process

2.2.1 Project Description

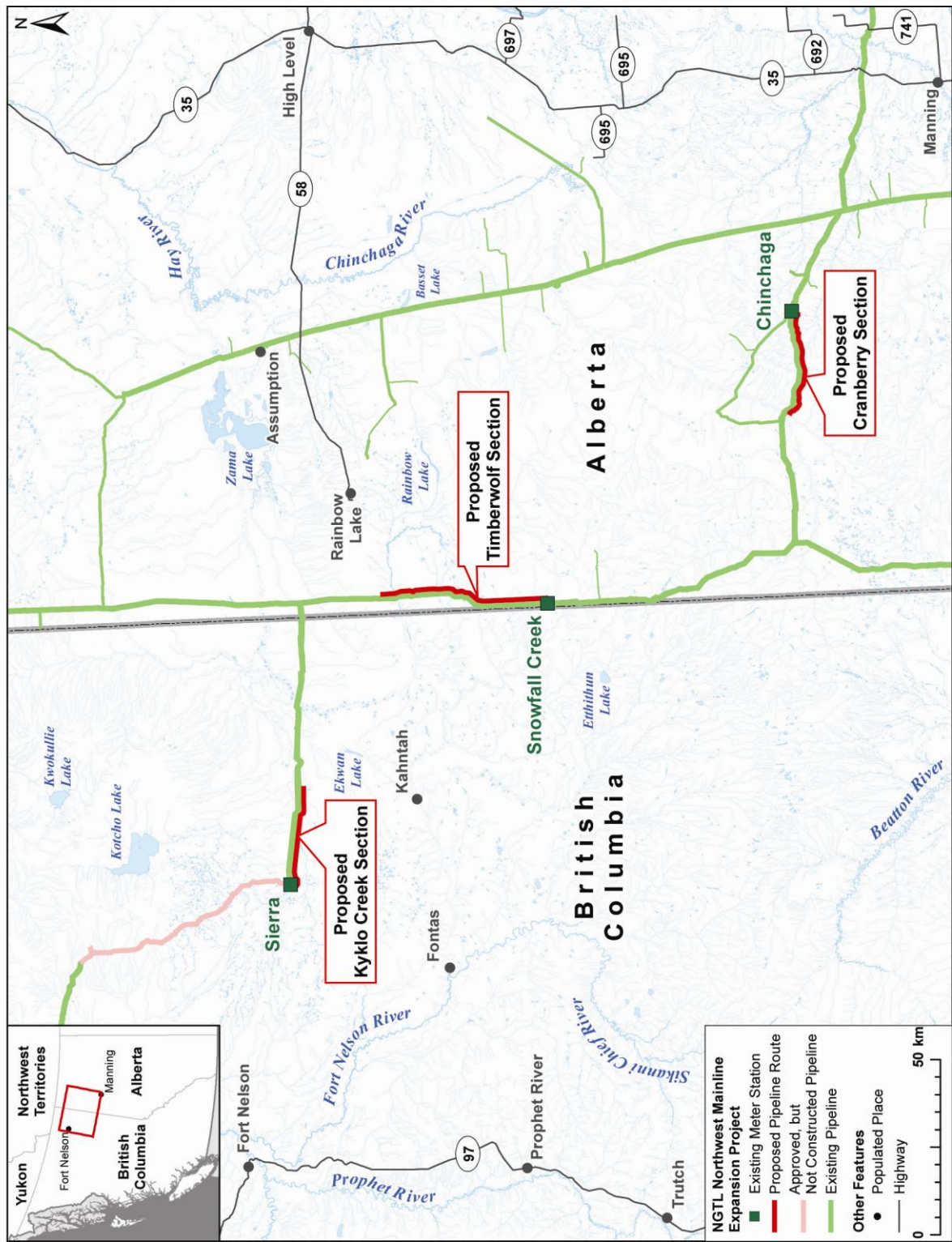
NGTL filed with the Board a Project Description for the Ekwan, Northwest Mainline, and Tanghe Creek Loops Project on 3 December 2010. The filing of the Project Description initiated federal coordination for the environmental assessment (EA) of the Project, and the NEB's Participant Funding Program (PFP). At the time of application, NGTL changed the Project name to the Northwest Mainline Expansion.

2.2.2 Participant Funding Program

The NEB's PFP supports public participation in oral facility hearings that are held under the NEB Act. The PFP applies to the NEB's regulatory process for oral facility hearings, including hearings considering applications for pipelines or power lines, and abandonment of pipelines or power lines.

On 27 January 2011, the NEB made available funding under its PFP to assist landowners, Aboriginal groups, incorporated non-industry not-for profit organizations, and other interested parties to participate in the regulatory review process for the Project.

**Figure 2-1
Major Components of the Northwest Mainline Expansion**



The following Aboriginal groups applied for and were allocated participant funding:

- Fort Nelson First Nation
- McLeod Lake Indian Band
- Métis Nation British Columbia
- Paddle Prairie Métis Settlement

2.2.3 NEB Hearing Order and Hearing Process

On 10 June 2011, the Board issued the GH-2-2011 Hearing Order, which established the process for the Board's consideration of the application.

The Hearing Order included the List of Issues (found in Appendix I of these Reasons) that the Board proposed for consideration during its assessment of NGTL's application. The Hearing Order included a comment period on the List of Issues, during which no comments were received by the Board. The Board considered the submissions during the course of the proceeding that were consistent with the List of Issues. The List of Issues is meant to be broad and not designed to exclude any relevant evidence.

The Hearing Order indicated that the Board would convene the oral portion of the hearing on 29 November 2011. The hearing was held on 29 and 30 November 2011 in Fort Nelson, British Columbia.

2.2.4 Life Cycle Approach

In considering the Project, the Board used a life cycle approach. All issues and concerns before the Board were considered in the context of the Project (i.e., design, planning, construction, operation, decommissioning and abandonment). The Board also considered its various regulatory roles, such as application assessment and post-decision condition compliance, with respect to each stage in the Project's life cycle.

2.2.5 Major Projects Management Office

The Major Projects Management Office (MPMO), established in 2008, is the agency within Natural Resources Canada that was created to improve the performance of the Canadian regulatory system for major natural resource projects. The MPMO indicated that the federal regulatory review process for the Project would be managed through the federal government's MPMO Initiative.

The MPMO stated that the federal government would rely on the Board's hearing process, to the extent possible, in discharging any Crown duty to consult Aboriginal groups.

Following the filing of the Project Description, the MPMO identified Aboriginal groups potentially affected by the Project. The MPMO sent two letters to Aboriginal groups (the first on 17 February 2011 and the second on 19 July 2011), explaining the role of the MPMO and the process the Crown would use to identify, consider, and address potential adverse impacts of the

Project on established or potential Aboriginal or treaty rights. The letters also provided contact information for Aboriginal groups that require further information on participation in the NEB process, or the Crown's duty to consult for the Project.

2.2.6 Environmental Assessment Process

An EA under the CEA Act was completed for the Project. The Project requires a Certificate under section 52 of the NEB Act, and an order pursuant to subsection 58(1) of the NEB Act. Both of those applications require an EA under the CEA Act as part of the federal decision-making process for the Project. The Project was subject to a screening level of EA because it would require less than 75 km of new RoW, as defined in the CEA Act *Comprehensive Study List Regulations*.

Pursuant to the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*, the NEB coordinated Responsible Authority (RA) and Federal Authority (FA) involvement in the CEA Act EA which was conducted within the NEB hearing process. Fisheries and Oceans Canada (DFO), Transport Canada (TC) and the NEB are RAs, and Environment Canada (EC), Health Canada and Natural Resources Canada are FAs.

EC, DFO, and TC declared themselves government participants in the NEB proceedings for the Project.

Throughout the EA process, the Board received submissions pertaining to Project-related EA matters, both in writing and during the oral portion of the hearing. On 3 January 2012, the Board released a draft Environmental Screening Report (ESR) for a two-week public comment period. The Board received comments on the draft ESR from EC, TC, Fort Nelson First Nation, and reply comments from NGTL. The final ESR incorporates the comments received on the draft ESR and provides the views of the Board on environmental and socio-economic matters covered under the CEA Act, as well as the Board's CEA Act determination. The final ESR is attached as Appendix VI to these Reasons.

2.3 Motions

During these proceedings, Fort Nelson First Nation submitted two motions, summarized below. The full text of the Board's responses to both Motions are available in Appendices IV and V of these Reasons.

Motion No. 1 – Crown Consultation Matters

This Motion, dated 22 November 2011, suggested that the Fort Nelson First Nation must know the identity of the Crown actor responsible for discharging the duty to consult and accommodate in order to meaningfully participate oral hearing. The motion also stated that Fort Nelson First Nation required to know the scope of the hearing with respect to the Crown's duty to consult and accommodate, and what evidence, if any, of Crown consultation and accommodation would be included in the hearing, and how such evidence will be presented by the Board.

Further, the Motion sought a determination by the Board on the following questions:

1. Does the Board's jurisdiction include the jurisdiction to discharge the duty to consult and accommodate section 35 aboriginal rights?;
2. Is the Board the Crown actor responsible for fulfilling the duty to consult and accommodate Fort Nelson First Nation's treaty rights in relation to the Project?; and
3. Is the Board precluded from issuing a Certificate under the NEB Act unless it is satisfied that the Crown has discharged its duty to consult and accommodate affected Aboriginal groups with respect to the Project?

Motion No. 2 – Hearing Adjournment

Fort Nelson First Nation presented a Motion during preliminary matters of the oral hearing on 29 November 2011. The Motion requested an adjournment of at least the portion of the hearing that would deal with Fort Nelson First Nation's evidence. In presenting the Motion, Fort Nelson First Nation cited the formal hearing process as intimidating for those who would present evidence, the need for a confidential forum to present evidence, and the need for discussions with the Board and NGTL to seek remedy on information sharing and traditional use protocols as part of the hearing process. Fort Nelson First Nation also expressed concerns about Crown consultation.

2.4 Reasons for Decision

These Reasons discuss the matters considered by the Board in reaching a decision on the application by NGTL. Details of the Board's assessment of issues identified by the Board or by parties to the proceeding are set out in these Reasons. In coming to its findings, the Board considered all of the evidence on the record in this matter.

The regulatory documents on file in the GH-2-2011 proceeding are available on the Board's website, www.neb-one.gc.ca.

Chapter 3

Economic Feasibility

3.1 The Application

In making its determination on the economic feasibility of a proposed natural gas pipeline and related facilities, the Board assesses the need for the pipeline, the likelihood of the pipeline being used at a reasonable level over its economic life, and the likelihood of the tolls being paid. To make this determination, the Board considers the supply of natural gas that would be available for transportation on the pipeline, any transportation contracts underpinning the pipeline, and the availability of adequate markets to receive natural gas delivered by the pipeline.

The Board considers the possibility of economic impacts on existing markets and the opportunity for new markets. As well, the Board considers the company's ability to finance the construction and ongoing operation and maintenance of the proposed pipeline. Other economic impacts of the proposed Project are addressed in Chapter 8, Environment and Socio-Economic Matters.

3.2 Natural Gas Supply

The Project would transport sweet, sales-quality natural gas. The source of supply for the Project would come from conventional and unconventional sources from the Upper Peace River area.

Conventional gas would come from both British Columbia and Alberta in the Upper Peace River area, primarily from the Maxhamish and Jean Marie fields. Unconventional gas would come from the Horn River Basin and Cordova Embayment in British Columbia, largely from the Muskwa/Otter Park and Klua/Evie formations.

Gas Supply Analysis

NGTL submitted a natural gas supply analysis that included an estimate of resource potential and a productive capacity forecast of the average annual volumes to come from the Upper Peace River area. NGTL based its analysis on data gathered from three sources: public sources, government agencies, and confidential customer data. For fields that have existing established reserves, including fields that are currently developed, NGTL uses a forecasting model that is based on government reserve estimates and production to date. This model further incorporates undiscovered conventional resource estimates based on analysis by the Canadian Gas Potential Committee. For areas that have limited publicly available data, NGTL uses internal forecasting models along with customer information to generate forecasts of future production.

The unconventional gas was categorized as undiscovered in NGTL's analysis. Conventional gas was categorized as containing both discovered and undiscovered gas. Table 3-1 shows the total estimated conventional and unconventional natural gas potential for the Upper Peace River drainage area.

Table 3-1
Total Estimated Conventional and Unconventional Natural Gas Potential
(Upper Peace River Area)

Source	Remaining Gas In Place		Marketable Gas	
	10 ¹² m ³	Tcf	10 ¹² m ³	Tcf
Discovered	0.1	4.1	0.1	2.5
Undiscovered	16.4	579	3.6	129
Total	16.5	583	3.7	131

Productive Capacity

NGTL provided gas well production profiles along with a forecast of the pace of development for the unconventional gas to estimate productive capacity. Productive capacity estimates for conventional gas were based on NGTL’s internal forecasting model, which incorporates government reserve estimates, actual production records, and undiscovered resource economics. The productive capacity forecast was used to determine the requirements for the applied-for facility. NGTL’s forecast of productive capacity includes only marketable gas volumes.

It was submitted by NGTL that gathering pipelines would be in place to transport natural gas from the drainage area to the proposed and existing processing facilities connected to either the Alberta System or Spectra Energy Transmission facilities (Spectra System). By 2015/16, more than half of the gas produced from the Horn River shale would be allocated to the Alberta System, with the remainder allocated to the Spectra System. In subsequent years, the majority of gas from the Horn River Shale would be allocated to the Alberta System. All Cordova Embayment gas production would flow on the Alberta System.

NGTL stated that producers would undertake the necessary drilling activity to develop economic reserves, and any potential improvements to drilling and completion techniques would not influence future productive capacity. NGTL predicted that the total Upper Peace River area production would increase from 14.3 10⁶m³/d (506 MMcf/d) in 2010-11 to 98.4 10⁶m³/d (3472 MMcf/d) by 2025-26. NGTL also predicted that gas sourced from undiscovered resources would increase from approximately eight per cent in 2010-11 to 97 per cent by 2025-26.

Views of Parties

During the oral hearing, Fort Nelson First Nation asked about NGTL’s expectation of how the Horn River Basin development would occur, and NGTL’s estimates of gas supply. In particular, Fort Nelson First Nation asked about the drainage area and future production forecast in the Horn River Basin, estimates of productive capacity, and the current pace of development, and the reasons for pipeline expansion.

Reply of NGTL

In response to the questions by Fort Nelson First Nation, NGTL stated that the Horn River Shale is relatively new, with growth in productive capacity occurring in the past five years. NGTL submitted that its pace of development estimate is based on discussions with individual

companies who have activity in the Horn River Basin, NGTL's estimates of equipment availability, number of wells that could be developed, as well as other economic parameters. NGTL asserted that its supply analysis shows that there is a very large amount of gas in place and that the reason for expansion was due to NGTL receiving requests for service from customers for incremental transportation.

In its final argument NGTL reiterated that when it determines the appropriate size of facilities, it looks at its forecast of supply and demand in combination with the total quantity of contractual obligations. NGTL's final argument further mentions that it only applies for projects if there is commercial support and signed contracts to underpin its projects, and that each of the segments of the Project are required to increase the capacity of the system to serve the incremental volumes by November 2013.

Views of the Board

The Board accepts NGTL's submission that there is adequate gas supply from discovered and undiscovered sources to support the applied-for Project. The Board is of the view that NGTL's supply forecast is reasonable due to its incorporation of widely used methodologies and reasonable assumptions.

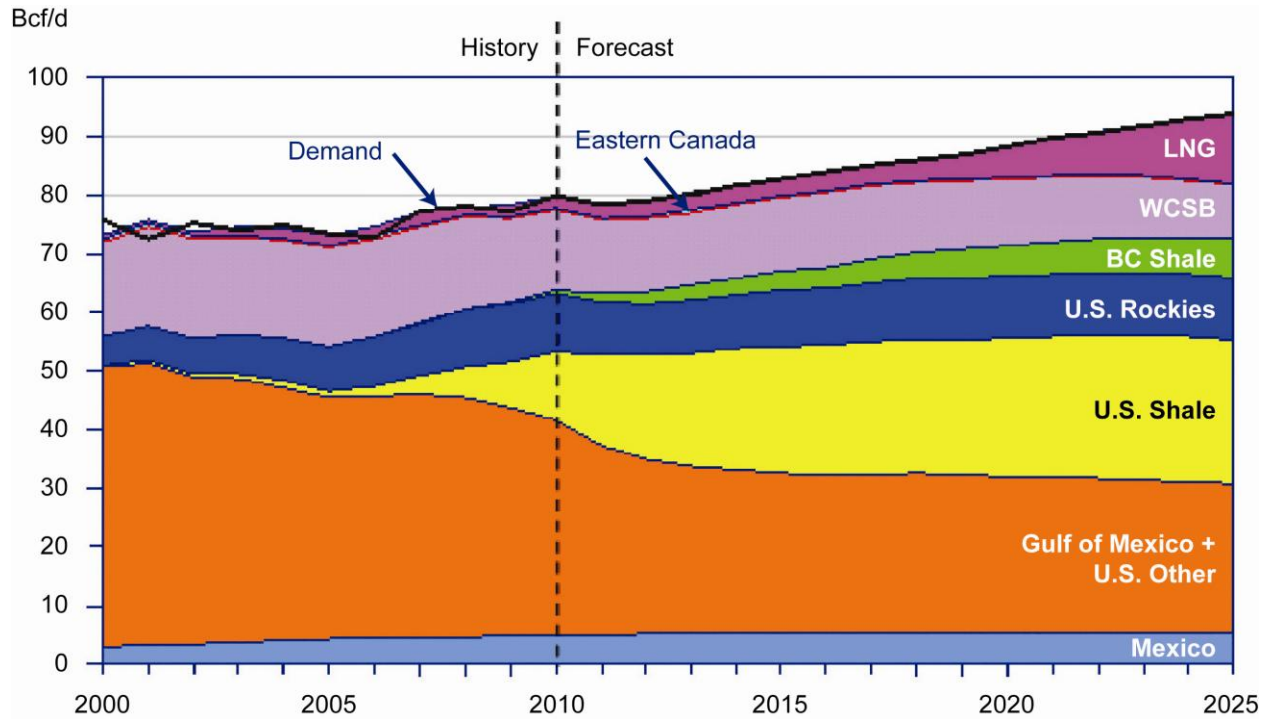
3.3 Natural Gas Markets

NGTL stated that the Project would be an expansion of the Alberta System to link growing supplies from the Upper Peace River area with growing markets in Canada and the United States. Gas received on the Alberta System could be delivered to both Alberta and British Columbia markets or to other markets outside western Canada via interconnecting pipelines. It is expected that adequate markets exist to accept the gas and that gas would not be stranded.

NGTL estimated that the total North American natural gas market had a daily demand of approximately $2.2 \times 10^9 \text{m}^3$ (79 Bcf/d) and would grow to approximately $2.7 \times 10^9 \text{m}^3$ (94 Bcf/d) by 2025. NGTL indicated that the increased use of natural gas for electricity generation would continue to increase North American demand. Growing unconventional gas supply volumes from the United States and Canada would be needed to offset declines in conventional production to meet this increasing demand. Figure 3-1 is NGTL's North American Supply/Demand Balance.

The prospect of providing natural gas to markets outside of North America was not included in NGTL's demand forecast. NGTL submitted, however, that other potential markets may be served through gas sourced from the Western Canada Sedimentary Basin (WCSB) and these include the Asia Pacific market via liquefied natural gas (LNG) exports from the west coast of British Columbia. These markets could not be served immediately due to the requirement of additional pipeline capacity to be built from the WCSB to the west coast of Canada and the construction of liquefaction facilities. If a future Asia Pacific market for WCSB gas emerges, NGTL submitted that this would represent incremental demand and would provide producers additional incentive to grow supply.

**Figure 3-1
North American Supply/Demand Balance**



No parties questioned NGTL’s evidence regarding the ability of markets to consume the gas to be transported by the Project.

Views of the Board

The Board accepts NGTL’s submission that there would be adequate market demand for the gas that would be transported by the applied-for Project. The Board accepts NGTL’s view that sufficient North American markets exist for current and future gas production.

3.4 Transportation and Throughput

Views of NGTL

NGTL states that the Project is supported by contractual commitments from shippers to ship gas on the Alberta System.

Contractual commitments are in the form of Firm Transportation – Receipt (FT-R) contracts, which underpin the Project, and were aggregated from all current and proposed receipt stations that obtain gas supply in the area.

The existing pipeline system in the Upper Peace River area has the capability to transport 21.9 10⁶m³ (775 MMcf/d). NGTL stated that the annual average productive capability for the Upper Peace River area would be 38.7 10⁶m³ (1366 MMcf/d) by 2014-15.

NGTL stated that the FT-R contract level in the Upper Peace River area would increase by $7.4 \times 10^6 \text{m}^3$ (262.4 MMcf/d) to $35.5 \times 10^6 \text{m}^3$ (1254.2 MMcf/d) by November 2013. The proposed Project would increase the transportation capacity of the Upper Peace River area to approximately $35.7 \times 10^6 \text{m}^3$ (1261 MMcf/d). NGTL has indicated, however, that no additional downstream facilities would be required as there is sufficient take-away capability to accommodate contracted volumes for the Project.

Views of Parties

No questions arose from parties about the transportation and throughput evidence supplied by NGTL. Penn West Petroleum submitted that it supports the Project as it would provide facilities to transport its natural gas to market in a timely fashion.

Views of the Board

The Board considers the applied-for capacity increase to be reasonable for the expected growth in production and that the Project is adequately supported by contractual commitments. The Board accepts NGTL's view that the downstream facilities in place are adequate to accommodate the anticipated increase in throughput.

3.5 Ability to Finance

NGTL estimated the capital cost of the applied-for facilities to be \$324.0 million and that it would obtain the funds required for construction of the Project from its parent company, TransCanada. TransCanada, in turn, would source the required funds from a combination of internally-generated cash flow and financing from Canadian and United States capital markets. TransCanada currently generates approximately three billion dollars in annual cash flow from its operations and is rated at the "A" level by major Canadian and United States credit rating agencies.

No party raised concerns about either the proposed method of financing or on the ability of NGTL's parent company, TransCanada, to finance the construction of the applied-for facilities.

3.6 Toll Methodology

NGTL proposed to establish rates for service on the Project on a rolled-in basis in accordance with the governing Alberta System rate design methodology and the approved rates. NGTL's rate design methodology determines tolls at individual receipt points and continues with NGTL's practice of rolled-in tolling for facility additions to the Alberta System.

No party raised concerns on the toll methodology proposed by NGTL.

3.7 Impact on Tolls and Fuel Consumption

NGTL estimated the impact of the Project on Alberta System full path ex-Alberta toll for 2013 and 2014. The addition of approximately \$33.7 million in incremental annual cost of service in

2014 would result in an increase to average full path rate of 0.9 cents per Mcf/d. However, this would be offset by the incremental volume from the Project, which would result in a reduction to the full ex-Alberta rate of 0.3 cents per Mcf/d.

NGTL stated the impact of the Project on the Alberta System fuel ratio would be negligible.

Views of the Board

The Board accepts that NGTL's parent company, TransCanada, has the ability to finance the construction of the Project and place it into operation.

No party raised any concerns regarding NGTL's toll methodology. NGTL provided evidence of the toll impact of the Project by analyzing, over the period of 2013 to 2014, the additional capital expenditures necessary to construct the Project. The Board finds that NGTL has demonstrated that the additional facilities and associated throughput would result in net benefits to the Alberta System.

Chapter 4

Facilities and Emergency Response Matters

The Board uses a risk-informed approach in ensuring that NEB-regulated facilities and activities are safe and secure from their initial construction through to their eventual abandonment. In consideration of the safety and security of proposed facilities, the Board assesses at a conceptual level whether or not the facilities are appropriately designed for the properties of the product being transported, the range of operating conditions, and the human and natural environment where the facilities would be located. Specific considerations include the company's approach to engineering design, integrity management, security, and health and safety.

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the NEB's *Onshore Pipeline Regulations, 1999* (OPR-99), the commitments made during the hearing and the conditions attached to any approval. OPR-99 references various engineering codes and standards including Canadian Standards Association Z662 Oil and Gas Pipeline Systems (CSA Z662). The company is responsible for ensuring that it follows the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by the company in accordance with OPR-99.

4.1 Design, Construction and Operation

In discharging its regulatory oversight responsibilities, the Board uses a risk-informed compliance verification approach so that companies identify and manage integrity-related hazards that may impact safety and the environment throughout the life cycle of a project.

The adequacy, implementation, and effectiveness of a company's commitments are typically verified by the Board through audits, inspections, and meetings. In addition, the Board may perform ongoing monitoring of a company's compliance and incidents. This compliance approach is an integral part of the Board's continuous oversight of a company's pipeline and facilities. Accordingly, the Board will employ its normal compliance verification approach as a means of verifying that the company is meeting both its legal obligations and the commitments outlined in the GH-2-2011 proceeding.

4.1.1 Design

The Project facilities, as described in Chapter 1, would include three sections of pipeline totalling approximately 111.2 km in length, and associated facilities including tie-ins, blind flanges, and valves. NGTL submitted that these sections are necessary in order to expand the capacity of the Alberta System in these locations, where constraints have been identified in its facility planning approach. The pipeline sections would use the following sizes of pipe:

- the Kyklo Creek section: approximately 29.1 km of 1067 mm (NPS 42) OD pipe.
- the Timberwolf section: approximately 49.8 km of 1219 mm (NPS 48) OD pipe.
- the Cranberry section: approximately 32.3 km of 1219 mm (NPS 48) OD pipe.

The Kyklo Creek section would have a maximum operating pressure (MOP) of 9930 kPa, while the Timberwolf and Cranberry sections would have a MOP of 8450 kPa.

NGTL submitted that the Project would be designed, constructed, and operated in accordance with the OPR-99, CSA Z662, and all other applicable acts, codes, and regulations.

4.1.2 Construction

NGTL indicated that it would develop and implement a construction safety program for the construction of the Project. Construction would be supervised and inspected to ensure compliance with all applicable regulations, standards and codes. NGTL submitted that TransCanada's proprietary quality management system would be used for design, procurement, material supply and construction.

4.1.3 Operation

NGTL stated that health, safety and environmental performance would be addressed using TransCanada's Health, Safety & Environment Management System, which would apply to the entire life cycle of the Project.

To address both routine and non-routine pipeline system maintenance, NGTL proposed the use of the applicable TransCanada Operating Procedures. The procedures describe how the work is to be accomplished, identify competency and documentation requirements, and provide references to applicable health, safety, and environmental requirements.

NGTL stated that the facilities would be monitored and controlled through the TransCanada Operations Control Centre (OCC), located in Calgary, Alberta. The OCC uses a computer-based supervisory control and data acquisition system to continuously monitor and control pipeline operation including valves, compressor and metering facilities. The OCC is staffed 24 hours a day, but if it becomes unavailable, a Backup Control Centre is available at all times.

4.1.4 Security

Construction and operation of the Project would be governed by TransCanada's overarching corporate security policy and related operating procedures. The policy would require that a security assessment be conducted, and that a Project-specific security management plan be developed and implemented.

The OPR-99 and the Proposed Regulatory Change 2010-01 outline the Board's expectation for a Pipeline Security Management Program.

Views of the Board

The Board is satisfied that the general design of the Project is appropriate for its intended use. The Board requires NGTL to construct and operate the Project in accordance with the commitments made and the specifications, standards, and other information referred to in its

application or as otherwise agreed to during questioning or in its related submissions (Condition 2). In addition, the Board requires NGTL to create and maintain a Commitments Tracking Table (Condition 4) to reflect commitments made throughout this proceeding.

The Board is of the view that construction practices must address safety considerations. To facilitate the ongoing review by the NEB of NGTL's safety plans and performance, the Board requires NGTL to submit a construction safety manual for the Project, as required by section 20 of the OPR-99. Additionally, the Board requires NGTL to submit a construction schedule and monthly construction progress reports (Conditions 14 and 19, respectively).

4.2 Pipeline Integrity

A management system, in general, is a framework of processes and procedures used by an organization to fulfill its objectives. It would normally contain elements such as accountabilities, procedures for tasks, and tools for auditing and continuous improvement. Programs for integrity management may be part of a company's overall management system, or may be one of a series of independent programs. The primary goal of an Integrity Management Program (IMP) is to prevent leaks and ruptures caused by in-service degradation of the pipeline.

NGTL submitted that TransCanada's IMP would be used to monitor and ensure the integrity of the project. The principal objectives of the IMP are to:

- ensure the safety of the public and employees;
- reduce environmental impacts;
- protect the installed pipelines and facilities; and
- maintain reliability.

Therefore, NGTL employs a regular preventative maintenance program, which includes aerial patrols, in-line inspection, monitoring of CP, and installation of pipeline markers at road and watercourse crossings. Mitigation activities, if necessary, are initiated based on results of risk assessments of this information.

4.2.1 Geotechnical – Permafrost

The Kyklo Creek and Timberwolf sections of the Project are located in the sporadic discontinuous permafrost zone. The Cranberry section is close to but outside of any permafrost zone. NGTL submitted that it had conducted a geotechnical characterization study on all three sections of the proposed Project, with the objective of obtaining information required to ensure the pipeline would be safely constructed and operated in areas of sporadic discontinuous permafrost. The geotechnical characterization included the following three major elements:

- terrain analysis, which comprised a geophysical survey followed by terrain mapping using aerial and ground-based observations;

- a ground-penetrating radar survey to determine the thickness of the organic soil layer¹; and
- ground truthing using auger holes and shear vane tests to assess the characteristics of the organic and mineral soil layers.

In locations where permafrost was discovered, a geotechnical drilling investigation was performed to determine the extent of the permafrost and assess the characteristics of the permafrost and adjacent soil.

Kyklo Creek Section

In the Kyklo Creek section, permafrost was present in three locations, ranging from 75 m to 175 m in length, and from 2.6 m to 4.8 m thick. Potential thaw settlement was estimated to be low, ranging from 100 mm to 250 mm. The low thaw settlement potential was attributed to the limited thickness of permafrost in each location, the low ground ice contents observed, and the corresponding moisture contents. NGTL stated that, should the Project be approved, it would validate the thaw settlement estimates after clearing, and would employ design measures as appropriate.

No permafrost was observed at the two watercourse crossings in the Kyklo Creek section, and no slope stability concerns related to permafrost were noted. Therefore, no further studies were recommended.

Timberwolf Section

No permafrost was observed in the Timberwolf section, although it is in the sporadic discontinuous permafrost zone. NGTL notes that it is possible that some was undetected; however, if present, it would be expected to be of limited extent. NGTL stated that, should permafrost be discovered during construction, it would implement the appropriate design measures, as determined using the procedures outlined in its application. Such measures may include installation of heavy-wall pipe, buoyancy control, or environmental mitigation such as reduced disturbance or installation of stub berms.

Although no slope stability concerns at the watercourse crossings were observed, the Geotechnical Assessment Report submitted by NGTL recommended that the stability of the crossings be verified during snow-free conditions. A geohazard inspection conducted in September 2011 confirmed that there were no indications of slope instability.

Cranberry Section

No permafrost was observed in the Cranberry section. NGTL stated that none was expected to be found, as the section is outside of the sporadic discontinuous permafrost zone. NGTL stated that none of the planned watercourse crossings showed evidence of geotechnical instability, and that the September 2011 geohazard inspection supported this conclusion. NGTL also noted that no mitigation related to geohazards at the watercourse crossings is considered warranted.

1 Organic soil, that is, peat, has a strong influence on the presence of permafrost. In the summer, a thick, dry layer of peat acts as an insulator, preserving any underlying frozen soil. In the winter, when the peat may be wet or itself frozen, it conducts heat away from the underlying soil, allowing more of it to freeze.

Additionally, NGTL stated that it would undertake post-construction geotechnical assessments, focused initially on visible signs of surficial erosion or thaw settlement. Subsequent patrols would ensure that any necessary work was appropriately completed.

The geotechnical assessment report notes that additional occurrences of permafrost likely exist elsewhere along the pipeline route, but are probably of limited extent. If permafrost is found and it is determined that mitigation is required, NGTL would implement the appropriate design measures, as described above.

4.2.2 Corrosion Prevention

NGTL submitted that corrosion prevention would involve three main components: coating, cathodic protection, and design for in-line inspection.

The pipe would be externally coated with fusion-bonded epoxy or abrasion-resistant coating where the pipe is to be installed using boring or drilling methods. Above-ground assemblies would be primed and painted.

Existing CP systems would be adequate to protect the Timberwolf and Cranberry sections. These sections would be electrically continuous with the existing adjacent pipelines. A new CP groundbed associated with the Kyklo Creek section would be constructed at the Sierra Meter Station, at the western end of the pipeline. The new groundbed plus an existing CP system approximately 40 km beyond the eastern end of the pipeline would adequately protect the Kyklo Creek section. CP test points would be installed for all three sections at accessible locations such as road or utility crossings.

The Project has been designed to accommodate in-line inspection tools in each segment, although launching and receiving facilities would not be installed as part of this Project. The Kyklo Creek section includes blind flanges to accommodate future installation of launching facilities. NGTL indicated that launching and receiving facilities would be installed at some later date, as part of future upstream and downstream development of the Northwest Mainline. No specific timelines were given for installation of launching and receiving facilities; NGTL stated that in-line inspection is part of a suite of tools for monitoring the condition of the pipeline, and that its integrity management process would determine the appropriate time to do an in-line inspection. NGTL noted that should an in-line inspection be required before the upstream and downstream pipelines were built, it would install the necessary facilities.

4.2.3 Pipe Grade

CSA Z662 establishes minimum standards for design, construction, operation, and maintenance of oil and gas pipelines. CSA Z662 recommends that for pipe Grade 555 and above, higher standards be considered for matters including welding, pressure testing, and repair.

NGTL proposed to install up to 10 km of high yield strength X100 pipe (Grade 690). Pipe used for the Hay River Horizontal Directional Drill (HDD) would be heavy wall Grade 550 pipe, and the remainder of the Project would use Grade 483 pipe.

Short lengths of pipe (under 100 m) associated with fittings, assembly piping, and valves, would use a variety of other grades and sizes.

Views of the Board

Management Systems

The Board expects companies to develop and implement management systems that set out policies, processes and procedures for the planning and execution of the core business of the organization. The management systems must incorporate programs such as safety and integrity management.

Integrity Management Programs

The Board is satisfied with NGTL's integrity management approach to surveillance and condition monitoring of its pipeline system. The Board is also satisfied that the corrosion prevention measures are appropriate for the Project.

The Board requires companies to develop and implement an IMP to proactively identify and mitigate any potential hazards to the pipeline and facilities. The IMP used by NGTL should include, but not be limited to, the prevention of detrimental effects due to sporadic discontinuous permafrost, and the use of in-line inspection to provide information related to cracking, metal loss, dents, and other threats to the integrity of the pipe. The Board expects any IMP to be a continuous improvement process to be used throughout the life cycle of the pipeline.

The Board expects NGTL to schedule and perform in-line inspections appropriately, as determined by its IMP. The Board is of the view that in-line inspections should not be constrained by possible future facility developments. Should the IMP indicate that in-line inspections are warranted prior to planned upstream and downstream developments, NGTL would be required to obtain the necessary authorizations for construction of the launching and receiving facilities.

The Board is of the view that NGTL's proposed mitigation against potential geotechnical integrity threats is appropriate for those portions of the Project proposed to be built in the sporadic discontinuous permafrost zone. Known permafrost locations are limited in extent and thaw settlement is expected to be minimal. During construction, NGTL would verify the presence or absence of permafrost and implement the appropriate design measures. Further, NGTL committed to post-construction geotechnical assessments.

The Board is satisfied that the selected pipe grades are appropriate for the Project. The Board requires that NGTL file its field joining program for the Kyklo Creek and Cranberry sections of the Project with the Board 14 days in advance of joining activity (Conditions 16 and 18). NGTL proposes to use up to 10 km of high-yield strength Grade 690 pipe in the Timberwolf section. Consequently, the Board requires that the joining program for the Timberwolf section be submitted 21 days prior to joining so that the Board has adequate time to review the joining program for the high yield strength pipe (Condition 17). Additionally, NGTL's pressure testing program must comply with CSA Z662 requirements for the grades of pipe selected.

The Board will apply its normal compliance verification approach to ascertain whether and how NGTL complies with its IMP and that NGTL proactively identifies and effectively manages integrity-related hazards that may impact safety and the environment throughout the life cycle of the Project.

4.3 Emergency Preparedness and Response

On 24 April 2002, the NEB issued a letter to all oil and gas companies under the jurisdiction of the Board entitled "Security and Emergency Preparedness and Response Programs". The letter set out the NEB's expectations for appropriate and effective Emergency Preparedness and Response (EPR) programs. The NEB expects companies to develop and implement EPR programs for all aspects of their operations.

NGTL stated in its application that emergency management during construction and operation of the pipeline would be governed by TransCanada's overarching corporate Emergency Management System. An updated Emergency Procedures Manual would need to be submitted to the Board.

In the event of an emergency, such as a pipeline break, low pressure detectors on block valves would cause the valves to close, isolating the pipeline segment. Pipeline pressure, gas quality and meter station status would be monitored through the OCC.

NGTL noted that coordination with emergency response agencies would be undertaken to ensure that appropriate communications, understanding and cooperation are in place in case of an emergency. NGTL stated that TransCanada's Integrated Public Awareness (IPA) program, which provides information to the public including the location of facilities and steps to be taken in the event of an emergency, would be adopted for the project. NGTL further stated that the IPA program would take effect once the Project is in operation.

Views of the Board

The Board finds that the measures proposed by NGTL to deal with emergency preparedness and response are appropriate. The Board reminds NGTL that it must submit updates to its EPR program as required by section 32 of the OPR-99.

Chapter 5

Land Matters

The Board reviews the adequacy and completeness of an applicant's project description and the documents associated with land rights, land acquisition and land area. In order to ensure that the Board has the best possible evidence before it with respect to land matters, the Board's Filing Manual sets out specific filing requirements.

5.1 Route Selection

The total length of pipeline RoW required for the Project is approximately 111.2 km, and would be located entirely on forested, Crown land (see Figure 2-1). The Project would not traverse parks or protected areas. The main land uses in the vicinity of the Project are oil and gas activity, forestry and hunting.

NGTL stated that the routing for the Project was influenced by the need to expand the capacity of the existing facilities, reduce the amount of new land disturbance, to maximize operational efficiency, and to avoid areas of high environmental sensitivity. The preferred placement of looping was adjacent to existing facilities.

NGTL submitted that route alternatives for each of the pipeline loops were constrained by the fixed end locations of the pipelines. NGTL further submitted that routing also considered the input from the public, Aboriginal communities, trappers, industry disposition holders, and regulatory agencies. Routing also considered avoidance of identified socially and culturally important areas such as parks, natural areas, traditional land use (TLU) sites, trapper cabins and areas with existing infrastructure that could create land use conflicts. The routes considered identification of watercourse crossing locations that are geotechnically stable and where construction would be feasible by more than one installation method.

5.2 Land Requirements

NGTL submitted that the Project requires a minimum construction RoW width of 32 m. NGTL noted that in areas where it is able to parallel existing disturbances, it can make use of existing RoW and thereby reduce the amount of new construction RoW. The new land required for the construction RoW would vary from approximately 14 to 32 m.

NGTL stated that temporary workspace (TWS) would be required at some locations to accommodate construction activities (e.g., road and watercourse crossings, sharp sidebends, steep sidehill, log decking sites, etc.). NGTL further added that it would also require areas for materials and equipment storage. TWS would be returned to the provincial Crown after construction, cleanup, and reclamation.

NGTL submitted that the proposed Project would primarily use existing permanent access. Access to the temporary construction camp would require 200 m of new temporary access roads that would be reclaimed. No new permanent access roads would be constructed for the Project.

5.3 Land Acquisition Process

NGTL submitted that all lands traversed by the Kyklo Creek section are owned by the Crown in Right of British Columbia and all lands traversed by the Timberwolf and the Cranberry sections are owned by the Crown in Right of Alberta. The land acquisition process for the Project commenced in the second quarter of 2011 and NGTL anticipates obtaining land rights for the Project prior to the start of construction.

Views of the Board

The Board considers the general route selection process implemented by NGTL to have been appropriate given the nature and setting of the Project.

The Board also finds that NGTL's anticipated permanent and temporary land requirements are reasonable and justified, and acknowledges NGTL's efforts in minimizing the potential impact of the Project by proposing a RoW that is largely contiguous to existing RoWs, and that would not result in any new permanent access.

Chapter 6

Public Consultation

The Board's expectations around public consultation are primarily set out in the Board's Filing Manual, Operations & Maintenance (O&M) Guidelines, and in the Board's Draft Expectations – Public Involvement Program.

These expectations are based on the principle that people who may be affected by a regulatory decision, or who have a stake in the outcome, should be given the opportunity to provide relevant information and views to the decision maker before the decision is made.

This chapter addresses NGTL's public consultation program. Chapter 7 discusses Aboriginal matters, including NGTL's consultation with Aboriginal peoples.

6.1 NGTL's Public Consultation Program

NGTL designed and conducted its public consultation program, referred to as its "stakeholder engagement program", in accordance with the principles of TransCanada's community relations best practices.

NGTL's stakeholder engagement program consists of four phases:

1. **Stakeholder Identification and Material Development:** focused on the identification of potentially interested and affected stakeholders in the Project area and the development of engagement materials such as letters, maps, and fact sheets, to be used for Project notification purposes.
2. **Stakeholder Notification:** focused on the initial public disclosure of the Project and the solicitation of stakeholder input with activities such as advertising in local newspapers, mail outs, and responding to inquiries and following up with stakeholders as required.
3. **Ongoing Stakeholder Engagement and Regulatory Filings:** ongoing stakeholder communication and engagement to continue to provide Project updates, solicit input, address and resolve issues and advise stakeholders about the process to provide comments to the Board.
4. **Post-Filing Through Construction:** continues through the regulatory review process and the completion of construction and includes providing updates for stakeholders, responding to inquiries, resolving emerging issues, and continuing to communicate with all stakeholders. Upon completion of construction and when operations commences, stakeholder engagement and issues resolution activities would be transitioned to TransCanada's regional office in Fort St. John, British Columbia and the Wildrose operating region in northern Alberta.

NGTL commenced its public consultation program for the Project in August 2010. Initial Project notification was done through an informational mail-out to all stakeholders potentially interested in the Project as well as the launch of a Project webpage providing the same information. Beginning in October 2010, NGTL conducted face-to-face meetings, telephone calls, Project advertising, and multiple mail-outs with Project information.

Open house events were held in October and November 2010 in Fort Nelson, British Columbia. NGTL indicated that during discussions with Alberta municipal stakeholders in November 2010, there was no indication that informational open houses would be required in Alberta. NGTL continued consultation activities during the Board's regulatory process, and committed to making itself available to meet with stakeholders throughout the course of the Project.

NGTL also contacted outfitters by mail, email and telephone, and held one-on-one meetings with trappers. NGTL stated that in order to minimize any construction impacts on trappers it would:

- contact trappers prior to construction activities, including RoW clearing, general construction, and clean-up activities;
- provide construction activity schedules to trappers to enable them to select alternate areas of activity; and
- compensate trappers for trapping-related losses in accordance with NGTL's Trapper Compensation and Engagement Program

NGTL indicated that an active trapper's trail was found to be in close proximity to the proposed Kyklo Creek section. NGTL confirmed that consultation was carried out with the registered trapline holder and the trapper had no concerns with the Project.

NGTL noted that an outfitter on the Timberwolf section of the Project had raised a concern that the locations of the proposed RoW and temporary construction camps may impact his established bear hunting stands. Through subsequent consultations, the outfitter confirmed that there would be no interaction with the proposed construction of the pipeline or the construction camp.

NGTL indicated that Chinchaga River Hunts, an outfitter on the Cranberry section, was concerned about the Project construction overlapping with the outfitting season (September and October). NGTL confirmed that the construction of the Cranberry section is currently planned for the winter months and activities would not interfere with Chinchaga River Hunts' operations.

NGTL noted that throughout the course of consultation, inquiries generally focused on receiving updates on the Project, the NEB regulatory process, Aboriginal engagement activities, and the potential for local contracting opportunities.

Consultation with Government Authorities

NGTL held meetings with a number of federal, provincial, and municipal government departments and regulatory agencies to provide updates on the Project, discuss routing, provide and obtain technical information, receive verification of information obtained, and receive direction and/or verification of regulatory and Aboriginal engagement requirements.

NGTL indicated that the Town of Rainbow Lake supported the Project. Other municipalities contacted were supportive of the Project and of the economic benefits that would accompany the Project.

Views of the Board

The Board considers that NEB-regulated companies have responsibilities related to respecting the rights and interests of those who may potentially be affected by proposed projects. The Board continues to expect companies to initiate public consultation programs as soon as possible in the planning and design phase of a project, to provide clear, relevant and timely information to potentially affected persons or groups, to be responsive to the needs, input and concerns of potentially affected parties, and to continue engagement throughout the life of a project.

The Board is of the view that NGTL has provided sufficient information to allow stakeholders to become aware of the proposed Project and its potential effects, and has provided opportunities for parties to make their concerns known, either directly to NGTL or through the Board's public hearing process.

The Board also acknowledges NGTL's commitment to continue its public engagement program throughout the life of the Project. The Board finds that NGTL's consultation program is appropriate for the setting, nature, and magnitude of the Project.

Chapter 7

Aboriginal Matters

The Board takes Aboriginal interests and concerns into consideration before it makes any decision that could have an impact on those interests. Whenever a project has the potential to impact the rights or interests of Aboriginal groups, the Board obtains as much evidence as possible in that regard so that it may assess and consider the potential impacts in its final decision. The Board relies on its Enhanced Aboriginal Engagement (EAE) initiative, as described below, and its hearing process, so that its records are as complete as possible.

Before filing a project application, proponents are required by the Board's Filing Manual to identify, engage and consult with potentially affected Aboriginal groups. The Board's Filing Manual requires applicants to consult with potentially impacted Aboriginal groups early on in the project planning and report on these activities to the Board. Further, the Filing Manual requires that an application include detailed information on any issues or concerns raised by Aboriginal groups or that are otherwise identified by the applicant.

Aboriginal groups are encouraged to engage with proponents so that their concerns are identified early, considered by the proponent, and potentially resolved before the application is filed. The Board also encourages Aboriginal groups with an interest in a project to participate in the hearing process in order to make the Board aware of their views and concerns. There are various ways for Aboriginal groups to participate. These can include letters of comment, oral statements, written evidence, oral testimony by elders and members of Aboriginal groups, cross-examination of the project proponent and other parties, and final argument.

7.1 The NEB's Enhanced Aboriginal Engagement Process for the Northwest Mainline Expansion

The Board's EAE initiative aims to provide proactive contact with Aboriginal groups that may be affected by a proposed project, and to help Aboriginal groups understand the Board's regulatory process and how to participate in that process. The Board reviews the completeness of the list of potentially affected Aboriginal groups identified in the proponent's Project Description filed with the MPMO. The Board may suggest to the proponent any necessary revisions. The Board then sends letters to each potentially impacted Aboriginal group on the revised list, informing them of the project as well as the Board's regulatory role in respect of the project, and offers to provide further information on the hearing process. Following issuance of these letters, Board staff follow up, respond to questions or conduct information meetings, where requested.

The NEB carried out its EAE work for the Project between the receipt of the Project Description in December 2010 and the receipt of the Project Application in April 2011. Doig River First Nation, Fort Nelson First Nation, McLeod Lake Indian Band, Métis Nation British Columbia, and Paddle Prairie Métis Settlement requested additional information about the Board's hearing process. This information was provided via workshops during the summer of 2011.

7.2 Participation of Aboriginal Groups in the Regulatory Process

As set out in Table 7-1, five Aboriginal groups registered as Intervenors in the GH-2-2011 proceeding.

**Table 7-1
Aboriginal Groups Registered as Intervenors**

Intervenor	Intervenor Status Granted	Filed Evidence	Presented Witnesses	Final Argument
Doig River First Nation	•			
Fort Nelson First Nation	•	•	•	•
McLeod Lake Indian Band	•			
Métis Nation British Columbia	•			•
Paddle Prairie Métis Settlement	•			

Paddle Prairie Métis Settlement submitted a letter to the Board stating it did not object to the Project, but reiterated its need to be consulted on all matters relating to its traditional territory. In addition, Duncan's First Nation filed a Letter of Comment with the Board.

7.3 Aboriginal Engagement and Consultation

Views of NGTL

NGTL's primary goals for its Aboriginal engagement process for the Project were to:

- identify the potential effects of the Project on the current use of the lands for traditional activities;
- identify sites of cultural and historical importance to Aboriginal people that may be affected by the Project;
- obtain local and traditional knowledge relevant to the Project; and
- establish a long-term, positive relationship with Aboriginal communities located near NGTL's facilities.

NGTL began its Aboriginal engagement for the Project in September 2010 and confirmed that the Project would be located within lands encompassed by Treaty 8 and would not cross any reserves or lands that have been designated for reserve status (see Figure 7-1).

NGTL initially identified potentially affected Aboriginal groups for the Project based on whether Aboriginal communities' traditional territory, as Aboriginal communities defined it, was within 50 km of the Project. Potentially affected Aboriginal groups were identified using publicly available information, NGTL's existing Aboriginal data, and consultations with provincial and federal agencies.

A total of 19 potentially affected or interested Aboriginal groups and organizations were initially identified by NGTL. The MPMO subsequently identified two additional groups that may also have had an interest in the Project. The 21 Aboriginal groups and organizations identified for the Project were:

- Beaver First Nation
- Blueberry River First Nation
- British Columbia Treaty 8 Tribal Council Association
- Dene Tha' First Nation
- Doig River First Nation
- Duncan's First Nation
- Fort Nelson First Nation
- Fort Nelson Métis Society
- Fort Vermilion Métis Local 74
- Halfway River First Nation
- Horse Lake First Nation
- Métis Nation of Alberta
- Métis Nation of Alberta - Region 6
- Métis Nation British Columbia
- Métis Nation British Columbia Northeast Region
- Métis Settlements General Council
- McLeod Lake Indian Band
- Paddle Prairie Métis Settlement
- Prophet River First Nation
- Saulteau First Nation
- West Moberly First Nation

NGTL developed engagement activities and maintained engagement logs for those Aboriginal groups that expressed an ongoing interest in participating in NGTL's Aboriginal Engagement process. NGTL provided evidence of its consultation activities with the following 10 Aboriginal groups:

- Beaver First Nation
- Dene Tha' First Nation
- Doig River First Nation
- Duncan's First Nation
- Fort Nelson First Nation
- Fort Nelson Métis Society
- Fort Vermilion Métis Local 74
- Métis Nation of Alberta – Region 6
- Paddle Prairie Métis Settlement
- Prophet River First Nation

Halfway River First Nation indicated that Fort Nelson First Nation would represent its interests concerning the Project. NGTL stated that the remaining Aboriginal groups did not indicate an interest in obtaining further information or being engaged on the Project.

NGTL confirmed that, should the Project be approved, it would continue to follow its Aboriginal engagement process. NGTL indicated for the operations phase, it would use TransCanada's Integrated Public Awareness program and proactive approach to Aboriginal community engagement.

Views of Métis Nation British Columbia

Métis Nation British Columbia raised concerns regarding NGTL's engagement protocol, including the collection of TLU and Traditional Ecological Knowledge (TEK) information, and NGTL's attempt to conduct consultations with individuals in the local Métis communities.

It requested the Board require NGTL to fully engage Métis Nation British Columbia in consultation as a condition of any approval, with the hope that Métis Nation British Columbia would develop an ongoing relationship with NGTL that would improve its ability to provide input into the Project.

Views of Fort Nelson First Nation

Fort Nelson First Nation indicated that its Traditional Territory encompasses the Kyklo Creek section of the Project. Its concerns about the Project focused on that section and the surrounding areas.

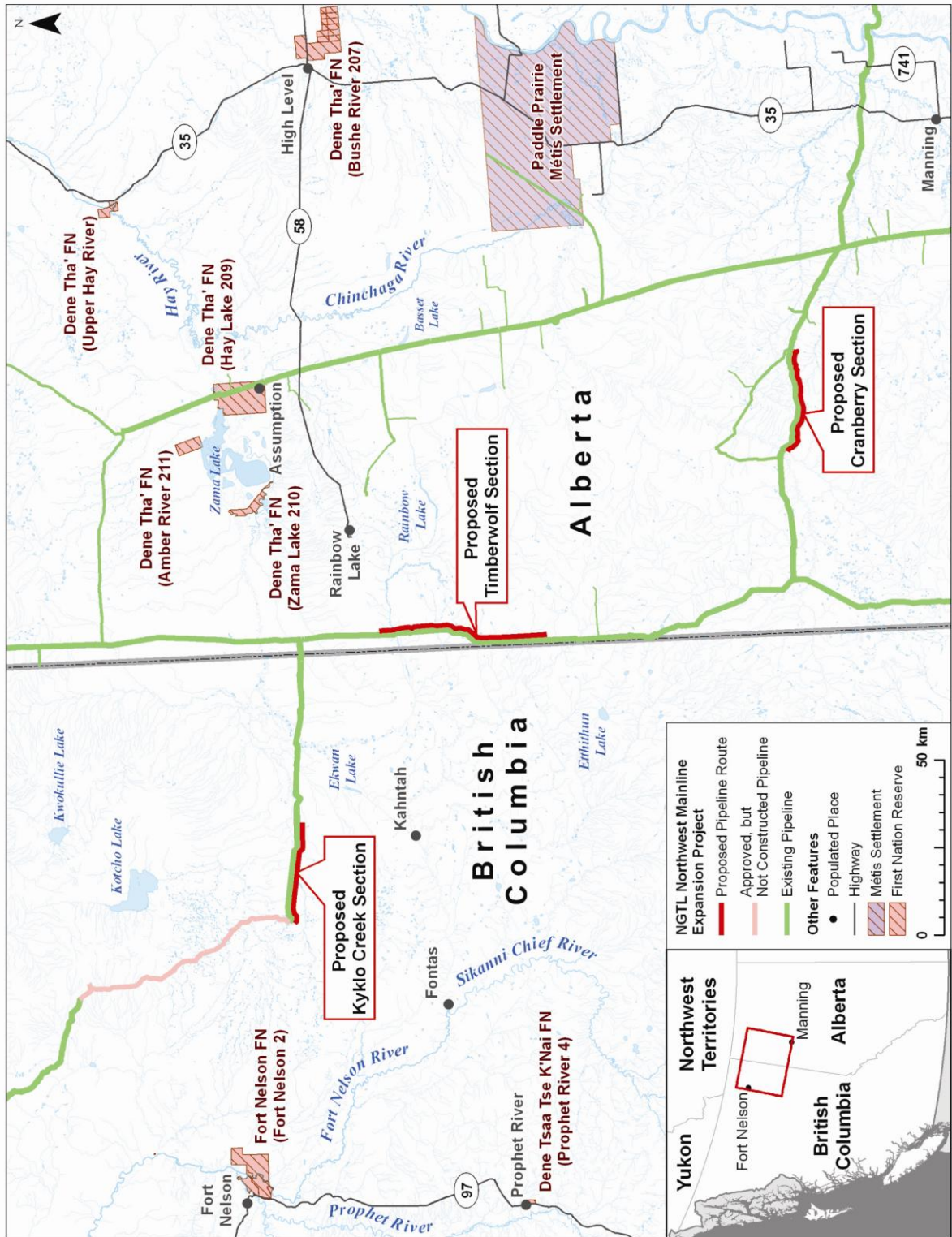
Fort Nelson First Nation stated that NGTL did not engage early enough in the application process. As a result, Fort Nelson First Nation did not have an opportunity to adequately discuss with NGTL traditional use sites in the Kyklo Creek area, and the proposed mitigation and monitoring for the protection of the environment and Aboriginal and treaty rights. Fort Nelson First Nation stated that this forced it to carry out a critical review of NGTL's proposed mitigation and monitoring late in the NEB's application review process. Fort Nelson First Nation further stated it was not provided with the Local and Regional Study Area boundaries (LSA and RSA, respectively) during the TLU studies or before NGTL submitted the Project application.

Reply of NGTL

In response to Métis Nation British Columbia's concern with NGTL's engagement protocol, NGTL stated that it was not aware of Métis Nation British Columbia as an organization at the time it filed the application, and that it was not typical for NGTL to engage with a political organization from a proponent standpoint. NGTL noted that it had consulted with the Fort Nelson Métis Society, and that once NGTL was informed that Métis Nation British Columbia wished to be involved, it subsequently shared information with Métis Nation British Columbia.

Although Fort Nelson First Nation expressed concerns in its evidence and in a motion before the Board on 29 November 2011 that NGTL's engagement had not been substantive, NGTL's view was that there was a proper consultation process. NGTL noted that it had provided financial and technical support to Fort Nelson First Nation since 2009 to conduct traditional use studies related to the Kyklo Creek section. NGTL further stated that it would continue to meet with Fort Nelson First Nation and would continue working with the Joint Working Group as per its agreement with Fort Nelson First Nation. For further information on the motion, refer to Chapter 2, section 2.3.

**Figure 7-1
Aboriginal Communities in Project Area**



With respect to Fort Nelson First Nation’s concern regarding the lack of discussion it had with NGTL concerning the LSA and RSA boundaries, NGTL stated that the spatial boundaries of the assessment were based on established environmental assessment practices and discipline-specific expertise. NGTL further stated that during NGTL’s field studies for the EA, Aboriginal participants had a chance to discuss mitigation on site, and to bring this information back to the communities for discussion. NGTL also stated that no Aboriginal groups, including Fort Nelson First Nation, provided input in the delineation of the spatial boundaries of the EA.

7.4 Potential Impacts of the Project on Aboriginal People

Views of NGTL

Incorporation of Traditional Land Use and Traditional Ecological Knowledge

NGTL carried out TLU studies and used the information to determine how the Project could affect the current use of lands and resources by Aboriginal communities for traditional purposes. NGTL indicated it worked with interested Aboriginal communities on TLU studies and TEK in order to integrate information into project planning and into the design of mitigation measures, as appropriate and as available.

A total of eight Aboriginal groups elected to participate in NGTL’s Project-related TLU studies:

- Beaver First Nation
- Dene Tha’ First Nation
- Doig River First Nation
- Duncan’s First Nation
- Fort Nelson First Nation
- Prophet River First Nation
- Fort Vermilion Métis Local 74
- Paddle Prairie Métis Settlement

NGTL submitted that Aboriginal groups chose whether to carry out TLU studies with NGTL’s environmental contractor or with a third party. TLUs completed with the assistance of NGTL’s consultant were conducted in a phased approach consisting of map reviews, community interviews, field reconnaissance, and follow-up reporting. Third-party TLU studies were community-directed and the Aboriginal communities engaged consultants to provide technical support and assistance. NGTL provided funding to assist Aboriginal communities with third-party TLU studies.

TEK information was collected and incorporated into the biophysical studies in the Environmental and Socio-Economic Assessment (ESA). Each of the communities engaged in the Project were invited to provide TEK during the biophysical field studies. During the engagement process, certain communities informed NGTL that they preferred to collect this knowledge in their own community-directed study. NGTL supported these community-directed studies and continued to work with the communities towards a mutually-acceptable program.

NGTL stated that it has developed standard mitigation measures for potential TLU sites that may be encountered during construction. In the event previously unidentified TLU sites are encountered during construction, NGTL would implement its Traditional Land Use Sites Discovery Contingency Plan. NGTL committed to considering further information provided by

potentially affected Aboriginal groups, including Duncan's First Nation, regarding potential impacts on current traditional land uses and TLU sites. NGTL indicated Doig River First Nation would conduct a pre-construction assessment of the Cranberry section, as well as pre-and post-construction assessments of the Timberwolf section. NGTL further noted that Duncan's First Nation commenced a community-directed TLU study, which had not been completed.

NGTL indicated that it received two TLU study reports from Dene Tha' First Nation where they identified issues relating to safety and integrity of the pipeline, environmental protection, increased access, engagement, capacity, cumulative effects and loss of lands. NGTL committed to continue meeting with Dene Tha' First Nation in the context of the existing Community Agreement and Joint Working Group. NGTL stated that its projects did not result in the "taking up of lands" since lands would be reclaimed and would remain available for use for traditional purposes. NGTL indicated it had reached an agreement with Dene Tha' First Nation on all of the recommendations except for those related to cumulative effects and "taking up of lands". It also agreed to continue efforts to ensure the completeness of Dene Tha' First Nation's involvement in relation to the Project.

Potential Impacts to Aboriginal Hunting and Wildlife Use

NGTL identified various industry accepted mitigation measures that may be implemented to mitigate potential Project effects on Aboriginal hunting and wildlife use. NGTL identified further details about these measures, as listed in the Board's ESR (Appendix VI). NGTL also indicated it would implement applicable measures from the TLU Sites Discovery Contingency Plan, and that it would incorporate all mitigation measures pertaining to traditional land use in its Environmental Protection Plan (EPP).

Aboriginal Participation in Monitoring Programs

NGTL stated that it works with Aboriginal communities on monitoring programs for specific construction activities such as watercourse crossings and clearing. It further noted that depending on the mitigation measures applied during construction, NGTL would also undertake post-construction monitoring to ensure mitigation is effective, and has entered into discussions with Fort Nelson First Nation about its potential participation in post-construction monitoring.

Views of Duncan's First Nation

Duncan's First Nation filed a Letter of Comment with the Board noting its concerns about the Project, which included:

- project splitting to avoid a more comprehensive environmental assessment;
- the impact on caribou and caribou habitat in the Chinchaga, Hotchkiss and Deadwood ranges; and
- insufficiency of current standard mitigation measures to address its concerns related to caribou.

Duncan's First Nation also provided copies of correspondence with NGTL, which indicated it had concerns that NGTL's projects in the region may give rise to, and shape subsequent development within the Chinchaga caribou range.

Views of Fort Nelson First Nation

Fort Nelson First Nation raised concerns about the populations of wild game, particularly moose and caribou, and the proximity of the Project to wildlife habitat, including the Big Muskeg area. Fort Nelson First Nation noted that moose and caribou populations may be in decline and wetlands and muskeg are key habitat for wild game. Fort Nelson First Nation stated that availability of moose and wild game is critical to the practice of Aboriginal and treaty rights. Fort Nelson First Nation also requested additional measures related to traditional land and resource use information collection.

Fort Nelson First Nation raised concerns regarding subsistence and commercial fur trapping. Commercial fur trapping was noted as an important income contributor for some Fort Nelson First Nation families, including those holding three trapping areas that would be crossed by the Kyklo Creek section.

Fort Nelson First Nation stated that in light of past, present, and future developments, there is an unacceptable risk that the Project could contribute to significant adverse cumulative impacts in the Kyklo Creek area. Fort Nelson First Nation stated it determined that oil and gas related effects, formerly centred on the Horn River Basin, had now extended into other areas of its territory. It noted examples of existing cumulative effects, including effects on wildlife, drinking water, external hunter access, and community member alienation from the land. In its view, these cumulative effects would persist even after accounting for effective management of residual effects from the Project.

Fort Nelson First Nation stated it is not in fundamental opposition to the Project as proposed, but in its view, mitigation measures to protect the land and First Nation's way of life must be a part of any development. Fort Nelson First Nation provided a total of 44 recommendations in support of this view. The recommendations focused on protection of traditional lands and waters, involvement in monitoring, protection of wildlife, and better baseline studies. In response to the Board's proposed draft conditions for the Project, Fort Nelson First Nation raised four additional recommendations.

Reply of NGTL

NGTL provided a response to Duncan's First Nation's Letter of Comment, indicating that it had met with Duncan's First Nation and it would address the concerns raised through a Joint Working Group Agreement established with Duncan's First Nation. NGTL stated that it has assessed the potential Project effects and cumulative effects on caribou and caribou habitat and has proposed mitigation to reduce these effects. It also stated that it responded to the concerns about project-splitting during a meeting with Duncan's First Nation, and that its application approach for projects is based on facility requirements and contractual support. It further stated that the level of environmental assessment for the Project was appropriate.

In response to the concerns raised by the Fort Nelson First Nation regarding the methodology used by NGTL to determine the LSA and RSA, NGTL stated that the LSA used for the TLU effects assessment of the Kyklo Creek section mirrored NGTL's wildlife and wildlife habitat LSA, as it was the largest applicable LSA, extending 1 km on either side of the RoW. NGTL incorporated traditional use information provided by eight different Aboriginal groups regarding potential effects areas associated with the Project in the TLU assessment.

In response to Fort Nelson First Nation's recommended mitigation measures, NGTL confirmed that it had considered each of the 44 recommendations. NGTL stated that Fort Nelson First Nation had not presented evidence to support the view that additional mitigation measures would be required. In response to Fort Nelson First Nation's recommendation that NGTL financially support regional moose population studies, NGTL expressed a willingness to continue to discuss this recommendation with Fort Nelson First Nation.

In order to minimize construction impacts on trappers, NGTL committed to contacting trappers prior to construction, providing construction activity schedules, and compensating trappers for trapping-related losses in accordance with NGTL's Trapper Compensation and Engagement Program.

Concerning cumulative effects, NGTL stated that its cumulative effects assessment included in the ESA for the Project is consistent with the requirements of the CEA Act and Canadian Environmental Assessment Agency guidance, and NEB filing requirements. NGTL noted that the ESA concluded that there were likely no significant cumulative effects of the Project on any environmental or socio-economic valued environmental component. Accordingly, NGTL disagrees with Fort Nelson First Nation that the Project is likely to result in significant risk of cumulative environmental effects. NGTL committed to participating in any government-led cumulative effects initiatives in Upper Peace River and the Horn River Basin.

Views of the Board

Aboriginal Engagement and Consultation

The Board requires applicants to initiate early discussions and consultation with Aboriginal groups potentially affected by a proposed project. This allows for early exchange of information and for matters of concern to be considered at the onset of the project and through the design phase of the project. The extent of the consultation that needs to be carried out is determined to a large extent by the nature, scope, and setting of a project.

The Board considers that NGTL's Aboriginal engagement program, including NGTL's process to identify potentially affected Aboriginal groups, was appropriate given the nature, scope, and setting of the Project. Métis Nation British Columbia and Fort Nelson First Nation raised concerns about aspects of NGTL's engagement work. The Board is satisfied that potentially affected Aboriginal groups were provided with sufficient information about the Project and had an opportunity to make their views known to NGTL and the Board. In particular, both Métis

Nation British Columbia and Fort Nelson First Nation took part in the hearing process. Further, when NGTL understood that Métis Nation British Columbia had an interest in the Project, NGTL provided Métis Nation British Columbia with Project information. NGTL is continuing discussions with Fort Nelson First Nation.

Fort Nelson First Nation and NGTL submitted differing views about the appropriate study area boundaries used in the ESA and TLU studies. The Board is of the view that early discussions on all aspects of a proposed project allow for the concerns and knowledge of Aboriginal groups to be considered and addressed to the extent possible by proponents. The Board is satisfied that it has sufficient information to assess the environmental effects of the Project, including impacts to traditional land use. Further information regarding study area boundaries is found in the ESR.

Fort Nelson First Nation and Duncan's First Nation requested that they receive copies of certain environment-related plans and reports during construction and operation of the Project. Métis Nation British Columbia requested that the NEB require NGTL to fully engage Métis Nation British Columbia in consultation as a condition of any approval. NGTL committed that, should the Project be approved, it will implement TransCanada's Integrated Public Awareness program and proactive approach to ongoing Aboriginal community engagement. The Board requires NGTL to file reports on its consultation with those Aboriginal groups NGTL would include in its ongoing engagement for the Project (Condition 20).

Potential Impacts of the Project on Aboriginal People

Aboriginal groups, including Duncan's First Nation and Fort Nelson First Nation, expressed concerns about potential Project effects on caribou and caribou habitat, moose and other harvested game, and cumulative effects. The Board's views and recommendations on the effects on the environment that may impact Aboriginal groups, including effects on wildlife, caribou, moose and other harvested wild game, are provided in the ESR, in Appendix VI. The ESR also contains the Board's views on cumulative effects.

NGTL indicated that additional information regarding traditional land and resource use relevant to the Project may be forthcoming from Duncan's First Nation, and has committed to providing the Board with updates on any additional information received from Doig River First Nation. Fort Nelson First Nation requested additional information be collected regarding traditional land and resource use in three areas identified along the Kyklo Creek section. Métis Nation British Columbia also raised concerns regarding traditional knowledge information. The Board acknowledges NGTL's commitments to consider additional mitigation

measures, and to incorporate all mitigation pertaining to TLU into the Project EPP. The Board has imposed a condition requiring NGTL to file a report to address outstanding traditional land use investigations for the Project (Condition 11).

The Board acknowledges the concerns raised by Aboriginal groups regarding the potential effects to subsistence and commercial harvesting of wildlife. NGTL made commitments and proposed mitigation measures. For these reasons, the Board is satisfied that potential effects to subsistence and commercial harvesters would be effectively addressed.

Fort Nelson First Nation presented recommendations that have assisted the Board in understanding Fort Nelson First Nation's concerns about the Project. The Board has considered these recommendations, including recommendations relating to monitoring, and NGTL's proposed mitigation relating to environmental effects. The Board has imposed a condition requiring NGTL to file a plan to address the potential participation of Aboriginal communities in construction monitoring (Condition 12).

The Board is of the view that NGTL's measures and commitments, together with the Board's recommendations relating to environmental protection measures and requirement for a plan regarding outstanding TLU studies, are effective strategies to mitigate potential impacts of the Project. Therefore, the Board is of the view that any effects to Aboriginal interests, including the traditional use of lands and resources by potentially affected Aboriginal groups, would be effectively addressed.

Chapter 8

Environment and Socio-Economic Matters

The Board considers environmental and socio-economic matters under both the CEA Act and the NEB Act. The Board requires applicants to identify the effects a project may have on bio-physical and socio-economic elements, to indicate the mitigation the applicant would implement to reduce those effects, and to assess the significance of any residual effects once the mitigation has been applied.

8.1 Environmental Matters

Throughout the EA process, the Board received submissions pertaining to Project-related environmental matters, both in writing and during the oral portion of the hearing. The EA process has been detailed in Section 2.2.6.

The final ESR reflects parties' comments and the Board's assessment of the bio-physical and socio-economic effects of the Project and mitigation measures, based on the description of the Project, factors to be considered, and the scope of those factors. The ESR also includes an evaluation of the likelihood of significance for any adverse effects and includes recommendations for conditions to be included in any Board regulatory approvals.

Views of the Board

With respect to its regulatory decision under the NEB Act, the Board has considered the CEA Act ESR and the recommendations included therein.

Key issues addressed by the Board in the ESR include the traditional land use within the Project area, cumulative effects, and the disturbance of caribou habitat. The Board determined in the ESR that, with the implementation of NGTL's environmental protection procedures and mitigation measures and the Board's recommendations, the proposed Project is not likely to cause significant adverse environmental effects. The Board will convert the recommendations contained in the ESR into conditions of its approval.

For details regarding the Board's assessment of the environmental and socio-economic effects evaluated pursuant to the CEA Act, the reader is referred to the ESR. Copies of the ESR are available in Appendix VI of these Reasons, in the NEB library or on-line within the Board's Regulatory Documents index, at www.neb-one.gc.ca.

8.2 Socio-Economic Matters

The Board expects companies to identify and consider the impacts projects may have on socio-economic conditions including the mitigation of negative impacts and the enhancement of project benefits.

Potential socio-economic effects covered by the CEA Act are addressed in the ESR. The CEA Act contemplates indirect socio-economic effects caused by a change to the environment as a result of the Project. Direct socio-economic effects caused by the existence of the Project itself are considered under the NEB Act and are discussed below.

8.2.1 Infrastructure and Services

NGTL submitted that construction-related traffic would be associated with the transportation of workers to temporary construction camp locations, the transportation of workers to and from construction sites, and the movement of equipment and supplies. However, NGTL noted that some equipment would be transported by rail which would reduce some of the vehicular traffic on provincial highways. NGTL also noted that traffic volumes would be minimized by the transport of workers by bus between the construction camps and work sites, and by encouraging workers to carpool when traveling to and from the temporary camp locations.

NGTL stated that the Town of Rainbow Lake and the Dene Tha' First Nation expressed concern about traffic safety resulting from increased traffic volumes and workers' driving. In addition to the mitigation noted above, NGTL stated that it would implement a Traffic Control Management Plan, where speed limits on all roads and access routes would be strictly enforced.

NGTL stated that Dene Tha' First Nation expressed concerns that increased road access would affect wildlife and bring an increase of resident hunters to the area. NGTL noted that no new permanent access roads would be developed as part of the Project. NGTL further submitted that no hunting would be allowed by workers during the construction phase of the Project.

8.2.2 Economy, Employment and Training

Views of NGTL

NGTL submitted that the Project is expected to result in positive impacts on employment and the local economy. The Project is expected to result in the creation of approximately 2,000 direct and indirect person-years of employment and \$241 million employment income.

NGTL indicated that the economic activity associated with Project construction is estimated to generate increased federal tax revenues of approximately \$26 million for the federal government. The Project is estimated to generate increased provincial tax revenues of approximately \$18 million. NGTL estimates that increased municipal property taxes would be approximately \$650,000 annually in British Columbia and approximately \$1.2 million annually in Alberta.

NGTL noted that municipalities and Aboriginal groups have identified that local benefits of construction are important, and businesses have expressed the desire to obtain contracts to

benefit from the construction of the Project. NGTL submitted that, where there is a qualified local contractor, those contractors would have the opportunity to participate in the contracting process. NGTL anticipates that some local and regional businesses, including Aboriginal businesses, would realize economic benefits from the construction of the Project.

NGTL noted on going discussions with Aboriginal communities to determine the subcontracting capacity of Aboriginal businesses and ability to provide preconstruction and construction phase services for each pipeline loop.

NGTL stated that, with respect to Aboriginal contracting and employment, the company does not have fixed targets but communicates its expectations regarding Aboriginal contracting and employment to its prime contractors, and that these expectations are then included in the overall procurement strategy for a given project. NGTL further stated that these site-specific plans had not yet been finalized for the Project.

In response to Dene Tha' First Nation's traditional land use study reports, NGTL noted its commitment to a procurement program that actively promotes local contracting opportunities, including for Aboriginal businesses. NGTL stated it would continue to meet with Dene Tha' First Nation to discuss current and future capacity, and other opportunities and training.

NGTL submitted that Beaver First Nation had concerns with the wasting of salvageable timber. Paddle Prairie Métis Settlement also expressed an interest in timber salvage opportunities and jobs. NGTL stated that, regardless of the market conditions for merchantable timber, it salvages both coniferous and deciduous timber that meet provincial criteria, and timber is made available for anybody that would require or want to use it. It would continue to make this offer to local land users and Aboriginal groups. NGTL also stated that timber salvage plans are prepared to meet provincial requirements and are expected to be filed with provincial authorities by end of 2011. NGTL committed to file a copy of the timber salvage plan with the Board.

Views of Fort Nelson First Nation

Fort Nelson First Nation made a number of recommendations regarding employment and training opportunities for Fort Nelson First Nation members, including:

- funding to support rehabilitation along the traditional trail system, Fort Nelson First Nation work crews and culture camps;
- training for Fort Nelson First Nation environmental monitors in water quality testing;
- funding for monitor training programs and/or safety and other certifications of Fort Nelson First Nation members;
- development by NGTL and Fort Nelson First Nation of an annual environmental monitoring/technical training program for Fort Nelson First Nation members for five years;
- training for Fort Nelson First Nation representatives to understand pipeline construction, operation and maintenance procedures and guidelines.

Views of the Board

The Board notes the positive economic effects described for the Project and supports NGTL's intention to provide, where possible, local and Aboriginal employment and business opportunities. Fort Nelson First Nation made several recommendations in relation to training. The Board encourages the implementation of policies and measures that support local and Aboriginal employment, contracting and training.

The Board acknowledges the efforts of NGTL to accommodate, to the extent possible, local use of the timber removed from the pipeline RoW and its commitment to ongoing discussions on these matters with land users and Aboriginal groups.

NGTL has committed to develop and implement plans to address the Project's potential socio-economic impacts, including a Traffic Management Plan. The Board is satisfied with NGTL's efforts in responding to stakeholder concerns regarding impacts on traffic, road safety and increase of access roads.

In light of the measures outlined in NGTL's application and its commitments, the Board is satisfied that the Project's impacts on socio-economic factors, including infrastructure and services, would be adequately addressed. The Board also finds that the proposed Project would provide positive economic benefits to local, regional, and provincial economies.

Chapter 9

Section 58 Facilities

9.1 Application for Section 58 Facilities

In its application for the Project, NGTL requested an exemption order under subsection 58(1) of the NEB Act. NGTL requests exemption from the requirements of subsections 31(c), 31(d) and section 33 of the NEB Act in relation to the proposed stockpile sites, contractor yards and construction camps (collectively, the Section 58 Facilities). The Board has considered the potential environmental and related socio-economic effects of the Section 58 Facilities under the CEA Act in the ESR. The ESR includes an evaluation of the likelihood of significance for any adverse effects of the Project, inclusive of the Section 58 Facilities.

Views of NGTL

Construction of the Timberwolf section would require a temporary construction camp that would be located approximately 13 km southwest of Rainbow Lake, Alberta, on approximately 18 hectares of land in SE 1-109-10 W6M and SW 6-109-10-W6M. A new temporary access road, approximately 200 m long, would be needed to access the camp from an existing road. Existing construction camps would be used to support construction of the Kyklo Creek and Cranberry sections.

NGTL stated that all of the land required for these sites is provincial Crown land and NGTL would obtain land positions or permits from the Crown to use this land. Additionally, NGTL submitted that stockpile sites and contractor yards would be located near the RoW or alongside existing roads and railway sidings, and would not require new access.

Further, NGTL submitted that it would require access to stockpiles, contractor yards and construction camps before pipeline construction itself commences because construction is planned to occur under winter conditions.

NGTL indicated that the Town of Rainbow Lake raised concerns relating to the temporary construction camps. NGTL noted that it followed up on the Town's concerns and that, after further discussion, the Town of Rainbow Lake reiterated its support of the Project and did not identify any ongoing concerns.

NGTL indicated that Beaver First Nation identified the need for any camps that are used to be properly cleaned up, and not just abandoned. NGTL stated that any above-ground structures for temporary construction camps would subsequently be dismantled and removed from the site and that access roads and associated gravel would also be removed. NGTL further indicated that reclamation procedures would be initiated following the dismantling of above-ground structures and that garbage or debris would be removed and disposed of in compliance with local regulations.

NGTL noted that an outfitter had raised a concern that the temporary construction camps may impact his established bear hunting stands. Through subsequent consultations, the outfitter confirmed that there would be no interaction with the proposed construction of the pipeline or the construction camp.

NGTL stated that a bear baiting station lies within the area that would be cleared for the temporary Timberwolf construction camp, but the station would be removed prior to construction.

Views of the Board

With respect to its regulatory decision under the NEB Act, the Board has considered the CEA Act ESR and the recommendations included therein. The Board determined in the ESR that, with the implementation of NGTL's environmental protection procedures and mitigation measures and the Board's recommendations, the Project is not likely to cause significant adverse environmental effects. The Project considered in the ESR includes the Section 58 Facilities.

NGTL has committed to construct only one temporary access road for the temporary construction camp, and has resolved all concerns relating to the Timberwolf construction camp. The Board has considered the submissions provided during the proceeding that relate to the Section 58 Facilities, and concludes that it would be in the public interest to grant the applied-for exemptions.

The Board will issue an order exempting NGTL from subsections 31(c), 31(d), and section 33 of the NEB Act, subject to the conditions contained in the order included in Appendix III. As a result, NGTL will be exempted, pursuant to section 58 of the NEB Act, from the requirement to file a plan, profile, and book of reference for the Section 58 Facilities. The Board will also impose conditions related to the Section 58 Facilities. The order will only come into effect following the issuance of a Certificate for the Project.

Appendix I

List of Issues

The Board has identified but does not limit itself to the following issues for consideration in the proceeding:

1. The need for the Project.
2. The economic feasibility of the Project.
3. The potential commercial impacts of the Project.
4. The potential environmental and socio-economic effects of the Project, including those to be considered under the *Canadian Environmental Assessment Act*.
5. Potential impacts of the Project on Aboriginal interests, including Aboriginal and treaty rights.
6. Consultation with the public and Aboriginal groups on the Project.
7. The appropriateness of the general route and land requirements for the Project.
8. The suitability of the design of the Project.
9. The terms and conditions to be included in any approval the Board may issue.

Appendix II

Certificate Conditions

In these conditions, the expression “commencing construction” means the clearing of vegetation, ground-breaking and other forms of right-of-way preparation that may have an impact on the environment, but does not include activities associated with normal surveying activities. In these conditions, where any condition requires a filing with the Board “for approval”, NGTL must not commence that action until the approval is issued.

The terms below (in bold) have the following meanings:

Footprint – The area directly disturbed by the construction and clean-up activities associated with the Project, including associated physical works and activities (e.g., permanent right-of-way, construction camp site, temporary workspace for construction, tie-in facilities).

Project - The construction and operation of three new sweet natural gas pipeline loops, with a total length of 111.2 km, in northeast British Columbia and northwest Alberta, including the following sections as described in NGTL’s application of 29 April 2011:

- Kyklo Creek section – approximately 29.1 km of pipeline.
- Timberwolf section – approximately 49.8 km of pipeline.
- Cranberry section – approximately 32.3 km of pipeline.

The construction and operation of associated facilities including tie-ins, valves and cathodic protection systems, and temporary infrastructure including a construction camp, watercourse vehicle crossings and access roads.

Certificate – The Certificate of Public Convenience and Necessity, pursuant to section 52 of the NEB Act, authorizing the construction and operation of the facilities applied for under Section 52 of the NEB Act.

Certificate Conditions

General

1. Condition Compliance

NGTL shall comply with all of the conditions contained in this Certificate unless the Board otherwise directs.

2. Facility Construction and Operation

NGTL shall cause the approved Project to be constructed and operated, in accordance with the commitments made and the specifications, standards and other information referred to in its application or as otherwise agreed to during questioning or in its related submissions.

3. Implementation of Environmental Protection

NGTL shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures and its commitments for the protection of the environment included in or referred to in its application or as otherwise agreed to during questioning or in its related submissions.

4. Commitments Tracking Table

NGTL shall:

- a) file an updated Commitments Tracking Table with the Board 14 days prior to commencement of the Project;
- b) update the status of the commitments in a) on a monthly basis until completion of the Project; and
- c) maintain at its construction office(s):
 - i) the relevant environmental portion of the Commitments Tracking Table listing all regulatory commitments, including but not limited to, those commitments resulting from NGTL's application and subsequent filings, and conditions from permits, authorizations and approvals;
 - ii) copies of any permits, approvals or authorizations for the Project issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and
 - iii) any subsequent variances to any permits, approvals or authorizations in ii).

Prior to Construction

5. Environmental Protection Plan: Pipeline Facilities

NGTL shall file with the Board for approval, at least 60 days prior to commencing construction, an updated Environmental Protection Plan (EPP), including Environmental Alignment Sheets, for the construction and operation of the Project facilities. The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Project, subsequent filings, evidence collected during the hearing process, or as otherwise agreed to during questioning or in its related submissions. The EPP shall describe the criteria for the implementation of all procedures and measures, and shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. The EPP shall include, but not be limited to, the following elements:

- a) environmental procedures including site-specific plans, criteria for implementation of these procedures, mitigation measures and monitoring applicable to all Project phases and activities;
- b) a reclamation plan which includes a description of the condition to which NGTL intends to reclaim and maintain the RoW once construction has been completed, and a description of measurable goals for reclamation; and
- c) a Caribou Protection Plan (CPP).

6. Hydrostatic Testing Surveys

NGTL shall file with the Board, at least 60 days prior to commencing construction of the Project, the results of the following pre-construction surveys:

- a) Kyklo Creek, Timberwolf and Cranberry sections: vegetation surveys along those segments of the proposed hydrostatic test water access route options that support native vegetation;
- b) Kyklo Creek section: aquatic survey of the hydrostatic test water source, the unnamed lake located at 41, 42, 51 and 52-B/94-I-14, to collect water quality information;
- c) Timberwolf and Cranberry sections: aquatic surveys of the selected hydrostatic test sources, as well as any watercourses or waterbodies crossed by the associated access routes;
- d) Kyklo Creek section: wetland survey along the eastern hydrostatic test water access option if NGTL selects that option;
- e) Cranberry section: wetland survey along the chosen hydrostatic test water access route if wetlands are traversed; and

- f) Kyklo Creek section: an archaeological impact assessment along the eastern hydrostatic test water access route if this route option is selected and if deemed necessary upon review of the proposed Footprint.

NGTL shall also provide the site-specific mitigation measures to be implemented during construction, based on the results of these surveys. These measures shall also be included in the EPP.

7. Caribou Habitat Restoration Plan

NGTL shall file with the Board for approval, as per the timelines below, preliminary and final versions of a Caribou Habitat Restoration Plan (CHRP) for those portions of the Project Footprint that lie within the Chinchaga caribou range.

- a) Preliminary CHRP - at least 60 days prior to commencing construction. This version of the CHRP shall include, but not be limited to:
 - i) the goals and measurable objectives of the CHRP;
 - ii) identification of any suitable immediate, medium-term and long-term caribou habitat restoration methodologies, as well as a literature review and discussion of the effectiveness of the different potential methods;
 - iii) the framework that will be used to identify potential caribou habitat restoration sites and the decision-making criteria that will be used for final site selection;
 - iv) the criteria that will be used to evaluate the effectiveness of the CHRP and determine whether goals have been met;
 - v) evidence of consultation with Environment Canada and Alberta Sustainable Resource Development regarding the CHRP.
- b) Final CHRP – to be submitted on or before 1 November after the first complete growing season following the commencement of operation of the Project. This updated version of the CHRP shall include, but not be limited to:
 - i) the contents of the preliminary CHRP, as well as any applicable updates;
 - ii) a complete list of the proposed caribou habitat restoration sites, including a description of the site-specific restoration activities and maps or Environmental Alignment Sheets showing the locations of the sites;
 - iii) confirmation of the rationale used to select the caribou habitat restoration sites;
 - iv) a discussion of the locations or conditions that may present specific challenges;

- v) evidence of consultation with Environment Canada and Alberta Sustainable Resource Development regarding the final CHRP; and
- vi) a quantitative and qualitative assessment of the area of caribou habitat within the Chinchaga caribou range that was directly and indirectly disturbed as a result of construction of the Project. The assessment shall identify and assess the caribou habitat to be mitigated for as a result of the implementation of the CPP and CHRP, as well as identify the remaining residual effects for which offset measures will be developed as part of Condition 23.

8. Heritage Resources – Kyklo Creek Section

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of the Project:

- a) a copy of the letter of clearance received under the British Columbia *Heritage Conservation Act* for the Kyklo Creek section; and
- b) confirmation that all comments and recommendations from British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO) for the Archaeological Impact Assessment for the Kyklo Creek section of the Project are to be implemented and if not, a justification as to why not.

9. Heritage Resources – Timberwolf Section

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of the Project:

- a) a copy of the letter of clearance received under the *Alberta Historical Resources Act* for the Timberwolf section; and
- b) confirmation that all comments and recommendations from the Alberta Culture and Community Services (ACCS) for the Heritage Resources Impact Assessment for the Timberwolf section of the Project, are to be implemented and if not, a justification as to why not.

10. Heritage Resources – Cranberry Section

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of the Project:

- a) a copy of the letter of clearance received under the *Alberta Historical Resources Act* for the Cranberry section; and
- b) confirmation that all comments and recommendations from the ACCS for the Heritage Resources Impact Assessment for the Cranberry section of the Project, are to be implemented and if not, a justification as to why not.

11. Outstanding Traditional Land Use Investigations

At least 60 days prior to commencing construction (including ground clearing) of the Project, NGTL must file with the Board for approval, and serve a copy on Duncan's First Nation, Doig River First Nation, Fort Nelson First Nation, and Métis Nation British Columbia, a plan to address outstanding Traditional Land Use (TLU) investigations for the Project. The plan shall include, but not be limited to:

- a) a summary of the status of TLU investigations undertaken for the Project, including group-specific TLU studies and any supplementary pre-construction field investigation or reconnaissance activities relevant to potentially affected Aboriginal groups;
- b) a summary of the effects of the Project on the current use of lands and resources for traditional purposes identified in the investigations;
- c) a summary of the mitigation measures proposed by NGTL or by affected Aboriginal groups to address Project effects identified in the investigations;
- d) a description of how NGTL has incorporated any additional mitigation measures into its EPP for the Project;
- e) a description of any outstanding concerns raised by potentially affected Aboriginal groups regarding potential Project effects on the current use of lands and resources for traditional purposes, including a description of how these concerns have been or will be addressed by NGTL; and
- f) a summary of any outstanding TLU investigations or follow-up activities that will not be completed prior to commencing construction, including an explanation for why these will not be completed prior to commencing construction, and an estimated completion date, if applicable.

12. Plan for Aboriginal Participation in Construction Monitoring

At least 30 days prior to commencing construction (including ground clearing) of the Project, NGTL must file with the Board, and serve a copy on potentially affected Aboriginal groups identified in a), a plan describing monitoring procedures for the protection of Aboriginal traditional land and resource use sites during construction. The plan shall include, at a minimum:

- a) a list of those potentially affected Aboriginal groups, if any, who have reached agreement with NGTL to participate as monitors during construction;
- b) a description of the scope, methodology and justification for monitoring activities to be undertaken by NGTL and each participating Aboriginal group identified in a), including those elements of construction and geographic locations that will involve Aboriginal monitors from potentially affected Aboriginal communities;

- c) the proposed components of NGTL's monitoring program, including, but not limited to:
 - i) a description of how information gathered through the participation of Aboriginal monitors will be used by NGTL;
 - ii) a description of how information gathered through the participation of Aboriginal monitors will be provided to participating Aboriginal communities; and
 - iii) a summary of consultations undertaken with participating communities to determine the proposed scope, methodology and measures for monitoring.

13. Pre-construction Grizzly Bear Den Sweep

- a) NGTL must file with the Board, at least 14 days prior to commencing construction of the Project, a report providing the results of the grizzly bear den sweeps that NGTL committed to conducting prior to construction to identify potential grizzly bear dens within 750 m of the Project.
- b) This report shall include a summary of the survey results. If a grizzly bear den is found during the survey, the report shall also include any newly-developed or modified mitigation measures as well as evidence of consultation with the appropriate federal and provincial authorities regarding the proposed mitigation.
- c) As part of the report filing, NGTL shall provide any EPP pages or Environmental Alignment Sheets that have been amended as a result of the survey's findings or recommendations, or confirmation that no changes to the EPP or Environmental Alignment Sheets are warranted.

14. Construction Schedule

NGTL shall, at least 14 days prior to the commencement of construction of any of the Project facilities, other than the temporary construction camp, file with the Board a detailed construction schedule identifying major construction activities and shall notify the Board of any modifications to the schedule as such modifications occur.

During Construction

15. Breeding Bird Survey

In the event of clearing, construction or operations maintenance activities within restricted activity periods for all migratory birds, and non-migratory birds protected under provincial jurisdiction, NGTL shall retain a qualified avian biologist to carry out a pre-construction survey to identify any birds and active nests in areas immediately surrounding the site. Within 15 days of completion of the survey, NGTL shall file the results with the Board. If active nests are found, include:

- a) mitigation, including monitoring, developed in consultation with Environment Canada, and Canadian Wildlife Service and the appropriate provincial government authorities, to protect any identified migratory and non-migratory birds and their nests;
- b) mitigation, including monitoring, developed in consultation with Environment Canada and Canadian Wildlife Service to protect any identified *Species at Risk Act* birds and their nests; and
- c) evidence to confirm that the appropriate provincial and federal government authorities were consulted on the proposed methodology for the survey, the results from the survey and the mitigation and monitoring to be used, and a description of any outstanding concerns they may have.

16. Field Joining Program - Kyklo Creek Section

NGTL shall file the field joining program for the Kyklo Creek section at least 14 days prior to joining activity on that section.

17. Field Joining Program - Timberwolf Section

NGTL shall file the field joining program for the Timberwolf section at least 21 days prior to joining activity on that section.

18. Field Joining Program - Cranberry Section

NGTL shall file the field joining program for the Cranberry section at least 14 days prior to joining activity on that section.

19. Construction Progress Reports

NGTL shall file construction progress reports with the Board on a monthly basis in a form satisfactory to the Board. The reports shall include information on the activities carried out during the reporting period, any safety, security, and environmental issues, non-compliances, and the measures undertaken for the resolution of each issue and non-compliance.

20. Aboriginal Consultation Reports

NGTL must file with the Board, on a monthly basis during construction, reports on consultation activities undertaken with those Aboriginal groups that NGTL will include in its ongoing consultation plans for the Project. The reports must include, at a minimum:

- a) a list of those Aboriginal groups included in consultation activities;
- b) summaries of any issues or concerns raised;
- c) a description of how any concerns or issues were addressed; and

- d) a description of any Project-specific reports or updates that were provided by NGTL to Aboriginal groups included in consultation activities.

Following the commencement of operation of the Project, NGTL must also file with the Board reports on consultation activities undertaken with those Aboriginal groups included in NGTL's ongoing consultation for the Project. These reports must include, at a minimum, the details outlined in a) through d) above, and are to be filed with the Post-Construction Environmental Monitoring Reports required by Condition 27.

21. Heritage Resources Discovery

In the event that any heritage resources are discovered during construction, NGTL shall:

- a) obtain the necessary clearances from the appropriate provincial authorities; and
- b) file with the Board copies of the clearances obtained from the appropriate provincial authorities.

22. Horizontal Directional Drill

NGTL shall:

- a) notify the Board within 7 days of the successful completion of the intended Horizontal Directional Drill (HDD) crossing of Hay River;
- b) notify the Board in writing of any change from the proposed HDD watercourse crossing method, at least 7 days prior to implementing a contingency trenched crossing of Hay River, and provide the reasons for that change;
- c) file with the Board, prior to commencing construction of a contingency trenched crossing of Hay River, a copy of the authorizations from relevant government agencies for the instream crossing method; and
- d) file with the Board, within 30 days of completing a contingency trenched crossing of Hay River, a site-specific reclamation plan for the crossing which includes the desired outcomes following implementation of the plan.

Prior to Application for Leave to Open

23. Offset Measures Plan for Residual Impacts to Caribou Habitat

NGTL shall file with the Board for approval a plan to offset all unavoidable and residual Project-related effects to caribou habitat within the Chinchaga caribou range. The plan shall describe measures that would offset all effects identified in the quantitative and qualitative assessment to be conducted as part of Condition 7(b)(vi). The offset measures plan shall include:

- a) a preliminary version, at least 60 days prior to requesting Leave to Open, with criteria and the measurable objectives of the plan, including, but not limited to, a discussion of:
 - i) the potential offset measures available;
 - ii) the expected effectiveness of each measure;
 - iii) the relative value of each measure towards achieving the offset; and
 - iv) the decision-making criteria for selecting which specific offset measures would be used under what circumstances;
- b) a final version, on or before 90 days after filing of the final CHRP requirements, with:
 - i) the contents of the preliminary version, and any applicable updates;
 - ii) a complete list of the offset measures to be implemented or already underway, including a description of site-specific details and maps showing the locations;
 - iii) either an assessment of the effectiveness of the measures and their value in offsetting the residual effects or a detailed plan for completing an assessment of effectiveness and value;

Both the preliminary and final versions of the plan shall also include:

- c) a description of NGTL's consultations with potentially affected Aboriginal groups regarding the plan, including any concerns that were raised and how these have been addressed;
- d) evidence of consultation with Environment Canada and appropriate provincial authorities regarding the plan.

24. Caribou Habitat Restoration and Offset Measures Monitoring Plan

NGTL shall file with the Board for approval, on or before 90 days after filing of the final CHRP requirements, a plan for monitoring the caribou habitat restoration and offset measures implemented as part of Conditions 7 and 23. This plan shall include, but not be limited to:

- a) the scientific methodology or protocol for short-term and long-term monitoring of the restoration and offset measures, and their anticipated effectiveness;
- b) frequency, timing and locations of monitoring and the rationale for each;
- c) protocols for how restoration and offset measures will be altered, as required, based on the monitoring results; and

- d) a schedule for filing reports of monitoring results to the NEB, Environment Canada and appropriate provincial authorities.

25. Weed Management Plan

NGTL shall file with the Board for approval, at least 30 days prior to requesting Leave to Open, a Project-specific Weed Management Plan that includes:

- a) NGTL's goals and measurable objectives regarding weed management;
- b) the methods and procedures available to achieve the mitigation goals and clear decision criteria for their selection;
- c) either:
 - i) evidence confirming satisfaction of all relevant regulatory authorities, or, if (i) is not possible,
 - ii) evidence of its consultation with all relevant regulatory authorities and a summary of their outstanding concerns;
- d) the criteria to determine if the mitigation goals have been met;
- e) the frequency of monitoring activities along the RoWs, temporary workspaces and temporary construction camp sites;
- f) training and qualification requirements of NGTL staff responsible for monitoring;
- g) a mechanism for tracking weed problems and weed control activities; and
- h) criteria to evaluate the effectiveness of the Weed Management Plan, as well as adaptive management practices.

Post Construction

26. Condition Compliance by a Company Officer

Within 30 days of the date that the approved Project is placed in service, NGTL shall file with the Board a confirmation, by an officer of the company, that the approved Project was completed and constructed in compliance with all applicable conditions in this Certificate. If compliance with any of these conditions cannot be confirmed, the officer of the company shall file with the Board details as to why compliance cannot be confirmed. The filing required by this condition shall include a statement confirming that the signatory to the filing is an officer of the company.

27. Post-Construction Environmental Monitoring Reports

On or before 31 January after each of the first, third, and fifth complete growing seasons following the commencement of operation of the Project, NGTL must file with the Board a post-construction environmental monitoring report that:

- a) describes the methodology used for monitoring, the criteria established for evaluating success and the results found;
- b) identifies the issues to be monitored, including but not limited to unexpected issues that arose during construction, and their locations (e.g., on a map or diagram, in a table)
- c) describes the current status of the issues (resolved or unresolved), any deviations from plans and corrective actions undertaken;
- d) assesses the effectiveness of mitigation (planned and corrective) measures applied against the criteria for success;
- e) includes details of consultation undertaken with appropriate provincial and federal authorities; and
- f) provides proposed measures and the schedule that NGTL would implement to address ongoing issues or concerns.

The reports must also include information pertaining to a) through f) above as it applies to the reclamation of NGTL's temporary construction camp site on the Timberwolf section, the restoration of wetland functionality, and any activities associated with the HDD or contingency crossing plan, or hydrostatic testing plans.

Certificate Expiration

28. Sunset Clause

Unless the Board otherwise directs prior to 28 February 2013, this Certificate shall expire on 28 February 2013 unless construction in respect of the Project has commenced by that date.

Appendix III

NEB Section 58 Order

ORDER XG-N081-003-2012

IN THE MATTER OF the *National Energy Board Act* (NEB Act) and the Regulations made thereunder;

IN THE MATTER OF an application dated 29 April 2011 by NOVA Gas Transmission Ltd. (NGTL) pursuant to subsection 58(1) of the NEB Act, for the stockpile sites, contractor yards and construction camps for the Northwest Mainline Expansion, under file OF-Fac-Gas-N081-2010-16 02.

BEFORE the Board on 3 February 2012.

WHEREAS the Board received NGTL's application dated 29 April 2011 for the Northwest Mainline Expansion (Project) pursuant to section 52 of the NEB Act;

AND WHEREAS the application included a request for an order pursuant to subsection 58(1) of the NEB Act exempting NGTL from the requirements of subsections 31(c), 31(d) and section 33 of the NEB Act in relation to the stockpile sites, contractor yards and construction camps for the Project (the Section 58 Facilities);

AND WHEREAS the Board held a public hearing in respect of the Project pursuant to Hearing Order GH-2-2011 in Fort Nelson, British Columbia on 29 and 30 November 2011;

AND WHEREAS the Board, pursuant to the *Canadian Environmental Assessment Act*, conducted an environmental screening of the Project, which includes the Section 58 Facilities, and concluded that with the implementation of NGTL's environmental protection procedures and mitigation measures and the NEB's recommendations, the Project would not be likely to cause significant adverse effects;

AND WHEREAS the Board approved the Project, including NGTL's application for the Section 58 Facilities, in its GH-2-2011 Reasons for Decision dated 28 February 2012;

AND WHEREAS the Board recommended to the Governor in Council on 28 February 2012 that a Certificate of Public Convenience and Necessity in respect of the Project be issued;

AND WHEREAS the Board may, pursuant to subsection 19(1) of the NEB Act, direct in any Order that it shall come into force at a future time or on the happening of any contingency;

IT IS ORDERED that pursuant to subsection 58(1) of the NEB Act, the stockpile sites, contractor yards and construction camps of the Project are exempted from the requirements of subsections 31(c) and 31(d), and section 33 of the NEB Act, subject to the following conditions:

1. NGTL shall comply with all of the conditions contained in this Order unless the Board otherwise directs.
2. NGTL shall cause the approved Section 58 Facilities to be constructed and operated in accordance with the commitments made and the specifications, standards and other information referred to in its application or as otherwise agreed to during questioning or in its related submissions.
3. NGTL shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures and its commitments for the protection of the environment included in or referred to in its application or as otherwise agreed to during questioning or in its related submissions.
4. NGTL shall file with the Board for approval, at least 30 days prior to commencement of construction of the temporary infrastructure (stockpile sites, contractor yards and the Timberwolf temporary construction camp), an Environmental Protection Plan (EPP) specifically addressing the construction and dismantling of the camp as well as the reclamation of any impacted lands. This EPP shall be a comprehensive compilation of all environmental and socio-economic protection procedures, and mitigation and monitoring commitments, as set out in NGTL's application or as otherwise agreed to during questioning, in its related submissions or through its consultation with government authorities and Aboriginal groups. The EPP shall include, but not be limited to, the following elements:
 - a) environmental procedures including site-specific plans, criteria for implementation of these procedures, mitigation measures and monitoring applicable to all phases and activities; and
 - b) a reclamation plan which includes a description of the condition to which NGTL intends to reclaim and monitor impacted lands once the camp has been dismantled, and a timeline and description of measurable goals for reclamation.
5. Within 30 days of the date that the approved Project is placed in service, NGTL shall file with the Board a confirmation, by an officer of the company, that the approved Section 58 Facilities were completed and constructed in compliance with all applicable conditions in this Order. If compliance with any of these conditions cannot be confirmed, the officer of the company shall file with the Board details as to why compliance cannot be confirmed. The filing required by this condition shall include a statement confirming that the signatory to the filing is an officer of the company.
6. Unless the Board otherwise directs prior to 28 February 2013, this Order shall expire on 28 February 2013 unless construction in respect of the Section 58 Facilities has commenced by that date.

In the above conditions, the expression "commencement of construction" means the clearing of vegetation, ground-breaking and other forms of right-of-way preparation that may have an impact on the environment, but does not include activities associated with normal surveying activities. The condition requiring the filing of the EPP with the Board "for approval" means that

NGTL must not commence construction of Timberwolf temporary construction camp until the approval is issued.

IT IS FURTHER ORDERED that, pursuant to subsection 19(1) of the NEB Act, this Order comes into force upon the issuance by the Board, subject to Governor in Council approval, a Certificate of Public Convenience and Necessity for the Northwest Mainline Expansion.

NATIONAL ENERGY BOARD

L. George
Acting Secretary of the Board

Appendix IV

NEB Ruling on Fort Nelson First Nation Motion No.1

File OF-Fac-Gas-N081-2010-16 02
25 November 2011

Mr. James P. Tate
Ratcliff & Company LLP
Suite 500, East Tower
221 West Esplanade
North Vancouver, BC V7M 3J3
Facsimile 604-988-1452

Dear Mr. Tate:

**Hearing Order GH-2-2011
NOVA Gas Transmission Ltd. (NGTL)
Northwest Mainline Expansion (Project) - Application of 29 April 2011
Fort Nelson First Nation Motion and Preliminary Matters**

The National Energy Board (the Board) has received your letter and Motion dated 22 November 2011.

The Motion suggests that the Fort Nelson First Nation must know the identity of the Crown actor responsible for discharging the duty to consult and accommodate in order to meaningfully participate in the upcoming oral hearing commencing on 29 November 2011. In that regard, you are correct that the Crown has indicated that it intends to rely upon the Board's public hearing process, to the extent possible, to fulfill any Crown duty to consult Aboriginal groups for the proposed Northwest Mainline Expansion Project.

As a quasi-judicial decision-maker, the Board must ensure that its process complies with the principle of fairness and the rules of natural justice. In addition, the Board interprets its responsibilities, including those outlined in section 52 of the *National Energy Board Act*, in a manner consistent with the *Constitution Act, 1982*, including section 35, which recognizes and affirms existing Aboriginal and treaty rights of Aboriginal peoples. In order to ensure that its decision is consistent with both the rules of natural justice and section 35 of the *Constitution Act, 1982*, the Board has adopted the following assessment process.

The Board's process is designed to obtain as much relevant evidence as possible on Aboriginal concerns about a project, potential project impacts on Aboriginal interests and possible mitigation measures. In addition to providing technical information addressing impacts of the project on, among other things, fisheries, wildlife, vegetation, and heritage resources, the applicant is required to make all reasonable efforts to consult with potentially affected Aboriginal groups and to provide information about those consultations to the Board. This includes evidence on the nature of the interests potentially affected, the concerns that were raised

and the manner and degree to which those concerns have been addressed. These requirements reflect the fact that the applicant is most often in the best position to respond to Aboriginal concerns about a project before an application is filed and while the project is still in the early stages of development.

The Board evaluates the sufficiency of the applicant's consultation process along with any other evidence of consultation it has on its record. The applicant is expected to report on all Aboriginal concerns that were expressed to it, even if it was unable or unwilling to address those concerns. Where there is a greater risk of more serious impacts on Aboriginal interests (which will in part depend on the nature of that interest), the Board will have greater expectations in terms of the applicant's consultation with the potentially impacted Aboriginal group. By the same token, where there is a remote possibility of an impact on Aboriginal interests, or the impacts are minor in nature, the applicant's consultation will generally not be expected to be as extensive.

In addition to the one-on-one consultation that occurs between applicants and Aboriginal groups, the Board's hearing process itself is part of the overall consultative process. Aboriginal groups who are concerned with the potential impact of a proposed project on their interests may present their views directly to the Board. Such submissions may include, among other things, a description of the nature and extent of their interests in the project area, views on the potential impacts of the project and discussion of appropriate mitigation measures. There are a variety of ways Aboriginal groups may choose to present their views to the Board (e.g., intervenor, letter of comment, oral statement); Aboriginal groups can therefore choose the level of involvement they want to have in the Board's hearing process.

Given the comprehensiveness of the Board's process and the Board's broad remedial powers that are generally not within the purview of other government departments, concerns related to the project should be brought to the Board's attention through consultation with the applicant and participation in the hearing process. In those instances where a certain project-related issue may be beyond the ability of the applicant or the Board to resolve, it may be that other government bodies with the ability to address the issue will decide to consult with the Aboriginal groups in relation to that matter. To the extent that information regarding those consultations is relevant to the Board's decision (i.e., it is information that may factor into the Board's public interest determination), that information should be filed on the Board's record.

It is through this open process that the Board is able to fully understand and consider all the interests that may be impacted by the project. Further, the open nature of the Board hearing process allows for all parties interested in the application to be fully aware of the evidence that the Board will consider in its decision-making process.

Before making its decision on the project, the Board will assess the completeness of its process to ensure all potentially affected Aboriginal groups had a fair opportunity to make their concerns known to the Board. It will consider all of the relevant information before it, including information regarding the consultation undertaken with Aboriginal groups, the views of Aboriginal groups, project impacts on Aboriginal interests, including asserted and proven Aboriginal rights, and proposed mitigation measures. In assessing the potential impacts of a project and determining whether it is in the public convenience and necessity, the Board

considers the nature and extent of the Aboriginal interests in the context of how the project may affect such interests. The Board also takes into consideration proposed measures that would avoid or mitigate project impacts on Aboriginal interests. The Board then considers all of the benefits and burdens associated with the project, balancing Aboriginal concerns with other interests and factors, before determining whether the project is in the public interest.

In carrying out its mandate, the Board's objective is to reconcile Aboriginal concerns with other public interest considerations. To this end, the Board's process is designed to be thorough, open and accessible to Aboriginal groups so that they may make their concerns known to the Board through numerous different means and have those concerns considered before the Board's final decision.

The Fort Nelson First Nation has taken the opportunity to file written evidence on the record of this proceeding. The Fort Nelson First Nation will also have the opportunity to present oral evidence during the oral hearing and test the information that has been provided by the company through cross-examination.

In terms of the scope of the hearing, the List of Issues is comprehensive and broad and is not designed to exclude any relevant evidence. The Board fully intends to consider all relevant evidence submitted before reaching its decision.

Parties to the proceeding have had the opportunity to review the evidence filed by other parties and will have the opportunity to hear further evidence at the oral portion of the hearing. Parties may choose to make submissions challenging the relevance of evidence given in the hearing process. The Board will not predetermine what specific information is and is not relevant.

In terms of your question as to what type of evidence will be presented by the Board, the Board is the trier of fact and will make decisions about the facts based on the evidence presented in the proceeding. The Board will not present evidence.

To the extent that there are outstanding concerns with respect to the relief requested in the Motion, parties may raise their concerns with the Board at the conclusion of the evidentiary portion of the hearing.

Yours truly,

For
L. George
Acting Secretary of the Board

Appendix V

NEB Ruling on Fort Nelson First Nation Motion No.2

--- Upon resuming at 3:56 p.m./L'audience est reprise à 15h56

866. **THE CHAIRMAN:** Mr. Tate, before we continue with your cross-examination, the Board is ready with its ruling on the Fort Nelson First Nation motion to adjourn.

867. **MR. TATE:** Thank you.

868. **THE CHAIRMAN:** The Board denies FNFN's motion to adjourn the hearing.

869. FNFN has previously expressed the importance of participating orally in the Board's public hearing process. FNFN's 8 November 2011 letter, that's Exhibit C39, states:

"Dene oral tradition is an important part of current FNFN governance. An integral part of FNFN governance is the public witnessing of words spoken by leaders and representatives, particularly where these words are intended to represent FNFN knowledge or rights. The cultural importance of FNFN members having the opportunity to hear and witness oral evidence spoken on their behalf by their leaders and representatives, especially where proceedings are held within FNFN traditional lands, cannot be overstated."

870. In its 22 November 2011 letter to the Board, FNFN advised that there are members who have direct knowledge about the traditional and ongoing use of the subject area, but who have expressed misgivings about attending the hearing.

871. FNFN requested that those members could be added to the witness panel so that they could provide oral evidence. The Board invites FNFN to add those members to its witness panel.

872. The Board reiterates, in part, what it stated in its 25 November 2011 response:

"As a quasi-judicial decision maker, the Board must ensure that its process complies with the principles of fairness and the rules of natural justice. The Board's process is designed to obtain as much relevant evidence as possible on aboriginal concerns about a project, potential project impacts on aboriginal interests, and possible mitigation measures."

873. The Applicant is expected to report on all aboriginal concerns that were expressed to it, even if it was unable or unwilling to address those concerns. In addition to the one-on-one consultation that occurs between applicants and aboriginal groups, the Board's hearing process itself is part of the overall consultative process. Aboriginal groups who

are concerned with the potential impact of a proposed project on their interests may present their views directly to the Board.

874. Such submissions may include, among other things, a description of the nature and extent of their interest in the project area, views on the potential impacts of the project, and discussion of appropriate mitigation measures.
875. There are a variety of ways aboriginal groups may choose to present their views to the Board. For example, intervenor, letter of comment, oral statement. Aboriginal groups can therefore choose the level of involvement they want to have in the Board's hearing process.
876. FNFN chose to participate in this process as an intervenor and has, to date, taken the opportunity to question the Applicant on its evidence and submit its own written evidence. The Board moved the hearing to Fort Nelson following a request by FNFN. The FNFN requested that the Board allow them to present oral evidence at the hearing. The Board granted the request.
877. It is through this open process that the Board is able to fully understand and consider all the interests that may be impacted by the project. Further, the open nature of the Board's hearing process allows for all parties interested in the application to be fully aware of the evidence that the Board will consider in its decision-making process.
878. In this case, the Board finds that the Applicant would be significantly prejudiced if a portion of this hearing were adjourned. The Board values and encourages FNFN's continued participation in this hearing.
879. To the extent that we can make FNFN members more comfortable to make their submissions by changing the dynamics of our space, please provide your suggestions to Board staff.
880. This concludes the Board's ruling on the motion.

Appendix VI

Environmental Screening Report

National Energy Board



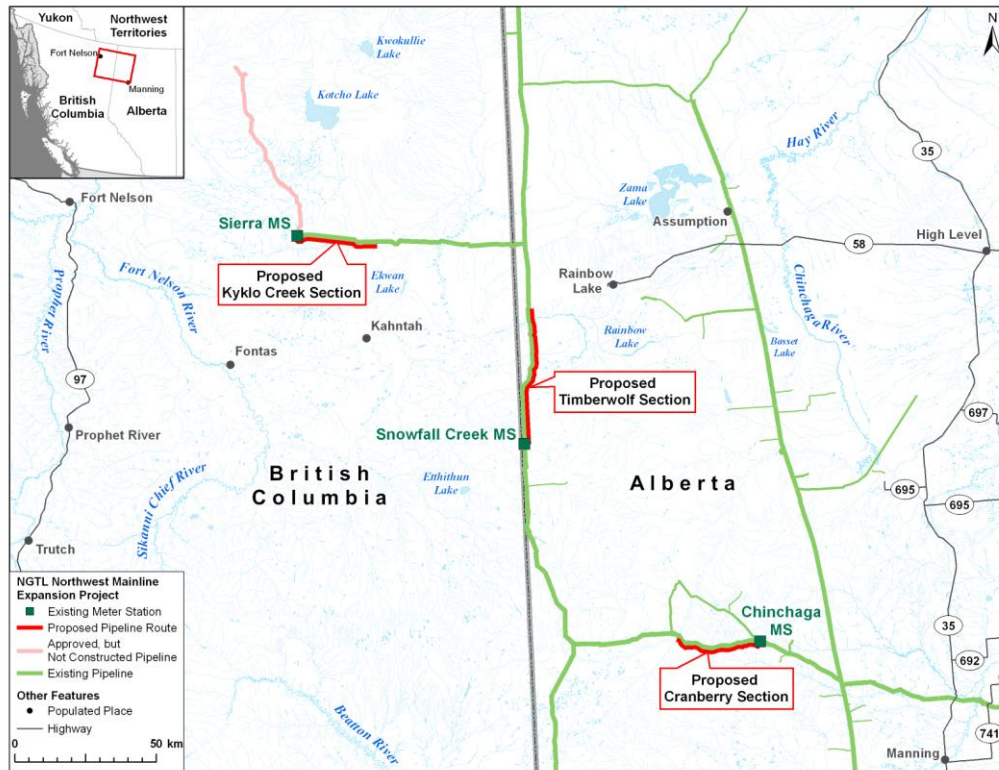
Office national de l'énergie

ENVIRONMENTAL SCREENING REPORT

Pursuant to the *Canadian Environmental Assessment Act (CEA Act)*

Northwest Mainline Expansion

Applicant Name:	NOVA Gas Transmission Ltd.		
Application Date:	29 April 2011	CEA Act Registration Date:	13 December 2010
National Energy Board File Numbers:	OF-Fac-Gas-N081-2010-16 01 / OF-Fac-Gas-N081-2010-16 02	Canadian Environmental Assessment Registry Number:	10-01-59630
CEA Act Law List Trigger:	Sections 52 and subsection 58(1) of the <i>National Energy Board Act</i>	CEA Act Determination Date:	3 February 2012



SUMMARY

This report is an Environmental Screening Report (ESR) under the *Canadian Environmental Assessment Act* (CEA Act) for the NOVA Gas Transmission Ltd. (NGTL) proposed Northwest Mainline Expansion (the Project).

On 29 April 2011, NGTL applied to the National Energy Board (Board or NEB) for authorization to construct and operate three new pipeline loops and associated facilities with a total length of 111.2 km, adjacent to NGTL's existing pipeline system in northeast British Columbia and northwest Alberta.

The Project would comprise approximately 29.1 km of 1067 mm (NPS 42) outside diameter (OD) pipeline in British Columbia, adjacent to the Ekwan pipeline, and approximately 49.8 km and 32.3 km of 1219 mm (NPS 48) OD pipeline adjacent to the Northwest Mainline pipeline and the Tanghe Creek Lateral Loop in northwest Alberta, respectively.

The pipelines would be constructed alongside and contiguous to existing rights-of-way for approximately 103.8 km of the 111.2 km total length. The Project would require the crossing of 22 watercourses and approximately 49.4 km of wetlands. Construction would occur in between the third quarter of 2012 and the second quarter of 2013.

The NEB is the Federal Environmental Assessment Coordinator for this Project. Fisheries and Oceans Canada and Transport Canada have declared themselves Responsible Authorities (RAs) while Environment Canada, Natural Resources Canada and Health Canada have identified themselves as Federal Authorities (FAs) in possession of expert advice.

This ESR is based on the information provided by NGTL, RAs, FAs, Aboriginal groups, other interested parties and the public as part of the public hearing process for the Project. Comments received on the draft ESR have been considered by the Board in its preparation of the final ESR.

Key environmental issues raised during the hearing included Aboriginal traditional land use and cumulative effects.

The Board is of the view that with the implementation of NGTL's proposed environmental protection procedures and mitigation measures, compliance with the Board's regulatory requirements, and the Board's recommendations as set out in this report, the Project is not likely to cause significant adverse environmental effects.

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LIST OF ABBREVIATIONS

ACCS	Alberta Culture and Community Services
AIA	Archaeological Impact Assessment
the Application	NOVA Gas Transmission Ltd.'s Application
ASRD	Alberta Sustainable Resource Development
Board or NEB	National Energy Board
CAC	criteria air contaminant
CEA Act	<i>Canadian Environmental Assessment Act</i>
CEAR	Canadian Environmental Assessment Registry
CHRP	Caribou Habitat Restoration Plan
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPP	Caribou Protection Plan
DFO	Fisheries and Oceans Canada
EA	environmental assessment
EC	Environment Canada
EPP	Environmental Protection Plan
ESA	NOVA Gas Transmission Ltd.'s Environmental and Socio-Economic Assessment
ESR	Environmental Screening Report, pursuant to the <i>Canadian Environmental Assessment Act</i>
FA	Federal Authority, as defined in subsection 2(1) of the <i>Canadian Environmental Assessment Act</i>
FCN	federal coordination notification
FPWC	<i>Federal Policy on Wetland Conservation</i>
Footprint	footprint study area
GHG	greenhouse gases
HDD	horizontal directional drill
ha	hectare(s)

HRIA	Historical Resources Impact Assessment
km	kilometre
KP (K, T, C)	kilometre post (Kyklo, Timberwolf, or Cranberry)
LSA	local study area
m	metre
mm	millimetre
NEB Act	<i>National Energy Board Act</i>
NGTL	NOVA Gas Transmission Ltd.
NPS	nominal pipe size
OD	outside diameter
PCM	Post-Construction Monitoring
Project	Northwest Mainline Expansion
RA	Responsible Authority, as defined in subsection 2(1) of the <i>Canadian Environmental Assessment Act</i>
<i>Recovery Strategy</i>	Environment Canada's <i>Proposed Recovery Strategy for the Woodland Caribou (2011)</i>
RoW	right-of-way
RSA	regional study area
SARA	<i>Species At Risk Act</i>
Scope of EA or Scope	Scope of the Environmental Assessment
TC	Transport Canada
TransCanada	TransCanada PipeLines Limited
TEK	Traditional Ecological Knowledge
TLU	Traditional Land Use
TWS	temporary workspace

1.0 INTRODUCTION

1.1 Project Overview

NOVA Gas Transmission Ltd. (NGTL) has applied to the National Energy Board (NEB or Board) to construct and operate three new sweet natural gas pipeline loops, with a total length of 111.2 km, in northeast British Columbia and northwest Alberta. The proposed pipeline loops and associated facilities are collectively known as the Northwest Mainline Expansion (the Project), and include the following:

- Kyklo Creek section; Horn River Mainline Loop – approximately 29.1 km of 1067 mm (NPS 42) outside diameter (OD) pipeline, parallel and adjacent to the Ekwan pipeline right-of-way (RoW) for approximately 25.1 km.
- Timberwolf section; Northwest Mainline Loop – approximately 49.8 km of 1219 mm (NPS 48) OD pipeline, parallel and adjacent to the Northwest Mainline Pipeline RoW for approximately 48.3 km.
- Cranberry section; Tanghe Creek Lateral Loop No. 2 – approximately 32.3 km of 1219 mm (NPS 48) OD pipeline, parallel and adjacent to the Tanghe Creek Lateral Loop RoW and roads, for approximately 30.4 km.

Associated facilities would include tie-ins, valves and cathodic protection systems with embedded communication and control equipment. Some temporary infrastructure would also be required including a work camp, watercourse vehicle crossings and access roads.

The pipelines would traverse provincial Crown lands for their entire length, and their locations, tie-in points, and kilometre post references² are summarized in Table 1. A minimum 32 m wide construction RoW, and additional temporary workspace (TWS), would be required.

Table 1: Location of Pipeline Sections

Location	Kyklo Creek section	Timberwolf section	Cranberry section
Start	Sierra Gas Plant at Unit 25, Block K, Group 94-I-11 (KPK 0)	Moody Creek Compressor Station at NW-03-109-12-W6M (KPT 0)	A point located at SW-31-096-07-W6M (KPC 32.3)
End	A point located at Unit 97, Block F, Group 94-I-10 (KPK 29.1)	A point adjacent to the Snowfall Creek Meter Station at NW-06-104-12-W6M (KPT 49.8)	A point adjacent to the Chinchaga Meter Station at NE-13-096-05-W6M (KPC 0)
Nearest Town	80 km southeast of Fort Nelson at its closest point	30 km southwest of Rainbow Lake at its closest point	76 km northwest of Manning at its closest point

Construction of the temporary construction camp for the Timberwolf section would commence in August 2012, with construction of the pipelines beginning in the third quarter of 2012. NGTL anticipates the Project to be in-service in the second quarter of 2013.

Section 4.0 provides a detailed description of the work associated with the Project.

² Reference points along the pipeline routes are referred to as kilometre posts (KPs). The following KP delineations are used in this ESR: Kyklo Creek section - KPK, Timberwolf section - KPT, and Cranberry section - KPC.

1.2 Rationale for the Project

The purpose of the Project is to expand NGTL's existing Alberta System³, enabling the transportation of an increased supply of sweet natural gas from producers in the Upper Peace River area to the NOVA Inventory Transfer commercial hub and markets elsewhere in Canada and United States.

1.3 Baseline Information and Sources

The analysis for this ESR is based on information from the following sources:

- Project application, including NGTL's Environmental and Socio-Economic Assessment (ESA);
- NGTL's supplemental filings to the Project application;
- responses to information requests;
- submissions from the public and interested parties, including letters of comment; and,
- evidence submitted at the oral public hearing.

Filed information pertaining to the Project application can be found within 'Regulatory Documents' on the NEB's website (www.neb-one.gc.ca). For more details on how to obtain documents, please contact the Secretary of the NEB at the address specified in Section 10.0 of this report.

2.0 ENVIRONMENTAL ASSESSMENT PROCESS

On 3 December 2010, NGTL filed a Project Description with the NEB regarding the proposed Project. This action initiated the *Canadian Environmental Assessment Act* (CEA Act) Environmental Assessment (EA) process. On 29 April 2011, NGTL filed its application for the Project pursuant to section 52 and subsection 58(1) of the NEB Act, which trigger the CEA Act *Law List Regulations*, thereby requiring the preparation of this Environmental Screening Report (ESR).

2.1 Government Participation in the EA Coordination Process

The NEB is the Federal Environment Assessment Coordinator for this Project. On 16 December 2010, the NEB issued a Federal Coordination Notification (FCN) letter pursuant to section 5 of the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* to identify the potential involvement of federal departments in the EA process. The responses are summarized below:

3 NGTL's Alberta System consists of approximately 24,000 km of natural gas pipeline within Alberta and British Columbia. NGTL is a wholly-owned subsidiary of TransCanada PipeLines Limited (TransCanada) that operates the Alberta System, pursuant to an operating agreement between TransCanada and NGTL.

Table 2: Role of Federal Authorities in the CEA Act Process

Responsible Authorities (RAs)	Regulatory Triggers
NEB	NEB Act section 52 and subsection 58(1)
Transport Canada (TC)	NEB Act subsection 108(4) <i>Navigable Waters Protection Act</i> subsection 5(2) or 5(3)
Fisheries and Oceans Canada (DFO)	<i>Fisheries Act</i> subsection 35(2)
Federal Authorities (FAs) in Possession of Specialist or Expert Information or Knowledge	
Environment Canada (EC) Natural Resources Canada Health Canada	

The FCN letter was also sent to provincial agencies in Alberta and British Columbia. Alberta Environment, Alberta Sustainable Resource Development (ASRD) and Alberta Transportation reviewed the information, but did not wish to participate in the federal review of the Project. ASRD expressed an interest in monitoring the EA process. In 2010, the NEB and the British Columbia Environmental Assessment Office signed a Memorandum of Understanding regarding responsibilities surrounding environmental assessments. No provincial agencies from British Columbia expressed an interest in participating in the federal review of the Project.

2.2 Opportunities for Public Input into the EA

On 10 June 2011, the NEB released Hearing Order GH-2-2011 describing the process and requirements of the public hearing for the Project. The NEB process allowed for a number of opportunities for the public and Aboriginal groups to participate and provide input into the EA. This included providing comments on the Scope of the EA (Scope) and List of Issues, filing a letter of comment, making an oral statement at the hearing or participating as an Intervenor. The Government Participant option was provided to government authorities to allow them to participate without becoming Intervenors.

Throughout the EA process, the Board received submissions pertaining to Project-related EA matters. Subsection 6.0 describes the issues raised in submissions to the Board.

2.2.1 Draft Scope of the EA

The NEB, in consultation with the other RAs, prepared a draft Scope, which was attached to the GH-2-2011 Hearing Order and posted on the Canadian Environmental Assessment Registry (CEAR) on 14 June 2011. All parties were encouraged to review the Scope and provide any suggested amendments or additions to the NEB by 12 July 2011.

TC provided comments on the draft Scope, a summary of which is provided in Appendix 2. The NEB issued a letter to all parties on 15 July 2011 which included a revised Scope of the EA. The revised Scope was posted on the CEAR on 28 July 2011.

2.2.2 NEB Hearing

As provided for in Hearing Order GH-2-2011, the NEB held a public hearing process to consider the application for the Project, with the oral portion of the hearing being held in Fort Nelson, British Columbia, from 29 to 30 November 2011.

3.0 SCOPE OF THE EA

The Scope is composed of three parts:

- Scope of the Project;
- Factors to be Considered; and
- Scope of the Factors to be Considered.

The Scope, as determined by the RAs, in consultation with the FAs and the public, is included in this ESR as Appendix 1 and provides detailed information on these three parts. Section 4.0 of this ESR expands upon the Scope of the Project.

4.0 DESCRIPTION OF THE PROJECT

Table 3 provides information on each Project component throughout the three phases of the Project: construction, operations and abandonment.

Table 3: Description of the Project

Physical Work or Activity
<p>Pipeline Construction Phase</p> <p><i>Timeframes:</i></p> <ul style="list-style-type: none">▪ <i>Timberwolf section construction camp: third quarter 2012 to second quarter 2013</i>▪ <i>Kyklo Creek and Cranberry section construction camps: fourth quarter 2012 to second quarter 2013</i>▪ <i>Pipeline construction: fourth quarter 2012 to second quarter 2013</i>
<p><u>Timberwolf section construction camp:</u></p> <ul style="list-style-type: none">▪ Construction and removal of a new temporary camp at a location approximately 13 km southwest of Rainbow Lake, in SE 1-109-10 W6M and SW 6-109-10 W6M.▪ The site would overlap an existing clearing and requires a new temporary access road approximately 200 m long.
<p><u>Kyklo Creek and Cranberry section construction camps:</u></p> <ul style="list-style-type: none">▪ Continued operation of two previously-approved camps in the vicinity of the Kyklo Creek and Cranberry sections.▪ These camps were constructed as part of NGTL's Horn River Project (NEB Hearing Order GH-2-2010/GC-117) and Tanghe Creek Lateral Loop No. 2 Project (Order XG-N081-14-2011), and would be dismantled and the land reclaimed in accordance with the conditions of those approvals.
<p><u>Pipeline construction:</u></p> <ul style="list-style-type: none">▪ Pipeline construction and installation, including the clearing of a 32 m construction RoW. The amount of new permanent RoW would depend on adjacent dispositions.▪ Installation of permanent facilities including cathodic protection systems and block valves for each section.▪ Installation and use of temporary facilities including log decks, material storage, access roads, watercourse

Physical Work or Activity
<p>vehicle crossings, and construction office sites. TWS would also be required at various locations adjacent to the RoW and at all watercourse crossings.</p> <ul style="list-style-type: none"> ▪ Construction of 22 watercourse crossings using an in-stream construction method for all crossings except the Hay River. Crossing of the Hay River would use a horizontal directional drill (HDD) technique and would require an 800 m x 30 m TWS for pipe layout during the HDD. ▪ Physical works would include site preparation (clearing, stripping, stockpiling and grading), pipe stringing and welding, trench excavation, lowering-in pipe, backfilling, hydrostatic testing, and clean-up and final reclamation. <p><u>Hydrostatic testing:</u></p> <ul style="list-style-type: none"> ▪ <i>Kyklo Creek section:</i> Water would be sourced from an unnamed lake and would require expansion and excavation of borrow pits and trucking of water up to approximately 30 km. Clearing and widening of a seismic line up to a distance of 6.7 km may also be required. ▪ <i>Timberwolf section:</i> Water sources would be accessed using a temporary overland pipeline or by trucking, and some land clearing may be required. The primary source of test water would be the Hay River, and additional water may be sourced from three unnamed lakes and drainages within 2.5 km of the pipeline RoW. ▪ <i>Cranberry section:</i> Water sources would be the Chinchaga River and an unnamed lake located less than 2 km from the pipeline RoW. Water would be accessed using a temporary overland pipeline or by trucking. Some clearing along access routes may be required.
<p>Pipeline Operation Phase</p> <p><i>Estimated in-service date: April 2013</i></p>
<ul style="list-style-type: none"> ▪ Operational maintenance of the pipeline ▪ Equipment/vehicle operation ▪ Vegetation control for non-native and noxious weed species ▪ Aerial or ground-based visual pipeline patrols to inspect for environmental and integrity issues ▪ In-service inspection tools would periodically inspect the pipeline. ▪ Maintenance digs would be conducted in the event that an actual or suspected pipeline integrity problem is identified, and subsequent reseeding and reclamation would be undertaken. ▪ Computer-based supervisory control and data acquisition system would be used to remotely monitor and control pipeline operations from the TransCanada Operations Control Centre located in Calgary, Alberta.
<p>Pipeline Abandonment Phase</p>
<ul style="list-style-type: none"> ▪ An application pursuant to paragraph 74(1)(d) of the NEB Act would be required to abandon the facilities, at which time the environmental effects would be assessed by the NEB under both the NEB Act and the CEA Act.

5.0 DESCRIPTION OF THE ENVIRONMENT

This section describes the environmental and socio-economic setting of the Project.

NGTL used the following spatial boundaries to determine and assess each environmental and social component discussed in its ESA:

- The Footprint Study Area (Footprint) is made up of the area directly disturbed by the Project construction and clean-up activities, including associated physical works and activities.
- The Local Study Area (LSA) varies with each environmental and socio-economic element being considered. The LSA is based on the zone of influence within which plants, animals and humans are most likely to be affected by Project construction and operation.
- The Regional Study Area (RSA) is an area which extends beyond the LSA boundary and also varies with each environmental and socio-economic element being considered. A

separate RSA boundary for each element was established in consideration of the Project’s regional effects on the individual element.

- For social elements (e.g., social and cultural well-being), local effects are related to specific communities considered in the socio-economic assessment.

Table 4 provides a description of the Project environment. Table 4 is based on NGTL’s application, subsequent filings during this proceeding, and includes components of the Footprint, LSA and RSA as applicable to each environmental and socio-economic element.

Table 4: Description of the Environment

Terrain and Soils		
<ul style="list-style-type: none"> ▪ The topography traversed by the pipelines is generally level to undulating, with some gently rolling sections traversed by the Cranberry section. ▪ None of the proposed watercourse crossings were observed to have significant slope instabilities that could lead to failures and none are considered to be thaw sensitive. ▪ The Project does not encounter any sites listed on the Federal Contaminated Sites Inventory. ▪ There are no known areas of soil contamination; however, the likelihood of contamination is considered to be higher on or adjacent to previously-disturbed lands. 		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> ▪ Approximately 8.2 km (28%) of the route is underlain by organic deposits thicker than 1 m. ▪ Located in an area of sporadic, discontinuous permafrost. Three locations with permafrost were observed over a total distance of 350 m. Depth of permafrost ranged from 2.6 m to 4.8 m deep. 	<ul style="list-style-type: none"> ▪ Approximately 15% of the route is underlain by organic deposits thicker than 2 m. ▪ Moderate slopes are encountered at the Little Buffalo River and Chasm Creek watercourse crossings, and there are steep slopes associated with the Hay River. ▪ Located in an area of sporadic, discontinuous permafrost, although none was observed. 	<ul style="list-style-type: none"> ▪ Approximately 3% of the route is underlain by organic deposits thicker than 2 m. ▪ Moderate slopes are encountered from KPC 0.4 to KPC 0.9 and KPC 20.0 to KPC 23.0.
Air Quality		
<ul style="list-style-type: none"> ▪ Air quality within the Project area is influenced primarily by regional industrial air emissions sources, biogenic emissions and long-range transport of substances emitted from distant sources. ▪ Construction emissions of criteria air contaminants (CAC) and greenhouse gases (GHG) would represent a small increase over existing conditions, in the near-term. ▪ Long-term CAC and GHG emissions for the Project stem from the fuel combustion associated with helicopter access for line inspections, and will be significantly less than the emissions associated with construction. 		
Vegetation		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> ▪ Upland areas are generally represented by white spruce and trembling aspen species. Treed bogs and shrubby swamps are also present. ▪ No old growth forest stands were observed. 	<ul style="list-style-type: none"> ▪ Upland areas are generally represented by trembling aspen, white spruce, black spruce and jack pine. Treed fens and shrubby fens also occur. ▪ No old growth forest stands were observed, although late successional-stage forests are present. 	<ul style="list-style-type: none"> ▪ 48% of the pipeline route traverses lands that have been recently disturbed by fire. ▪ On lands not recently burned, upland areas are represented by trembling aspen, white spruce, black spruce, and jack

<ul style="list-style-type: none"> No symptoms of forest pests were observed. NGTL noted the presence of common dandelion, red fescue, smooth brome, a speedwell species, and white clover on the proposed RoW. Scentless chamomile and caraway are also known to occur in the vicinity of the pipeline. 	<ul style="list-style-type: none"> Several small, discrete mountain pine beetle infestations were observed. The Timberwolf section construction campsite, contractor's yard and stockpile site contained numerous weedy species growing at high densities. Weedy species include common dandelion, smooth brome, white and yellow sweet-clover, sow thistle, annual hawk's-beard, red clover, alsike clover, plantain and timothy. 	<p>pine are present. Treed fens are also present.</p> <ul style="list-style-type: none"> No old growth forest stands were observed. Several small mountain pine beetle infestations were observed. NGTL observed a number of weedy species including sweet clover, dandelion, bird's-foot trefoil, red clover, alsike clover, and annual hawk's-beard.
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Wetlands		
<ul style="list-style-type: none"> The wetlands traversed by the Project are almost exclusively organic peatlands, and the Project would not cross any Wetlands of International Importance as described by the Ramsar Convention. 		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> The route traverses wetlands for approximately 19 km (65.5% of the length of the pipeline). 66 wetland crossings including: 31 treed swamps, 13 treed bogs, 5 emergent marshes, 11 shrubby swamps and 6 treed fens. 	<ul style="list-style-type: none"> Wetlands are traversed for approximately 28 km (56.9% of the length of the pipeline). 87 wetland crossings including: 29 treed bogs, 24 treed fens, 10 shrubby fens, 1 non-woody fen, 7 open water ponds, 6 treed swamps, 3 emergent marshes and 7 shrubby swamps. 	<ul style="list-style-type: none"> Wetlands are traversed for approximately 4 km (14.4% of the length of the pipeline). 18 wetland crossings including: 8 treed fens, 3 shrubby swamps, 2 shrubby fens and 5 treed bogs.

Water Quality and Quantity		
<ul style="list-style-type: none"> There are no community watersheds located within NGTL's Water Quality and Quantity RSAs. The pipelines do not traverse any known aquifers or springs. 		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> Crosses four watercourses, including: <ul style="list-style-type: none"> Kyklo Creek and one of its tributaries; and two drainages that lack defined bed and banks. 	<ul style="list-style-type: none"> Crosses 14 watercourses, including: <ul style="list-style-type: none"> Hay River and two of its tributaries; Little Buffalo River and one of its tributaries; Bivouac Creek and one of its tributaries; Chasm Creek and one if its tributaries; Beaverskin Creek and three of its tributaries; and Snowfall Creek. Potential scour, steep approaches, and bank erosion exist at the crossings for the Hay River, Little Buffalo River, and Chasm Creek. 	<ul style="list-style-type: none"> Crosses four watercourses, including: <ul style="list-style-type: none"> Sloat Creek; a tributary to the Chinchaga River; a tributary to Midget Creek; and a drainage near the headwaters of Midget Creek. The tributary to Midget Creek crossing exhibits signs of bank erosion and undercutting. There are four registered groundwater wells for industrial use within a 2 km radius of the pipeline. The closest is located 237 m from KPC 0.0.

Fish and Fish Habitat		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> ▪ Crosses four fish-bearing watercourses, of which two are drainages that lack defined bed and banks. ▪ Kyklo Creek is 16.6 m wide and the unnamed tributary to Kyklo Creek is 1.8 m wide. ▪ Four species of sportfish (Arctic grayling, burbot, northern pike and walleye) and six species of non-sportfish (trout-perch, longnose sucker, white sucker, brook stickleback, lake chub and finescale dace) may occur within fish-bearing watercourses and drainages. 	<ul style="list-style-type: none"> ▪ Crosses 14 fish-bearing watercourses or drainages. ▪ Watercourses include the Hay River (39 m wide), Little Buffalo River (11.4 m), Chasm Creek (3.6 m), unnamed tributary to Bivouac Creek (1.4 m), and unnamed tributary to Beaverskin Creek (0.9 m). Nine additional fish-bearing watercourses or drainages are currently flooded as a result of beaver dams. ▪ Five species of sportfish (Arctic grayling, burbot, northern pike, walleye and goldeneye) and ten species of non-sportfish (longnose sucker, white sucker, lake chub, longnose dace, finescale dace, pearl dace, trout-perch, slimy sculpin, spoonhead sculpin and brook stickleback) may occur within fish-bearing watercourses and drainages. 	<ul style="list-style-type: none"> ▪ Crosses three watercourses and one drainage, all of which are fish-bearing. ▪ Watercourses include the unnamed tributary to Midget Creek (1.1 m), Sloat Creek (1.2 m) and unnamed tributary to Chinchaga River (7.9 m). ▪ Nine species of sportfish (Arctic grayling, rainbow trout, lake whitefish, mountain whitefish, burbot, northern pike, yellow perch, walleye and goldeneye) and twelve species of non-sportfish (longnose sucker, white sucker, lake chub, longnose dace, finescale dace, pearl dace, emerald shiner, spottail shiner, trout-perch, slimy sculpin, spoonhead sculpin and brook stickleback) may occur within the watercourses and drainages.

Wildlife and Wildlife Habitat		
Timberwolf temporary construction camp		
<ul style="list-style-type: none"> ▪ Moose and wolf tracks, as well as a small woodchuck burrow (with no evidence of recent use) near the northern boundary of the existing clearing were observed during NGTL's wildlife survey. ▪ NGTL noted that a signed bear baiting station is currently located within the boundaries of the proposed site. ▪ Eight bird species were recorded by NGTL during its surveys. No stick nests were observed. 		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> ▪ The route does not traverse any provincially-identified Ungulate Winter Range and Wildlife Habitat Areas. ▪ Does not cross designated caribou range or caribou core habitat. The Snake-Sahtaneh caribou range is approximately 1.4 km west of KPK 0.0. ▪ Fort Nelson First Nation have observed caribou on the lands crossed and adjacent to the pipeline route, most notably within a wetland area locally known as "Big Muskeg". ▪ The route is not located within an identified wood bison range, 	<ul style="list-style-type: none"> ▪ Crosses a provincially-managed Key Wildlife and Biodiversity Zone associated with the Hay River between KPT 3.5 and KPT 7.1. This Zone includes ungulate winter range, river corridors, and biodiversity areas. ▪ Traverses the Chinchaga caribou range between KPT 22.7 and KPT 49.8. ▪ The eastern edge of the Etthithun Core Area for caribou is approximately 950 m west of the pipeline between KPT 39.5 and KPT 49.8. ▪ Traverses a provincially-managed Grizzly Bear Secondary Zone between KPT 43.8 and 49.8. ▪ The pipeline is not located within an identified wood bison range, but the 	<ul style="list-style-type: none"> ▪ Traverses the Chinchaga caribou range between KPC 26.4 and KPC 32.3. ▪ Located within a provincially-managed Grizzly Bear Secondary Zone. ▪ The route is not located within the mapped range of any known bison herds. ▪ NGTL observed numerous mammals and their tracks and sign during its wildlife surveys. Species included moose, deer, wood bison, woodland caribou, American black bear, gray wolf, coyote,

<p>although bison tracks have been observed in the vicinity of Kyklo Creek.</p> <ul style="list-style-type: none"> ▪ NGTL observed mammal tracks and sign during its wildlife surveys including moose, American black bear, Canada lynx, ermine, red fox, gray wolf, mink, marten, wolverine, snowshoe hare, red squirrel, vole, shrew and beaver. ▪ One raptor species, forty-two songbird species, one waterfowl species, five shorebird species and one upland game species were recorded or observed by NGTL during its wildlife surveys. ▪ Suitable waterfowl habitat is between KPK 7.3 and 7.6, as well as at KPK 21.0. ▪ Wood frogs and boreal chorus frogs were observed along the route. 	<p>Hay-Zama herd is expanding and bison have been reported to wander into the Hay River drainage. The Etthithun bison herd is located approximately 25 km southeast of the pipeline.</p> <ul style="list-style-type: none"> ▪ NGTL observed mammal tracks and sign during including moose, deer, wood bison, woodland caribou, American black bear, grizzly bear, gray wolf, coyote, fisher, mink, ermine, marten, Canada lynx, snowshoe hare, red squirrel, vole, shrew and beaver. ▪ One owl species, forty-two songbird species, four waterfowl species, seven shorebird species and one upland game species were documented. ▪ Suitable nesting waterfowl habitat exists in this section. ▪ Wood frogs and boreal chorus frogs were observed. ▪ There is a mineral lick near KPT 22.3. 	<p>Canada lynx, snowshoe hare, red squirrel, vole and beaver.</p> <ul style="list-style-type: none"> ▪ Five raptor species, one owl species, forty-four songbird species, three waterfowl species, three shorebird species and one upland game species were recorded or observed by NGTL during its surveys. ▪ A non-woody fen with emergent vegetation and open water located near KPC 6.4 may provide suitable nesting habitat for waterfowl or shorebirds. ▪ Wood frogs and boreal chorus frogs were observed along the route.
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Federal and Provincial Species at Risk		
<ul style="list-style-type: none"> ▪ There are no previously-recorded occurrences of rare plants that are federally listed on Schedule 1 of <i>Species at Risk Act</i> (SARA) or that have a Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designation within 10 km of the Project, nor were any observed during NGTL’s vegetation surveys. ▪ There are no fish species present in the watercourses and drainages crossed by the Project that are listed federally under SARA or COSEWIC. ▪ There are no provincially-identified trumpeter swan breeding lakes or important staging waterbodies recorded in the vicinity of the Project. ▪ There are five wildlife species listed as Threatened and one species listed as Special Concern on Schedule 1 of SARA whose habitats occur on the routes: wood bison (Threatened), woodland caribou – boreal population (Threatened), Canada warbler (Threatened), common nighthawk (Threatened), olive-sided flycatcher (Threatened) and rusty blackbird (Special Concern). Suitable habitat for the yellow rail, which is listed as a species of Special Concern, is found along the Cranberry section. ▪ Four species with potential habitat in the vicinity of the pipeline are listed by COSEWIC as being of Special Concern: grizzly bears (northwestern population), wolverine, horned grebe, and short-eared owl. The Cranberry section also crosses areas which provide suitable habitat for the barn swallow, which is listed as Threatened by COSEWIC. 		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> ▪ Seven plant species listed as rare by the British Columbia Conservation Data Center were observed by NGTL on the pipeline RoW: bog adder’s-mouth orchid; orange touch-me-not; purple-stemmed aster; saxifrage species; slender mannagrass; western Jacob’s-ladder; and white adder’s-mount orchid. 	<ul style="list-style-type: none"> ▪ No provincially-listed rare plant species or rare ecological communities were observed, although an uncommon white birch/Scouler’s willow community was found at several locations. ▪ Arctic grayling and the spoonhead sculpin are provincially-listed in Alberta as Sensitive and May Be At Risk, respectively. 	<ul style="list-style-type: none"> ▪ Five provincially-listed rare plant species were observed, including golden saxifrage, lance-leaved grape fern, leather grape fern, northwestern grape fern and scalloped moonwort. ▪ Arctic grayling and the spoonhead sculpin are provincially-listed in Alberta

<ul style="list-style-type: none"> ▪ NGTL observed a rusty blackbird in a wetland near KPK 24.3. ▪ NGTL observed two provincially-listed bird species during its wildlife surveys: Le Conte’s sparrow (Blue-listed) and Connecticut warbler (Red-listed). ▪ NGTL observed trumpeter swans 980 m and 1.4 km northwest of KPK 0.0. 	<ul style="list-style-type: none"> ▪ NGTL noted that some of the watercourses crossed by the pipeline route provide suitable habitat for Arctic grayling. ▪ NGTL observed tracks of wood bison adjacent to the proposed pipeline near KPT 47.0, on NGTL’s existing Northwest Mainline RoW. ▪ A female woodland caribou was observed on the proposed RoW near KPT 49.0, and caribou tracks were noted adjacent to the proposed route between KPT 44.5 and 49.4. ▪ NGTL noted tracks of a grizzly bear near KPT 24.4. 	<p>as Sensitive and May Be At Risk, respectively.</p> <ul style="list-style-type: none"> ▪ NGTL noted that some of the watercourses crossed by the pipeline route provide suitable habitat for Arctic grayling. ▪ NGTL observed rusty blackbirds near KPC 8.6 and olive-sided flycatchers near KPC 0.0, KPC 3.3, KPC 6.3 and KPC 10.4 during its surveys. ▪ Two barn swallows were observed by NGTL near KPC 0.0, at the nearby Apache Chinchaga Processing Complex.
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Acoustic Environment	
<ul style="list-style-type: none"> ▪ Although the Project is located in a remote area, existing noise levels in the area are primarily due to local and industrial vehicle traffic and industrial maintenance activities. 	

Resource Use and Geographic Setting	
<ul style="list-style-type: none"> ▪ The Project traverses forested, provincial Crown lands for 100% of its length. ▪ Land use is predominately related to oil and gas activities, forestry, and hunting by Aboriginals and non-Aboriginals. ▪ Traditional land use by Aboriginal groups includes hunting, fishing, trapping, and gathering activities. 	

Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> ▪ Located within the Northern Rockies Regional Municipality in British Columbia. ▪ This section would be located within the planning area of the Fort Nelson Land and Resource Management Plan and within its Enhanced Resource Development land use category. ▪ No outfitting occurs in the RSA but the area is actively used by Aboriginal and resident hunters. ▪ Six permanent industrial camps occur within the RSA. 	<ul style="list-style-type: none"> ▪ Located within the Mackenzie County (41.4 km) and the County of Northern Lights (8.4 km) in Alberta. ▪ Three outfitters operate in the vicinity of this section and the area is actively used for hunting by Aboriginal and resident hunters. ▪ No permanent industrial camps occur in the RSA. 	<ul style="list-style-type: none"> ▪ Located in the Clear Hills County in Alberta. ▪ Three outfitters operate in the vicinity of this section and the area is actively used for hunting by Aboriginal and resident hunters. ▪ No permanent industrial camps occur in the RSA. ▪ Fishing at the Chinchaga River occurs from the Chinchaga Forestry Road bridge but not intensively.

Traditional Land and Resource Use	
<ul style="list-style-type: none"> ▪ The route is located entirely within Treaty 8 Territory. ▪ Traditional Land Use (TLU) studies were undertaken with field reconnaissance focusing on each Aboriginal community’s asserted traditional territories potentially disturbed by the Project. TLU studies were either community-directed or facilitated by NGTL. ▪ Traditional Ecological Knowledge (TEK) studies were done with Aboriginal participants during NGTL field studies and during archaeological and historical resources impact assessments. 	

Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> Aboriginal groups have identified that lakes and rivers in the entire RSA for this section could be used for fishing. 	<ul style="list-style-type: none"> The Hay River has been identified as an important river for Aboriginal groups. 	<ul style="list-style-type: none"> The Chinchaga River has been identified as an important river for Aboriginal groups.

Heritage / Archaeological / Paleontological Resources		
Kyklo Creek section	Timberwolf section	Cranberry section
<ul style="list-style-type: none"> Two archaeological impact assessments (AIA) were completed for this section; one assessed the RoW and one assessed additional temporary workspace and proposed pipeline route realignments that encountered areas of moderate to high archaeological potential. Participants in ground-based assessment work included members from Fort Nelson First Nation, Prophet River First Nation, and Dene Tha' First Nation. One traditional use trail was found which lies in close proximity to the Footprint of this loop. This site is currently assigned under the legacy category and does not require archaeological assessment or mitigation. 	<ul style="list-style-type: none"> This section is located on lands listed as having no Historical Resources Value for heritage resources in the current "Listing of Historic Resources" for Alberta. An Historical Resources Impact Assessment (HRIA) was carried out for this section which consisted of ground reconnaissance, subsurface testing, and a helicopter over-flight. Participants in the ground reconnaissance included members of Dene Tha' First Nation, Doig River First Nation, Beaver First Nation, and Paddle Prairie Métis Settlement. Results from archaeological file searches indicated no previously-identified historic resources within 1 km of this loop. One site search resulted in one positive shovel test. Further shovel tests resulted in negative findings so it was determined that the full extent of the site was represented in the single positive shovel test and, therefore, the site had been fully collected and mitigated. 	<ul style="list-style-type: none"> This section is located on lands listed as having no Historical Resources Value for heritage resources in the current "Listing of Historic Resources" for Alberta. An HRIA was carried out for this section which consisted of ground reconnaissance, subsurface testing, and a helicopter overflight. Participants in the ground reconnaissance included members of Dene Tha' First Nation, Fort Vermilion Métis Local 74, and Duncan's First Nation. The visual inspection and shovel testing program resulted in no positive findings of cultural material.

6.0 COMMENTS FROM THE PUBLIC

This section describes the issues raised during the process outlined in Section 2.0 of the ESR.

6.1 Project-Related Issues Raised in Comments Received by the NEB

Several Project-related issues were brought to the Board's attention by government agencies and Aboriginal groups through letters of comment. These submissions outlined a number of potential environmental and socio-economic effects.

Table 5 lists the topics to which these interests related. To view the submitted documents, please refer to the Project folder in the 'Regulatory Documents' area of the NEB website (www.neb-one.gc.ca) or click on the Filing Identification (ID) numbers provided in the table. If computer access is not available, you may obtain copies through the Secretary of the Board via the contact information provided in Section 10.0.

Table 5: Submissions to the NEB

Submitter	Topics of Interest	Submission Date	Filing ID
EC	<ul style="list-style-type: none"> ▪ Species at Risk, including woodland caribou ▪ Migratory birds ▪ Wetlands ▪ Spill contingency planning ▪ Water quality 	19 April 2011	A1Y7G7
Duncan's First Nation	<ul style="list-style-type: none"> ▪ Development in Duncan's First Nation Traditional Territory ▪ Engagement and consultation ▪ Caribou habitat ▪ NGTL project splitting ▪ Cumulative effects 	15 September 2011	A2D0V7
Fort Nelson First Nation	<ul style="list-style-type: none"> ▪ Incremental development in Fort Nelson First Nation Traditional Territory ▪ Potential effects on wild game, especially caribou and moose ▪ Potential effects on wetlands and muskeg ▪ Engagement and consultation ▪ Potential effects to traditional land use, including cabins and trails ▪ Potential impacts to subsistence activities ▪ Cumulative effects ▪ Spatial boundaries of assessment 	24 October 2011	A34369

6.1.1 Submissions during the Oral Portion of the Hearing

Fort Nelson First Nation made submissions about numerous matters including cumulative effects and the spatial boundaries of the effects assessment, and incremental development within its traditional territory and regional impacts to traditional land and resource use.

Métis Nation British Columbia raised concerns about the proponent's consultation with Métis Nation British Columbia, including the collection of TLU and TEK information.

6.1.2 Comments Received by the NEB on the Draft EA Report

Following the release of the draft ESR, the NEB received comments from TC, EC and Fort Nelson First Nation. The NEB also received final comments from NGTL. To view the submitted comments, please go to the NEB website (www.neb-one.gc.ca) or click on the Filing Identification (ID) numbers provided in Appendix 3. Appendix 3 provides a summary of comments received on the draft ESR, some of which resulted in wording changes to the ESR. Explanations have been provided for those comments that did not result in changes to the ESR.

7.0 THE NEB'S EA METHODOLOGY

In assessing the environmental effects of the Project, the NEB used an issue-based approach. In its analysis within Section 8.2, the NEB assessed interactions expected to occur between the

proposed Project activities and the surrounding environmental elements and identified the resulting potential adverse environmental effects. Also included were the consideration of potential accidents and malfunctions that may occur due to the Project and any change to the Project that may be caused by the environment. If there were no expected element/Project interactions then no further examination was deemed necessary. Similarly, no further examination was deemed necessary for interactions that would result in positive or neutral potential effects. In circumstances where the potential effect was unknown, it was categorized as a potential adverse environmental effect.

Section 8.3.1 considers potential adverse environmental effects that are normally resolved through the use of standard design or mitigation measures. Section 8.3.2 details the specific Board recommendations regarding environmental commitments.

In Section 8.3.3, the NEB has identified certain potential adverse environmental effects or issues for detailed analysis based on public concern, the use of non-standard mitigation measures or monitoring programs resulting in the recommendation of a specific Board condition, or the relative importance of the elements in question in the context of this application. Based on this detailed analysis, the NEB evaluated the significance of residual adverse environmental effects after mitigation. Table 6, below, specifies the definitions of criteria used in evaluating significance.

Section 8.4 addresses cumulative effects, Section 8.5 addresses the applicability of follow-up programs under the CEA Act, and Section 8.6 provides a compiled list of recommendations for any subsequent regulatory approval of the Project.

Table 6: Definitions of Criteria used in Evaluating Significance

Criteria	Rating	Definition
All criteria	Uncertain	When no other criteria rating descriptor is applicable due to either lack of information or inability to predict
Frequency (how often would the event that caused the effect occur)	Accidental	Rare and unplanned occurrence over the Project lifecycle
	Single	One time event within any phase of the Project lifecycle
	Multiple	Multiple occurrences during any phase of the Project lifecycle
	Continuous	Continuous through any phase of the Project lifecycle
Duration (duration of the effect)	Short-term	Adverse environmental effect duration is limited to the proposed construction
	Medium-term	Adverse environmental effect duration is in the order of months to a few years
	Long-term	Adverse environmental effect would remain evident throughout the planned operation or beyond the lifecycle of the Project
Reversibility	Reversible	Adverse environmental effect expected to return to baseline conditions within the life of the Project
	Possible	Adverse environmental effect may or may not return to baseline conditions within the life of the Project
	Irreversible	Adverse environmental effect would be permanent
Geographic Extent	Footprint	Effect would be limited to the area physically disturbed by the Project development, including the width of the RoW and the TWS

Criteria	Rating	Definition
	LSA	Effect would be limited to where direct interaction with the biophysical and human environment could occur as a result of construction or reclamation activities. This area varies relative to the receptor being considered.
	RSA	Effect would be recognized in the area beyond the LSA. This area also varies relative to the receptor being considered.
Magnitude	Low	Effect is negligible, if any; restricted to a few individuals/species or only slightly affects the resource or parties involved; and would impact quality of life for some, but individuals commonly adapt or become habituated, and the effect is widely accepted by society.
	Moderate	Effect would impact many individuals/species or noticeably affect the resource or parties involved; is detectable but below environmental, regulatory or social standards or tolerance; and would impact quality of life but the effect is normally accepted by society.
	High	Effect would affect numerous individuals or affect the resource or parties involved in a substantial manner; is beyond environmental, regulatory or social standards or tolerance; and would impact quality of life, result in lasting stress and is generally not accepted by society except under extenuating circumstance.
Evaluation of Significance	Likely to be significant	Effects that are of high frequency, irreversible, long-term duration, regional extent and of high magnitude.
	Not likely to be significant	Any adverse effect that does not meet the above criteria for “significant”

8.0 ENVIRONMENTAL EFFECTS ANALYSIS

8.1 Routing of the Pipeline

NGTL’s criteria for routing the Project’s proposed pipelines were primarily influenced by NGTL’s desire to place the proposed pipelines adjacent to existing facilities for operational efficiency, as well as reduce potential adverse environmental effects by minimizing the amount of new land disturbance. Existing NGTL pipeline corridors were chosen as the preferred alignment for all three pipeline sections.

If the Project is approved, deviations, changes or alterations to the applied-for route would require an application to the NEB.

8.2 Project - Environment Interactions

Table 7 provides a description of the Project-environment interactions and potential adverse environmental effects arising from the Project.

Table 7: Project-Environment Interactions

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Measures Discussed in:
Bio-Physical	Physical Environment – Terrain	<ul style="list-style-type: none"> ▪ Clearing, grading, excavation, backfilling, reclamation and hydrostatic testing activities during construction 	<ul style="list-style-type: none"> ▪ Terrain instability and erosion ▪ Changes in local topography and drainage patterns 	8.3.1
	Physical Environment – Permafrost	<ul style="list-style-type: none"> ▪ Clearing, grading, excavation and backfilling activities during construction in areas with discontinuous permafrost ▪ Operation of pipelines in areas with discontinuous permafrost 	<ul style="list-style-type: none"> ▪ Terrain instability ▪ Degradation of permafrost 	8.3.1
	Soil and Soil Productivity	<ul style="list-style-type: none"> ▪ Clearing, grading, excavation, backfilling, reclamation and hydrostatic testing activities during construction ▪ Construction and operation activities during wet/thawed ground conditions ▪ Maintenance dig activities during operation of pipelines 	<ul style="list-style-type: none"> ▪ Degradation of soil structure, productivity and quality through: <ul style="list-style-type: none"> ▪ mixing of strippings with subsoil ▪ compaction and rutting ▪ Loss of soil due to wind and water erosion ▪ Contamination of soils 	8.3.1
	Vegetation	<ul style="list-style-type: none"> ▪ Vegetation clearing, surface mulching, trench excavation and hydrostatic testing activities during construction ▪ Encountering previously-unidentified forest pest infestations ▪ Use of seed mixes during reclamation activities ▪ Use of equipment and vehicles during construction and operation ▪ Inadvertent release of drilling mud during the HDD crossing of the Hay River ▪ Maintenance activities during operation of pipelines 	<ul style="list-style-type: none"> ▪ Loss or alteration of native vegetation ▪ Loss or alteration of rare plant populations and rare ecological communities ▪ Loss of seed bank in surface soil ▪ Introduction or spread of weeds or non-native invasive species ▪ Spread of forest pest infestations to unaffected areas 	8.3.1 8.3.3.1
	Water Quality and Quantity	<ul style="list-style-type: none"> ▪ Clearing, grading, excavation, backfilling, reclamation and hydrostatic testing activities during construction ▪ Installation, use and removal of temporary vehicle crossing structures ▪ Construction of watercourse crossings using an open cut or isolated technique ▪ Use of construction vehicles and equipment during construction and operation of pipelines ▪ Inadvertent release of drilling mud during the HDD crossing of the Hay River ▪ Maintenance dig activities during operation of pipelines 	<ul style="list-style-type: none"> ▪ Alteration and/or disruption of natural surface and subsurface water flow patterns ▪ Reduction of surface and subsurface water quality 	8.3.1

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Measures Discussed in:
	Wetlands	<ul style="list-style-type: none"> ▪ Construction activities within and adjacent to wetlands: clearing, grading, excavation, backfilling, reclamation and hydrostatic testing ▪ Use of swamp mats during construction ▪ Use of construction vehicles and equipment during construction and operation of pipelines ▪ Maintenance activities during operation of pipelines 	<ul style="list-style-type: none"> ▪ Loss or alteration of wetland hydrologic, water quality and habitat functions 	8.3.1 8.3.3.2
	Fish and Fish Habitat	<ul style="list-style-type: none"> ▪ Construction activities within and adjacent to watercourses: clearing, grading, excavation, backfilling, reclamation and hydrostatic testing ▪ Installation, use and removal of temporary vehicle crossing structures ▪ Construction of watercourse crossings using an open cut or isolated technique ▪ Removal of beaver dams upstream of watercourse crossing ▪ Fish salvaging activities during in-stream construction ▪ Inadvertent release of drilling mud during the HDD crossing of the Hay River ▪ Bank and in-stream restoration activities, and vegetation control during operations ▪ Increase in public access as a result of construction activities 	<ul style="list-style-type: none"> ▪ Fish stress, injury or mortality ▪ Alteration, disruption or destruction of fish habitat (in-stream and riparian areas) ▪ Increased suspended sediment concentrations in the water column ▪ Blockage of fish movement ▪ Inter-basin transfer of aquatic organisms ▪ Contamination of in-stream and riparian habitat 	8.3.1 8.3.3.3
	Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> ▪ Clearing, grading, excavation, backfilling, reclamation and hydrostatic testing activities during construction ▪ Removal of beaver dams upstream prior to construction of in-stream watercourse crossings ▪ Wildlife attraction to wastes from construction and construction camps ▪ Use of construction vehicles and equipment during construction and operation of pipelines ▪ Increase in public access as a result of construction activities 	<ul style="list-style-type: none"> ▪ Loss or alteration of wildlife habitat ▪ Changes to habitat connectivity ▪ Sensory disturbance to wildlife, resulting in displacement to lesser habitat ▪ Alteration or blockage of wildlife movements ▪ Wildlife stress, injury or mortality ▪ Human/wildlife conflicts 	8.3.1 8.3.3.4

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Measures Discussed in:
	Species at Risk	<ul style="list-style-type: none"> Refer to interactions provided for the Vegetation, Fish and Fish Habitat, and Wildlife and Wildlife Habitat elements above 	<ul style="list-style-type: none"> Stress, injury, reduced reproductive success and mortality of wildlife species at risk, leading to population declines Loss or alteration of habitat for wildlife species at risk 	8.3.1 8.3.3.4
	Air Quality	<ul style="list-style-type: none"> Use of vehicles and equipment, including helicopters, during construction and operation of pipelines Burning of slash during construction Fugitive emissions from the pipeline during transportation of gas, inspections, maintenance or repairs 	<ul style="list-style-type: none"> Increase in CAC emissions Increase in greenhouse gas emissions 	8.3.1
	Acoustic Environment	<ul style="list-style-type: none"> Use of vehicles and equipment during pipeline construction Use of vehicles and equipment, including helicopters, during aerial patrols and maintenance activities 	<ul style="list-style-type: none"> Increase in ambient noise during construction Increase in short-duration, nuisance noise levels during operations and maintenance activities 	8.3.1
Socio-Economic	Human Occupancy/ Resource Use	<ul style="list-style-type: none"> Increase in vehicular traffic Transport of workforce and materials to the Project site Site preparation (clearing, grading, excavation and backfilling activities along RoW) Navigation impacts on waterways from the construction, operation and decommissioning of pipeline crossings and use of water for hydrostatic testing Construction, including RoW clearing and clean-up 	<ul style="list-style-type: none"> Sensory disturbance of nearby land users Loss of forestry resources Disruption of oil and gas activities and gravel extraction business Disruption of trapping, hunting, fishing and gathering activities or opportunities Disruption of outfitting activities, change in user satisfaction, change in user opportunity Interference with navigation on watercourses Alteration of surface water supply and quality for downstream water users 	8.3.1
	Heritage Resources	<ul style="list-style-type: none"> AIA and HRIA site investigations Clearing, construction and operation activities 	<ul style="list-style-type: none"> Damage to, or loss of, previously unidentified heritage resources 	8.3.1 8.3.2
	Traditional Land and Resource Use	<ul style="list-style-type: none"> Removal of vegetation Construction of watercourse crossings Clearing, grading, excavation, backfilling, reclamation and hydrostatic testing activities during construction 	<ul style="list-style-type: none"> Loss or alteration of Aboriginal traditional use sites Disruption to Aboriginal traditional activities 	8.3.1 8.3.3.5

	Environmental Element	Description of Interaction (How, When, Where, or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Measures Discussed in:
	Human Health and Aesthetics	<ul style="list-style-type: none"> ▪ Noise and air emissions during construction ▪ Use of construction vehicles and equipment ▪ Pipeline maintenance activities 	<ul style="list-style-type: none"> ▪ Disruption of normal activities for land users ▪ Project may affect the health of land users in the event of an accident or malfunction ▪ Alteration of viewscales 	8.3.1
Other	Accidents and Malfunctions	<ul style="list-style-type: none"> ▪ Spill or leak of hazardous materials from use of vehicles and equipment during construction and operation of pipelines ▪ Inadvertent release of drilling mud during the HDD crossing of Hay River ▪ Fire caused as a result of construction activities ▪ Transportation accidents during construction ▪ Third-party line break during construction ▪ Pipeline rupture or leak during operation of pipelines 	<ul style="list-style-type: none"> ▪ Contamination or alteration of: <ul style="list-style-type: none"> ▪ soil productivity ▪ surface and sub-surface water quality ▪ plants and ecological communities ▪ wetland function ▪ fish and fish habitat ▪ wildlife and wildlife habitat ▪ human health 	8.3.1
	Effects of the Environment on the Project	<ul style="list-style-type: none"> ▪ Flooding ▪ Erosion ▪ Wildfire ▪ Severe weather events (e.g., wind, precipitation) 	<ul style="list-style-type: none"> ▪ Loss of depth of cover over the pipelines ▪ Delays in construction and maintenance activities ▪ Increased complexity of construction activities 	8.3.1

8.3 Potential Adverse Environmental Effects

In its application and environmental protection plan (EPP), NGTL has identified routine design and best practice measures to mitigate many of the potential adverse environmental effects that were categorized in Section 8.2. Some of NGTL's key mitigation strategies include:

- scheduling activities to avoid sensitive periods;
- developing detailed, practical and effective mitigation and contingency measures to address site-specific and general issues;
- inspection during construction to ensure that the planned mitigation is implemented and effective; and
- conducting maintenance and operation of the Project according to NGTL's existing pipeline integrity, public safety, and environmental protection programs and procedures.

NGTL committed to several mitigation measures in its application, subsequent updates and responses to questioning. The reader is referred to NGTL's application and supporting documentation for details on all the proposed mitigation. The mitigation measures proposed are intended to reduce or eliminate the potential adverse environmental effects of the Project. Some

of these measures are considered standard to the industry, while some involve site- or Project-specific considerations.

8.3.1 Potential Effects to be Mitigated through Standard Mitigation Measures

The NEB is of the view that many of the potential adverse environmental effects of the Project identified in Section 8.2 can be resolved through the use of standard design or routine procedures, as outlined in NGTL's application and related filings. A standard mitigation measure is a specification or practice that has been developed by industry, or prescribed by a government authority, that has been previously employed successfully, and is now considered common or routine and meets the expectations of the NEB.

NGTL proposed a variety of standard mitigation measures to address the majority of the identified potential adverse environmental and socio-economic effects of the Project. These are presented in NGTL's ESA, EPP, and subsequent submissions for the Project.

8.3.2 Recommendations Regarding Environmental Commitments

NGTL's standard measures are complemented with numerous mitigation measures developed to address site- and Project-specific circumstances. The Board expects that all standard mitigation measures, commitments, and Board recommendations would be implemented. See **Recommendations A and B**.

The NEB examined NGTL's mitigation measures, and notes the large number of both detailed and broad commitments made on various issues and in multiple documents. In order to ensure NGTL's commitments are fulfilled and the details are developed, tracked, organized, and available to those field staff responsible for constructing the Project and implementing mitigation monitoring, the Board makes a number of recommendations related to environmental coordination and implementation.

Throughout the various stages of the NEB assessment process, NGTL provided a number of additional commitments in order to address specific concerns brought to its attention. To ensure that no commitments are overlooked, the Board recommends a condition requiring NGTL to maintain a Commitments Tracking Table for reporting on the status of commitments to be fulfilled during construction and operations. See **Recommendation C**.

The Board also recommends NGTL file an updated, comprehensive EPP that will communicate all of the environmental protection procedures and mitigation measures to employees, contractors and regulators. Separate EPPs are required for the construction of the temporary camp and the construction of the pipeline facilities, and are to include evidence of consultation with relevant government authorities and Aboriginal groups where applicable. See **Recommendations D and E**.

A robust post-construction monitoring (PCM) program is key to ensuring potential adverse effects have been effectively mitigated. In order to ensure that post-construction environmental monitoring is thorough and effective and that reports are to be developed and submitted, the Board recommends a condition setting out the minimum requirements of NGTL's PCM program, and to make such filings mandatory. The Board reminds NGTL that any changes to the

Project Footprint (e.g., additional clearing associated with hydrostatic testing access or changes to watercourse crossing methods) should be included in an updated PCM program. See **Recommendation F**.

Alongside the field studies undertaken by NGTL during its Project assessment, two AIAs were completed for the Kyklo Creek section, and HRIAs were carried out for the Timberwolf and Cranberry sections. A key step to effective mitigation of potential effects is the appropriate communication of changes or new discoveries. As such, the Board recommends NGTL file copies of the letters of clearance issued under the British Columbia *Heritage Conservation Act* and the Alberta *Historical Resources Act*, along with copies of any necessary clearances obtained from the appropriate provincial authorities in the event any heritage resources are discovered during construction. See **Recommendations G, H, I and J**.

8.3.3 Detailed Analysis of Potential Adverse Environmental Effects

As noted in section 7.0, this subsection provides a more detailed analysis of those potential adverse environmental effects or issues that were the subject of public concern, involve the use of non-standard mitigation measures or monitoring programs, are resulting in the recommendation of a specific Board condition, or for which the Board has identified a relative importance in the context of this application.

8.3.3.1 Weed Management

Potential Effect(s)	<ul style="list-style-type: none"> ▪ Introduction or spread of weeds or non-native invasive species ▪ Loss or alteration of native vegetation
Background	<p>Non-native species and invasive weeds have the potential to be introduced during construction and become established, disrupt revegetation, and compete with native vegetation.</p> <p>NGTL conducted a Supplemental Vegetation Survey of the proposed Project in July 2011, which included an assessment of invasive and weedy species. Several weedy species were observed growing in low densities along the proposed Kyklo Creek and Cranberry section RoWs and at higher densities at the Timberwolf section temporary construction camp, contractor’s yard and stockpile site.</p> <p>Fort Nelson First Nation raised concerns with the vegetation management that NGTL may implement to address weed concerns, including broadcast spraying and use of herbicides adjacent to waterbodies. It also stated a preference that it approve native plant mixes used during reclamation.</p>
Mitigation Measures	<p>NGTL committed to implementing a number of standard mitigation measures, including:</p> <ul style="list-style-type: none"> ▪ flagging areas with known weed infestations prior to starting construction; ▪ cleaning all construction equipment prior to its arrival at the Project site and before moving it from any Project areas with existing noxious weed infestations; and ▪ packing snow or placing mats over infested areas to limit transport of weed plant material. <p>NTGL also committed to preparing a Weed Management Plan, based on the results of its July 2011 Supplemental Vegetation Survey, for inclusion in its EPP. NGTL noted that the Plan would be compiled for the purposes of prevention and for control of known and potential weed issues relevant to the Project.</p>
Monitoring	<p>NGTL committed to monitoring the Project for the re-establishment of native vegetation and the presence of invasive species as part of its PCM program.</p>
Views of the NEB	<p>The Board notes the prevalence of weed species in the Project Footprint, reflecting inadequate past weed control practices. Consequently the Board is of the view that a Weed Management Plan is</p>

	<p>required and acknowledges NGTL’s commitment to preparing a Weed Management Plan for the Project, as well as monitoring for invasive species during PCM.</p> <p>Accordingly, as set out in Recommendation K, the Weed Management Plan should include specific detail and measurable objectives regarding weed management, evidence of consultation, and specify tangible measures of success.</p> <p>The Board also expects weed management control practices and prevention to include best practices, and provide clear criteria for the use of non-chemical methods wherever possible.</p>																				
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8.3.3.2 Wetlands

Potential Effect(s)	<ul style="list-style-type: none"> Loss or alteration of wetland hydrologic, water quality and habitat functions
Background	<p>The Project would cross approximately 50 km of wetlands and, as a result, has the potential to disrupt hydrologic and water quality function and result in the loss of wildlife habitat.</p> <p>EC noted the large number of wetlands crossed by the Project and that wetland conservation is important for maintaining migratory bird populations and protecting species at risk. EC requested that where wetlands cannot be avoided the proponent should demonstrate how it will comply with the <i>Federal Policy on Wetland Conservation (FPWC)</i> and ensure that no net loss of wetland function occurs.</p> <p>Fort Nelson First Nation also noted the extent of wetlands crossed by the Project and expressed concerns with water quality, the ecological integrity of the wetlands if drainage patterns are altered, and wetland habitat for moose, waterfowl and fur bearers.</p>
Mitigation Measures	<p>NGTL committed to complying with the requirements of the FPWC. It also provided a Wetland Mitigation Plan which includes the following mitigation measures:</p> <ul style="list-style-type: none"> restoring surface drainage patterns to as close to the preconstruction contours as practical during reclamation; scheduling construction and routine operational activities to take place during frozen conditions; minimizing construction traffic in wetlands; using wide-track equipment or conventional equipment operated from swamp mats when working on saturated ground to avoid compaction, in the event that non-frozen conditions are encountered; minimizing the removal of vegetation in wetlands and disturbance to adjacent uplands to the extent practical; restricting grading adjacent to wetlands to the extent practical and avoiding grading within the buffer of undisturbed vegetation adjacent to wetlands; packing snow on work side and spoil side to fill in depressions and drive in frost to protect the ground surface and limit compaction and rutting; using erosion control measures, including silt fencing, at the base of approach slopes to wetlands during construction and until revegetation of adjacent RoW is stable, to prevent sediment from entering wetlands; not dewatering any wetland; installing temporary hard or soft plugs to prevent the flow of water along the trench; storing excavated material in a manner that does not interfere with natural drainage patterns;

	<ul style="list-style-type: none"> spreading mulch to a depth of no more than 5 cm along the construction RoW in areas classified as treed peatlands; and leaving a trench crown during clean-up of wetlands to allow for settlement of backfill, and leaving breaks in trench crown at appropriate locations to reduce the risk of water ponding. 																				
Monitoring	NGTL committed to monitoring wetland recovery during its PCM program and to complying with all requirements of the FPWC. NGTL stated that it would conduct baseline (pre-construction) assessments of all wetlands and compare them to wetland function conditions observed along the reclaimed (post-construction) RoWs. The results of this comparison would be used to measure the effectiveness and efficiency of mitigation and remedial measures and provide support to the determination of loss or “no net loss” of wetland function. NGTL indicated that at the end of five years of monitoring, if a wetland has still not reached full functionality, it would consult with EC regarding appropriate next steps, which may involve either additional remedial measures or compensation.																				
Views of the NEB	The Board notes that NGTL has committed to implementing mitigation measures to protect wetlands as well as to restore wetland function for those wetlands impacted by the Project, as outlined in the Wetland Mitigation Plan as well as the wetland PCM program described in Section 8.7.3 of the ESA. The Board is satisfied with NGTL’s submissions regarding wetland protection and mitigation, but notes that the Wetland Mitigation Plan and details of the wetland PCM program are not included in the EPP. In order to ensure wetland protection and restoration measures are properly implemented in the field, the Board therefore expects NGTL to include this information in the updated EPP proposed in Recommendation E . The Board also expects specific reports on the restoration of wetland functionality, as well as consultation with EC at one-, three- and five-year intervals as detailed in Recommendation F .																				
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8.3.3.3 Watercourse and Wetland Crossings

Potential Effect(s)	<ul style="list-style-type: none"> Alteration or disruption of natural surface and subsurface water flow patterns Reduction of surface and subsurface water quality
Background	<p>The Project would cross 22 watercourses and drainages. Water quality and quantity may be affected by construction within wetlands and watercourse crossings, hydrostatic testing water withdrawal and discharge activities, and as a result of releases and spills during construction and operations.</p> <p>EC provided a reminder in its letter of comment that NGTL must adhere to subsection 36(3) of the <i>Fisheries Act</i> and prevent sedimentation of fish-bearing watercourses.</p> <p>Fort Nelson First Nation expressed concerns with regard to the Project’s potential effects on water quality, and made detailed requests of NGTL regarding aquatic surveys and mitigation measures.</p>
Mitigation Measures	<p>NGTL proposes to use an HDD technique for crossing Hay River on the Timberwolf section, with an in-stream crossing technique as a contingency. NGTL is currently assessing the feasibility of using an isolation method for the Hay River crossing and will file its assessment and site-specific reclamation plan with the Board and DFO in 2012. NGTL is aware of the provincial fisheries Restricted Activity Period of April 16 to July 15 and has committed to having further discussion with DFO and provincial authorities in Alberta, if in-stream construction extended into the Restricted Activity Period.</p> <p>NGTL proposes to cross the other 21 watercourses using in-stream isolation crossings outside of the Restricted Activity Period (Alberta) and within the Window of Least Risk (British Columbia). An open-cut method would be used for those watercourse crossings that are dry or frozen to bottom.</p> <p>NGTL has provided the following plans, as part of its application, to address any potential impacts the Project may have on water quality during construction:</p>

	<ul style="list-style-type: none"> ▪ Spill Contingency Plan; ▪ Flood and Excessive Flow Contingency Plan; ▪ Soil Erosion Contingency Plan; ▪ Siltation of Watercourses Contingency Plan; and ▪ Directional Drilling Procedures and Instream Drilling Mud Release Contingency Plan. <p>As well, NGTL committed to developing a Water Quality Monitoring Plan prior to construction for monitoring construction activities at watercourse crossings where instream flow is anticipated.</p>																				
Monitoring	NGTL's Environmental Inspector (or fisheries specialist) would be present to monitor construction at all watercourse crossings, and each crossing would be included in the PCM program.																				
Views of the NEB	<p>The Board is satisfied with NGTL's choice of watercourse crossing methods and timing and notes its ongoing consultation with DFO regarding the Project's watercourse crossings.</p> <p>As outlined in Recommendation L, the Board recommends that NGTL notify the Board of any changes from the intended HDD crossing of Hay River, as well as submit a site-specific reclamation plan for the Hay River contingency crossing if used.</p> <p>The Board notes that NGTL committed to preparing a Water Quality Monitoring Plan for all watercourse crossings, as well as conducting an isolation feasibility assessment of the Hay River contingency crossing. These documents should be filed with the Board in accordance with Recommendation E.</p>																				
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Adverse Effect																					
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8.3.3.4 Hydrostatic Testing

Potential Effect(s)	<ul style="list-style-type: none"> ▪ Loss or alteration of native vegetation ▪ Introduction or spread of weeds or non-native invasive species ▪ Alteration or disruption of natural surface and subsurface water flow patterns ▪ Reduction of surface and subsurface water quality ▪ Loss or alteration of wetland hydrologic, water quality and habitat functions
Background	<p>For the Kyklo Creek section, NGTL stated that two trucking options were being looked into for source water for hydrostatic testing. The western route would require 0.5 km of access along an existing petroleum development access road, and would require minimal new clearing. The eastern route would require clearing and widening of an existing seismic line for a distance of 6.7 km. Access along the Timberwolf and Cranberry sections may also require clearing, though the extent was not defined.</p> <p>NGTL also states that it will conduct pre-construction aquatic surveys to collect water quality information for the proposed hydrostatic testing water sources for both the Kyklo Creek and Timberwolf sections, and proposes to use an existing survey for the baseline information regarding the Chinchaga River (Cranberry section).</p>
Mitigation Measures	NGTL committed to using existing access under winter conditions. NGTL also committed to providing a wildlife survey prior to use, to reducing the of line of sight, and to increasing access control along the seismic line if the eastern access route option for the Kyklo Creek section is chosen.
Monitoring	NGTL committed to monitoring and evaluating the effectiveness of reclamation of disturbed areas during its PCM program.
Views of the NEB	As the method for selecting and accessing the hydrostatic testing water supply has not been finalized at this point in time, the Board is of the view that additional hydrostatic testing surveys be completed and submitted to the Board at least 60 days prior to commencing construction. See Recommendation M . This Plan should include vegetation surveys, aquatic surveys, wetland

	surveys and archaeological impact assessments as appropriate along each section of the Project. Should any new clearing be required once the hydrostatic testing plan is determined, the sites cleared must be included in the post-construction environmental monitoring reports.				
Evaluation of Significance	Frequency	Duration	Reversibility	Geographical Extent	Magnitude
	Multiple	Short-term	Reversible	LSA	Low
	Adverse Effect				
Not likely to be significant					

8.3.3.5 Breeding Birds

Potential Effect(s)	<ul style="list-style-type: none"> ▪ Sensory disturbance to breeding birds ▪ Stress, injury, reduced reproductive success and mortality of bird species at risk, leading to local population declines 				
Background	<p>There are five bird species at risk listed on Schedule 1 of SARA, whose habitats occur within the Project LSA, and there are several other species potentially present that are either listed by COSEWIC or have been identified provincially as having special status.</p> <p>EC recommended in a letter of comment that NGTL avoid carrying out activities that would result in the disturbance or destruction of active migratory bird nests during the migratory bird breeding season of May 1 to July 31. It also recommended that, if clearing must take place during this period, a qualified person with bird expertise confirm that there are no active nests in the area before clearing commences.</p>				
Mitigation Measures	<p>NGTL has committed to:</p> <ul style="list-style-type: none"> ▪ following existing linear disturbances as much as practical to reduce loss of habitat; ▪ avoiding clearing beyond marked RoW boundaries; ▪ adhering to timing restrictions including the minimum migratory bird restricted activity period of May 1 to July 31; and ▪ implementing a pre-construction nest sweep prior if clearing is required between May 1 to July 31. 				
Monitoring	<p>NGTL has committed to monitoring and evaluating the effectiveness of reclamation of disturbed areas during its PCM program.</p>				
Views of the NEB	<p>The Board recognizes that there is a potential for the Project to disturb birds protected by the <i>Migratory Birds Convention Act</i> or by provincial legislation, as well as avian species identified provincially as having special status.</p> <p>The Board notes NGTL's commitment to conducting nest sweeps prior to clearing if it occurs within the migratory bird restricted activity period. However, the Board recommends that this commitment be expanded to include nest sweeps for non-migratory birds under provincial jurisdiction and to include operations and maintenance activities such as mowing. Details of the requirement are provided in Recommendation N.</p>				
Evaluation of Significance	Frequency	Duration	Reversibility	Geographical Extent	Magnitude
	Multiple	Long-term	Reversible	LSA	Low
	Adverse Effect				
Not likely to be significant					

8.3.3.6 Wildlife and Wildlife Habitat

Potential Effect(s)	<ul style="list-style-type: none"> ▪ Loss or alteration of wildlife habitat ▪ Changes to habitat connectivity ▪ Sensory disturbance to wildlife, resulting in displacement to lesser habitat ▪ Alteration or blockage of wildlife movements ▪ Wildlife stress, injury or mortality ▪ Human/wildlife conflicts
Background	<p>Construction of the Project would result in approximately 92.1 hectares (ha) of new clearing on the Kyklo Creek section, 102.2 ha on the Timberwolf section and 103.9 ha on the Cranberry section. The Timberwolf section traverses a Key Wildlife and Biodiversity Zone, associated with the Hay River valley, between KPT 3.5 and 7.1. Both the Timberwolf and Cranberry sections traverse the provincially-managed Grizzly Bear Secondary Zones. NGTL has committed to conducting grizzly bear den sweeps in advance of construction.</p> <p>Depending on which access routes are chosen for hydrostatic testing, varying amounts of additional clearing may be required in each section.</p> <p>Dene Tha' First Nation expressed concerns with predator-prey effects from access corridors. Dene Tha' First Nation and Doig River First Nation expressed concerns regarding the potential impacts of the Project on the mineral lick identified at KPT 22.3 on the Timberwolf section.</p> <p>Fort Nelson First Nation raised concerns regarding the potential effects of the Kyklo Creek pipeline on wildlife and wildlife habitat, wildlife corridors, game trails and mineral licks. It has observed recent declines in caribou and moose populations in the region, and expressed concern that the Project would further impact these populations.</p> <p>Refer to Section 8.3.3.7 for a detailed analysis of the Project's potential effects on caribou.</p>
Mitigation Measures	<p>NGTL committed to several standard mitigation measures to reduce impacts on wildlife species and their habitats:</p> <ul style="list-style-type: none"> ▪ following existing linear disturbances as much as practical to reduce loss of habitat; ▪ avoiding clearing beyond marked RoW boundaries; ▪ scheduling construction and routine operations and maintenance activities within the Key Wildlife and Biodiversity Zone to avoid or limit the duration of activities within the restricted activity period between January 15 and April 30; ▪ flagging the mineral lick, and placing swamp mats or snow pack on the lick to minimize disturbance; ▪ leaving gaps in strung pipe and strippings, spoil, snow and rollback windrows to allow movement of wildlife; ▪ working expediently to reduce duration of open trench and potential barriers to wildlife; ▪ implementing measures to reduce line of sight; and ▪ implementing or maintaining access control.
Monitoring	<p>NGTL committed to monitoring and evaluating the effectiveness of reclamation of disturbed areas during its PCM program.</p>
Views of the NEB	<p>The Board acknowledges NGTL's commitments to protecting wildlife and wildlife habitat. The Board is of the view that the standard mitigation measures that NGTL has committed to implementing in its EPP, as well as NGTL's commitments and the Board's recommendations pertaining to caribou habitat in Section 8.3.3.7, address the majority of potential impacts to wildlife and wildlife habitat. The Board is also satisfied that the mitigation proposed by NGTL adequately addresses the concerns raised by Aboriginal groups about Project effects to wildlife. Further details are provided regarding additional protection for caribou in Section 8.3.3.7. A second species of</p>

	concern is the grizzly bear. The Board recommends that NGTL submit the results of a den sweep at least 14 days prior to construction, as detailed in Recommendation O .				
Evaluation of Significance	Frequency	Duration	Reversibility	Geographical Extent	Magnitude
	Multiple	Long-term	Reversible	RSA	Moderate
	Adverse Effect				
	Not likely to be significant				

8.3.3.7 Caribou Habitat – Species at Risk

Potential Effect(s)	<ul style="list-style-type: none"> ▪ Stress, injury, reduced reproductive success and mortality of caribou, leading to local population declines ▪ Loss or alteration of habitat for caribou
Background	<p>The clearing of vegetation during construction and ongoing clearing as part of vegetation management during operations would result in loss of caribou habitat and reduced habitat effectiveness and connectivity.</p> <p>Approximately 27 km of the Timberwolf section and 6 km of the Cranberry section are within the Chinchaga Range and 10 km of the Timberwolf section runs within 1 km of the eastern boundary of the Etthithun Core. The Kyklo Creek section is located outside of a specified caribou range; however, at KPK 0 it comes within 1.4 km of the Snake-Sahtaneh Caribou Range.</p> <p>NGTL submitted that, by paralleling existing linear corridors and incorporating already cleared areas, much of the proposed Footprint of the Project falls within the footprint of existing land use. NGTL estimated that the Project would result in approximately 35 ha of direct disturbance to moderate to high quality caribou habitat within the Chinchaga Caribou Range for the Timberwolf section, and approximately 7 ha for the Cranberry section. However, NGTL also noted that current scientific literature indicates that caribou show avoidance behaviour up to 250 m from linear features. Based on this assumption NGTL further calculated that construction of the Timberwolf and Cranberry sections would result in approximately 89 ha and 15.5 ha, respectively, of indirect caribou habitat disturbance. To address effects from this disturbance, NGTL committed to implementing a Caribou Protection Plan (CPP).</p> <p>EC recommended aggressive mitigation measures be put in place by NGTL to protect caribou habitat. In August 2011, EC also issued a <i>Proposed Recovery Strategy for the Woodland Caribou (Recovery Strategy)</i> which states that the Chinchaga and Snake-Sahtaneh caribou herds are not self-sustaining local populations, and that immediate efforts must be made to restore lost, degraded or fragmented habitat.</p> <p>Duncan’s First Nation expressed concern over the potential effects of the Timberwolf and Cranberry sections on caribou and caribou habitat within the Chinchaga Caribou Range, and stated that its concerns are underscored by EC’s <i>Recovery Strategy</i>, as well as EC’s recommendations. Duncan’s First Nation requested that the Board take action within the context of the Project to assess and manage Project impacts on the Chinchaga caribou herd.</p> <p>Fort Nelson First Nation noted that there are caribou habitat areas north and south of the Kyklo Creek section and, in particular, that large numbers of caribou have been observed in an area just south of the central portion of the section known as “Big Muskeg”. Fort Nelson First Nation also expressed concern over the close proximity of the western part of the Kyklo Creek section to the Snake-Sahtaneh Caribou Range.</p> <p>NGTL’s consultation logs indicate that Paddle Prairie Métis Settlement and Doig River First Nation also had concerns with potential impacts on caribou and caribou habitat.</p> <p>NGTL responded that it has consulted with both EC and ASRD regarding the <i>Recovery Strategy</i> and its proposed CPP. In addition, its proposed caribou habitat restoration measures to be implemented within the Project Footprint would also support the <i>Recovery Strategy</i>.</p>

	<p>In response to Fort Nelson First Nation, NGTL stated that the First Nation had not provided NGTL with location-specific caribou data, so NGTL’s assessment was conducted based on the wildlife survey data collected by NGTL and consultation with provincial authorities. NGTL asserted that any potential effects of the Project on caribou and caribou habitat would be mitigated through protection measures in the CPP. NGTL noted that it has committed to implementing the CPP for the Kyklo Creek section, despite the pipeline being located outside of a designated caribou range.</p>																				
Mitigation Measures	<p>NGTL prepared a CPP which would apply to the entire Project Footprint, including portions outside designated caribou range. The CPP outlines mitigation measures that would be implemented by NGTL to reduce impacts to caribou and caribou habitat and includes among other measures and mitigating circumstances:</p> <ul style="list-style-type: none"> ▪ scheduling final clean-up, restoration, operation and maintenance activities in the Chinchaga Caribou Range outside the mid-March to mid-July calving and rearing period for caribou; ▪ using vegetation screening, rollback or earth berms to reduce long sight-lines and lessen predator mobility; ▪ using rollback or earth berms to discourage access by humans and predators long the RoWs; ▪ using natural vegetation regeneration, except in those sites that have a higher potential for erosion; and ▪ limiting vegetation control (i.e., mowing and brushing) during operations to allow for natural revegetation, while still allowing for safe operation and monitoring. <p>In addition to the CPP, NGTL committed to implementing additional habitat restoration measures to support the <i>Recovery Strategy</i>, and to participating in future consultation processes associated with the development of regional caribou recovery plans by EC and provincial authorities.</p>																				
Monitoring	<p>NGTL committed to monitoring the effectiveness of the revegetation efforts and access control measures during its PCM program.</p>																				
Views of the NEB	<p>The Board notes NGTL’s preparation of a CPP and associated consultation, and finds that this meets appropriate minimum standards.</p> <p>Although the western end of the Kyklo Creek section approaches the Snake-Sahtaneh Caribou Range, the Board notes that this portion of the Project is nonetheless outside the boundary of the officially designated Range, that NGTL consulted to obtain data, and that NGTL is agreeing to implementing its CPP in that area. The Board finds that the application of NGTL’s CPP to the entire Project including the Kyklo Creek section is an appropriate precautionary approach under the circumstances. The Board expects NGTL to notify relevant authorities of any caribou observations in the area as part of its CPP, and include this in its EPP and related training. The Board expects the CPP to be included in the EPP, as set out in Recommendation E.</p> <p>With respect to the effects of the Timberwolf and Cranberry sections on caribou and caribou habitat within the Chinchaga Caribou Range, the Board acknowledges the requests for habitat restoration measures from EC and Aboriginal groups, while recognizing the state of woodland caribou populations in the area as noted in EC’s <i>Recovery Strategy</i>. Given the status of caribou as a listed species at risk, its status in the area and the Project’s traversing of provincially designated Range, the Board is of the view that under these circumstances proponents have a responsibility to not only reduce project impacts but to restore habitat as much as possible. The Board therefore recommends that NGTL be required to prepare a Caribou Habitat Restoration Plan (CHRP) as set out in Recommendation P, and develop a plan to monitor and evaluate the effectiveness of those restoration measures as set out in Recommendation R.</p>																				
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8.3.3.8 Aboriginal Traditional Land and Resource Use

<p>Potential Effects</p>	<ul style="list-style-type: none"> ▪ Loss or alteration of Aboriginal traditional use sites ▪ Disruption to Aboriginal traditional activities
<p>Background</p>	<p>A total of 21 Aboriginal groups and organizations were identified by NGTL, the Board and the MPMO as being potentially affected by or having an interest in the Project.</p> <p>TLU studies and TEK components of EA field studies were undertaken by NGTL for the Project with the direct involvement of the following Aboriginal groups:</p> <ul style="list-style-type: none"> ▪ Beaver First Nation ▪ Dene Tha' First Nation ▪ Doig River First Nation ▪ Duncan's First Nation ▪ Fort Nelson First Nation ▪ Fort Vermilion Métis Local 74 ▪ Paddle Prairie Métis Settlement ▪ Prophet River First Nation <p>Fort Nelson First Nation completed its own community-directed TLU study for the Project. NGTL noted that Dene Tha' First Nation provided two TLU reports to the company. NGTL also indicated Doig River First Nation would conduct a pre-construction assessment of the Cranberry section, as well as pre-and post-construction assessments of the Timberwolf section. NGTL further noted that Duncan's First Nation commenced a community-directed TLU study, which had not been completed.</p> <p>The remaining Aboriginal groups identified as being potentially affected by the Project either indicated no ongoing interest in the Project area, chose not to participate in NGTL's TLU or TEK studies, or did not notify NGTL or the Board of any interests or concerns relating to traditional land use relative to the Project.</p> <p>The following TLU sites and activities related to the Project were identified by NGTL's TLU and TEK studies:</p> <ul style="list-style-type: none"> ▪ a mineral lick approximately 11 m north of the proposed RoW at KPT 22.3 of the Timberwolf section; ▪ one occurrence of a medicinal plant along the Kyklo Creek section was observed by Prophet River First Nation, however no mitigation was requested; ▪ a habitation site consisting of an abandoned cabin and campsite approximately 80 m south of the RoW at KPC 22.2 of the Cranberry section; ▪ historic trails at the proposed Kyklo Creek watercourse crossing were observed by Dene Tha' First Nation, however no mitigation was requested; and ▪ participating Aboriginal groups did not identify any concerns or request mitigation measures related to the temporary construction camp, or in relation to the navigability of watercourses crossed by the proposed Project or traditional use activities on or surrounding these watercourses. <p>Dene Tha' First Nation</p> <p>In TLU reports filed by NGTL, Dene Tha' First Nation raised a number of issues and concerns, including:</p> <ul style="list-style-type: none"> ▪ safety and integrity of the facilities; ▪ environmental protection; ▪ increased access; ▪ engagement and capacity issues; and ▪ cumulative effects and loss of lands.

Dene Tha' First Nation indicated that, as a result of the Project, lands will be taken up and removed from Dene Tha' First Nation traditional territory for the exercise of traditional activities until vegetation and wildlife communities re-establish themselves to pre-construction conditions. Dene Tha' First Nation stated it does not formally oppose the Project and that both NGTL and Dene Tha' First Nation have agreed to continue efforts to ensure the completeness of its involvement in the Project.

Duncan's First Nation

Duncan's First Nation raised the following concerns:

- the impact of the Project on the Chinchaga, Hotchkiss and Deadwood caribou herds and ranges;
- insufficiency of standard mitigation measures to address its concerns related to caribou; and
- potential for increased pipeline capacity within the Northwest Mainline corridor to give rise to subsequent development within the Chinchaga caribou range.

Fort Nelson First Nation

Fort Nelson First Nation identified a number of issues and concerns in its written evidence, including:

- cultural land use concerns, including historic and current cabin site use and trails along Kyklo Creek;
- caribou habitat, including the "Big Muskeg" area;
- impacts on moose habitat along the pipeline route;
- ecological integrity of muskeg/wetlands;
- water source contamination;
- effects on commercial trapping; and
- cumulative effects.

Fort Nelson First Nation identified a number of potential impacts to specific TLU sites, including:

- three traplines held by Fort Nelson First Nation members that would be directly crossed by the proposed Kyklo Creek section; and,
- an area where the proposed Kyklo Creek section would bisect an important trail corridor approximately 1 km west of the Kyklo Creek crossing.

Fort Nelson First Nation also identified a total of 95 site-specific use and occupancy values that were reported and mapped within a 5 km study area in its community-directed TLU study.

Fort Nelson First Nation proposed a total of 44 recommendations relating to the Project. Recommendations broadly addressed:

- support for trail and cabin system rehabilitation within the Project study area;
- increased buffer zones for traditional use sites and environmental features;
- involvement of Fort Nelson First Nation members in planning and implementing monitoring and adaptive management prior to, during and post-construction;
- pre-construction mapping of select sensitive areas to augment existing TLU mapping;
- involvement of Fort Nelson First Nation in water quality monitoring during and post-construction at the proposed Kyklo Creek crossing;
- support for capacity building in environmental monitoring and training for Fort Nelson First Nation members;
- support for baseline data collection on moose populations and population health; and
- reporting of monitoring results to Fort Nelson First Nation.

Fort Nelson First Nation also provided comments on the Board's draft conditions for the Project and requested the following additional measures during the oral hearing:

	<ul style="list-style-type: none"> ▪ additional time and resources for the Fort Nelson First Nation to collect traditional use information pertaining to three areas: west by KPK 0; the “Big Muskeg” area; and, the Kyklo crossing and adjacent cabin zone east of KPK 20; ▪ involvement of Fort Nelson First Nation in the design and conduct of pre-construction, construction, and post-construction monitoring and reclamation programs, culminating with confirmed re-establishment of full ecological integrity as measured over a five-year period; ▪ baseline data collection in three key areas: water quality, moose habitat, health and population, and muskeg integrity; ▪ adequate cumulative effects assessment be conducted for the project to determine the public interest consideration around significant adverse impacts to the environment or on the meaningful practice of Aboriginal and treaty rights; and ▪ the establishment of a regional and territorial cumulative effects assessment that should involve the Fort Nelson First Nation at the outset in the design, implementation, analysis and in land use planning. <p>Métis Nation British Columbia</p> <p>Métis Nation British Columbia raised concerns regarding consultation with NGTL about the Project, and questioned why NGTL did not choose to enter into traditional knowledge research with Métis Nation British Columbia.</p>
<p>Mitigation Measures</p>	<ul style="list-style-type: none"> ▪ The mineral lick near KPT 22.3 will be flagged and spoil will not be stored on the lick. Swamp mats or snow pack will be used to minimize disturbance. Gaps in the strung pipe near the mineral lick will be left to allow movement to this site and work will be conducted expeditiously to reduce the duration of the open trench and potential barriers to wildlife. ▪ The current proposed alignment of the Cranberry section will avoid the habitation site at KPC 22.2; signs will be posted to notify site users of construction activities and alert workers to this feature. ▪ To mitigate potential impacts to trails and trail use, sufficiently sized gaps in snow piles, spoil piles, and strung pipe will be maintained, locations will be maintained to allow for safe crossing of the RoW during trenching, and adequate signage indicating crossing locations will be posted. ▪ In order to minimize any construction impacts on trappers, NGTL committed to: <ul style="list-style-type: none"> ▪ contact trappers prior to construction activities, including RoW clearing, general construction, and clean-up activities; ▪ provide construction activity schedules to trappers to enable them to select alternate areas of activity; and ▪ compensate trappers for trapping-related losses in accordance with NGTL’s Trapper Compensation and Engagement Program. ▪ NGTL has developed standard mitigation measures for potential TLU sites that may be encountered during construction. In the event previously unidentified TLU sites are encountered during construction, NGTL will implement its Traditional Land Use Sites Discovery Contingency Plan. ▪ NGTL committed to considering further information provided by potentially affected Aboriginal groups, including Duncan’s First Nation, regarding potential impacts on current traditional land uses and TLU sites.
<p>Views of the NEB</p>	<p>The Board notes that additional information regarding traditional land and resource use relevant to the Project may be forthcoming from Duncan’s First Nation and Doig River First Nation; and that the Métis Nation British Columbia raised concerns regarding traditional knowledge research. The Board further notes the request by Fort Nelson First Nation for the collection of additional information regarding traditional land and resource use in three identified areas along the Kyklo Creek section. The Board therefore recommends that, in any approval that may be granted, NGTL be required to file a report to address outstanding TLU investigations for the Project. See Recommendation S.</p>

	<p>The Board notes the specific recommendations provided by Fort Nelson First Nation, and the responses to these recommendations made by NGTL. NGTL and Fort Nelson First Nation have expressed commitment to ongoing discussions regarding the Project. The Board notes that several of Fort Nelson First Nation’s recommendations address measures that could enhance environmental outcomes for the Project relating to traditional land and resource use, specifically those recommendations addressing the participation of Fort Nelson First Nation in construction monitoring. The Board is of the view that such outcomes could be further enhanced in the event that NGTL and potentially affected Aboriginal groups reach agreement regarding their participation in construction monitoring. The Board also notes the requests made by Duncan’s First Nation and Fort Nelson First Nation regarding ongoing information and reports pertaining to the Project. Therefore, the Board recommends that, in any approval that may be granted, NGTL be required to file a plan to address the potential participation of Aboriginal groups in construction monitoring, where NGTL and potentially affected Aboriginal groups are able to reach agreements, and to provide the Board with regular updates regarding its ongoing consultations activities with Aboriginal groups. See Recommendations T and U.</p> <p>The Board is of the view that, with the mitigation measures and procedures outlined in NGTL's application and subsequent filings, and the Board's recommendations, effects to lands and resources used for traditional purposes by Aboriginal groups can be effectively mitigated.</p>				
Evaluation of Significance	Frequency	Duration	Reversibility	Geographical Extent	Magnitude
	Single to multiple	Short to long-term	Reversible to irreversible	Footprint to RSA	Low to moderate
	Adverse Effect				
	Not likely to be significant.				

8.4 Cumulative Effects Assessment

The assessment of cumulative effects entails considering the residual effects from the Project in combination with residual effects from other projects and activities that have been or will be carried out, within the broader geographic region, over a longer time frame and within the ecological context.

Past activities contributing to cumulative effects within the region include transportation activities (e.g., highway and industrial road network), oil and gas exploration and development activities (e.g., seismic operations, pipelines and facility development), timber harvesting, and sand and gravel extraction. Wildfires have also contributed to cumulative effects on some ecosystem components.

Other recently approved, but not yet constructed, NGTL projects and facilities in proximity to the proposed Project include the Horn River Mainline Project and the compressor stations at Moody Creek and Tanghe Creek Lateral Loop No. 2 (Sloat Creek section). NGTL has also applied for approval to construct and operate the Northwest Mainline Komie North Extension.

Known future developments in the region include oil and gas development activities (wells, pipelines and facilities) adjacent to all of the proposed pipelines, as well as a recreational complex and gravel pit facility in the vicinity of the Cranberry section.

Although NGTL identified Project-related residual effects for a number of bio-physical and socio-economic elements, the Board is of the view that many of these cumulative interactions

and effects are limited to the duration of construction, are fairly localized and are minor in nature.

The key long-term, landscape-level cumulative environmental impact is the ongoing loss, alteration and fragmentation of wildlife habitat in the region, in particular for caribou. While the changing land use has a number of incremental cascading effects, the Board finds caribou and caribou habitat an appropriate overall indicator for the assessment of cumulative effects.

NGTL's cumulative effects assessment indicates that the current level of anthropogenic and natural habitat disturbance (i.e., linear feature density and percent young habitat) in the Chinchaga caribou range exceeds the level at which the caribou population would be sustainable and, therefore, the magnitude of existing cumulative effects is considered to be high. This is also consistent with the information and concerns the Board heard from First Nations and EC.

NGTL asserts that the cumulative residual environmental and socio-economical effects of the Project are not unlike those routinely encountered. The Board finds that while the incremental linear feature density of the proposed Project and known future developments may not represent a large contribution to the existing linear feature density, addressing their small incremental nature is the challenge. The Board notes NGTL's mitigations, summarized in Section 8.3.3.7 on caribou. Furthermore NGTL also offered to consider additional habitat restoration measures in other existing NGTL RoWs within the Chinchaga Caribou Range, in order to offset potential residual effects of the Project on caribou habitat.

In addition, as noted in Section 8.3.3.7 the issue concerns a listed species at risk, in a designated Range.

In OH-1-2009 the Board noted that a rare species may be:

...identified and listed as such precisely because they are already significantly impacted and need specific protection. Consequently, any further loss would leave the species no less significantly impacted, regardless of whether losses from any particular project are minor.

In such circumstances it is imperative that a proponent either provide certain, lasting, and effective mitigation to achieve no loss, or provide sufficient offsets to compensate any loss.

The Board reiterated this principle in its May 2011 update to the NEB Filing Manual while further noting the link to cumulative effects:

Many rare species (e.g., endangered or threatened species under the SARA) are at risk in large part as a result of the past cumulative effects on their population or habitat. Their inclusion on official lists reflects their status as having crossed a threshold requiring special actions for their protection and recovery. Any additional residual effects have the potential to further contribute to this existing situation. Consequently, proposed projects must preferably avoid, or fully mitigate or compensate for any residual project contribution to cumulative effects.

Therefore in addition to the mitigation measures and recommendations in Section 8.3.3.7 the Board recommends that NGTL offset all residual effects to caribou and caribou habitat within the Chinchaga caribou range, as set out in **Recommendation Q**, and develop a plan to monitor those offset measures as part of **Recommendation R**. The offset measures should include actions that would be implemented by NGTL at suitable locations within the Chinchaga caribou range, including other NGTL rights-of-way.

The Board is of the view that, taking into consideration NGTL's environmental protection and mitigation measures and the Board's additional related recommendations, the Project would not likely result in significant adverse cumulative effects.

8.5 Follow-Up Program

In determining whether a follow up program is appropriate, the Board has considered the routine nature and scale of the Project and the potential adverse environmental effects. In addition the Board considered the Recommendations below, its authority throughout the lifecycle of the Project, and its approach to regulatory oversight.

For these reasons, the NEB is of the view that a follow-up program under the CEA Act would not be appropriate for this Project.

8.6 Recommendations

It is recommended that in any authorizations that the NEB may grant, the following be included as conditions. In developing these recommendations, the NEB has considered the difference in proposed construction timeframes for the facilities applied for. In these recommendations, the expression "commencing construction" means the clearing of vegetation, ground-breaking and other forms of RoW preparation that may have an impact upon the environment, but does not include normal surveying activities.

In all cases where recommendations requires submission of documents within a certain timeframe (e.g., within a number days prior to commencing construction), the intent of that requirement is to allow the Board adequate time to evaluate the sufficiency of the submitted documents to meet the intent of the recommendation. Where any recommendation requires a filing with the Board "for approval" that action shall not be commenced until the approval is issued.

Recommendations include:

A. Environmental Protection

NGTL shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures and its commitments for the protection of the environment included in or referred to in its application or as otherwise agreed to during questioning or in its related submissions.

B. Construction Progress Reports

NGTL shall file construction progress reports with the Board on a monthly basis in a form satisfactory to the Board. The reports shall include information on the activities carried out during the reporting period, any safety, security, and environmental issues, non-compliances, and the measures undertaken for the resolution of each issue and non-compliance.

C. Commitments Tracking Table

NGTL shall:

- a) file an updated Commitments Tracking Table with the Board 14 days prior to commencement of the Project;
- b) update the status of the commitments in a) on a monthly basis until completion of the Project; and
- c) maintain at its construction office(s):
 - i) the relevant environmental portion of the Commitments Tracking Table listing all regulatory commitments, including but not limited to, those commitments resulting from NGTL's application and subsequent filings, and conditions from permits, authorizations and approvals;
 - ii) copies of any permits, approvals or authorizations for the Project issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and
 - iii) any subsequent variances to any permits, approvals or authorizations in ii).

D. Environmental Protection Plan (EPP): Temporary Infrastructure

NGTL shall file with the Board for approval, at least 30 days prior to commencement of construction of the temporary infrastructure (stockpile sites, contractor yards and the Timberwolf temporary construction camp), an EPP specifically addressing the construction and dismantling of the camp as well as the reclamation of any impacted lands. This EPP shall be a comprehensive compilation of all environmental and socio-economic protection procedures, and mitigation and monitoring commitments, as set out in NGTL's application or as otherwise agreed to during questioning, in its related submissions or through its consultation with government authorities and Aboriginal groups. The EPP shall include, but not be limited to, the following elements:

- a) environmental procedures including site-specific plans, criteria for implementation of these procedures, mitigation measures and monitoring applicable to all phases and activities; and

- b) a reclamation plan which includes a description of the condition to which NGTL intends to reclaim and monitor impacted lands once the camp has been dismantled, and a timeline and description of measurable goals for reclamation.

E. Environmental Protection Plan (EPP): Pipeline Facilities

NGTL shall file with the Board for approval, at least 60 days prior to commencing construction, an updated EPP, including Environmental Alignment Sheets, for the construction and operation of the Project facilities. The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Project, subsequent filings, evidence collected during the hearing process, or as otherwise agreed to during questioning or in its related submissions. The EPP shall describe the criteria for the implementation of all procedures and measures, and shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. The EPP shall include, but not be limited to, the following elements:

- a) environmental procedures including site-specific plans, criteria for implementation of these procedures, mitigation measures and monitoring applicable to all Project phases and activities;
- b) a reclamation plan which includes a description of the condition to which NGTL intends to reclaim and maintain the RoW once construction has been completed, and a description of measurable goals for reclamation; and
- c) a Caribou Protection Plan.

F. Post-Construction Environmental Monitoring Reports

On or before 31 January after each of the first, third, and fifth complete growing seasons following the commencement of operation of the Project, NGTL must file with the Board a post-construction environmental monitoring report that:

- a) describes the methodology used for monitoring, the criteria established for evaluating success and the results found;
- b) identifies the issues to be monitored, including but not limited to unexpected issues that arose during construction, and their locations (e.g., on a map or diagram, in a table)
- c) describes the current status of the issues (resolved or unresolved), any deviations from plans and corrective actions undertaken;
- d) assesses the effectiveness of mitigation (planned and corrective) measures applied against the criteria for success;
- e) includes details of consultation undertaken with appropriate provincial and federal authorities; and

- f) provides proposed measures and the schedule that NGTL would implement to address ongoing issues or concerns.

The reports must also include information pertaining to a) through f) above as it applies to the reclamation of NGTL's temporary construction camp site on the Timberwolf section, the restoration of wetland functionality, and any activities associated with the HDD or contingency crossing plan, or hydrostatic testing plans.

G. Heritage Resources – Kyklo Creek Section

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of the Project:

- a) a copy of the letter of clearance received under the British Columbia *Heritage Conservation Act* for the Kyklo Creek Section; and
- b) confirmation that all comments and recommendations from British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO) for the Archaeological Impact Assessment for the Kyklo Creek Section of the Project are to be implemented and if not, a justification as to why not.

H. Heritage Resources – Timberwolf Section

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of the Project:

- a) a copy of the letter of clearance received under the Alberta *Historical Resources Act* for the Timberwolf Section; and
- b) confirmation that all comments and recommendations from the Alberta Culture and Community Services (ACCS) for the Heritage Resources Impact Assessment for the Timberwolf Section of the Project, are to be implemented and if not, a justification as to why not.

I. Heritage Resources – Cranberry Section

NGTL shall file with the Board, at least 30 days prior to the commencement of construction of the Project:

- a) a copy of the letter of clearance received under the Alberta *Historical Resources Act* for the Cranberry Section; and
- b) confirmation that all comments and recommendations from the Alberta Culture and Community Services (ACCS) for the Heritage Resources Impact Assessment for the Cranberry Section of the Project, are to be implemented and if not, a justification as to why not.

J. Heritage Resources Discovery

In the event that any heritage resources are discovered during construction, NGTL shall:

- a) obtain the necessary clearances from the appropriate provincial authorities; and
- b) file with the Board copies of the clearances obtained from the appropriate provincial authorities.

K. Weed Management Plan

NGTL shall file with the Board for approval, at least 30 days prior to requesting Leave to Open, a project-specific Weed Management Plan that includes:

- a) NGTL's goals and measurable objectives regarding weed management;
- b) the methods and procedures available to achieve the mitigation goals and clear decision criteria for their selection;
- c) either:
 - i) evidence confirming satisfaction of all relevant regulatory authorities, or, if (i) is not possible,
 - ii) evidence of its consultation with all relevant regulatory authorities and a summary of their outstanding concerns;
- d) the criteria to determine if the mitigation goals have been met;
- e) the frequency of monitoring activities along the RoWs, temporary workspaces and temporary construction camp sites;
- f) training and qualification requirements of NGTL staff responsible for monitoring;
- g) a mechanism for tracking weed problems and weed control activities; and
- h) criteria to evaluate the effectiveness of the Weed Management Plan, as well as adaptive management practices.

L. Horizontal Directional Drill (HDD)

NGTL shall:

- a) notify the Board within 7 days of the successful completion of the intended HDD crossing of Hay River;
- b) notify the Board in writing of any change from the proposed HDD watercourse crossing method, at least 7 days prior to implementing a contingency trenched crossing of Hay River, and provide the reasons for that change;

- c) file with the Board, prior to commencing construction of a contingency trenched crossing of Hay River, a copy of the authorizations from relevant government agencies for the instream crossing method; and
- d) file with the Board, within 30 days of completing a contingency trenched crossing of Hay River, a site-specific reclamation plan for the crossing which includes the desired outcomes following implementation of the plan.

M. Hydrostatic Testing Surveys

NGTL shall file with the Board, at least 60 days prior to commencing construction of the Project, the results of the following pre-construction surveys:

- a) Kyklo Creek, Timberwolf and Cranberry sections: vegetation surveys along those segments of the proposed hydrostatic test water access route options that support native vegetation;
- b) Kyklo Creek section: aquatic survey of the hydrostatic test water source, the unnamed lake located at 41, 42, 51 and 52-B/94-I-14, to collect water quality information;
- c) Timberwolf and Cranberry sections: aquatic surveys of the selected hydrostatic test sources, as well as any watercourses or waterbodies crossed by the associated access routes;
- d) Kyklo Creek section: wetland survey along the eastern hydrostatic test water access option if NGTL selects that option;
- e) Cranberry section: wetland survey along the chosen hydrostatic test water access route if wetlands are traversed; and
- f) Kyklo Creek section: an archaeological impact assessment along the eastern hydrostatic test water access route if this route option is selected and if deemed necessary upon review of the proposed Footprint.

NGTL shall also provide the site-specific mitigation measures to be implemented during construction, based on the results of these surveys. These measures shall also be included in the EPP.

N. Breeding Bird Survey

In the event of clearing, construction or operations maintenance activities within restricted activity periods for all migratory birds, and non-migratory birds protected under provincial jurisdiction, NGTL shall retain a qualified avian biologist to carry out a pre-construction survey to identify any birds and active nests in areas immediately surrounding the site. Within 15 days of completion of the survey, NGTL shall file the results with the Board. If active nests are found, include;

- a) mitigation, including monitoring, developed in consultation with Environment Canada, and Canadian Wildlife Service and the appropriate provincial government authorities, to protect any identified migratory and non-migratory birds and their nests;
- b) mitigation, including monitoring, developed in consultation with Environment Canada and Canadian Wildlife Service to protect any identified *Species at Risk Act* birds and their nests; and
- c) evidence to confirm that the appropriate provincial and federal government authorities were consulted, on the proposed methodology for the survey, the results from the survey and the mitigation and monitoring to be used, and a description of any outstanding concerns they may have.

O. Pre-construction Grizzly Bear Den Sweep

- a) NGTL must file with the Board, at least 14 days prior to commencing construction of the Project, a report providing the results of the grizzly bear den sweeps that NGTL committed to conducting prior to construction to identify potential grizzly bear dens within 750 m of the Project.
- b) This report shall include a summary of the survey results. If a grizzly bear den is found during the survey, the report shall also include any newly-developed or modified mitigation measures as well as evidence of consultation with the appropriate federal and provincial authorities regarding the proposed mitigation.
- c) As part of the report filing, NGTL shall provide any EPP pages or Environmental Alignment Sheets that have been amended as a result of the survey's findings or recommendations, or confirmation that no changes to the EPP or Environmental Alignment Sheets are warranted.

P. Caribou Habitat Restoration Plan

NGTL shall file with the Board for approval, as per the timelines below, preliminary and final versions of a Caribou Habitat Restoration Plan (CHRP) for those portions of the Project Footprint that lie within the Chinchaga caribou range.

- a) Preliminary CHRP - at least 60 days prior to commencing construction. This version of the CHRP shall include, but not be limited to:
 - i) the goals and measurable objectives of the CHRP;
 - ii) identification of any suitable immediate, medium-term and long-term caribou habitat restoration methodologies, as well as a literature review and discussion of the effectiveness of the different potential methods;
 - iii) the framework that will be used to identify potential caribou habitat restoration sites and the decision-making criteria that will be used for final site selection;

- iv) the criteria that will be used to evaluate the effectiveness of the CHRP and determine whether goals have been met;
 - v) evidence of consultation with Environment Canada and Alberta Sustainable Resource Development regarding the CHRP.
- b) Final CHRP – to be submitted on or before 1 November after the first complete growing season following the commencement of operation of the Project. This updated version of the CHRP shall include, but not be limited to:
- i) the contents of the preliminary CHRP, as well as any applicable updates;
 - ii) a complete list of the proposed caribou habitat restoration sites, including a description of the site-specific restoration activities and maps or Environmental Alignment Sheets showing the locations of the sites;
 - iii) confirmation of the rationale used to select the caribou habitat restoration sites;
 - iv) a discussion of the locations or conditions that may present specific challenges;
 - v) evidence of consultation with Environment Canada and Alberta Sustainable Resource Development regarding the Final CHRP; and
 - vi) a quantitative and qualitative assessment of the area of caribou habitat within the Chinchaga caribou range that was directly and indirectly disturbed as a result of construction of the Project. The assessment shall identify and assess the caribou habitat to be mitigated for as a result of the implementation of the CPP and CHRP, as well as identify the remaining residual effects for which offset measures will be developed as part of **Recommendation Q**.

Q. Offset Measures Plan for Residual Impacts to Caribou Habitat

NGTL shall file with the Board for approval a plan to offset all unavoidable and residual Project-related effects to caribou habitat within the Chinchaga caribou range. The plan shall describe measures that would offset all effects identified in the quantitative and qualitative assessment to be conducted as part of **Recommendation P. b) vi**. The offset measures plan shall include:

- a) a preliminary version, at least 60 days prior to requesting Leave to Open, with criteria and the measurable objectives of the plan, including, but not limited to, a discussion of:
 - i) the potential offset measures available;
 - ii) the expected effectiveness of each measure;
 - iii) the relative value of each measure towards achieving the offset; and

- iv) the decision-making criteria for selecting which specific offset measures would be used under what circumstances;
- b) a final version, on or before 90 days after filing of the final CHRP requirements, with:
 - i) the contents of the preliminary version, and any applicable updates;
 - ii) a complete list of the offset measures to be implemented or already underway, including a description of site-specific details and maps showing the locations;
 - iii) either an assessment of the effectiveness of the measures and their value in offsetting the residual effects or a detailed plan for completing an assessment of effectiveness and value;

Both the preliminary and final versions of the plan shall also include:

- c) a description of NGTL's consultations with potentially affected Aboriginal groups regarding the plan, including any concerns that were raised and how these have been addressed;
- d) evidence of consultation with Environment Canada and appropriate provincial authorities regarding the plan.

R. Caribou Habitat Restoration and Offset Measures Monitoring Plan

NGTL shall file with the Board for approval, on or before 90 days after filing of the final CHRP requirements, a plan for monitoring the caribou habitat restoration and offset measures implemented as part of **Recommendations P and Q**. This plan shall include, but not be limited to:

- a) the scientific methodology or protocol for short-term and long-term monitoring of the restoration and offset measures, and their anticipated effectiveness;
- b) frequency, timing and locations of monitoring and the rationale for each;
- c) protocols for how restoration and offset measures will be altered, as required, based on the monitoring results; and
- d) a schedule for filing reports of monitoring results to the NEB, Environment Canada and appropriate provincial authorities.

S. Outstanding Traditional Land Use Investigations

At least 60 days prior to commencing construction (including ground clearing) of the Project, NGTL must file with the Board for approval, and serve a copy on Duncan's First Nation, Doig River First Nation, Fort Nelson First Nation, and Métis Nation British Columbia, a plan to address outstanding traditional land use (TLU) investigations for the Project. The plan shall include, but not be limited to:

- a) a summary of the status of TLU investigations undertaken for the Project, including group-specific TLU studies and any supplementary pre-construction field investigation or reconnaissance activities relevant to potentially-affected Aboriginal groups;
- b) a summary of the effects of the Project on the current use of lands and resources for traditional purposes identified in the investigations;
- c) a summary of the mitigation measures proposed by NGTL or by affected Aboriginal groups to address Project effects identified in the investigations;
- d) a description of how NGTL has incorporated any additional mitigation measures into its EPP for the Project;
- e) a description of any outstanding concerns raised by potentially-affected Aboriginal groups regarding potential Project effects on the current use of lands and resources for traditional purposes, including a description of how these concerns have been or will be addressed by NGTL; and
- f) a summary of any outstanding TLU investigations or follow-up activities that will not be completed prior to commencing construction, including an explanation for why these will not be completed prior to commencing construction, and an estimated completion date, if applicable.

T. Aboriginal Consultation Reports

NGTL must file with the Board, on a monthly basis during construction, reports on consultation activities undertaken with those Aboriginal groups that NGTL will include in its ongoing consultation plans for the Project. The reports must include, at a minimum:

- a) a list of those Aboriginal groups included in consultation activities;
- b) summaries of any issues or concerns raised;
- c) a description of how any concerns or issues were addressed; and
- d) a description of any project-specific reports or updates that were provided by NGTL to Aboriginal groups included in consultation activities.

Following the commencement of operation of the Project, NGTL must also file with the Board reports on consultation activities undertaken with those Aboriginal groups included in NGTL's ongoing consultation for the Project. These reports must include, at a minimum, the details outlined in a) through d) above, and are to be filed with the Post-Construction Environmental Monitoring Reports required by **Recommendation F**.

U. Plan for Aboriginal Participation in Construction Monitoring

At least 30 days prior to commencing construction (including ground clearing) of the Project, NGTL must file with the Board, and serve a copy on potentially affected Aboriginal

groups identified in a), a plan describing monitoring procedures for the protection of Aboriginal traditional land and resource use sites during construction. The plan shall include, at a minimum:

- a) a list of those potentially affected Aboriginal groups, if any, who have reached agreement with NGTL to participate as monitors during construction;
- b) a description of the scope, methodology and justification for monitoring activities to be undertaken by NGTL and each participating Aboriginal group identified in a), including those elements of construction and geographic locations that will involve Aboriginal monitors from potentially affected Aboriginal communities;
- c) the proposed components of NGTL's monitoring program, including, but not limited to:
 - i) a description of how information gathered through the participation of Aboriginal monitors will be used by NGTL;
 - ii) a description of how information gathered through the participation of Aboriginal monitors will be provided to participating Aboriginal communities; and
 - iii) a summary of consultations undertaken with participating communities to determine the proposed scope, methodology and measures for monitoring.

9.0 THE NEB'S CONCLUSION

The NEB is of the view that with the implementation of NGTL's environmental protection procedures and mitigation measures and the NEB's recommendations, the proposed Project is not likely to cause significant adverse environmental effects.

This ESR was approved by the NEB on the date specified on the cover page of this report under the heading "CEA Act Determination Date".

10.0 NEB CONTACT

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APPENDIX 1: Scope of the EA

NOVA Gas Transmission Ltd. Proposed Northwest Mainline Expansion Project Scope of the Environmental Assessment Pursuant to the *Canadian Environmental Assessment Act*

1.0 INTRODUCTION

NOVA Gas Transmission Ltd. (NGTL) is proposing to construct and operate the Northwest Mainline Expansion Project (the Project). This would require a Certificate of Public Convenience and Necessity pursuant to section 52 of the *National Energy Board Act* (NEB Act). The Project would also be subject to screening under the *Canadian Environmental Assessment Act* (CEA Act).

On 3 December 2010, NGTL filed a Project Description with the NEB regarding the proposed Ekwan Loop, Northwest Mainline Loop and Tanghe Creek Loop Project (now known as the Northwest Mainline Expansion Project). The intent of the Project Description was to initiate the environmental assessment (EA) process pursuant to the CEA Act.

On 16 December 2010, the NEB sent out notification pursuant to section 5 of the *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (Federal Coordination Regulations). In response, the following departments identified themselves either as a Responsible Authority (RA) likely to require an EA under the CEA Act or as a Federal Authority (FA) in possession of specialist or expert information or knowledge in respect of the proposed project EA:

- Transport Canada - RA
- Canada Transportation Agency - RA
- Fisheries and Oceans Canada - RA
- Environment Canada - FA
- Health Canada - FA
- Natural Resources Canada - FA

The Provinces of Alberta and British Columbia were notified of the Project.

This scope of the EA was established by the RAs, after consulting with the FAs, in accordance with the CEA Act and the Federal Coordination Regulations.

2.0 SCOPE OF THE ASSESSMENT

2.1 Scope of the Project

The scope of the Project for the purposes of the EA includes the various components of the Project as described by NGTL in its 29 April 2011 Project application submitted to the NEB (the

Application). The physical activities include construction, operation, maintenance and foreseeable changes, and reclamation, relating to the entire Project, including physical works described in greater detail in the Application:

The proposed Project would be an expansion of portions of NGTL's existing Alberta System in British Columbia and Alberta. The Project would be comprised of three gas pipeline loops and related facilities on sections of NGTL's Horn River Mainline (Kyklo Creek Section), Northwest Mainline (Timberwolf Section), and Tanghe Creek Lateral Loop No. 2 (Cranberry Section) pipelines, for a total of 111 km of pipeline:

- The proposed Kyklo Creek Section pipeline, located approximately 80 km southeast of Fort Nelson, British Columbia, would start at the existing Sierra Gas Plant and parallel the EnCana Ekwan pipeline to a tie-in point approximately 29.1 km east of the plant.
- The Timberwolf Section pipeline, located approximately 30 km southwest of Rainbow Lake, Alberta, would parallel the Northwest Mainline for approximately 49.7 km from the proposed Moody Creek Compressor Station to a tie-in adjacent to the existing Snowfall Creek Meter Station.
- The proposed Cranberry Section pipeline, located 76 km northwest of Manning, Alberta, would begin at a tie-in on the Tanghe Creek Lateral Loop No. 2 and extend approximately 32.4 km eastward to a tie-in adjacent to the existing Chinchaga Meter Station.

The proposed pipelines would be alongside and contiguous to existing rights-of-way and other linear disturbances for approximately 104 km (97%) of their entire length. If the project is approved, the proposed facilities would be in-service in the second quarter of 2013.

Any works and activities associated with additional modifications or associated with the decommissioning or abandonment phase of the Project would be subject to future examination under the NEB Act and consequently under the CEA Act as appropriate. Therefore, at this time, any works or activities associated with these phases of the Project will be examined in a broad context only.

2.2 Factors to be considered

The EA will include a consideration of the following factors listed in paragraphs 16(1) (a) to (d) of the CEA Act:

- (a) the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out;
- (b) the significance of the effects referred to in paragraph (a);
- (c) comments from the public that are received during the EA process; and
- (d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project.

For further clarity, subsection 2(1) of the CEA Act defines ‘environmental effect’ as:

- (a) any change that the project may cause in the environment, including any change that the project may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*;
 - (b) any effect of any change referred to in paragraph (a) on
 - i. health and socio economic conditions,
 - ii. physical and cultural heritage,
 - iii. the current use of lands and resources for traditional purposes by Aboriginal persons, or
 - iv. any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance; or
 - (c) any change to the project that may be caused by the environment,
- whether any such change or effect occurs within or outside Canada.

2.3 Scope of the Factors to be Considered

The EA will consider the potential effects of the proposed Project within spatial and temporal boundaries within which the Project may potentially interact with, and have an effect on components of the environment. These boundaries will vary with the issues and factors considered, and will include but not be limited to:

- construction, operation and site reclamation, as well as any other undertakings proposed by the proponent or that are likely to be carried out in relation to the physical works proposed by the proponent, including mitigation and habitat replacement measures;
- seasonal or other natural variations of a population or ecological component;
- any sensitive life cycle phases of species (e.g., wildlife, vegetation) in relation to the timing of Project activities;
- the time required for an effect to become evident;
- the area within which a population or ecological component functions; and
- the area affected by the Project.

As indicated above, the EA will consider cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out.

APPENDIX 2: Comments Received by the NEB on the Draft Scope

Transport Canada (TC) provided several suggested edits to, and comments on, the draft Scope. TC indicated the purpose of the comments was to align the language of the Scope of the EA with that of the CEA Act and to ensure TC's interest is adequately captured.

To view TC's comments on the draft Scope, please refer to the Project folder in the 'Regulatory Documents' area of the NEB website (<https://www.neb-one.gc.ca>). Copies may also be obtained through the Secretary of the Board via the contact information provided in Section 10.0.

The following table provides a summary of the comments by TC and the views of the Board, and indicates the changes that were made to the Scope as a result of the comments. The Board accepted several minor formatting changes suggested by TC. A revised Scope was posted on the CEA Registry on 28 July 2011 that reflects the revisions below.

TC's Comments	Views of the Board	Changes made to Scope
Section 2.1 - Addition of wording regarding physical works and navigable waters	The Board is of the view that additional text relating to specific project components is unnecessary, as those works are already considered.	None
Section 2.2 - Wording alignment with CEA Act paragraph 16(1)(c)	The Board is of the view that alignment with CEA Act wording here is unnecessary, as all comments received will be considered.	None
Addition of CEA Act paragraph 16(1)(e)	'Any other relevant matter' referred to in paragraph 16(1)(e) of the CEA Act would be fully considered under its NEB Act decision, and the Board is of view that the revision proposed is unnecessary.	None
Definition of Environmental Effect	Minor wording changes to align the Scope of the EA with wording in subsection 2(1) of the CEA Act are appropriate here. The Board is of the view that specific examples of effects are unnecessary as those effects are already fully contemplated in the existing Scope of the EA.	Requested changes made to a) and c). No changes were made to b).
Section 2.3 - Changes to wording of sub-title. - Changes to wording of last paragraph to clarify the statement and align it with that stated in CEAA Practitioner's Guide.	The Board is of the view that revisions to the sub-title are unnecessary. The Board notes that general guidance on scoping of cumulative effects is provided in Section 2.2 of the draft Scope, and detailed guidance is found in the NEB Filing Manual and in CEA Agency publications. The Board is of the view that it is not necessary to provide additional or detailed guidance in that regard. However, to provide additional clarity, the Board revised the last paragraph of Section 2.3.	Revised last paragraph to state: "As indicated above, the EA will consider cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out."

APPENDIX 3: Comments on the Draft ESR

Stakeholder (Government Agency, Applicant or First Nation)	Summary of Comments	NGTL's Response to comments filed with the NEB on the Draft ESR	How and where a change was made, or an explanation of why a change was not made, to the ESR
Transport Canada (TC) A38415	TC requested that NGTL obtain leave from the Minister of TC under the NEB Act as well as under the <i>Navigable Waters Protection Act</i> (NWPA), where applicable. TC further requested that NGTL file such approvals with the Board for the HDD and the Contingency Plan (open-cut method) and for crossings other than the Hay River, prior to commencing the work. TC provided wording for Recommendations.	NGTL expressed concern with TC's proposed wording, specifically that any delay in obtaining leave from TC could adversely impact the proposed construction schedule. NGTL suggested alternate wording unless TC issues the leave within 90 days of its EA course of action decision as contemplated under the December 2011 Project Agreement.	The Board expects that regulated companies obtain all permits and approvals applicable to the Project at the appropriate stages. Recommendation C would require that NGTL maintain copies of all permits which contain any regulatory commitments at their construction offices. NGTL is aware of the requirement to obtain leave from the Minister of TC prior to commencing construction at any navigable water crossing. Therefore the Board is of the view that general changes to proposed recommendations are not required. However, in some circumstances, the Board may require additional documentation. Regarding the HDD of the Hay River, the Board is of the view that it requires a copy of any relevant authorization. As such, part c) of Recommendation L has been modified to reflect that copies of relevant authorizations are required by the Board.
Environment Canada (EC) A38461	EC requested copies of the EPP, CPP and CHRP when completed. EC also requests a copy of the weed management plan once finalized, as well as copies of all wetland restoration reports.	Not specifically addressed in NGTL's response.	The Board expects NGTL to provide copies of the EPP, CHRP and the Weed Management Plan to EC, once those documents are approved following the associated recommendation requirements, if EC has not already received them. As NGTL committed to including the CPP in their EPP, EC would receive a copy of the CPP upon approval of the EPP. The Board expects that NGTL will notify EC when the wetland restoration reports are submitted. The Board notes that Recommendation F – Post-Construction Environmental Monitoring Reports requires the inclusion of consultation undertaken with appropriate provincial and federal authorities, and expects that EC will be consulted prior to the reports being filed with the NEB. No changes have been made to the ESR.
	EC requested that NGTL report sightings of conservation priority species, sighted in Alberta and British Columbia,	Not specifically addressed in NGTL's response.	NGTL's EPP requires that all sightings of sensitive species or species at risk will be reported to the Environmental Inspector on site.

Stakeholder (Government Agency, Applicant or First Nation)	Summary of Comments	NGTL's Response to comments filed with the NEB on the Draft ESR	How and where a change was made, or an explanation of why a change was not made, to the ESR
	to the Alberta Fisheries and Wildlife Management Information System (WFMIS) and British Columbia Conservation Data Center (CDC) database, respectively to augment baseline information databases in both Provinces.		The Board expects that reporting of sightings to the provincial authorities would be part of the Environmental Inspector's duties. No changes have been made to the ESR.
Fort Nelson First Nation A38447	Fort Nelson First Nation stated that the draft ESR and the NEB process has not met Fort Nelson First Nation's standards regarding assessment, consultation and mitigation, and is of the view that the draft ESR does not adequately protect their traditional culture and economic landscape. Therefore, Fort Nelson First Nation seeks reconsideration by the NEB on several items.	Not specifically addressed in NGTL's response.	In this ESR, the EA process for the application is described in Section 2.0 and the Board's EA methodology is described in Section 7.0. The Board is of the view that it has appropriately applied the provisions of the CEA Act.
	Fort Nelson First Nation asserted that the draft ESR fails to adequately consider or represent the cumulative infringement of Fort Nelson First Nation rights, and contends that impacts on Fort Nelson First Nation treaty rights have not been assessed.	NGTL asserted that Fort Nelson First Nation may have misapprehended the purpose of the ESR, as the draft ESR is not the Board's decision as to whether the Project is in the public interest; nor is it a decision by a government authority that triggers the Crown's duty to consult.	A discussion of Aboriginal interests and concerns is contained in Chapter 7 of the Reasons for Decision. The CEA Act requires an assessment of the effects of any changes to the environment on "the current use of lands and resources for traditional purposes by aboriginal persons" (Section 2(b)(iii) of the CEA Act). The detailed examination of these effects is contained in Section 8.3.3.8 of the ESR. The Board is of the view that with the implementation of NGTL's environmental protection procedures and mitigation measures and the NEB's recommendations, the Project is not likely to result in significant adverse effects to resources used for traditional purposes by Aboriginal peoples.
	Fort Nelson First Nation asserted that the draft ESR fails to adequately consider or represent the limits of the NEB as a venue for consultation and accommodation discussions with Fort Nelson First Nation, raising a number of legal and procedural concerns.	NGTL stated that to the extent that Fort Nelson First Nation disagrees with certain of the Board's findings in the draft ESR, Fort Nelson First Nation filed information requests, intervenor evidence, and participated extensively in the oral hearing. NGTL	A typical procedure for a CEA Act screening assessment is a written process. By combining the CEA Act screening assessment with the NEB application assessment, interested parties had the additional option of participating in the oral portion of the hearing to present evidence to be considered in making the CEA Act determination. The Board notes that Fort Nelson First Nation registered as an intervenor in the Board's hearing process,

Stakeholder (Government Agency, Applicant or First Nation)	Summary of Comments	NGTL's Response to comments filed with the NEB on the Draft ESR	How and where a change was made, or an explanation of why a change was not made, to the ESR
		asserted that Fort Nelson First Nation has had numerous opportunities to raise its concerns about NGTL's ESA with the Board, and Fort Nelson First Nation has in fact availed itself of those opportunities.	was allocated Participant Funding from the Board, presented witnesses at the oral portion of the hearing and made a final argument. Section 2.2.5 of the Reasons for Decision, state that the MPMO has indicated that the federal government would rely on the Board's hearing process, to the extent possible, in discharging any Crown duty to consult Aboriginal groups.
	Fort Nelson First Nation asserted that NGTL divided the construction of the Northwest System into separate applications for the NEB to consider impeding the effective review of the environmental and social impact of the Project. Fort Nelson First Nation asserts that the draft ESR does not draw connections between the various developments and does not assess the cumulative impact of the system as a whole, on both the environment and on the meaningful practice of treaty rights.	NGTL commented that the purpose of the comment period on the draft ESR is not intended to allow parties to re-argue matters, but rather, is intended to allow parties to clarify the record.	The Board considered the relationship between the facilities described by NGTL that are part of the Northwest System and the Project as proposed. Regarding cumulative effects, the Board has considered the cumulative effects of the Project and other effects that would interact with the effects of the proposed Project, consistent with the provisions of the CEA Act. The cumulative effects of the Project are discussed in Section 8.4.
	Fort Nelson First Nation contend that the draft ESR fails to note Fort Nelson First Nation's concerns about their consultation with respect to the establishment of the geographic study area for the cumulative effects assessment.	Not specifically addressed in NGTL's response.	The Board considered the differing views about LSA and RSA boundaries, and how they relate to its understanding of the Project's effects. The Board found the detailed and project-specific information and recommendations provided by Fort Nelson First Nation, and the comments of Duncan's First Nation, helpful in this regard (summarized in Section 8.3.3.8). Further discussion of the differing views about LSA and RSA boundaries is found in Chapter 7 of the Reasons for Decision. The cumulative effects of the Project are discussed in Section 8.4. The Board is of the view that with the implementation of NGTL's environmental protection procedures and mitigation measures and the NEB's recommendations, the Project is not likely to result in significant adverse cumulative environmental effects.

Stakeholder (Government Agency, Applicant or First Nation)	Summary of Comments	NGTL's Response to comments filed with the NEB on the Draft ESR	How and where a change was made, or an explanation of why a change was not made, to the ESR
	<p>Fort Nelson First Nation noted that the draft ESR does not include Fort Nelson First Nation's original 44 recommended mitigation measures, require Fort Nelson First Nation involvement in further project decisions, nor include a requirement for NGTL to finish outstanding TLU investigations.</p>	<p>NGTL disagreed that completion of TLU studies with all potentially affected Aboriginal groups should be required. NGTL asserted that existing studies identifying traditional land uses can be relied upon to determine the means by which to mitigate effects on those traditional uses. NGTL further states that to require proponents to complete TLU studies with every potentially affected Aboriginal group would effectively grant veto to those groups, which is not consistent with current Canadian Law.</p>	<p>As discussed in Section 8.3.3.8, the Board has considered the recommendations presented by Fort Nelson First Nation. The Board remains of the view that several of Fort Nelson First Nation's recommendations address measures that could enhance environmental outcomes for the Project relating to traditional land and resource use, specifically those recommendations addressing the participation of Fort Nelson First Nation in construction monitoring.</p> <p>The Board also noted the request by Fort Nelson First Nation for the collection of additional information regarding traditional land and resource, and that additional information regarding traditional land and resource use relevant to the Project may be forthcoming from other potentially affected Aboriginal groups as well.</p> <p>The Board is of the view that with the implementation of NGTL's environmental protection procedures and mitigation measures and the NEB's recommendations, including Recommendations T and U, the Project is not likely to result in significant adverse effects to resources used for traditional purposes by Aboriginal peoples.</p>
	<p>Fort Nelson First Nation included suggested modifications for Recommendation T, so as not to confuse the required filings as a substitute for actual, legally required, Crown consultation.</p>	<p>Not specifically addressed in NGTL's response.</p>	<p>The Board is satisfied that Recommendation T is clear that it relates to NGTL's consultation with Aboriginal groups during construction.</p> <p>No changes have been made to the ESR.</p>
	<p>Fort Nelson First Nation included suggested modifications for Recommendations P, Q, and R regarding the extension of the protection of woodland caribou and their habitat to the Kyklo Creek section of the Project.</p>	<p>NGTL noted that the referred to section lies outside of any provincially designated caribou ranges and the extension of the Recommendations to the area does not align with the management objectives of caribou in BC.</p>	<p>The Board is satisfied that the measures in the Caribou Protection Plan are appropriate for the Kyklo Creek section and that further measures are not required.</p> <p>No changes have been made to the ESR.</p>

Stakeholder (Government Agency, Applicant or First Nation)	Summary of Comments	NGTL's Response to comments filed with the NEB on the Draft ESR	How and where a change was made, or an explanation of why a change was not made, to the ESR
NGTL A38713	NGTL suggested wording for Recommendation D, to clarify that it would be applicable to the temporary infrastructure only.		Recommendation D has been modified to clarify that the recommendation referred to temporary infrastructure.
	NGTL submits that the reporting element in Recommendation N, would be unnecessary if no active nests are found during the surveys		The Board has clarified Recommendation N.
	NGTL stated that the grizzly bear den sweep (Recommendation O) would not be necessary if construction begins prior to the denning period.		The Board is not persuaded that Recommendation O should be modified to reflect NGTL's suggestion. NGTL stated that bear behavior fluctuates depending on environmental conditions, and the Board understands that construction schedules may also vary for each section. In light of such variability, the Board is not modifying Recommendation O, and continues to expect NGTL to include a den sweep in its pre-construction plans.
	NGTL listed a further 17 items of comment and edits in its Appendix A, including comments on significant criteria and rankings, clarifications on pipeline lengths, and corrections to the text.		<p>Items other than 8, 10, 11, and 14 are primarily minor factual corrections and name updates, and most have been edited as suggested by NGTL.</p> <p>Items 8, 10, and 11 assert that there should be a change in the significance criteria contained in the detailed analysis of potential adverse environmental effects (Section 8.3.3). For all three cases, NGTL has provided evidence that with the mitigation proposed in their ESA and EPP, the significance was determined to be of shorter-term and expected to return to baseline conditions within the life of the Project. Seeing as the majority of the proposed mitigation contains 'where possible' or some other qualifier, the Board's interpretation is that there may be instances where the mitigation measures may not be fully implemented. As such, the Board is satisfied with the wording as written in the ESR. Items 8, 10, and 11 have not been changed in the final ESR.</p> <p>Regarding item 14, NGTL suggested the effects ranking for reversibility should be changed to reversible. As noted in Section 8.3.3.8, additional information regarding traditional land and resource use relevant to the Project may be forthcoming from</p>

Stakeholder (Government Agency, Applicant or First Nation)	Summary of Comments	NGTL's Response to comments filed with the NEB on the Draft ESR	How and where a change was made, or an explanation of why a change was not made, to the ESR
			<p>Duncan's First Nation and Doig River First Nation, in addition to additional information that may be provided by Fort Nelson First Nation. NGTL has indicated in its Traditional Land Use Sites Discovery Contingency Plan that while it is probable that the TLU sites will have been successfully identified and addressed, TLU sites may be discovered during construction. The degree to which a site may be disturbed in the process is not certain. Therefore, the Board is satisfied with the wording as written in the ESR for item 14.</p>