National Energy Board | Office national de l'énergie

National Energy Board Report

NOVA Gas Transmission Ltd.

GH-003-2014

March 2015

Facilities

Canada

National Energy Board Report

In the Matter of

NOVA Gas Transmission Ltd.

Application dated 25 March 2014 for the Wolverine River Lateral Loop (Carmon Creek Section) Project

GH-003-2014

March 2015

Cat No. NE4-4/2015-1E
ISBN 978-1-100-24936-0

This report is published separately in both official languages. This publication is available upon request in multiple formats.

Copies are available on request from:
The Publications Office
National Energy Board
517 Tenth Avenue SW
Calgary, Alberta T2R 0A8
E-Mail: publications@neb-one.gc.ca
Fax: 403-292-5576
Phone: 403-299-3562
1-800-899-1265

For pick-up at the NEB office:
Library
Second Floor

Printed in Canada

N^{o} de cat. NE4-4/2015-1F
ISBN 978-0-660-22626-2

Ce rapport est publié séparément dans les deux langues officielles. On peut obtenir cette publication sur supports multiples, sur demande.

Demandes d'exemplaires :
Bureau des publications
Office national de l'énergie
517, Dixième Avenue S.-O.
Calgary (Alberta) T2R 0A8
Courrier électronique : publications@neb-one.gc.ca
Fax : 403-292-5576
Téléphone : 403-299-3562
1-800-899-1265

Des exemplaires sont également disponibles à la bibliothèque de l'Office
Deuxième étage

Imprimé au Canada

Table of Contents

List of Figures

List of Tables

List of Appendices

Recital

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

IN THE MATTER OF an application dated 25 March 2014 filed with the National Energy Board by NOVA Gas Transmission Ltd. (NGTL) under file OF-Fac-Gas-N081-2013-18 02 for approvals to construct and operate the Wolverine River Lateral Loop (Carmon Creek Section) project, including:

a) a Certificate of Public Convenience and Necessity under section 52 of the NEB Act to construct and operate approximately 61 kilometers of 508 mm pipeline and related facilities (Section 52 Facilities); and,

b) an Order, pursuant to section 58 of the NEB Act, exempting NGTL from the requirements of paragraphs 31(c), 31(d) and section 33 of the NEB Act in relation to certain temporary infrastructure required for construction of the Section 52 Facilities (Section 58 Activities).

IN THE MATTER OF National Energy Board Hearing Order GH-003-2014 dated 17 July 2014;

HEARD by way of written submissions;

BEFORE:

J. Ballem	Presiding Member
P.H. Davies	Member
A. Scott	Member

Glossary of Terms, Abbreviations and Units

ACIMS	Alberta Conservation Information Management System
ASME B31.8S	American Society of Mechanical Engineers B31.8S - Managing System Integrity of Gas Pipelines
Applicant, NGTL or the Company	NOVA Gas Transmission Ltd.
Application	The application submitted to the Board by NGTL for the proposed Wolverine River Lateral Loop (Carmon Creek Section) Project
ATP	Application to Participate
BGC	BCG Engineering Inc.
CAC	Criteria Air Contaminant
CEAA 2012	*Canadian Environmental Assessment Act 2012*
CEARIS	Canadian Environmental Assessment Registry Internet Site
Certificate	Certificate of Public Convenience and Necessity granted under section 52 of the *National Energy Board Act*
CLML 1994	Cadotte Lake Métis Local 1994
Commenter	A person who applied to participate in the hearing and was allowed by the Board to participate as a commenter.
CP	Cathodic protection
CSA Z245.1	Canadian Standards Association Z245.1, Steel Pipe
CSA Z662-11	Canadian Standards Association Z662-11, Oil and Gas Pipeline Systems
DFN	Duncan’s First Nation
EA	Environmental Assessment
EAE	Enhanced Aboriginal Engagement
EPP	Environmental Protection Plan
ESA	Environmental and Socio-Economic Assessment
ESRD	Alberta Environment and Sustainable Resource Development
GHG	Greenhouse gas
HDD	Horizontal directional drilling
HLFN	Horse Lake First Nation
Hearing Order	Hearing Order GH-003-2014
HSE	Health, Safety and Environment

ILI	In-line inspection
IMP	Integrity Management Program
Intervenor	A person who applied to participate in the hearing and was allowed by the Board to participate as an intervenor.
LLB	Lubicon Lake Band
LSA	Local Study Area
KP	Kilometre Post
KWBZ	Key Wildlife and Biodiversity Zone
MCTB	Mountain Cree (Asini Wachi Nehiyawak) Traditional Band
MNA 6	Métis Nation of Alberta – Region 6
MOP	Maximum operating pressure
NCC	North Central Corridor
NEB or Board	National Energy Board
NEB Act or the Act	*National Energy Board Act*
NGTL System	The NGTL System is an integrated natural gas pipeline system consisting of approximately 25,000 km of pipeline, associated compression and other facilities located in Alberta and British Columbia. The NGTL System is subject to federal jurisdiction and regulation by the Board.
Notice	Notice of Hearing
NPS	Nominal pipe size (in inches)
OCC	Operations Control Centre
OPR	*National Energy Board Onshore Pipeline Regulations*
Participant	A person who applied to participate in the hearing and whose application to participate was approved by the Board. The term participant includes intervenors and commenters in this hearing.
PEA	Project Execution Agreement
PFP	National Energy Board's Participant Funding Program
Pipeline	The proposed pipeline from a block valve in SW-08-91-16 W5M at the site of the approved Otter Creek Compressor Station to the site of the approved Carmon Creek East Sales meter station in NW 22-085-18 W5M, located approximately 35 km northeast of the Town of Peace River.
PMP	Pipeline Maintenance Program
Project	Wolverine River Lateral Loop (Carmon Creek Section) Project consisting of the Section 52 Facilities and Section 58 Activities.

QMS	Quality Management System
RAP	Restricted Activity Period
Report	This Report is issued by the Board setting out the recommendation to the Governor in Council as to whether the Certificate should be granted for all or any portion of the Project and the reasons for the recommendation.
RFMA	Registered Fur Management Area
RoW	Right-of-way
RSA	Regional Study Area
SARA	*Species at Risk Act*
SCADA	Supervisory Control and Data Acquisition
SSA	Socio-economic Study Area
Section 52 Facilities	NGTL's proposed construction and operation of approximately 61 km of new 508 mm (NPS 20) OD pipeline, pipeline valves, in-line inspection launcher and receiver facilities and other associated works.
Section 58 Activities	Temporary infrastructure required for construction of the Section 52 Facilities including a stockpile site, contractor yards and preparation of access roads, and may include one or more construction camps.
Shell	Shell Canada Energy
TEK	Traditional Ecological Knowledge
TK	Traditional Knowledge
TLU	Traditional Land Use
TransCanada	TransCanada PipeLines Limited
TTFPC	NGTL Tolls, Tariff, Facilities and Procedures Committee
TWS	Temporary work space
WCFN	Woodland Cree First Nation
WMU	Wildlife Management Unit

List of Units

ha	hectare	m^3	cubic metre
km	kilometre	m^3/d	cubic metre per day
kPa	kiloPascals	Bcf/d	billion cubic feet per day
mm	millimetre	MMcf/d	million cubic feet per day
m	metre		

Chapter 1

Summary

1.1 Recommendation

1.1.1 Section 52 Facilities

The National Energy Board (Board) recommends that a Certificate of Public Convenience and Necessity (Certificate) be issued for the Section 52 Facilities. The Board has set out conditions, contained in Appendix II of this *National Energy Board Report* (Report), to which the Certificate would be subject if the Section 52 Facilities are approved by the Governor in Council. This Report sets out the reasons for this recommendation and the terms and conditions to which the Certificate would be subject.

1.2 Decision

1.2.1 Section 58 Activities

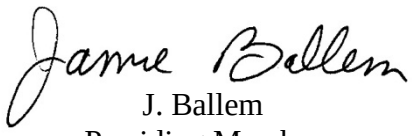
The Board has decided to grant an Order for the Section 58 Activities exempting NGTL from paragraphs 31(c) and 31(d), and section 33 of the NEB Act, subject to the conditions contained in the Order and set out in Appendix III of this Report. As a result, NGTL will be exempted from the requirement to file a plan, profile and book of reference for the Section 58 Activities. The Order will be issued with the Certificate, should the Section 52 Facilities be approved by the Governor in Council. This Report sets out the reasons for the Board's decision.

1.3 Conclusion

The Board considered and weighed all of the evidence before it in making its recommendation and decision on this Project. The Board is of the view that the Project is in the public interest and is consistent with the requirements of Part III of the NEB Act. In assessing NGTL's application, the Board has recommended and included conditions that will enhance the pipeline integrity, safety and environmental protection regulations and standards to which the Project is already subject.

The Board takes the commitments made by applicants seriously and throughout its deliberations the Board carefully considered all commitments made by NGTL in this proceeding. For these reasons, the Board has recommended Certificate Conditions 2, 3 and 9 (Appendix II) and included Order Conditions 2, 3 and 6 (Appendix III), which collectively require NGTL to track and fulfill the commitments it made during the proceeding.

Should a Certificate be issued, NGTL is required to fulfill its commitments and satisfy the Board's requirements. The Board will monitor NGTL's compliance with the Board's requirements throughout the life cycle of the Project.



J. Ballem
Presiding Member

P.H. Davies
Member

A. Scott
Member

Calgary, Alberta
March, 2015

Chapter 2

Introduction

2.1 The Application

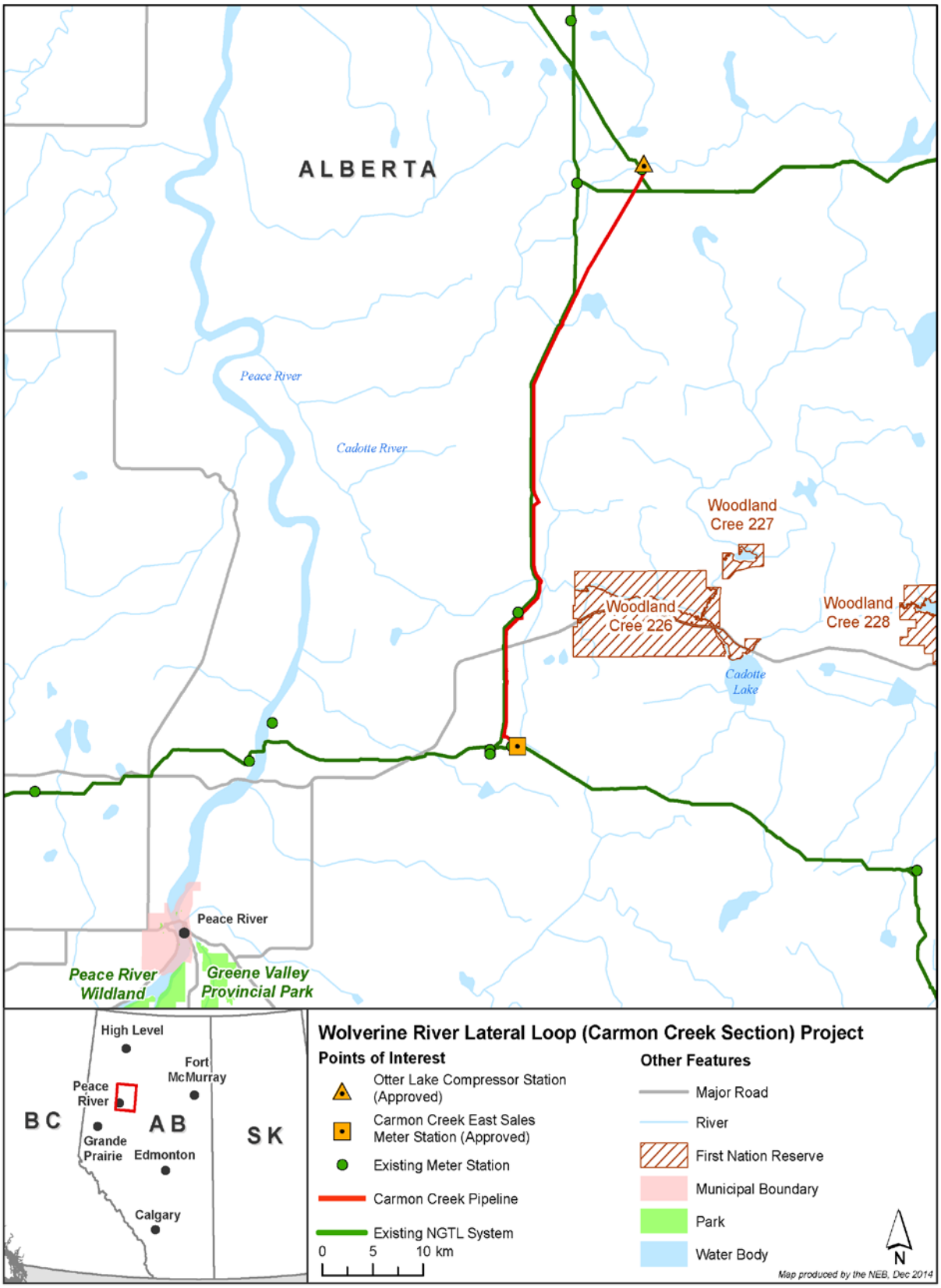
On 25 March 2014, NOVA Gas Transmission Ltd. (NGTL) filed an application (Application) with the Board for the Wolverine River Lateral Loop (Carmon Creek Section) Project (the Project). The Project would be located approximately 35 km northeast of Peace River, Alberta, and would involve the construction and operation of a 61 km pipeline, 508 mm (20 inches) in diameter, to transport sweet natural gas. The pipeline would extend from a block valve at the site of the approved Otter Lake Compressor Station to the approved Carmon Creek East Sales meter station. Approximately 57 km of the pipeline would be built alongside existing linear disturbances. Other Section 52 Facilities would include tie-in connections to existing facilities, valve sites, launcher and receiver facilities for inline inspection, and cathodic protection. Figure 2-1 provides an overview of the facilities and the applied-for route for the Project. In addition, temporary infrastructure such as a stockpile site, contractor yards, preparation of access roads and possibly one or more construction camps would be required for construction.

NGTL indicated that, subject to the required regulatory approvals, work on the temporary infrastructure for the Project is scheduled to begin in the third quarter of 2015, and pipeline construction is scheduled to begin in the fourth quarter of 2015. The anticipated in-service date for the Project is 1 April 2016.

In its Application, NGTL requested the following from the Board:

- a Certificate of Public Convenience and Necessity under section 52 of the *National Energy Board Act* (NEB Act), authorizing construction and operation of approximately 61 km of 508 mm pipeline and related facilities (Section 52 Facilities);
- an Order, pursuant to section 58 of the NEB Act, exempting NGTL from the requirements of paragraphs 31(c), 31(d) and section 33 of the NEB Act, in relation to temporary infrastructure required for the construction of the Section 52 Facilities (Section 58 Activities); and
- any such further and other relief as NGTL may request or the Board may deem appropriate.

Figure 2-1 Project Location Map



2.2 GH-003-2014 Hearing

2.2.1 NEB Hearing Order and Hearing Process

On 5 May 2014, the Board issued a Notice of Hearing and Application to Participate (Notice) convening a public hearing to assess NGTL's proposed Project. The Board issued Hearing Order GH-003-2014 (Hearing Order) on 17 July 2014, which established the process for the public hearing. The Hearing Order included the List of Issues that the Board considered during its assessment of NGTL's Application, which is included in Appendix I.

Through a procedural update issued by the Board in August 2014, the Board notified NGTL, and intervenors and commenters (Participants), that the oral portion of the hearing would occur on 5 November 2014 in Peace River, Alberta. In October 2014, NGTL requested that the Board complete its consideration of the Project Application through a written hearing. As no party opposed the request, the Board decided to continue the GH-003-2014 proceeding by means of a written hearing.

2.2.2 Hearing Participation

Pursuant to subsection 55.2 of the NEB Act, the Board must determine who may participate in a hearing for a project before the Board. To be eligible to participate, interested persons or groups must request participation and demonstrate to the Board in their participation application that:

- they are directly affected by the proposed project; or
- they have relevant expertise or information that will add value to the Board in making its decision or recommendation in respect of a proposed project.

As stated in the Board's 5 May 2014 Notice, those who wished to participate in the hearing process for the Project were required to submit an Application to Participate (ATP) to the Board by 13 June 2014. This deadline was then extended to 10 July 2014 to allow for publication of the Board's Notice in the June 2014 issue of the Native Journal.

The Board received three ATP submissions for the Project by the 10 July 2014 deadline. Woodland Cree First Nation (WCFN) and Shell Canada Energy (Shell) requested intervenor status and Environment Canada requested commenter status. On 27 June 2014, the Board issued its decision on participation, indicating that all applicants had been accepted to participate in the hearing through their requested method.

ATP submissions requesting intervenor status were received in October and November of 2014 from Horse Lake First Nation, Duncan's First Nation, and Mountain Cree (Asini Wachi Nehiyawak) Traditional Band. Horse Lake First Nation withdrew, and the Board granted the remaining two applicants commenter status in view of the lateness of the ATP submissions and potential prejudice to the applicant and other parties in the GH-003-2014 proceeding.

2.2.3 Participant Funding

The Board administers a Participant Funding Program (PFP), which provides financial assistance to support participation of individuals, Aboriginal groups, landowners, incorporated non-industry not-for-profit organizations, or other interested groups who seek to participate in the Board's oral hearing process for facilities applications.

On 15 January 2014, the Board made available $200,000 through the PFP to facilitate participation in the regulatory process for the Project. Two PFP applications were received but no contribution agreements were signed by 24 October 2014 when the GH-003-2014 proceeding was moved to a written hearing, thereby making the project ineligible for PFP.

2.3 Life Cycle Approach

In considering the Project, the Board used a life cycle approach where all issues and concerns were considered with regard to the construction, operation, maintenance, decommissioning and future abandonment of the Project. 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.

2.4 Public Interest

Pursuant to section 52 of the NEB Act, the Board considers whether the applied-for facilities are in the overall Canadian public interest. In doing so, the Board must, after carefully weighing all of the evidence in the proceeding, exercise its discretion in balancing the diverse interests of the public.

The Board has described the public interest in the following terms:

> *The public interest is inclusive of all Canadians and refers to a balance of economic, environmental, and social interests that changes as society's values and preferences evolve over time. The Board estimates the overall public good a project may create and its potential negative aspects, weighs its various impacts, and makes a decision.*[1]

In making its recommendation regarding public convenience and necessity, the Board must rely only on the facts that are established to its satisfaction through the hearing process, and must also proceed in compliance with the principles of natural justice.

[1] *Pipeline Regulation in Canada: A Guide for Landowners and the Public (Revised 2010)*, NEB, Page 1.

Chapter 3

Economic Feasibility and Tolls

In making its determination, 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 evidence submitted on 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 impacts on new or related markets, or 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.

3.1 Natural Gas Supply and Markets

Views of NGTL

NGTL stated that the Project is required to meet contracted demand for delivery of sweet natural gas in northwestern Alberta on and after 1 April 2016. NGTL's customer has executed a Project Execution Agreement (PEA) and schedules of service for incremental firm transportation delivery service on the NGTL System of 5.9 million m^3/d (208 MMcf/d) to be delivered to one delivery point.

NGTL stated that the capacity of the existing Cadotte River Lateral will have been reached by 1 April 2016 such that contracted demand cannot be met without the Project. The demand for natural gas in the Project area is to be met in stages, with the Project as one stage, and the development of a new meter station as the other stage. The new Carmon Creek East Sales Meter Station was applied for under a separate section 58 application, and approved by the Board on 22 September 2014. The new meter station is scheduled to be in service in 2015. Both stages are contractually underpinned by the PEA and associated transportation contracts.

3.1.1 Supply

NGTL stated that local gas supply in the Project area is in decline and insufficient to meet market demand. NGTL indicated that forecasted peak deliveries are expected to outpace peak average receipts starting approximately 2014 and increasing to a divergence of approximately 8 million m^3/d (0.28 Bcf/d) by 2023/2024. NGTL stated that gas from other parts of the NGTL System will be required to meet contracted deliveries. NGTL also provided a forecast for the productive capacity of the NGTL System. Approximately 279 million m^3/d (9.9 Bcf/d) of natural gas physically entered the NGTL System in 2013 and NGTL expects this volume to increase to 401 million m^3/d (14.1 Bcf/d) by 2024/25.

NGTL stated that the integrated nature of the NGTL System makes it difficult to identify specific supply for specific pipes or pipe sections. In a broad sense, however, the North Central Corridor (NCC) is the primary flow path from the northwest area of the NGTL System to growing market demand in the northeast part of the NGTL System. NGTL stated that current capacity of the NCC is approximately 45 million m^3/d (1.6 Bcf/d) and it will increase to approximately 55 million m^3/d (2 Bcf/d) with the addition of the approved Otter Lake Compressor Station in November 2015.

3.1.2 Markets

NGTL submitted that the primary market for natural gas delivered by the Project is the industrial market, in particular new oil sands development in the Peace River area of northwestern Alberta. To determine its requirements for oil sands-related gas demand in the Peace River area, NGTL stated that it first develops a forecast of customer oil production and then determines the amount of gas required for this production. A gas delivery forecast is then developed based on NGTL's analysis of data collected from confidential customer data, future contracting information, historical flow information and publically available data. The peak demand forecast was estimated by NGTL to increase from 0.4 million m^3/d (15 MMcf/d) in 2013/14 to 7.8 million m^3/d (276 MMcf/d) in 2019/20 through to 2024/25, the end of NGTL's forecast period.

Views of Participants

Shell supported NGTL's Application stating that the Project is needed and is economically viable, and that the Project will provide the infrastructure for the increased gas demand in the area. No Participants raised any concerns about NGTL's supply evidence, forecast methodology or forecast demand for natural gas in the Project area.

Views of the Board

The Board finds NGTL's forecast of the productive capacity of the NGTL System to be feasible, and given the integrated nature of the NGTL System, the Board is satisfied there is sufficient supply in the Western Canadian Sedimentary Basin to support the Project and provide incremental natural gas volumes to markets in the Project area.

The Board also accepts NGTL's forecast for gas demand in the Project area, and is satisfied that there are sufficient markets for natural gas in the Project area to justify the Project as illustrated by the execution of the PEA between NGTL and NGTL's customer. The Board accepts NGTL's evidence that the demand for incremental natural gas volumes will increase in the Project area over the next several decades.

3.2 Transportation and Throughput

Views of NGTL

The Project has been designed to provide capacity of 9.8 million m^3/d (344 MMcf/d). NGTL stated that the PEA between NGTL and the customer provides the commercial underpinning for the Project to meet customer needs. NGTL stated that seven firm service contracts have been executed that start at 0.4 million m^3/d (14 MMcf/d) beginning 1 January 2015 and increase to a total of

5.9 million m^3/d (208 MMcf/d) by 1 December 2017. The existing delivery capability in the Project area is approximately 2.8 million m^3/d (99 MMcf/d). NGTL stated that while the existing pipeline infrastructure can accommodate the first three contracts, the remaining four contracts totalling 3.3 million m^3/d (115 MMcf/d) will require the Project starting 1 April 2016 as the capacity of the Cadotte River Lateral will have been reached.

NGTL stated that two flow path options were considered to meet the design forecast in the area: the South Path and the East Path. The South Path option was chosen by NGTL on the basis that it was 20 km shorter than the East Path, resulting in lower initial capital costs.

NGTL submitted that two pipe size options were also considered: nominal pipe size (NPS) 16 and NPS 20. While the NPS 20 alternative resulted in higher initial capital costs, NGTL noted that long-term costs and the cumulative present value cost of service were lower. Furthermore, NGTL indicated that while NPS 16 is capable of handling volumes until late 2016, additional volumes contracted to flow in later years would require the larger pipe size.

Views of Participants

No Participants raised concerns about the information provided by NGTL regarding flow path analysis, pipe size and forecast throughput.

Views of the Board

The Board accepts NGTL's expectation of long-term utilization of the Project. The Board is satisfied with NGTL's justification for the South Path over the East Path given its smaller footprint and lower initial capital costs. The Board is also satisfied with the NPS 20 pipe size providing capacity of 9.8 million m^3/d (344 MMcf/d) given NGTL's evidence of lower long-term costs and cumulative present value cost of service.

3.3 Ability to Finance

Views of NGTL

NGTL stated that the total capital cost of the project would be $144.4 million. NGTL submitted that it will fund the Project's construction cost from its parent company. TransCanada Pipelines Limited (TransCanada) expects to fund its capital program, including NGTL projects, through a combination of cash flow from consolidated operations, access to United States and Canadian capital markets, and cash on hand. As of 31 December 2013, TransCanada and other subsidiaries of TransCanada Corporation had committed revolving credit facility capacity of about $5.2 billion. According to NGTL, Moody's Investor Service, Inc. and Standard & Poor's in the U.S., and DBRS Limited in Canada, have assigned TransCanada "A-" credit ratings.

Views of Participants

No Participants expressed any concerns regarding NGTL's ability to finance the construction of the Project and to place it into operation.

Views of the Board

The Board is of the view that NGTL, through its parent company TransCanada, is capable of financing the Project.

3.4 Toll Principles and Methodology

Views of NGTL

3.4.1 Tolls

NGTL submitted that it will provide services using the Project under the terms and conditions established in the NGTL Tariff, as amended from time to time. NGTL also submitted that it proposes to treat costs for the Project on a rolled-in basis, consistent with similar facilities on the NGTL System, and to determine the tolls for services in accordance with the NGTL toll design methodology in effect at any given time. NGTL submitted that the Project will have minimal impact on rates and fuel on the NGTL System. Beginning in 2016, and for each subsequent year for the five-year period assessed, NGTL expects the total delivery and indirect receipt revenue to exceed the incremental cost of service associated with the Project.

3.4.2 Abandonment costs

NGTL submitted a $3 million abandonment cost estimate for the Project in accordance with the Board's MH-001-2012 decision. NGTL noted that the specific abandonment approach and cost estimate will be updated when an application to abandon these facilities is filed. The annual collection amount for abandonment costs on the NGTL System is proposed to be collected through a service charge. Since the initial NGTL abandonment cost estimate filed in compliance with the MH-001-2012 decision is $1.92 billion, NGTL stated that increasing the estimate by $3 million would not significantly affect the annual collection or surcharge amounts.

Views of Participants

No Participants expressed concerns regarding tolls or abandonment costs related to the Project.

Views of the Board

The Board is satisfied that the proposed method to treat costs for the Project on a rolled-in basis is appropriate for this Project. The Board is also satisfied that NGTL is addressing the Board's requirements regarding abandonment costs in accordance with the Board's MH-001-2012 Decision.

Chapter 4

Facilities and Emergency Response Matters

The Board uses a risk-informed approach in requiring that NEB-regulated facilities and activities are safe and secure from their initial construction through to their abandonment. In consideration of the safety and security of proposed facilities, the Board assesses, at a conceptual level, whether 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, emergency preparedness, and health and safety.

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the *National Energy Board Onshore Pipeline Regulations* (OPR), the commitments made in its application and related submissions, and the conditions attached to the certificate. The OPR references various engineering codes and standards including Canadian Standards Association (CSA) Z662-11 Oil and Gas Pipeline Systems (CSA Z662-11). The company is responsible for ensuring that the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by it are in accordance with the OPR.

4.1 Description of Section 52 Facilities

The following are included in the Section 52 Facilities:

- construction and operation of an NPS 20 natural gas pipeline, approximately 61 km in length, designed to transport sweet natural gas at a maximum operating pressure (MOP) of 9 930 kPa;
- construction and operation of one block valve and three crossover valves along the proposed right-of-way (RoW);
- construction and operation of associated facilities, infrastructure, and other miscellaneous works including in-line inspection (ILI) tool launching and receiving facilities, and a cathodic protection (CP) system; and
- monitoring and control of the pipeline through TransCanada's Operations Control Centre (OCC).

Subject to regulatory approval, pipeline construction is scheduled to start in the fourth quarter of 2015 during frozen conditions, and to be completed in the second quarter of 2016.

4.2 Description of Section 58 Activities

Section 58 Activities for the Project include the construction of a stockpile site, contractor yards and preparation of access roads, and may include one or more construction camps, if necessary, to house the workforce required to build the Project. Preparation of construction-related infrastructure is scheduled to begin during the third quarter of 2015, before pipeline construction.

4.3 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. This life cycle approach follows the project from design through construction and operation, until the pipeline is abandoned. The adequacy, implementation and effectiveness of a company's commitments are verified by the Board through various compliance mechanisms.

This compliance approach is an integral part of the Board's continuous oversight of a company's pipeline and facilities through, for instance, its ongoing monitoring of a company's compliance and incidents. Accordingly, should a Certificate for the Section 52 Facilities be issued, the Board would employ its normal compliance verification approach as a means of verifying that the company is meeting the regulatory requirements and the commitments made in its application or in its related submissions.

4.3.1 Design

Views of NGTL

4.3.1.1 Codes and Standards

NGTL submitted that the Project would be designed, constructed and operated in compliance with the OPR and CSA Z662-11, which is incorporated by reference in the OPR. Moreover, NGTL provided a list of primary industry standards, as well as company specifications potentially applicable to the Project. NGTL stated the Project will use the appropriate CSA Z662-11 Annexes in its design and operation.

4.3.1.2 Material Specifications

NGTL stated that line pipe material would comprise Grade 483 (X70) steel with wall thicknesses of 6.8 and 8.7 mm. The ILI pig launcher and receiver pipe material will be made from Grade 414 (X60) steel with a wall thickness of 15.9 mm. NGTL provided industry-standard material specifications for assembly pipe, fittings and valves, consisting of a variety of grades and sizes.

NGTL confirmed that both line pipe and ILI facility pipe greater than NPS 2 will meet Category II notch toughness requirements. In accordance with CSA Z662-11, steel components will also have Category II notch toughness. Line pipe will be manufactured using electric welding along the longitudinal seam, while ILI barrel piping will be submerged arc welded along the longitudinal seam. Line pipe and ILI facility barrel piping will comply with NGTL company specifications, which meet the CSA Z245.1 standard for steel pipe.

NGTL submitted that the Project's quality objectives include compliance with TransCanada's quality management system (QMS). Quality management would also ensure that procured materials are consistent with the engineering design.

4.3.1.3 Depth of Cover

NGTL stated the Project will have a minimum depth of cover of 0.9 m, which would be altered under the following circumstances:

- road crossings would have a minimum depth of cover of 1.5 m, or as agreed upon with the relevant governing body or third-party owner;
- buried utility and foreign pipeline crossings would have a minimum clearance of 300 mm, or as agreed upon with the third-party owner; and
- watercourse crossings with defined beds and banks would have a minimum depth of cover of 1.5 m.

4.3.1.4 Geotechnical Design

NGTL hired BGC Engineering Inc. (BGC) to conduct a geotechnical investigation to identify subsurface conditions that could negatively influence the Project. In its Design Confirmation Letter, NGTL committed to designing the Project to account for all potential geotechnical hazards. The BGC study determined the presence of muskeg along approximately 22 km (36 per cent) of the pipeline route. Consequently, NGTL submitted potential buoyancy control measures to address the presence of muskeg, including various anchoring and weighting systems.

NGTL noted that exposed/floating pipe was discovered on the Wolverine River Lateral in 2005 and was mitigated through the use of screw anchors and cover restoration. NGTL stated that buoyancy-control measures used on the Wolverine River Lateral were reviewed for the Wolverine River Lateral Loop design. NGTL noted that more recent experience with buoyancy-control measures will also be applied to the Project, in addition to TransCanada's internal engineering specification for buoyancy control design.

The BGC study also identified minor creep along the south bank of the Cadotte River. NGTL confirmed it would conduct further investigations during the detailed design phase, and implement mitigation measures into the design and construction of the Project. According to NGTL, slope instability mitigation during design and construction could, among other techniques, include:

- the use of horizontal drains and/or toe buttresses;
- erosion protection; and
- the use of heavy wall pipe to manage deformations and strains caused by slope movement.

During the Project's operation phase, NGTL stated that mitigation measures could further include:

- detailed geotechnical investigation of slope instabilities and engineering assessment of the impact on pipeline integrity;
- ground movement and pipe strain monitoring;
- the use of ILI data to detect pipe deformation; and
- strain relief.

NGTL confirmed that the Project would not traverse areas of permafrost.

Views of Participants

No Participants expressed concern with respect to the Project design.

Views of the Board

The Board is of the view that the general design of the Project is appropriate for its intended use, and will meet regulatory requirements. The Board is further satisfied that the Section 52 Facilities would be constructed in accordance with widely accepted industry standards, including CSA Z662-11.

The Board recommends that any Certificate issued with respect to the Section 52 Facilities include a condition requiring NGTL to design, locate, construct, install and operate the Section 52 Facilities in accordance with the specifications, standards, commitments made and other information referred to in its Application and in its related submissions (Certificate Condition 2, Appendix II). The same condition applies to the Order for the Section 58 Activities (Order Condition 2, Appendix III). The Board also determines that requiring NGTL to submit and maintain a Commitments Tracking Table that tracks the status of all commitments and conditions to be fulfilled is appropriate and has included a condition to that effect (Certificate Condition 9, Appendix II; Order Condition 6, Appendix III).

The Board is satisfied that the selected material standards, specifications and grades are appropriate for the Section 52 Facilities and meet the requirements of CSA Z662-11. The Board notes that NGTL has a QMS in place that will require the pipe manufacturer to adhere to the purchase specification and applicable codes and standards.

The Board notes that increased depth of cover for road and watercourse crossings is favourable for the protection of the Section 52 Facilities from external loads and third-party damage. Because NGTL's proposed depth of cover meets or exceeds CSA Z662-11 requirements, the Board is satisfied the Section 52 Facilities are appropriately designed to mitigate these potential risks.

The Board is of the view that the Section 52 Facilities will include geotechnical design techniques successfully demonstrated on other pipelines, including those that traverse muskeg. However, the Board notes that signs of minor slope instability were detected at the Cadotte River crossing, where final mitigation techniques specific to the preservation of pipeline integrity have not been provided. The Board therefore includes a condition for NGTL to file with the Board a description of the slope instability mitigation techniques implemented in the final design for the preservation of pipeline integrity (Certificate Condition 10, Appendix II).

4.3.2 Construction

Views of NGTL

NGTL stated that TransCanada construction inspectors would be responsible for ensuring the contractor is constructing the Project in accordance with the Project design and all applicable

standards and specifications. The prime contractor would be responsible for adhering to the project-specific quality management plan. TransCanada's inspectors would also monitor construction activities for both the Section 52 Facilities and the Section 58 Activities to ensure compliance with the quality management plan.

NGTL submitted that the joining program and non-destructive examination of welds will comply with the requirements of the OPR and CSA Z662-11. Welding procedures will be determined during detailed design. NGTL stated that it would protect the pipe and coating from damage during lowering-in and backfilling using rock shielding or wood lagging methods as required. NGTL confirmed it would clean the pipeline to remove construction debris. Prior to arrival onsite, hydrostatic testing of pre-fabricated components such as valves and elbows would be completed in accordance with CSA Z662-11. Following successful hydrostatic testing, NGTL stated that a qualified TransCanada representative would prepare the pipeline for start-up.

4.3.2.1 Watercourse Crossing Construction

NGTL submitted that appropriate watercourse crossing methods were determined following the guidance provided by the Canadian Association of Petroleum Producers' *Pipeline Associated Watercourse Crossings, 3rd Edition.* NGTL stated that isolated open-cut crossing methods would be used, in accordance with the recommendations from the Project's Environmental and

Socio-Economic Assessment. Dry open-cut crossings would be selected as a contingency method wherever watercourses are found to be dry or frozen at the time of construction. NGTL asserted that field observations suggested prior crossings at the Cadotte River and unnamed watercourse

89-CWC-01 were successfully completed using isolated open-cut methods. NGTL stated that isolated open-cut crossing methods were considered due to their feasibility under the following conditions:

- watercourse flows less than 4 m^3/s;
- watercourse channel widths less than 100 m; and
- water depths less than 2 m.

NGTL also contemplated using horizontal directional drilling (HDD) to complete the crossings at the Cadotte River and unnamed watercourse 89-CWC-01. However, HDD was not considered feasible due to local geological constraints. According to NGTL, additional limitations to employing HDD at the Cadotte River crossing included:

- moderate to long HDD length for required pipe size by industry standards;
- increased landscape fragmentation due to alternative location of drill path with respect to current proposed alignment and additional disturbances necessary for HDD execution; and
- lack of allowance for isolated open-cut crossing contingency option in the same easement in the event of a failed HDD attempt.

NGTL reaffirmed its view that an isolated open-cut crossing would be favourable at the Cadotte River due to:

- previous experience indicating the size and flow conditions of the Cadotte River are very manageable;
- sufficient workspace for isolated open-cut crossing installation in the valley bottom; and
- an absence of environmental concerns (i.e., fisheries) requiring the higher risk HDD method due to the winter construction schedule and avoidance of the Restricted Activity Period.

Views of Participants

WCFN expressed concern with NGTL's implementation of its commitments during Project construction and requested a construction monitor chosen by, and reporting to, WCFN be employed by NGTL. These concerns are addressed in Chapter 6 (Aboriginal Matters).

WCFN stated that, in most cases, NGTL's proposed watercourse crossing methods are acceptable and there would be minimal impact, provided all proposed mitigations are followed. However, WCFN submitted that a trenchless crossing method, such as HDD, would avoid disturbances to major watercourses with year-round flows and significant fish habitat. WCFN submitted that HDD would avoid tree clearing, soil stripping, grading and ditching near watercourses.

Views of the Board

The Board is satisfied the Project will be constructed using accepted industry practices, and will comply with the requirements of the OPR and CSA Z662-11. The Board notes that NGTL has committed to monitoring construction activities. The Board further notes that NGTL is required, as a condition of its authorizations, to follow through on its commitments (Certificate Conditions 2 and 9, Appendix II; Order Conditions 2 and 6, Appendix III).

NGTL stated that welding specifications and procedures would be developed during detailed design. To facilitate construction inspections, the Board includes a condition requiring NGTL to file its field joining program for the Section 52 Facilities with the Board at least 14 days prior to the start of any joining activity (Certificate Condition 11(c), Appendix II). The Board also includes a condition requiring NGTL to submit its field pressure testing program for the Section 52 Facilities at least 14 days prior to pressure testing (Certificate Condition 11(d), Appendix II).

The selection of an appropriate watercourse crossing construction method strikes a balance between numerous factors, including engineering constraints, environmental considerations, geotechnical concerns and hydrological information. The Board notes WCFN's concerns regarding the impact of open-cut crossings on the environment, including potential disruption to fish and fish habitat and disturbances to areas adjacent to watercourses. As further described in Section 8.6.3, the Board acknowledges that NGTL has committed to adhering to standard mitigation measures to minimize these environmental impacts. The Board also notes that NGTL will ensure that mitigation measures are followed through the use of qualified environmental inspectors on the Project.

Although HDD may be technically feasible, NGTL has provided rationale for using the open-cut crossing method. As noted by NGTL, there are a number of technical and environmental concerns regarding HDD. In particular, the Board notes that the alternate HDD crossing location at the Cadotte River would not accommodate a contingency isolated open-cut option in the same easement, potentially introducing construction delays and environmental impacts in the event of a failed HDD attempt. Considering the Cadotte River crossing in particular, NGTL stated an HDD would lead to increased land fragmentation due to the non-adjacent RoW, pipe staging allowances and drill pad clearings.

The Board is of the view that the isolated open-cut construction technique is technically feasible based on the channel sizes and anticipated flow rates. The Board further notes that isolated open-cut crossings have been successfully completed at the Cadotte River and 89-CWC-01 in the past. The relatively low flow rates expected during the proposed winter construction season, small to moderate crossing widths, and industry experience installing similar crossings under comparable conditions, all support NGTL's plan to employ the isolated open-cut crossing technique. Likewise, the dry open-cut technique appears to be an appropriate contingency measure in the event dry or frozen to bed conditions are encountered. Based on these considerations, the Board is of the view that the isolated open-cut crossing method is preferable for construction of the Section 52 Facilities.

4.3.3 Operation

Views of NGTL

NGTL noted that the Project will be operated in accordance with all applicable regulatory requirements, including the OPR and CSA Z662-11. Furthermore, NGTL committed to ensuring the health, safety and environmental performance of the Project through TransCanada's Health, Safety and Environment (HSE) Management System Framework. The HSE Framework would apply to the entire life cycle of the Project. NGTL would ensure maintenance of the Project through TransCanada Operating Procedures, which describe work procedures as well as competency, documentation and HSE requirements.

4.3.3.1 Control System and Overpressure Protection

NGTL stated that it would monitor and control the Project through TransCanada's OCC in Calgary, Alberta. The OCC remotely monitors and controls the NGTL System 24 hours per day through a supervisory control and data acquisition (SCADA) system. The SCADA system will continuously monitor important Project operating parameters such as pressure, temperature, flow and gas quality. The SCADA system communicates with key facilities such as mainline valves and compressor stations to maintain status and control. Should the OCC be unavailable for any reason, NGTL submitted that the TransCanada Backup Control Centre would provide fully functional control redundancy.

NGTL submitted that, through system monitoring with SCADA, the Project would comply with section 37 of the OPR (Pipeline Control System). It further asserted that the Project's pressure control and overpressure protection system would be compliant with CSA Z662-11, Clause 4.18: Pressure Control and Overpressure Protection of Piping. In the event of an emergency, such as a

pipeline rupture, NGTL confirmed that block valves would be equipped with low-pressure detecting actuators that would close the valve and isolate the pipe segment.

Views of Participants

WCFN expressed concerns regarding pipeline leaks and spills, which are addressed in section 4.3.5 (Pipeline Integrity). WCFN also expressed a desire to be involved in post-construction monitoring, and monitoring during the operational life of the pipeline. These concerns are addressed in Chapter 6 (Aboriginal Matters).

Views of the Board

The Board notes that NGTL has committed to operating the Section 52 Facilities in accordance with the OPR, CSA Z662-11, and company-specific procedures. In particular, the OPR requires companies to develop a surveillance and monitoring program for the protection of the pipeline and the public.

The Board is of the view that TransCanada's OCC and SCADA system will provide sufficient monitoring and control, thus contributing to the safe operation of the Section 52 Facilities. System redundancy is further assured through a backup control centre. The Board notes that the Project's SCADA system also enables the recording of key operating parameters. The Board is therefore satisfied the Project's control and overpressure protection systems will meet the requirements of the OPR and CSA Z662-11.

4.3.4 Safety and Security

In accordance with the OPR and CSA Z246.1, regulated companies are required to implement mitigative and preventative measures for all risks posed by hazards and threats to the integrity of pipeline systems, the public and workers, and to the environment. The OPR also requires the development and adoption of management system approaches within regulated companies. In addition, regulated companies are expected to develop a strong safety culture in concert with their management systems.

The Board monitors a company's compliance with Certificate and Order conditions and with legislation during all stages of the construction and operation of a project. The Board evaluates the need for specific compliance verification activities and determines whether an on-site inspection or audit of the company's management systems is necessary. This includes an evaluation of a company's programs to address safety and security.

Views of NGTL

NGTL indicated that it anticipates using one prime contractor who would be responsible for developing and implementing a site-specific safety plan during the construction of the Project. NGTL confirmed that its prime contractor will be responsible for health and safety at the worksite, including the development of a site-specific safety plan that meets all applicable safety laws and regulations. The prime contractor is also responsible for ensuring that all personnel complete a site-specific safety orientation before allowing them access to the worksite.

NGTL submitted that TransCanada construction and environment inspectors will be on site during construction to ensure that all project activities, including health, safety and environmental performance, comply with the QMS and meet or exceed applicable laws and regulations.

NGTL confirmed that during construction, it will follow TransCanada's contractor safety management program, which provides guidance on audit and safety inspection requirements, and ensures documented adherence to TransCanada's HSE Management System Framework.

NGTL indicated that it will follow TransCanada's Public Awareness Program to educate the affected public, excavators, contractors, emergency officials and local public officials about living and working safely near pipelines. The Public Awareness Program includes safety messaging on leak recognition and incident response, as well as damage prevention awareness, including the message to "call before you dig".

With respect to preventing damage of existing pipelines during construction, NGTL committed to:

- marking and locating all third-party utilities using One-Call services prior to the start of construction to ensure the safety of workers and the public;
- exposing all known locations of underground facilities;
- obtaining and adhering to crossing agreements for all third-party utilities; and
- conducting construction activities in the vicinity of existing pipelines in accordance with CSA Z662-11 and the OPR.

NGTL submitted that TransCanada's overarching corporate security policies and programs would provide security management throughout the construction and operation of the Project. NGTL would also employ a TransCanada Operating Procedure that outlines security expectations for the prime contractor. NGTL would audit the prime contractor plans to ensure compliance with NGTL's Project security requirements. Consistent with these security management processes, NGTL stated that ongoing security assessments will be conducted and documented, and security management plans will be developed and implemented for the Project.

Views of Participants

WCFN noted concerns about potential damage to existing pipelines from Project construction. WCFN also expressed concerns regarding NGTL's Public Awareness Program, which are addressed in section 4.4 (Emergency Preparedness and Response).

Views of the Board

The Board acknowledges WCFN's concerns associated with the potential for construction-related damage to pipelines adjacent to the proposed Section 52 Facilities. The Board is of the view that the implementation of NGTL's proposed mitigative and preventative measures for the Project will ensure construction activities are carried out safely, and in accordance with regulatory requirements. In particular, the OPR requires that companies take all reasonable steps to ensure that construction activities do not create a hazard to the public or the environment, and that the company ensures that construction activities adhere to its construction safety manual. It is the Board's expectation that NGTL is working to ensure a strong safety culture exists and will monitor this commitment during future compliance verification activities such as inspections and audits.

The Board notes that NGTL uses TransCanada's corporate security policies and programs and is satisfied that these are adequate for security management during the construction and operation of the Project. The Board includes conditions requiring NGTL to file the following manual and reports with the Board:

- a construction safety manual for the Project (Certificate Condition 11(a), Appendix II; Order Condition 7(a), Appendix III); and
- a detailed construction schedule or schedules identifying major construction activities (Certificate Condition 12, Appendix II);
- construction progress reports at the middle and end of each month during construction (Certificate Condition 13, Appendix II) which include information on environment, safety and security issues; issues of non-compliance; and measures undertaken for their resolution.

The construction schedule, safety manual and progress reports will facilitate the ongoing review by the Board of NGTL's safety plans and performance.

4.3.5 Pipeline Integrity

A management system, in general, is a systematic approach designed to effectively manage and reduce risk. It includes the policies, processes and procedures used by an organization to fulfill all tasks related to safety, security and environmental protection. It normally contains 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 any integrity management program is to prevent leaks and ruptures caused by in-service degradation of a pipeline.

Views of NGTL

NGTL described its initial threat identification process for the Project, stating that potential pipeline integrity threats are initially identified prior to detailed design. Threat categories would be defined by American Society of Mechanical Engineers (ASME) B31.8S - Managing System Integrity of Gas Pipelines. A qualitative threat assessment would be performed on the preliminary design for the Project. Potential issues identified for threat management would then be used to develop

recommendations on the design of the Project. The threat identification process would also consider the exposure of existing pipelines to new operational conditions resulting from the Project. If required, NGTL would conduct an engineering assessment on the related existing facilities to determine if changes would be necessary to their integrity plans for safe operation.

NGTL further articulated its integrity management commitments during the design and construction phases of the Project. Input would be obtained from operating personnel who would consider the requirement for the Project's long-term operational integrity. Elements and specifications supporting long-term integrity would be incorporated into the design of the Project.

Threat mitigation techniques during the design and construction phase would include corrosion prevention, inspections, and pipeline routing. NGTL confirmed that the Project would be fully piggable, and would include the installation of ILI tool launchers and receivers. NGTL also committed to performing inspections to detect construction-related damage, assessing and repairing the damage as required. Caliper pig ILI tools would be used during the pre-commissioning phase of the Project to detect geometric pipe deformities.

NGTL confirmed that it would maintain the integrity of the Project using NGTL's Integrity Management Program (IMP) throughout its life cycle, including during operation. NGTL submitted that the principal objectives of its IMP during operation are to:

- minimize any safety impact on the public and employees;
- minimize the frequency and consequences of pipeline incidents, damage and failure;
- minimize effects on the environment;
- protect the installed pipelines and facilities through effective security;
- ensure compliance with regulatory requirements; and
- maintain service reliability.

NGTL noted that the IMP threat management process will be used to identify, assess and manage threats through a performance-based process. Threat management activities are prioritized based on risk analyses. Selected activities are recorded annually in the Pipeline Maintenance Plan (PMP).

4.3.5.1 Corrosion Control

NGTL submitted that corrosion control would include pipe coatings, CP, and launcher and receiver facilities to permit ILI. Below-ground pipe would be externally coated with fusion-bonded epoxy coating. NGTL would employ abrasion-resistant coatings wherever coating abrasion could occur during installation, while above-ground piping would be primed and painted. NGTL also submitted it would prevent damage to the pipe and coating wherever large or angular backfill material would be encountered. Mechanical protection systems consisting of sand padding or rock jacketing could be used in these instances. NGTL stated it would install an impressed current CP system for corrosion control. The system would include existing and new installations such as ground beds, rectifiers and thermal electric generators, if required. CP test points would also be installed to monitor system effectiveness.

Installation of ILI launcher and receiver facilities would be completed at the time of construction. NGTL confirmed the launcher facility would be located at the approved Otter Lake Compressor

Station. Receiver facilities would in turn be located at the approved Carmon Creek East Sales Meter Station. NGTL stated it plans to conduct post-commissioning ILI within the first year of operation using high-resolution metal loss, geometry, and geospatial ILI tools. NGTL further submitted that it would annually review all threats to the Project, and from the review, a PMP would be developed and implemented.

Views of Participants

WCFN expressed concerns regarding the potential for a pipeline failure, referencing recent incidents in its traditional territory.

Views of the Board

With respect to WCFN's concern regarding the potential for pipeline failure, the Board notes that NGTL has committed to designing, constructing and operating the Project in accordance with the OPR and CSA Z662-11. The OPR and CSA Z662-11 require companies to develop, implement and maintain an integrity management program to anticipate and manage conditions that could adversely affect the safe operation of the Section 52 Facilities. The Board notes that NGTL is required, as a condition of its authorizations, to follow through on its commitments (Certificate Conditions 2 and 9, Appendix II; Order Conditions 2 and 6, Appendix III).

The Board is satisfied with NGTL's pipeline integrity submissions and notes that the Project will be integrated into, and managed by, NGTL's IMP. The Board is also satisfied with the pipeline integrity-related design features of the Project, which include the use of industry-accepted elements such as fusion-bonded epoxy coatings and a CP system for the prevention of external corrosion, and the installation of ILI launcher and receiver facilities for condition monitoring. The Board is of the view that the integrity-related design elements of the Section 52 Facilities combined with NGTL's IMP will adequately manage the risk of potential pipeline failures.

The Board notes the industry practice of conducting baseline ILI assessments during the early stages of operation as an effective measure of the initial condition of a pipeline. Subsequent ILI information can then be compared to the baseline data to detect and mitigate potential integrity threats such as pipe movement and strain, deformation damage, and corrosion growth. The Board is satisfied that NGTL's proposed post-commissioning ILI within the first year of operation will provide an acceptable foundation for the Project's future threat management plan.

4.4 Emergency Preparedness and Response

In accordance with OPR, the Board expects companies to develop and implement emergency management systems and programs that anticipate, prevent, manage and mitigate conditions during an emergency that could adversely affect property, the environment or the safety of workers or the public.

Views of NGTL

NGTL stated that, before Project facilities are put into operation, TransCanada will work with external emergency response personnel to ensure appropriate communication protocols; operations and product awareness; and understanding of TransCanada's emergency response procedures. NGTL indicated that it will meet the Board's expectations for emergency preparedness and response by implementing TransCanada's emergency management program, which governs all aspects of preparedness and response.

NGTL stated that it implements TransCanada's Public Awareness Program, which helps inform emergency response service agencies about TransCanada's emergency response procedures and cooperation and coordination during an emergency, and helps maintain contact with those directly affected by the company's facilities or operations.

Views of Participants

WCFN stated that there was limited engagement with NGTL with respect to emergency response planning. WCFN also noted that NGTL does not have a WCFN-specific plan for communicating with WCFN members who may be on the land when a pipeline failure occurs. WCFN submitted that emergency planning and response preparedness should be adequately communicated to the members of WCFN. WCFN requested that the Board attach a condition requiring NGTL to prepare an emergency response protocol and community preparedness plan in the event of a pipeline rupture. The condition would require that NGTL consult with WCFN on the draft protocol and allow WCFN the opportunity to comment on the draft plan prior to its submission with the Board. The condition would also require NGTL to make funding available to WCFN for a third-party review of the draft protocol.

Reply of NGTL

With respect to emergency response planning, NGTL stated that it will maintain contact with people and groups, including WCFN, who might be directly affected by company facilities or operations through its Public Awareness Program. In addition, NGTL stated that during operations, Project facilities will be covered by TransCanada's emergency management system and any related operating procedures. NGTL stated that it will ensure that WCFN is included in its Public Awareness Program and provided information about steps to take in the event of an emergency.

Views of the Board

While the Board understands WCFN's concerns, the Board is of the view that the measures proposed by NGTL to address emergency preparedness and response for the Project are appropriate. This includes incorporation of the Project into TransCanada's emergency management system and related operating procedures.

The Board notes that emergency management-related discussions between NGTL, Aboriginal groups and stakeholders (including first responders) will continue as part of TransCanada's existing Public Awareness Program for the operations phase of the Project, and as required under the OPR.

The Board notes that both construction and operation practices must address emergency management considerations. The Board therefore includes a condition requiring NGTL to file a Field Emergency Preparedness and Response Plan prior to the commencement of construction (Certificate Condition 11(b), Appendix II; Order Condition 7(b), Appendix III).

Should the Project be approved, the Board reminds NGTL that it must submit updates to its emergency management program related to this Project as required by section 32 of the OPR, and that those updates must include a list of stakeholders, and information on how it will communicate with them in case of an emergency.

Chapter 5

Public Consultation

The Board's expectations for an applicant regarding public consultation are set out in the Board's Filing Manual. Applicants are expected to undertake an appropriate level of public involvement, commensurate with the setting, nature and magnitude of a project. The Board considers public involvement to be a fundamental component during each phase in the life cycle of a project in order to address potential impacts of that project. This chapter addresses NGTL's public consultation program and consultation with commercial third parties. NGTL's Aboriginal engagement and consultation are discussed in Chapter 6 (Aboriginal Matters).

5.1 Applicant's Public Consultation Program

Views of NGTL

5.1.1 Consultation with Landowners, Residents and Other Potentially Affected People

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 stated that the purpose and goals of the stakeholder engagement program for this Project include:

- formally introducing the project to key stakeholders;
- actively seeking and considering comments on:
  - pipeline routing
  - potential environmental and socio-economic effects
  - mitigation measures, where necessary, to address potential adverse project effects
  - enhancement measures, where necessary, to improve potential positive socio-economic effects;
- identifying and responding to stakeholder or public issues and concerns before the filing of the Application;
- providing stakeholders with ongoing project updates, including communication about the project and the anticipated regulatory schedule and planned Application to the Board;
- ensuring, where practical and reasonable, that stakeholder concerns or issues were incorporated in project planning; and
- facilitating ongoing communication that continues through the construction and operations phases to ensure future stakeholder concerns and issues are addressed appropriately and in a timely manner.

Notification of the Project began in September 2013 with a Project information package mailout to identified stakeholders, including:

- landowners and land users (e.g., guides, outfitters and trappers);
- community members;
- Peace River Chamber of Commerce;
- municipal leaders and representatives (e.g., regional districts and municipalities);
- elected officials (i.e., provincial and federal);
- government agencies and representatives; and
- local emergency responders.

NGTL indicated that, in addition to project mailouts, the engagement tools for this Project included public notices in three local weekly newspapers; a copy of the public notice, with handouts of the Project Update and NEB Fact Sheet attached, placed on the Cadotte Lake Community Hall Bulletin board; and one-on-one communication (including meetings, phone and email).

NGTL stated that it will continue to engage stakeholders through the regulatory review process and until completion of Project construction. Updates to the Project website and monitoring of the email address and toll-free phone line will continue until construction is complete. Once the Project is in service, stakeholder engagement activities will be transitioned to NGTL's Peace Region regional office in Fairview, Alberta. Ongoing operations activities for the Project will be conducted in accordance with the provisions of TransCanada's Public Awareness Program.

5.1.2 Consultation with Government Stakeholders

NGTL stated that, beginning in September 2013, consultation was initiated with government personnel who might be involved in the regulatory reviews, approvals or construction phases of the Project. NGTL indicated that the input received and issues and concerns identified were taken into account during field assessments and when preparing the Environmental and Socio-Economic Assessment for the Project. NGTL stated that it will continue to engage with these agencies.

NGTL stated that it contacted local authorities and municipalities that were identified as being potentially affected by the Project, including Northern Sunrise County, the Town of Peace River, and the Peace River Chamber of Commerce. Through engagement with local communities, NGTL stated that questions were raised on the following matters:

- construction RoW width;
- clarification about the regulator for the Project;
- watercourse crossing methods;
- contracting opportunities available through the Project;
- potential effects on community infrastructure;
- impact on traffic and accommodation shortages during construction; and
- other NGTL projects in the area and their relation to the Project.

Where requested, NGTL indicated that it followed up with additional Project information and stated that it is continuing to engage with communities on these matters. NGTL also committed to engage on any other issues raised by stakeholders as they arise. NGTL stated that it has been working, and continues to work with, representatives from Alberta Environment and Sustainable Resource Development and the Northern Sunrise County with regard to the location and development of the potential construction of a temporary work camp. NGTL stated that it will continue consultation with other stakeholders and Aboriginal communities, as necessary, in relation to construction, operation and dismantling of the camp.

5.1.3 Commercial Third Party Notification

NGTL provided a list of the NGTL Tolls, Tariff, Facilities and Procedures Committee (TTFPC) members and confirmed that no interested parties had self-identified to NGTL. NGTL stated that it provided presentations to the TTFPC regarding the Project from October 2013 through March 2014, and no concerns were raised.

Views of Participants

While concerns were expressed with respect to consultation with Aboriginal groups (addressed in Chapter 6, Aboriginal Matters), no Participants expressed concern with NGTL's public consultation program. No concerns were raised by commercial third parties.

Views of the Board

The Board is of the view that NGTL has undertaken an appropriate level of public consultation, commensurate with the setting, nature and magnitude of the Project. The Board is satisfied that commercial third parties have been notified and there are no outstanding concerns.

The Board notes the concerns raised by local communities. Environmental concerns are discussed in Chapter 8 (Environment and Socio-Economic Matters), and employment and infrastructure concerns are addressed in Chapter 9 (Infrastructure, Employment and Economy).

The Board also notes that consultation with government stakeholders was initiated early in the process. The Board expects NGTL to continue its efforts to engage in and maintain effective and timely consultation activities with government stakeholders, as appropriate, throughout the life cycle of the Project.

Chapter 6

Aboriginal Matters

The Board takes Aboriginal interests and concerns into consideration before it makes any recommendation or 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 seeks to obtain evidence in that regard so that it may assess and consider the potential impacts in its recommendation and decision. The Board relies on its Enhanced Aboriginal Engagement (EAE) initiative, as described below, and its hearing process, so that its record is as complete as possible.

Before filing a project application, applicants 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 planning of the project 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 applicants so that their concerns are identified early, considered by the applicant, and potentially resolved before the application is filed. The Board also encourages Aboriginal groups who are directly impacted by a proposed Project, or have information and expertise that could help the Board gain a greater understanding of the Project under consideration, to apply to participate in the hearing process within the time limit set out for doing so. If accepted to participate in the hearing, there are various ways for Aboriginal groups to contribute. These can include providing letters of comment and written evidence, asking information requests, and presenting final argument.

6.1 The NEB's Enhanced Aboriginal Engagement Process

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 Major Projects Management Office and the Board. The Board may suggest to the applicant 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 Board carried out its EAE activities for the Project from the time the Project Description was received on 15 November 2013 until 28 February 2014. The Board sent a letter, dated 30 January 2014, to 15 potentially affected Aboriginal communities and organizations. The letter discussed the Board's hearing process, its Participant Funding Program and included a summary of the Project. No Aboriginal groups requested meetings on the Board's hearing process.

6.2 Participation of Aboriginal Groups in the Regulatory Process

Four Aboriginal groups applied to participate in the GH-003-2014 proceeding, as described in section 2.2.2 (Hearing Participation). Woodland Cree First Nation (WCFN) was granted intervenor status; Duncan's First Nation (DFN) and Mountain Cree (Asini Wachi Nehiyawak) Traditional Band (MCTB) were granted commenter status; and Horse Lake First Nation (HLFN) withdrew its application. As an intervenor, WCFN filed written evidence and final argument. DFN did not file a letter of comment. MCTB filed a letter dated 7 November 2014 stating that while MCTB would provide information as to the potential impacts of the Project as an intervenor, or in bi-party consultation with NGTL, such information remains the cultural and intellectual property of MCTB failing these conditions.

6.3 Aboriginal Engagement by NGTL

Views of NGTL

NGTL stated that the goals for its Aboriginal engagement program include involving communities as early as possible and the following, as appropriate:

- obtaining local and traditional knowledge (TK), in the form of traditional ecological knowledge (TEK) and traditional land use (TLU) studies;
- determining and considering potential effects on the current use of lands and resources for traditional purposes;
- identifying sites of cultural and historical importance;
- integrating TK information in the planning process;
- identifying potential socio-economic effects and suitable opportunities to enhance benefits for local communities; and
- developing appropriate mitigation measures to reduce potential adverse effects.

NGTL identified potentially affected Aboriginal communities through publically available information, its own operating experience and established contacts with Aboriginal communities and by consulting with appropriate government departments. NGTL stated that, beginning in August 2013, it engaged in Project discussions with the following Aboriginal communities:

Cadotte Lake Métis Local 1994
Duncan's First Nation
Gift Lake Métis Settlement
Horse Lake First Nation
Loon River First Nation
Lubicon Lake Band
Métis Nation of Alberta
Métis Nation of Alberta – Region 5
Métis Nation of Alberta – Region 6
Peavine Métis Settlement
Whitefish Lake First Nation
Woodland Cree First Nation

Based on the Aboriginal groups identified by the Board and the Crown, through Aboriginal and Northern Development Canada and Natural Resources Canada's Major Project Management Office, NGTL expanded its Aboriginal engagement program to include the following Aboriginal groups:

- Beaver First Nation
- Kapawe'no First Nation
- Sawridge First Nation
- Treaty 8 Alberta

Engagement logs were submitted for the groups identified in the Application, and NGTL also filed updated engagement logs in June, September and October 2014. NGTL stated that information packages were sent to identified Aboriginal and Métis communities and that subsequent consultation activities included initial face-to-face meetings and follow-up meetings.

During the regulatory approval and construction phases of the Project, NGTL stated that it will follow its Aboriginal engagement process, from information sharing through the development of suitable mitigation, and the identification and provision of Project-related jobs, training, construction monitoring programs and educational opportunities. This will be accomplished through ongoing engagement with Aboriginal communities. For the operations phase, NGTL stated that it will employ a proactive approach to Aboriginal community engagement. This approach will focus on maintaining ongoing relationships with Aboriginal communities in the Project area, through TransCanada's regionally based Aboriginal Relations liaisons.

In September 2014, MCTB submitted a letter to the Board noting its concern regarding NGTL's lack of consultation with MCTB on the Project. The Board requested that NGTL submit information regarding its engagement with MCTB. NGTL stated that, based on information available to NGTL, MCTB had no potential to be affected by the Project, and it had not contacted MCTB. The Board accepted MCTB as a commenter in the GH-003-2014 proceeding.

Views of Participants

WCFN was dissatisfied with NGTL's engagement process, stating that it was rushed and did not address WCFN's needs. WCFN also indicated that it believed portions of the Aboriginal Engagement Update submitted by NGTL on 25 September 2014 were inaccurate and incomplete. As noted in section 6.2, MCTB submitted that it would provide information as to the potential impacts of the Project in bi-party consultation with NGTL.

Reply of NGTL

NGTL stated that, in its view, the engagement logs with WCFN are substantially complete as they record the direct engagement with the community and the review of documents forwarded by WCFN's counsel with WCFN. NGTL stated that all but one of the missing entries noted by WCFN were communications between counsel.

NGTL stated that it believes that bi-party consultation with MCTB is not required for this Project. NGTL further stated that if MCTB provides NGTL with specific information demonstrating that

MCTB may be directly affected by the Project, NGTL will engage with MCTB to better understand those potential effects and incorporate those concerns into Project planning, where appropriate.

Views of the Board

> The Board finds that NGTL's Aboriginal engagement program, including NGTL's process to identify potentially affected Aboriginal groups, was generally appropriate given the nature, scope and setting of the Project. The Board expects NGTL to continue to consult with Aboriginal groups throughout the life of the Project. The Board includes a condition requiring NGTL to file reports informing the Board of its ongoing consultation with Aboriginal groups until Project construction is completed (Certificate Condition 6, Appendix II). MCTB has self-identified as being potentially impacted by the Project. To address this matter, the Board has included MCTB in this condition.

6.4 Potential Impacts of the Project on Aboriginal Groups

Views of NGTL

As part of its Aboriginal engagement activities, NGTL undertook Traditional Ecological Knowledge (TEK) and Traditional Land Use (TLU) studies. NGTL invited interested communities engaged on the Project to provide TEK during the biophysical field and heritage resource studies. NGTL stated that interest in participating in the TEK component of the Project was high, although some information that was collected would remain confidential at the request of the communities.

NGTL invited the Aboriginal groups that expressed an interest to participate in meetings, flyovers and surveys for the TEK and TLU studies. Four Aboriginal communities – DFN, HLFN, WCFN and Lubicon Lake Band (LLB) – and two Métis communities – Cadotte Lake Métis Local 1994 (CLML 1994) and Métis Nation of Alberta - Region 6 (MNA-R6) participated in these activities. NGTL indicated that four Aboriginal communities (DFN, HLFN, LLB, and WCFN) had elected to conduct community-directed (i.e., third-party) TEK and TLU studies for the Project. CLML 1994 and MNA-R6 elected to participate in a joint TEK/TLU study led by NGTL's environmental consultant.

Two additional communities, Beaver First Nation and Kapawe'no First Nation, indicated interest in providing TEK and TLU information for the Project. NGTL stated that, as of 25 September 2014, discussions were still ongoing on how these communities would like to be engaged on the Project. NGTL committed to continuing to provide opportunities for the Aboriginal communities with an interest in the Project to share TEK and TLU information for the Project prior to construction, and committed to consider any additional information resulting from ongoing engagement for inclusion into Project planning. NGTL noted that most of the matters raised by TEK participants in the field surveys will be addressed through standard mitigation. Site-specific measures have also been recommended for the Project and these were incorporated in the Traditional Land and Resource Use reports submitted over the course of this proceeding.

Views of Participants

WCFN participated in NGTL's TEK and TLU studies and conducted a third-party technical review of the Project Application and Environmental and Socio-Economic Assessment. WCFN expressed concerns that NGTL's TLU Reports contained incomplete and inaccurate descriptions of WCFN matters, and did not reflect the information in WCFN's Indigenous Knowledge Study.

WCFN expressed concerns regarding the proposed routing of the Project, noting that it is not appropriate as it will cross seven trap lines, six of which have belonged to WCFN members for several generations. WCFN stated it would like NGTL to work directly with WCFN trap line holders to resolve individual trapper issues and take all possible measures to minimize impacts to WCFN members and their way of life.

WCFN stated that the Project will reduce the lands available to it for the exercise of its treaty and Aboriginal rights. WCFN noted that the Project is located in an area that has high traditional and cultural value. Details on traditional land and resource use impacts are included in section 8.6.4, Table 8.6.4.4 (Aboriginal and Traditional Land Use).

WCFN expressed concerns with increased access to its traditional territory resulting from the pipeline and associated infrastructure, such as temporary construction camps. WCFN expressed concerns that this would result in impacts on traditional land and resource use, competition for limited resources, destruction of WCFN trails and increased risk of forest fires.

WCFN stated that its position is that the Project, as it is described in the Application, should not be approved. WCFN expressed concerns about whether NGTL will carry out its proposed mitigation during construction to protect both wildlife and historic resources. WCFN identified several impacts of the Project that it did not feel would be adequately mitigated by NGTL. WCFN also had concerns with NGTL's commitment to following through on construction and reclamation commitments.

WCFN provided a number of specific conditions designed to mitigate WCFN concerns with the Project, including recommendations related to monitoring for the construction and operation phases of the Project, traditional land and resource use, access management and consultation.

WCFN requested that the Board condition any approval to require NGTL to involve WCFN in monitoring during the construction, operation and reclamation of the Project. WCFN requested that NGTL employ a construction monitor approved by, and reporting directly to, WCFN. WCFN also requested that NGTL involve WCFN in monitoring during the operational life of the pipeline, including reclamation, by engaging a WCFN member as a field assistant or to conduct the monitoring. WCFN requested that it be notified of ongoing monitoring activities and receive reports on the on-going monitoring of the Project.

Additional information on the concerns raised by Aboriginal groups is provided in Chapter 4 (Facilities and Emergency Response Matters), Chapter 8 (Environment and Socio-Economic Matters) and Chapter 9 (Infrastructure, Employment and Economy).

Reply of NGTL

NGTL acknowledged WCFN's concerns regarding certain statements and conclusions in the TLU Report that NGTL submitted in September 2014 and stated that it interprets WCFN's concern to have resulted from the two parties using different terminology for what is included in the WCFN's Indigenous Knowledge Study.

Regarding discrepancies between the content of NGTL's September 2014 TLU Report and WCFN's Indigenous Knowledge Study, NGTL stated that these were due to the fact that, in the written evidence filed by WCFN on 14 October 2014, WCFN detailed new concerns for previously identified sites and also referenced new sites not previously identified during engagement activities with NGTL and Golder Associates Ltd. NGTL committed to working with WCFN to address existing and new Project-specific concerns raised.

Regarding the proposed routing, NGTL stated that the Project parallels existing or proposed linear disturbances for more than 94.8 per cent of its length. The Project was planned to maximize the use of adjacent existing RoW and reduce the width of additional clearing as much as possible. NGTL indicated that it has engaged with the registered senior trap line holders for the Project, including the five WCFN members who hold the rights to six of seven registered trap lines crossed by the Project. NGTL stated that its Trapper Compensation and Engagement Program is used across all NGTL projects and is designed to address the specific concerns of trap line holders, including damages and inconvenience caused to the trap line holder or to their trapping activities during construction.

NGTL also stated that it has compensated WCFN trappers for both fur loss and potential impact to other traditional land uses by working directly with WCFN trap line holders and that this work is ongoing. NGTL committed to continue working with all potentially affected trappers on this Project, in accordance with its Trapper Compensation and Engagement Program, to ensure that damage and inconvenience to trap lines is minimized and that appropriate compensation is provided where impacts cannot be avoided**.**

NGTL stated that it has proposed a comprehensive suite of mitigation measures to reduce the effects of the Project on the environment and, in turn, on the use of those lands by WCFN. NGTL submitted that the Project is not expected to inhibit opportunities for traditional land use activities, such as hunting, fishing and trapping. In addition, NGTL stated that lands disturbed by Project construction will be returned to equivalent land capability. In the attachment to its reply evidence, NGTL responded to, and proposed mitigative measures for, each of the concerns noted by WCFN in its written evidence. NGTL provided detailed assessments on each of WCFN's proposed conditions as well as mitigation measures. These mitigation measures are discussed in Chapter 8 (Environment and Socio-Economic Matters).

In response to WCFN's concerns regarding increased access to its traditional territory, NGTL noted that no new permanent access roads will be created for the Project. NGTL stated that it expects this Project to result in minimal, if any, increase in access to WCFN's trails by non-WCFN members. NGTL further noted that it has limited to no ability to control public access to Crown lands traversed by a pipeline, especially post-construction.

With respect to WCFN's request for involvement in monitoring of the Project, NGTL noted that, on past projects, it has implemented programs that facilitate Aboriginal community participation during construction and intends to implement a similar plan for this project. NGTL also provided the Board with its Aboriginal Construction Training Program for the Project which states that, through ongoing engagement, NGTL will arrange opportunities for interested Aboriginal communities to participate in construction activities in accordance with its Environmental Protection Plan, including monitoring. NGTL committed to continued engagement with WCFN to better understand its interest in post-construction monitoring and how participation by WCFN may be accommodated in NGTL's post-construction monitoring plans.

Regarding WCFN's request for notification of ongoing monitoring activities and receiving monitoring reports, NGTL states in its Aboriginal Construction Training Program that it will, upon request, provide a post-construction debrief with each participating community as part of development of the post-construction monitoring plan. NGTL stated that it will send copies of formal post-construction monitoring results to participating communities.

NGTL noted that additional site-specific TLU information may be forthcoming from continuing TLU work and consultation with several Aboriginal groups. In the event TLU sites are identified during ongoing engagement and/or construction, NGTL has committed to implement its TLU Sites Discovery Contingency Plan (Annex E of the Environmental Protection Plan) to mitigate effects of the Project on these sites.

Views of the Board

The Board considered all of the evidence provided regarding the potential effects of the Project on Aboriginal groups. The Board notes NGTL's commitments to continue consultation with interested Aboriginal groups, to consider any additional mitigation measures resulting from those consultations, and to develop and review all mitigation pertaining to traditional land and resource use with affected Aboriginal groups. The Board also notes NGTL's commitment to continue to work with Aboriginal groups in completing various TLU investigations that would identify any additional issues or concerns.
The Board considered NGTL's mitigation measures for reducing or limiting potential Project impacts on resources that may be used for traditional purposes by Aboriginal groups. The Board finds that routing the pipeline alongside and contiguous to existing linear disturbances would minimize the environmental and socio-economic impacts of the Project.

The Board is of the view that NGTL has made commitments to using best practices and standard mitigation measures that would reduce impacts to the biophysical environment and traditional land use. The Board will monitor NGTL's ability to follow through on its commitments through the use of the Board's life cycle approach and associated compliance verification activities. The Board includes a condition requiring NGTL to file construction progress reports at the middle and end of each month during construction, including reporting on environmental and socio-economic issues (Certificate Condition 13, Appendix II). The Board also includes a condition requiring NGTL to file a Commitments Tracking Table prior to construction and to maintain a current copy at its construction offices (Certificate Condition 9, Appendix II; Order Condition 6, Appendix III).

In addition, the Board includes a condition requiring post-construction monitoring reports to be submitted to the Board (Certificate Condition 15, Appendix II).

The Board includes a condition requiring NGTL to file with the Board a plan to address outstanding TLU investigations for the Section 52 Facilities and Section 58 Activities (Certificate Condition 5, Appendix II; Order Condition 4, Appendix III). The Board would expect NGTL to provide, in particular, a summary of any effects of the Project on the current use of lands and resources for traditional purposes identified in the investigations, including a description of how these concerns or issues have been or will be addressed by NGTL.

The Board notes that NGTL has worked with trappers to provide appropriate mitigation for issues specific to trap lines in the Project area and has committed to continuing to work with trappers throughout the Project life cycle.

To address WCFN's concerns regarding monitoring during construction of the Project, the Board includes a condition that NGTL file a plan for Aboriginal participation in construction monitoring, and to provide a copy of this plan to the Aboriginal groups who have reached agreement with NGTL to participate as monitors during construction (Certificate Condition 7, Appendix II).

The Board is of the view that with the implementation of NGTL's environmental protection procedures and mitigation measures, NGTL's commitments to address impacts to the use of lands and resources for traditional purposes, and the conditions included by the Board in Appendices II and III, any potential Project impacts on Aboriginal interests are likely to be minimal and will be appropriately mitigated.

Chapter 7

Land Matters

The Board's Filing Manual sets out the Board's expectations for lands information to support an application for a Certificate under section 52 and for an Order under section 58 of the *NEB Act*. Applicants are expected to provide a description and rationale for the proposed route of a pipeline, the location of associated facilities, and the permanent and temporary lands required for a project. Applicants are also expected to provide a description of the land rights to be acquired and the land acquisition process, including the status of land acquisition activities.

7.1 Routing

Views of NGTL

The proposed route for the Project is parallel to, or contiguous with, existing RoW, including NGTL and third-party RoW, for 55.6 km (91.9 per cent) of its length. Of the remaining length of the pipeline route, the Project follows other existing disturbance for 1.7 km. As a result, the pipeline either parallels existing RoW or other industrial disturbance for 94.8 per cent (57.3 km) of its length.

Views of Participants

WCFN expressed concerns about the impact of the Project on trap lines, as discussed in Chapter 6 (Aboriginal Matters).

Views of the Board

The Board is of the view that the proposed route is acceptable.

7.2 Land Requirements

Views of NGTL

The Project will require a total length of approximately 61 km of constructed pipeline

RoW. The land requirements include permanent Crown land tenure for the pipeline and associated facilities and temporary workspace for pipeline construction. All of the land required is provincial Crown land which means that no privately held land is required for the Project RoW.

NGTL submitted that the Project requires a minimum construction RoW width of 27 m based on safety considerations, including transportation of personnel, vehicle movement and equipment storage. Where the pipeline parallels other linear facilities, and where the owner's consent has been obtained, NGTL stated that it will use existing disturbance to reduce the amount of new disturbance for the construction RoW. NGTL stated that the new land required for the construction RoW for the Project will vary in width from 16 m to 27 m.

Views of Participants

No Participants expressed concerns regarding the land requirements for the Project.

Views of the Board

The Board finds the anticipated temporary and permanent land requirement to be reasonable and justified.

7.3 Land Rights and Land Acquisition

Views of NGTL

NGTL stated that the Project is entirely on provincial Crown land. Section 87(1) Notices, pursuant to section 87 of the NEB Act, will therefore not be required for private land, but will be submitted to the Alberta Crown and disposition holders. In the Application, NGTL submitted that the land acquisition process was expected to begin in early 2014, with the submission of applications for Crown dispositions. Where the proposed pipeline crosses other existing linear facilities, or road access is required, NGTL committed to obtaining the necessary agreements and approvals from each third-party owner.

NGTL stated that a temporary construction camp may be required, depending on the availability of existing accommodations at the time of scheduled construction of the Project. The proposed camp would be located on Crown land in Northern Sunrise County, approximately 51 km northeast of the Town of Peace River and 12 km west of the proposed pipeline. NGTL stated that the proposed construction camp location was chosen in consultation with Alberta Environment and Sustainable Resource Development (ESRD) and in consideration of the requirements of Northern Sunrise County land use bylaws. The camp would require approval for a temporary land use disposition and a temporary diversion licence under the Government of Alberta *Public Lands Act* and the *Water Act*. NGTL stated that it would inform the Board if it determines that the construction camp is not necessary. NGTL stated that it is will attempt to use existing disturbed areas for stockpile sites and contractor yards, where possible, to help minimize effects on previously undisturbed areas.

NGTL indicated that it would make the required public land applications to the landowner, ESRD. NGTL stated that engagement and consultation with ESRD began in January 2014 and will be ongoing throughout the acquisition process. NGTL indicated that it expected ESRD to identify and communicate concerns after reviewing the land applications and NGTL committed to make every effort to address and resolve any issues or concerns ESRD identifies.

Views of Participants

No Participants expressed concerns regarding the land rights and land acquisition for the Project.

Views of the Board

The Board finds that NGTL's anticipated requirements for permanent and temporary land rights, including the varied width of RoW and the process for the acquisition of these land rights, are acceptable.

Chapter 8

Environment and Socio-Economic Matters

Because the Project is over 40 km in length, it is designated under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and therefore requires the NEB as the Responsible Authority to ensure that an environmental assessment (EA) is conducted and an EA report is prepared. The Board also considers environmental protection as part of its broader mandate. When making its recommendations, the Board is responsible for assessing the environmental and socio-economic effects of the Project. This chapter represents the NEB's EA.

8.1 The CEAA 2012 Context

The Board posted a Notice of Commencement on the Canadian Environmental Assessment Registry Internet Site (CEARIS) on 1 May 2014 (reference number 80062). On 17 July 2014, the Board posted on CEARIS a description of the factors to be taken into account in the EA and the scope of those factors as required by subsections 19(1) and 19(2) of CEAA 2012. The environmental effects considered include those listed in subsection 5(1) of CEAA 2012, as well as other effects pursuant to subsection 5(2) and set out in the NEB's Filing Manual.

CEAA 2012 requires the NEB to provide opportunities for public participation and provide participant funding, both of which are further described in Chapter 2 (Introduction).

8.2 The NEB's EA Methodology

In assessing the environmental and socio-economic effects of the Project, the NEB used an issue-based approach as set out in the NEB's Filing Manual for applicants. This assessment begins with: (a) a description of the Project (section 8.3); (b) a description of the setting and the environmental and socio-economic elements within that setting (section 8.4); and (c) a summary of environmental and socio-economic concerns raised by the public (section 8.5). Based on these, the NEB identified Project-environment interactions expected to occur and any resulting potential adverse environmental effects (section 8.6, Table 8-3). If there were no expected Project-environment interactions or interactions resulted in positive or neutral effects, then no further examination was deemed necessary.

The NEB then assessed the potential adverse environmental and socio-economic effects, as well as the adequacy of the Applicant's proposed environmental protection strategies and mitigation measures (section 8.6). Section 8.6.3 discusses the extent to which standard mitigation is relied on to mitigate potential adverse effects. In section 8.6.4, the NEB provides detailed analysis for issues that are of public concern or of environmental consequence, and that may require additional mitigation. For each issue considered in detail, Views of the Board are provided and the Board assesses whether further mitigation is recommended by way of condition on any potential project authorization, in order to ensure any potential environmental and socio-economic effects would not be significant. Where there are any residual effects remaining after proposed mitigation, cumulative effects are considered in the following section (8.7). Follow-up under CEAA 2012 is then discussed in section 8.8. The NEB's determination of significance is given in section 8.9.

8.3 Project Details

Chapter 2 (Introduction) provides a general description of the Project. In addition, the following table provides further details on Project components and activities relevant to the EA.

Table 8-1 Project Components and/or Activities

Project Components and/or Activities
Construction Phase – Timeframe: RoW Preparation and Temporary Infrastructure [July 2015 to April 2016] Pipeline Construction [November 2015 to April 2016]
▪ Permanent facilities: pipeline and associated valve sites.
▪ Temporary facilities: temporary work space (TWS) for construction activities and temporary infrastructure (e.g., pipe storage yard, construction camp, temporary access). NGTL is considering constructing and operating a temporary work camp as a contingency and would construct the camp beginning in July 2015 and dismantle it and reclaim the site upon completion of pipeline construction.
▪ No new permanent access. Temporary access would use existing disturbances with limited brushing. New temporary access to water sources is proposed.
▪ Clearing the Project footprint (RoW and TWS) – 27 m wide along the full length of the pipe, 16 – 27 m wide new RoW depending on the existing dispositions, if overlap with an existing RoW possible. Additional TWS needed for crossings, side bends and grading.
▪ Stripping, grading, stringing, welding, and trenching, pipe lowering and backfilling.
▪ Watercourse crossing method: isolated open-cut, or dry open-cut if no water is present or watercourse is frozen to bed.
▪ Pipeline integrity validation and testing. Hydrostatic test water to be withdrawn from an approved local water body.
▪ Clean-up and reclamation.
▪ Associated operational components include: in-line inspection launcher and receiver facilities, a cathodic protection system, and Supervisory Control and Data Acquisition (SCADA) System.
Operation Phase – Timeframe: Service life of the Project [estimated in-service date: April 2016]
▪ RoW maintenance would include: aerial pipeline inspection, vegetation management, cathodic protection monitoring (where warranted), in-line inspection and SCADA monitoring.
Abandonment Phase – Timeframe: At the end of the service life of the Project
▪ Pursuant to the NEB Act, an application would be required to abandon the facility, at which time the environmental effects would be assessed by the NEB.

8.4 Environmental Setting

This section describes the environmental and socio-economic setting of the Project, including Traditional Land and Resource Use.

Land Use

- The Project crosses the Northern Alberta Lowlands Region and the Northern Alberta Uplands Region.
- The Project is located on provincial Crown land in the Green Area of Alberta, northeast of the Town of Peace River, Alberta.

- Two segments of the Project cross a Key Wildlife and Biodiversity Zone (KWBZ). The Project also crosses buffer zones or setback areas for designated Trumpeter Swan watercourses or water bodies.
- The Project parallels existing disturbances for 57.3 km or 94.8 per cent of its length.

Physical Environment and Soils

- The terrestrial Local Study Area (LSA) is located in an area free of permafrost.
- The Project route is primarily flat with the highest gradient adjacent to the Cadotte River with 3 per cent slopes.
- The total linear extent of organic deposits (muskeg) along the Project route is approximately 22 km. The remainder of the route is predominantly silt and clay deposits of glacial origin at surface with generally flat to undulating surface expressions.

Vegetation

- The Project is located within three sub-regions of the Boreal Forest Natural Region of Alberta – Central Mixedwood, Dry Mixedwood and Lower Boreal Highlands.
- The LSA consists of approximately 5 901 ha of terrestrial vegetation, comprising 48 per cent of the LSA. The most common trees found in the three sub-regions are aspen, white spruce, jack pine, poplar, black spruce, white birch and lodgepole pine-jack pine hybrids.
- The 2013 and 2014 field surveys of the LSA identified 14 plant species listed on the Alberta Conservation Information Management System (ACIMS) tracking list or the General Status of Alberta Wild Species.
- There were no federally listed species under the *Species at Risk Act* (SARA) observed during the 2013 or 2014 field studies nor were there any recorded listings.
- One listed ecological community, balsam poplar/river alder – red osier dogwood/meadow horsetail community, was identified at one location in the Project footprint. This ecological community is on the ACIMS tracking list and would be considered an old growth forest.
- Over the course of the 2013 and the 2014 field studies, one ‘Prohibited Noxious’ plant species and six ‘Noxious’ species listed under the Alberta *Weed Control Act* were found at 27 locations in the terrestrial LSA. Noxious weeds (creeping thistle, perennial sow thistle, common tansy) were found at four locations within the Project footprint. Two unregulated invasive plant species were found on the Project footprint (red canary grass and Kentucky bluegrass).

Water Quality and Quantity

- The Project lies in the Cadotte River sub-basin of the Peace River basin.
- The Project crosses 12 watercourses, six of which are impounded by beaver activity. Eleven of the watercourses are unnamed permanent watercourses and one is the Cadotte River, a large permanent watercourse.
- Eight industrial water wells are located within 1 km of the Project; however, none are likely to be in use.
- A borrow pit is located in the southwest corner of the construction camp footprint. The borrow pit contained water at the time of the field investigation in June 2014.

Fish and Fish Habitat

- Twenty-five fish species have the potential to occur in the aquatic Regional Study Area (RSA), and 29 in the Peace River itself.
- None of the species documented in the Peace River are designated under the federal SARA. Arctic Grayling is listed as 'Sensitive' in Alberta, and Bull Trout is listed as 'Threatened' by the Committee on the Status of Endangered Wildlife in Canada and 'Sensitive' in Alberta. The Wild Species Status Search lists Northern Redbelly Dace as 'Sensitive'. The General Status of Alberta Wild Species 2010 also lists Spoonhead Sculpin as 'May Be at Risk', and Largescale Sucker as 'Sensitive'. Of these species, only Northern Redbelly Dace was identified during field surveys.
- A total of eleven fish species, including one sport fish species, were identified during field surveys of the watercourses to be crossed by this Project.
- Results of winter fish surveys suggest that winter construction of watercourse crossings will not adversely affect overwintering fish at the locations investigated.
- All watercourses are proposed to be crossed by isolated open-cut methods, or dry open-cut if there is no water present or the watercourse is frozen to bed.

Wetlands

- The LSA consists of approximately 5 824 ha of wetlands and open water, comprising 47 per cent of the LSA. The most common wetland types are treed bog, treed fen and treed fen-burned.

Wildlife and Wildlife Habitat

- The Project is located in the Boreal Forest Natural Region of Alberta. Species known in the area include: four ungulates species, eight carnivore species, and three rodents species. Bird species vary by habitat type and time of year as most species are migratory. Characteristic species of the region include: bay-breasted warbler, Cape May warbler, black-throated green warbler, yellow-bellied sapsucker, Swainson's thrush, solitary vireo, magnolia warbler and white-throated sparrow. Aquatic and wetland habitats in the region provide habitat for 10 aquatic bird species and two amphibians.
- There is the potential for three federally listed species to occur in the area: olive-sided flycatcher (Schedule 1, Threatened), Canada warbler (Schedule 1, Threatened) and western toad (Schedule 1, Special Concern).
- Wildlife species observed in the terrestrial LSA during the 2013 field surveys include: moose, white-tailed deer, trumpeter swan, wolves, elk and signs of beaver activity.
- Results of the winter 2014 track survey indicate the presence of moose, Canada lynx and fisher/marten.
- Results of the 2014 Supplemental Wildlife Surveys:
    - Breeding songbird survey (June 2014): 806 individuals were detected (71 species or species groupings), 13 species are listed provincially as 'Sensitive', and two are listed federally on Schedule 1 of SARA as 'Threatened'(olive-sided flycatcher and Canada warbler).
    - Nocturnal amphibian survey (May 2014): two species, provincially listed as 'Secure', were observed (boreal chorus frog & wood frog), one species listed provincially as 'Sensitive' and federally on Schedule 1 of SARA as 'Special

Concern' was observed (western toad). No breeding evidence was detected during the daytime plot establishment.
    - Nocturnal yellow rail survey (May 2014): yellow rails were not detected.
    - Non-baited photographic monitoring surveys: 11 species detected over the fall 2013, winter and spring 2014 monitoring periods. Species include coyote, moose, snowshoe hare, white-tailed deer, grey wolf, fisher, red squirrel, Canada lynx, black bear, elk and mule deer. No federally listed species were observed, fisher and Canada lynx are provincially listed as 'Sensitive'.
- Two segments of the Project cross a KWBZ. The Project also crosses buffer zones or setback areas for designated Trumpeter Swan watercourses or water bodies.

Atmospheric and Acoustic Environment

- The baseline conditions for air quality were obtained from the Smokey Heights continuous monitoring station located 135 km south of the Project. In general, levels of sulphur dioxide, oxides of nitrogen and ambient particulate matter have been detected at levels below provincial air quality objectives in this region.
- Shell also measures air quality within two km of the south end of the Project at the Peace River In-Situ Project. Data from the In-Situ Project, in addition to passive monitoring data, indicate that the baseline concentrations of sulphur dioxide and nitrogen dioxide are well below provincial air quality objectives.
- NGTL identified two potential noise-sensitive receptors: one cabin located approximately 75 m from the Project footprint and another located 270 m from the Project footprint.

Human Occupancy and Resource Use

- In 2011, the total population in the Socio-economic Study Area (SSA) was 11,671, of which nearly 58 per cent reside in the town of Peace River. The population of Northern Sunrise County is comprised of rural residences and unincorporated communities.
- In the 2006 Census, about 26 per cent of the SSA population (2,685 of 10,518 people) self-identified as Aboriginal. Approximately two-thirds of the Aboriginal population in the SSA identify as North American Indian, one-third as Métis, and a small portion as either being Inuit, having multiple Aboriginal identities, or did not identify with a specific Aboriginal group.
- The Project is located primarily on Crown land, which is accessible to the general public for recreational land use. There are no parks or protected areas in the resource use LSA or RSA. The closest Environmentally Significant Area (Environmentally Significant Area 616) is located approximately 6 km southeast of the northern extent of the Project, just outside the resource use RSA.
- Non-renewable resource use in the resource use RSA includes power transmission, pipelines, and oil and gas exploration and operation. There are no aggregate resource interests held in the resource use RSA.
- The Project is located in Wildlife Management Units (WMU) 520 and 523. Black bear and, to a lesser extent, moose, white-tailed deer and mule deer are popular game species in WMU 520 and 523. The hunting season for all game species is from 25 August to 30 November.
- Fishing is a popular recreational activity in northern Alberta. Common sport fish in this region include arctic grayling, goldeye/mooneye, lake trout, lake whitefish, mountain whitefish, northern pike, walleye and yellow perch. Watercourses around the Project and in

the resource use RSA may provide fishing opportunities for local residents of Peace River and nearby communities and guiding operators. During aquatic field studies, it was noted that the Cadotte River in the area of the Project crossing (87-CWC-01) was used for recreational fishing.

- Based on field assessments conducted in September and October 2013, the Project crosses two navigable watercourses: the Cadotte River (87-CWC-01) and an unnamed watercourse (89-CWC-01). Construction at both watercourse crossings is scheduled during frozen (i.e., non-navigable) conditions using an open-cut method, and will not permanently alter the watercourses.
- There are currently 40 surface water licences held in the aquatic RSA, mostly sourced from the Cadotte River.
- Existing oil and gas dispositions are held in the surrounding area and, where developed, alter the visual environment with disturbances and facilities. The area is also characterized by other industrial linear disturbances (e.g., transmission lines, roads). Resource use and industrial development have altered the wilderness character and natural visual aesthetic in the resource use RSA to some degree, although the alterations are generally characterized as defined areas of reduced or absent vegetation.
- Agriculture is the predominant land use in the Northern Sunrise County.

Heritage Resources

- Lands with potential for historic resources occur close to the Project crossing of the Cadotte River. A *Historical Resources Act* requirements letter (file Number: 4780-13-0093 dated 25 October 2013) was issued for the Project.

Traditional Land and Resource Use

- Registered Fur Management Areas (RFMA), also known as trap lines, are the boundaries recognized by the Government of Alberta and used to divide land used to harvest furbearing animals by Aboriginal and non-Aboriginal trappers. The Project footprint crosses seven RFMAs: 1764, 1350, 2396, 68, 467, 1352, and 2574.
- One Aboriginal trapping area was identified along the Project footprint by WCFN, near watercourse crossing 88-CWC-02. A WCFN advisor also noted that there is a WCFN trap line in the area between Cadotte River and Cadotte Lake, but the specific RFMA was not identified by number or geo-referenced.
- One hunting area was identified by WCFN, near watercourse crossing 88-CWC-02. An elk trail was also identified in the same survey, extending for 200 m along the Project footprint.
- The following large game species have been identified as being traditionally important to Aboriginal communities and may be found in the TLU RSA: black bear, caribou (woodland), elk, moose, mule deer and white-tailed deer.
- Fishing occurs in lakes and rivers in the larger region, and is an important form of subsistence gathering for Aboriginal communities.
- A plant used by LLB members as a heart medication was identified along the Project footprint. This plant was noted by LLB to grow in swampy areas, such as those found at watercourse crossing 88-CWC-01. Wild mint, which is used by LLB members to make tea, was also identified along the Project footprint, to the north of Highway 986.
- Berry harvesting is known to occur in the TLU RSA.

- Lake burial sites were noted by LLB to the north of Highway 986, and an approximate location was mapped. LLB estimated that the burial sites may be located at a distance of approximately 600 to 1 000 m from the Project footprint. LLB reported that people were traditionally buried near lakes, and that one lake in particular, located near the Project footprint, was of interest to LLB members, especially Elders, for this reason. The location of this lake has not been verified.
- LLB indicated that family members were born in a cabin at Island Lake, to the east of the lake with the burials. WCFN noted that there is an active cabin on the south side of Cadotte Lake, but this site was not geo-referenced and an approximate location was not mapped because the cabin is not located in the TLU RSA.

8.5 Environmental Issues of Public Concern

The NEB received a number of submissions from Participants that raised particular concerns related to environmental issues. The table below summarizes the topics of concern.

Table 8-2 Environmental Issues Raised By Participants

Participant	Environmental Issue(s) Raised	Addressed in Section
Environment Canada	▪ Species at risk, migratory birds, wetlands, emergency response and management	Table 8-3 and Sections 8.6.3, 8.6.4.3
Woodland Cree First Nation	▪ Permanent disturbance along the RoW ▪ Disruption to trap lines ▪ Loss of berry patches and medicinal plants ▪ Destruction of tree stands, salt licks and beaver dams ▪ Watercourse crossings methodology and bridges ▪ Impacts to moose and moose habitat and other furbearing species, including beaver and muskrat ▪ Potential increased mortality risk for moose and other species ▪ Impacts to trumpeter swan and other waterfowl ▪ Increased traffic, noise and access ▪ Impacts to artic grayling: risk to fish and fish habitat from watercourse crossing methods ▪ Cumulative environmental effects: noise, air pollution, access, forest habitat fragmentation, displacement of wildlife and disruption of wildlife movement patterns	Table 8-3 and Sections 8.6.3, 8.6.4

8.6 Environmental Effects Analysis

8.6.1 Interactions and Potential Adverse Environmental Effects

The table below identifies the expected interactions between the Project and the environment, and the potential adverse environmental effects resulting from those interactions.

Table 8-3 Project-Environment Interactions

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
Bio-Physical	Physical Environment	▪ Construction ▪ Operation	▪ Terrain instability of the trench and at watercourse crossings ▪ Change in terrain contour	8.6.3
	Soil and Soil Productivity	▪ Construction (watercourse crossings, pipe activities) ▪ Construction and operation (strippings salvage and grading, backfill, cleanup and reclamation) ▪ Construction and operation (clearing and disposal, strippings salvage and grading, water crossings, pipe activities, cleanup and reclamation) ▪ Decommissioning and abandonment	▪ Loss of soils to wind and water erosion ▪ Soil degradation due to admixing, burial, burning ▪ Soil degradation from compaction and rutting	8.6.3
	Vegetation	▪ Site clearing ▪ Construction (watercourse crossings, pipe activities) ▪ Construction and operation (strippings salvage and grading, backfill, cleanup and reclamation)	▪ Change in native vegetation ▪ Introduction/proliferation of noxious invasive plants ▪ Loss of listed plant species	8.6.3
	Water Quality and Quantity	▪ Construction of watercourse crossings ▪ Clearing of RoW and trench excavation	▪ Localized alteration of watercourse flow paths due to the diversion of water during construction	8.6.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
		▪ Water withdrawal for hydrostatic testing during construction ▪ Instream construction of watercourse crossings	▪ Alteration of flow paths due to soil handling, crowned or sunken backfill of trenches ▪ Alteration of the lateral and/or vertical stability of watercourses ▪ Change in surface water quantity ▪ Change in water quality due to increase in suspended sediment load and sediment deposition ▪ Change in groundwater quantity ▪ Change in groundwater quality due to spills and leaks	
	Aquatic Species and Habitat	▪ Site clearing ▪ Excavation and backfilling for trenched crossings	▪ Alteration of riparian vegetation ▪ Alteration of instream fish habitat ▪ Increase in suspended sediment load and sediment deposition ▪ Change in abundance and distribution of fish populations	8.6.3
	Wetlands	▪ Site clearing in the Project footprint during construction ▪ Construction, operation and abandonment	▪ Loss or alteration of peatland and non-peaty (mineral) or open water wetland habitat important to wildlife, vegetation and humans (i.e., traditional use plants) ▪ Introduction/proliferation of noxious, invasive, non-native plant species resulting in loss or alteration of native terrestrial vegetation communities ▪ Potential alteration of peatland and non-peaty (mineral) or open water wetland hydrological and water quality functions	8.6.3
	Wildlife and Wildlife Habitat	▪ Site clearing ▪ Construction and operation (clearing and disposal, strippings salvage and grading, water crossings, pipe activities, cleanup and reclamation) ▪ Decommissioning and abandonment	▪ Change in habitat availability ▪ Direct habitat alteration/loss due to clearing ▪ Indirect habitat alteration/loss due to fragmentation ▪ Indirect habitat alteration/loss due to sensory disturbance ▪ Change in movement patterns	8.6.3 8.6.4

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
			▪ Decrease in species abundance/loss of species (site clearing, increased predation, vehicle collisions, sensory stress)	
	Species at Risk or Species of Special Status and Related Habitat	▪ Construction and operation (clearing and disposal, strippings salvage and grading, water crossings, pipe activities, cleanup and reclamation) ▪ Decommissioning and abandonment	▪ See Vegetation, Aquatic Species and Habitat, and Wildlife and Wildlife Habitat in this table.	8.6.3 8.6.4
	Atmospheric Environment	▪ Ambient Criteria Air Contaminant (CAC) concentrations ▪ Greenhouse Gas (GHG) emissions	▪ Emissions during construction resulting in increased ambient CAC concentrations ▪ Emissions during operation resulting in increased ambient CAC concentrations ▪ GHG emissions during construction ▪ GHG emissions during operation	8.6.3
	Acoustic Environment	▪ Construction ▪ Operation ▪ Decommissioning and abandonment	▪ Increase in noise levels	8.6.3
Socio-Economic	Human Occupancy/Resource Use (including Fisheries)	▪ Construction ▪ Operation	▪ Disruption of agricultural activities ▪ Disruption of hunting, trapping and fishing activities (recreational and sport)	8.6.3
	Heritage Resources	▪ Construction ▪ Operation ▪ Decommissioning and abandonment	▪ Disruption of previously unidentified heritage resources	8.6.3
	Current Traditional Land and Resource Use	▪ Construction ▪ Operation ▪ Decommissioning and abandonment	▪ Disturbance of site-specific TLU identified during ongoing engagement ▪ Disruption of traditional activities during construction	8.6.3
	Navigation and Navigation Safety	▪ Construction ▪ Operation	▪ Interference with navigation of watercourses	8.6.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
	Social and Cultural Well-being	▪ Construction ▪ Operation	▪ Temporary alteration of culturally important sites or areas during construction	8.6.3
	Human Health/Aesthetics	▪ Construction ▪ Operation	▪ Disruption to local residents and land-users from increased traffic, air emissions, and potential impacts to water quality	8.6.3
Other	Accidents/Malfunctions	▪ Construction and operation	▪ Hydrocarbon spill or leak from equipment or vehicle ▪ Uncontrolled fire ▪ Third-party pipeline rupture ▪ Project-associated pipeline leakage or rupture	8.6.3
	Effects of the Environment on the Project	▪ No effects are anticipated to result from any effects of the environment on the Project	▪ n/a	n/a

8.6.2 Mitigation of Potential Adverse Environmental Effects

In its Application, NGTL has identified routine design and standard mitigation to mitigate most of the potential adverse environmental effects identified in Table 8-3. NGTL's Application and supporting documentation, including its draft Environmental Protection Plan (EPP), provides details on all NGTL's proposed mitigation. NGTL stated that it will adhere to the recommendations and mitigation measures identified in its Environmental and Socio-economic Assessment (ESA) and its EPP.

Where there are outstanding issues regarding key environmental elements, or the applicant's proposed mitigation may not be sufficient and additional mitigation may be necessary, a detailed analysis is presented in section 8.6.4.

8.6.3 Standard Mitigation

The NEB recognizes that many adverse environmental effects are resolved through standard mitigation. Standard mitigation refers to 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 sufficiently common or routine that it is integrated into the company's management systems and meets the expectations of the NEB.

Among the mitigation strategies to avoid or minimize the effects of the Project, NGTL is relying in part on minimizing the disturbance footprint by selecting a route that largely parallels existing RoWs and by using existing roads where possible. NGTL submitted that the proposed camp location provides good access to the Project and makes use of existing access roads and existing clearings to reduce the potential environmental effects.

In order to mitigate effects of the Project on water quality and quantity, and on aquatic species and habitat, NGTL will follow the standard mitigation outlined in its Application and its EPP, and will follow provincial Codes of Practice, and applicable Department of Fisheries and Oceans Canada's Measures to Avoid Causing Harm to Fish and Fish Habitat. Project effects on navigation and navigation safety at two watercourses will be mitigated by constructing under frozen conditions and by using standard mitigative measures.

NGTL committed to conducting bear den surveys prior to construction and will contact ESRD in the event that hibernating black bears are identified during the surveys or accidentally disturbed during site clearing activities.

In addition, standard mitigation is proposed to avoid or minimize potential adverse environmental effects on the physical environment, soils, native vegetation including rare plant populations and ecological communities, wetlands, wildlife, atmospheric and acoustic environments, and human receptors (as identified in Table 8-3). NGTL has stated that all construction activities for the Project, including clearing and preparation of the RoW, will occur outside the active nest period for migratory birds. As a contingency, in the event that construction of any element of the Project were to begin prior to the end of the regional nesting period for migratory birds, NGTL will adhere to Environment Canada's guidance on non-intrusive field survey techniques.

To ensure that mitigation measures are followed, NGTL will have qualified environmental inspectors on the Project and will develop an environmental orientation for Project personnel.

To ensure that all general and site-specific measures are appropriate and will be implemented according to their intent, the Board has decided to include the conditions discussed below.

8.6.3.1 Environmental Protection Plan

NGTL provided an EPP and Environmental Alignment Sheets with its Application and committed to following these during construction. NGTL stated that a stand-alone EPP will be prepared to support the Section 58 Activities once specific locations for temporary infrastructure are finalized.

Views of the Board

The Board is satisfied with NGTL's assessment of pre-construction conditions on the RoW and TWS.

In order to ensure appropriate management of environmental mitigation, the Board includes a condition requiring that NGTL file an updated, project-specific EPP to communicate all environmental protection procedures and mitigation measures to employees, contractors and regulators. The condition would require the updated EPP to be filed 60 days in the case of the Section 52 Facilities, and 45 days in the case of the Section 58 Activities prior to commencement of construction including clearing in order to allow sufficient time for an effective review process (Certificate Condition 4, Appendix II; Order Condition 5, Appendix III). The commitments should be as clear and unambiguous as possible to minimize errors of interpretation. In cases where there may be multiple ways of achieving the desired outcome, it is helpful to state the goal, mitigation options and clear decision-making criteria for choosing which option to apply under what circumstances. Where a mitigation option is mandatory it should be clearly stated as such.

The EPP should be comprehensive and cover general and site-specific mitigation related to all environmental elements including the KWBZ Protection Plan and trumpeter swan water bodies. Updated Environmental Alignment Sheets are also to be included with the EPP. Additionally, the Board will require NGTL to include in its EPP, updated standard or typical construction drawings, or evidence that the drawings have been reviewed and show current construction practices.

To ensure that all general and site-specific measures are appropriate and will be implemented according to their intent, the Board includes a condition requiring NGTL to implement all of its commitments for the protection of the environment (Certificate Condition 3, Appendix II; Order Condition 3, Appendix III).

The EPPs for both the Section 52 Facilities and the Section 58 Activities would be filed with the Board for approval, and thus would be available and transparent to interested parties.

8.6.3.2 Post-Construction Monitoring Reports

NGTL committed to preparing post-construction monitoring reports after the first and second years following construction. These reports would document all environmental issues, remedial measures, a schedule for repair and regulatory consultation. Routine monitoring by NGTL would be ongoing for the life of the Project.

Views of the Board

The Board is of the view that the Section 52 Facilities must be monitored for a longer period of time than that proposed by NGTL to allow for a more complete assessment of environmental effects. The Board includes a condition requiring that the post-construction monitoring reports that NGTL committed to in the application be submitted to the Board after the first, third and fifth growing seasons following completion of final cleanup of the Section 52 Activities (Certificate Condition 15, Appendix II).

The post-construction monitoring reports for the Section 52 Facilities would be filed with the Board, and thus would be available and transparent to interested parties.

8.6.4 Detailed Analysis of Key Environmental and Socio-Economic Issues

There are four issue areas explored in detail in this section. Table 8-4 specifies the definitions for criteria used in evaluating the significance of residual effects.

Table 8-4 Criteria, Ratings and Definitions Used in Evaluating the Likelihood of Significant Effects

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 interaction occur that caused the effect)	Accidental	Rare and unplanned occurrence over the Project life cycle.
	Single	One time occurrence within any one phase of the Project life cycle.
	Clustered	Multiple occurrences within a single timeframe or location.
	Multiple	Multiple occurrences, whether during one phase of the Project life cycle or over many phases.
	Continuous	Continuous through any phase of the Project life cycle.
Duration (duration of the effect)	Short-term	Adverse environmental effect duration is in the order of months or limited to the proposed construction.
	Medium-term	Adverse environmental effect duration is in the order of a few years.
	Long-term	Adverse environmental effect would remain evident throughout the planned operation or beyond the life cycle 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.

Criteria	Rating	Definition
	Irreversible	Adverse environmental effect would be permanent, or would last in the order of a few generations.
Geographic Extent	Project Footprint	Effect would be limited to the area directly disturbed by the Project development, including the width of the RoW and the TWS.
	Local Study Area (LSA)	Effect would generally be limited to the area in relation to the Project 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 (e.g., the LSA for terrestrial environmental components (vegetation, wetlands, wildlife and wildlife habitat) extends 1,000 m on each side of the proposed pipeline centreline).
	Regional Study Area (RSA)	Effect would be recognized in the area beyond the RSA that might be affected on the landscape level. This area also varies relative to the receptor being considered (e.g., for aquatic resources, the RSA encompasses the aquatic LSA and the Cadotte River watershed).
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.
Evaluation of Significance	Likely to be significant	Effects that are either: (1) of high magnitude; or (2) continuous, long-term, irreversible, and of RSA geographic extent.
	Not likely to be significant	Any adverse effect that does not meet the above criteria for "significant".

8.6.4.1 Key Wildlife and Biodiversity Zones (KWBZ)

Background/Issues	NGTL anticipates that construction will be necessary in KWBZs that are located from approximately Kilometre Post (KP) 14 to KP 20 and KP 57 to KP 60 of the Project during the Restricted Activity Period (RAP) from January 15 to April 30. NGTL is preparing a KWBZ Protection Plan to address potential effects in consultation with ESRD and it will be finalized prior to construction. NGTL received approval to construct a temporary camp for the approved Otter Lake Compressor Station Project under a separate NEB section 58 application. The temporary camp will be located at the north end of the proposed Project RoW and will be used by pipeline Project personnel during RoW preparation activities, such as clearing, grading, and frost-packing from November 2015 until mid-January 2016. As the RAP starts as clearing activities near completion, NGTL proposes to close the camp following these

<table>
<tr><td></td><td>activities to limit NGTL's presence during the RAP. This camp will not be used after RoW preparation activities have been completed.

The proposed temporary camp for this Project would not be within provincially designated KWBZs.</td></tr>
<tr><td>Proposed Mitigation</td><td>NGTL will initiate clearing activities in the KWBZ as early as possible when construction starts and will work expeditiously to limit winter activities. Ongoing consultation with ESRD will be maintained to manage necessary work activities in the KWBZ. For the KWBZ areas, NGTL committed to mitigation measures, including but not limited to:
Conduct final reclamation/remedial work outside the period of January 15 to April 30, whenever possible.
Prohibit clearing of extra temporary workspace within 10 m of a watercourse to protect riparian areas. This area shall be clearly marked prior to clearing operations.
Locate deck sites in previously disturbed areas, wherever practical. Avoid grading at deck sites. Do not salvage strippings at deck sites. Timber will be delimbed prior to being transported to the deck sites.
Reduce line-of-sight opportunities along pipeline RoW through the use of pipeline bends, natural topography, minimal disturbance practices, and encouraging the recovery of native vegetation.
Install human access management techniques (e.g., spreading of woody debris and/or excavator mounding) at roadway intersections and areas of new cut (that do not parallel existing RoWs) to discourage vehicle and ATV traffic onto the RoW. Locations will be determined through consultation with ESRD.
NGTL states that, upon review and acceptance by ESRD, it will file the approved KWBZ Protection Plan with the Board. Any mitigation arising from finalizing the KWBZ Protection Plan will be incorporated into the EPP and will be provided to the Board in advance of construction.</td></tr>
<tr><td>Proposed Monitoring</td><td>Monitoring of the effectiveness of mitigation applied to minimize effects on the KWBZs will be included in the post-construction monitoring reports, as outlined in section 8.6.3.2.</td></tr>
<tr><td>Views of the Board</td><td>The Board is of the view that the mitigation proposed is sufficient to protect the KWBZ areas. The Board includes a condition requiring NGTL to incorporate all project-specific mitigation for these areas into its EPP and has included wording to reflect this in the EPP condition (Certificate Condition 4, Appendix II). The Board also includes monitoring of the KWBZ areas in the condition for post-construction monitoring reports to confirm that NGTL adheres to the mitigation to which it has committed (Certificate Condition 15, Appendix II).</td></tr>
<tr><td>Evaluation of Significance of Residual Effects</td><td><table><tr><th>Frequency</th><th>Duration</th><th>Reversibility</th><th>Geographical Extent</th><th>Magnitude</th></tr><tr><td>Multiple</td><td>Short-term to medium-term</td><td>Possible</td><td>LSA</td><td>Low</td></tr><tr><td colspan="5">Adverse Effect</td></tr><tr><td colspan="5">Not likely to be significant</td></tr></table></td></tr>
</table>

8.6.4.2 Trumpeter Swan Water Bodies

Background/Issues	The trumpeter swan is listed as 'At Risk' provincially and 'Not at Risk' federally. The Project footprint occurs within an 800 m setback area for two trumpeter swan water bodies. These areas are located between KP 45.7 to KP 47 and KP 26.1 to KP 27.8 and have a RAP from April 1 to September 30. The timing of the construction may not be able

<table>
<tr><td></td><td>to completely avoid the trumpeter swan RAP.

The proposed temporary camp for this Project would not be within provincially designated trumpeter swan water bodies.

Trumpeter swans were observed in the terrestrial LSA during the wildlife reconnaissance surveys in October 2013 and in the summer of 2014. Other observations have been recorded historically in the LSA and RSA.

DFN expressed concern about trumpeter swans due to their sensitivity to disturbance. WCFN expressed concern with the alteration of habitat and increased mortality for trumpeter swan.</td></tr>
<tr><td>Proposed Mitigation</td><td>ESRD and NGTL have discussed developing appropriate mitigation for trumpeter swans and working within the RAP. ESRD agreed that it would be acceptable to conduct construction-related activities within the RAP to minimize the number of times and seasons that the area would be accessed. ESRD indicated to NGTL that it is satisfied with the routing and construction schedule in relation to the management objectives for trumpeter swans. In keeping with ESRD’s suggested mitigation, NGTL committed to the following mitigation measures to protect trumpeter swans and their habitat, including but not limited to:
Clearing is scheduled to occur outside of the RAP for trumpeter swan water bodies/watercourses (April 1 - September 30).
Minimal disturbance construction techniques will be conducted and TWS will be minimized and utilized only where absolutely necessary within buffer zones.
Native vegetation will be preserved where possible; clearing will be limited to clearing what is required within the specified work areas while using existing access routes.
All personnel working onsite will participate in an orientation session that includes information on wildlife and species of concern.
Mitigation measures for trumpeter swan water bodies/watercourses will be written into NGTL's operational guidelines which includes no direct overhead flights during the RAP.
There will be no above ground structures within the 500 m buffer zones.
In the event an active nest is discovered, mitigation will be developed in consultation with the appropriate regulatory agency.</td></tr>
<tr><td>Proposed Monitoring</td><td>Monitoring of the effectiveness of mitigation applied to minimize effects on trumpeter swan water bodies will be included in the post-construction monitoring reports, as outlined in section 8.6.3.2.</td></tr>
<tr><td>Views of the Board</td><td>The Board is of the view that NGTL has committed to sufficient mitigation through its provincial consultation and that no further mitigation is required. The Board includes a condition requiring NGTL to incorporate all project-specific mitigation for trumpeter swans into its EPP and has included wording to reflect this in the EPP condition (Certificate Condition 4, Appendix II). The Board also includes monitoring trumpeter swan water bodies in the condition for post-construction monitoring reports to confirm that NGTL adheres to the mitigation to which it has committed (Certificate Condition 15, Appendix II).</td></tr>
<tr><td>Evaluation of Significance of Residual Effects</td><td><table>
<tr><td>Frequency</td><td>Duration</td><td>Reversibility</td><td>Geographical Extent</td><td>Magnitude</td></tr>
<tr><td>Multiple</td><td>Long-term</td><td>Short-term to medium-term</td><td>RSA</td><td>Low</td></tr>
<tr><td colspan="5">Adverse Effect</td></tr>
<tr><td colspan="5">Not likely to be significant</td></tr>
</table></td></tr>
</table>

8.6.4.3 Western Toad and Western Toad Habitat

<table>
<tr><td>Background/Issues</td><td>Western toads were observed throughout the Project LSA during the May 2014 amphibian surveys at 18 of the 50 plots surveyed. Western toad is a federally listed species of Special Concern under Schedule 1 of SARA. Western toads had not been detected during the fall 2013 studies and it was noted that there was a lack of suitable breeding habitat in the Project footprint.

The amphibian breeding period is considered to be from the second week of May to the third week of June. NGTL states that by planning for winter construction most of the potential impacts are avoided.

Potential adverse environmental effects could include: alteration or loss of habitat due to clearing, fragmentation and sensory disturbance, changes to wildlife movement due to the creation of barriers, changes to wildlife abundance due to construction, increased vehicle-wildlife collisions and sensory disturbance.</td></tr>
<tr><td>Proposed Mitigation</td><td>NGTL committed to several mitigation measures for wildlife and wildlife species at risk in its Application and subsequent filings. An effects assessment including mitigation for western toad was included in the Wildlife Supplemental Surveys filed 28 August 2014. Proposed mitigation includes, but is not limited to:
Construction scheduled from November to March (while western toads are hibernating).
All clearing will be kept within the surveyed RoW.
Noise abatement equipment on machinery.
All personnel working onsite would take an orientation session that include information on wildlife and species of concern.
Wildlife issues that are identified during construction will be discussed between the Environmental Inspector(s), Wildlife Resource Specialists and the appropriate regulatory agencies.
Mitigation measures from Section 7 of the EPP will be implemented, which includes on discovery of a western toad implement the Wildlife Species of Concern Discovery Contingency Plan (EPP, Annex E).</td></tr>
<tr><td>Proposed Monitoring</td><td>Monitoring of the effectiveness of mitigation applied to minimize effects on western toad will be included in the post-construction monitoring reports, as outlined in section 8.6.3.2.</td></tr>
<tr><td>Views of the Board</td><td>The Board is of the view that the mitigation provided by NGTL is sufficient to address the potential impacts on the western toad. The Board includes monitoring of western toad habitat in the condition for post-construction monitoring reports to confirm that NGTL adheres to the mitigation to which it has committed (Certificate Condition 15, Appendix II).</td></tr>
<tr><td>Evaluation of Significance of Residual Effects</td><td>
<table>
<tr><th>Frequency</th><th>Duration</th><th>Reversibility</th><th>Geographical Extent</th><th>Magnitude</th></tr>
<tr><td>Accidental</td><td>Short-term to medium term</td><td>Possible</td><td>Project Footprint to LSA</td><td>Low</td></tr>
<tr><td colspan="5">Adverse Effect</td></tr>
<tr><td colspan="5">Not likely to be significant</td></tr>
</table>
</td></tr>
</table>

8.6.4.4 Aboriginal and Traditional Land and Resource Use

Background/Issues	The following Aboriginal groups have participated in the TEK program and/or TLU studies for the Project: CLML 1994, DFN, HLFN, LLB, MNA Region 6 and WCFN. These Aboriginal groups participated in a variety of activities with NGTL including helicopter flyovers, meetings and ground assessments. Additionally, WCFN conducted a third-party TLU study for the Project. Other Aboriginal groups in the area participated in community-directed TEK and TLU studies or joint studies with NGTL's environmental consultant. In general, the concerns raised by Aboriginal groups related to the following potential adverse environmental effects of the Project: • disruption of previously unidentified heritage resources; • disturbance of site-specific TLU identified during ongoing engagement; • disruption of traditional activities during construction; and • disruption to local residents and land-users from increased traffic, air emissions, and potential impacts to water quality. Aboriginal groups also identified potential TLU sites along the footprint of the proposed pipeline route, including: medicinal plant and berry patches on the RoW, hunting areas near the RoW, culturally important sites, beaver ponds and lodges and trumpeter swan habitat. WCFN participated as an intervenor in this proceeding and identified issues, concerns and impacts including but not limited to: • permanent disturbance along the RoW; • disruption to trap lines; • habitat loss and mortality risk for moose, beaver, muskrat and other wildlife; • loss of berry patches and medicinal plants; • increased access to WCFN's trails by non-WCFN members; • increase in traffic and noise during Project construction; and • destruction of tree stands, salt licks and beaver dams. WCFN stated that the Project is in an area that is culturally significant to WCFN and is highly used by WCFN members. As such, there is a high potential for cultural, archaeological or grave sites in the area. WCFN noted that it has attempted to identify these areas in its Indigenous Knowledge Study, but that it has not yet been completed.
Proposed Mitigation	NGTL noted that the Project parallels existing or proposed linear disturbances for more than 94.8 per cent of its length, and that the Project was planned to maximize the use of adjacent existing RoW and reduce the width of clearing as much as possible. NGTL stated that the Project requires no new permanent access. NGTL's ESA includes standard mitigation measures for environmental matters and for traditional land and resource use, as summarized in section 8.6.3. NGTL has also committed to the following: • NGTL will implement its TLU Sites Discovery Contingency Plan (Annex E of the Environmental Protection Plan) to mitigate effects of the Project on any TLU sites identified during ongoing engagement or construction. • Aboriginal communities will be provided with the proposed construction schedule and route maps and be given the opportunity to harvest medicinal and traditional plants before the commencement of construction. • Implementing other mitigative measures related to TLU including, but not limited to, actively used cabins, historic WCFN trapping areas , a sweatlodge adjacent to the Project RoW, historic and current use trails, moose hunting locations and trumpeter swans. • Mitigation for potential increased access along the proposed route. The intent of these mitigation measures is to reduce disturbance resulting from pipeline construction on these lands and particularly in sensitive wildlife and

<table>
<tr><td></td><td>riparian areas.

NGTL submitted that WCFN, in its written evidence, referred to new TLU sites not previously identified during engagement activities with NGTL. NGTL continues to engage WCFN to seek additional information on these TLU sites and to discuss potential mitigation measures.

NGTL stated that, while temporary disruptions will result over the course of Project construction, it believes its proposed mitigation measures would reduce the effects of the Project on the environment and, in turn, on the use of those lands by WCFN. Although some of the residual effects are long term, NGTL does not expect the Project to inhibit opportunities for traditional land use activities such as hunting, fishing and trapping. In addition, NGTL states that lands disturbed by Project construction will be returned to equivalent land capability.</td></tr>
<tr><td>Views of the Board</td><td>The Board recognizes the significance of traditional land, gathering places and sacred sites to Aboriginal people. The Board notes the historical, ceremonial, cultural and economic significance of traditional land and resource use sites to Aboriginal communities. However, the Board notes that NGTL has proposed appropriate mitigation related to the effects of the Project. The Project would largely follow existing linear disturbances and would not create any new permanent access roads which would help to minimize these impacts.

The Board includes a condition requiring NGTL to file for approval, prior to commencing construction, a plan to address outstanding traditional land use investigations for the Project (Certificate Condition 5, Appendix II; Order Condition 4, Appendix III). The Board also includes a requirement that NGTL file with the Board, and maintain at its construction offices, a Commitments Tracking Table (Certificate Condition 9, Appendix II; Order Condition 6, Appendix III).

The Board also notes that NGTL has committed to continuing to meet with the WCFN to resolve its concerns. The Board finds that, with the implementation of the mitigation proposed by NGTL and the Board’s conditions in Appendices II and III of the NEB Report, the Project is not likely to have significant adverse effects.</td></tr>
<tr><td>Evaluation of Significance of Residual Effects</td><td>
<table>
<tr><td>Frequency</td><td>Duration</td><td>Reversibility</td><td>Geographical Extent</td><td>Magnitude</td></tr>
<tr><td>Multiple</td><td>Medium-term</td><td>Possible</td><td>LSA</td><td>Moderate</td></tr>
<tr><td colspan="5">Adverse Effect</td></tr>
<tr><td colspan="5">Not likely to be significant</td></tr>
</table>
</td></tr>
</table>

8.7 Cumulative Effects Assessment

The assessment of cumulative effects considers the impact of the residual effects associated with the Project in combination with the residual effects from other projects and activities that have been or will be carried out, within the appropriate temporal and spatial boundaries and ecological context.

Views of NGTL

NGTL considered existing, man-made disturbances and those projects and activities that are known and approved for the reasonably foreseeable future in its cumulative effects assessment. NGTL did not consider future projects for which formal plans have not been publicly disclosed. NGTL determined that other existing projects and facilities, including approved but not yet built projects and facilities in proximity to the Project, with potential to result in cumulative effects include:

- 387 km of pipelines;
- 5 447 km of cutlines; and
- 115 km of roads.

NGTL stated that approximately 14.8 per cent of the terrestrial RSA is currently disturbed or is expected to be disturbed in the near future. The Project would add approximately 0.2 per cent of spatial land disturbance to the terrestrial RSA. NGTL predicted residual effects from the Project for a number of valued components including:

- water quantity and quality;
- wetlands;
- wildlife and wildlife habitat;
- human occupancy and resource use; and
- infrastructure and economy.

NGTL stated that adverse residual effects arising from accidents and malfunctions may also act cumulatively with other projects and activities in the area. NGTL concluded that any interacting cumulative effects were determined to be not significant, considering the mitigation discussed above.

Views of Participants

WCFN expressed concerns regarding cumulative impacts. WCFN stated that incremental and increasingly prevalent impacts of industrial activity, both in the region and locally, could have a significant and long-lasting impact on WCFN members.

Views of the Board

The Board acknowledges WCFN's concerns with respect to cumulative environmental effects and the potential for long-lasting impacts to WCFN members. The Board notes that the Project footprint is minimized by largely paralleling existing RoWs and will not create any permanent access roads. The Board has carefully considered the potential for

negative socio-economic effects and is satisfied with the proposed avoidance and mitigation proposed by NGTL.

The Board has considered the potential for cumulative environmental effects and determined that they would be temporary, localized, and minor in magnitude. Therefore, it is unlikely that there would be any significant cumulative environmental effects resulting from this Project.

Follow-up Program

CEAA 2012 requires a follow-up program. The Board includes Certificate Condition 15 (Post-Construction Monitoring Reports), Appendix II to be implemented as a follow-up program. Please refer to Section 8.6.3.2 for details.

8.8 EA Conclusion

The Board is of the view that, with the implementation of NGTL's environmental protection procedures and mitigation, compliance with the Board's regulatory requirements and the Board's recommended conditions, the Project is not likely to cause significant adverse environmental effects.

Chapter 9

Infrastructure, Employment and Economy

The Board's expectations for an applicant regarding direct socio-economic impacts caused by the existence of the project are set out in the Board's Filing Manual. Applicants are expected to identify and consider the impacts a project may have on infrastructure, services, employment and economy. Applicants are also expected to provide mitigation of negative impacts and the consideration of positive benefits of the project.

9.1 Infrastructure and Services

Views of NGTL

NGTL stated that there will be increased traffic volumes and associated noise along Highways 2, 743 and 986 and local roads leading to the Project during construction. Traffic increases may be noticeable during the peak period of construction (mid-January to mid-February 2016) when as many as 475 Project-related vehicles will be on the road. NGTL indicated that this number is conservative as it is expected that, where practical, multi-passenger vehicles will be used to transport most workers from camp to the Project RoW. NGTL acknowledged that construction traffic has the potential to degrade road conditions.

NGTL stated that construction waste will be generated by the Project and will be disposed of in regional landfills, thereby increasing demand on waste disposal services in the Socio-economic Study Area (SSA).

NGTL indicated that there is the possibility that demand for emergency services may increase because ambulance or hospital, fire, and police services may need to respond to Project related incidents during Project construction. NGTL stated that it is committed to constructing the pipeline in a safe and responsible manner.

NGTL stated that the temporary increase in workers in the SSA as a result of the Project has the potential to increase demand on protective services due to the possibility of increased crime (primarily mischief or drug and alcohol-related crime). NGTL indicated that it expects protective services in the SSA would be able to accommodate any impacts during the construction period. NGTL stated that it does not anticipate an increased demand for educational and non-emergency healthcare services (e.g., non-emergency hospital care and dental, optical, psychiatric and pharmaceutical services) or an effect on recreational services in the SSA as a result of the temporary influx of Project construction workers.

NGTL stated that the availability of commercial accommodations (e.g., hotels, campgrounds, open camps) and housing in the SSA will be affected during construction of the Project. While some personnel will be housed in a temporary work camp on the Otter Lake Compressor Station site during clearing and RoW preparation of the northern portion of the Project, NGTL stated that it expects the balance of the workforce will require accommodations in Peace River and the surrounding region. NGTL is considering the need to construct and operate a temporary work camp for the construction of the Project due to ongoing uncertainty regarding the availability of existing accommodations at the time of scheduled Project construction.

Views of Participants

WCFN expressed concern that the construction of the Project will result in the short-term increase in traffic and noise in the Project area, as well as locally in the region.

Reply of NGTL

NGTL stated that it will implement noise mitigation during construction, including using construction methods designed to reduce noise emissions and using multi-passenger vehicles to transport workers, where possible, to manage the number of vehicles on the road during construction of the Project.

Views of the Board

The Board recognizes the possibility of increased traffic and noise during construction but, considering it will be temporary in nature, finds it acceptable in view of the overall need for the Project.

9.2 Employment and Economy

Views of NGTL

NGTL stated that construction of the Project will generate a demand for goods, services and workers numbering 475 at its peak. NGTL expects that there will be modest direct and indirect business and employment opportunities, as well as direct and indirect income effects during Project construction in the SSA. NGTL stated that it anticipates that local and regional businesses (including Aboriginal businesses) and individuals will participate in the Project to some extent by providing various goods and services, and will realize economic benefits from Project construction. NGTL committed to maximizing local procurement, where practical.

NGTL submitted that it recognizes the importance of providing opportunities for local participation and employment in its projects and endeavours to create both short and long-term employment opportunities for Aboriginal people affected by Project activities, as well as supporting learning opportunities for Aboriginal people with the goal to increase the capacity of

Aboriginal communities. For this Project, NGTL stated that it, along with the prime contractor, will meet or continue to meet with local community businesses, their members and leadership to discuss opportunities available during the planning and construction phases. NGTL stated that it has implemented its established program for Aboriginal contracting and employment to ensure that such opportunities are maximized. In collaboration with Aboriginal organizations, NGTL committed to developing an Aboriginal contractors database that can be used by prime contractors and other industry partners.

In addition, NGTL has identified the Aboriginal communities in close proximity to the Project that have capacity to provide contracting services. NGTL stated that it continues to work with these and potentially other communities that express an interest in employment and contracting opportunities, most of which will relate to the Project construction phase. Following construction, NGTL and its prime contractor intend to meet with the communities that participated in the construction phase. NGTL indicated that these community meetings provide an opportunity to discuss the community's participation in the Project and will help the local business community and NGTL identify the successes and challenges from the Project.

Views of Participants

WCFN submitted that its members have not received any benefits from the Project. WCFN stated that NGTL's program for Aboriginal contracting and employment has not been implemented for WCFN. WCFN stated that preliminary discussions regarding employment and contracting opportunities began in October 2014 and, as of early November 2014, WCFN was still waiting to hear from NGTL regarding plans for contracting and employment.

Reply of NGTL

NGTL stated that it and NGTL contractors have employed WCFN members and businesses for project planning services such as pipeline survey and geotechnical and environmental studies. NGTL also stated that it is involved in ongoing dialogue with WCFN and other potentially affected Aboriginal communities to identify further economic and employment opportunities for the Project.

Although hiring generally takes place through a prime contractor, NGTL committed that it will attempt to match Aboriginal businesses with subcontracting opportunities by undertaking discussions with each community. Through NGTL's Aboriginal contracting plan, NGTL will continue to engage WCFN and other potentially affected Aboriginal communities to discuss potential employment and contracting opportunities and ensure that such opportunities are maximized.

Views of the Board

The Board finds the information in NGTL's Project Application and evidence regarding Aboriginal and local employment and contracting to be at a high level. The Board includes a condition requiring NGTL to file specific information, prior to and through the construction period, on Aboriginal and local employment. The reports will include a summary of the Aboriginal and local employment and contracting during the reporting period; any measures to address identified or potential gaps in relation to Aboriginal and local employment and contracting opportunities; and a summary of NGTL's consultation with relevant Aboriginal and local groups on this matter (Certificate Condition 8, Appendix II).

The Board notes WCFN's concern that the Project has not resulted in material benefit to WCFN. However, in view of NGTL's commitments and the conditions set out in Appendix II (in particular, Certificate Conditions 2, 7, 8 and 9) and Appendix III (in particular, Conditions 2 and 6), the Board is satisfied that the Project would provide positive employment and economic benefits through construction contracting opportunities to qualified local and Aboriginal businesses and the employment of local and Aboriginal workers, whenever possible.

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 proposed Project.
2. The economic feasibility of the proposed Project.
3. The potential commercial impacts of the proposed Project.
4. The potential environmental and socio-economic effects of the proposed Project, including those to be considered under the *Canadian Environmental Assessment Act, 2012*.
5. The appropriateness of the general route and land requirements for the proposed Project.
6. The engineering design and integrity of the proposed Project.
7. Potential impacts of the proposed Project on Aboriginal interests.
8. Contingency planning, including emergency response planning, for releases or spills, accidents or malfunctions, during construction and operation of the Project.
9. The terms and conditions to be included in any approval or recommendation.

Appendix II

Section 52 Certificate Conditions

In these conditions, where any condition requires a filing with the National Energy Board (Board or NEB) "for approval", NGTL must not commence that action until the approval is issued.

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

Section 52 Facilities – NGTL's proposed construction and operation of approximately 61 km of new 508 mm (NPS 20) outside diameter pipeline, pipeline valves, in-line inspection launcher and receiver facilities and other associated works.

Commencing construction – 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.

Certificate – The Certificate of Public Convenience and Necessity, pursuant to Part III of the

National Energy Board Act (NEB Act), authorizing the construction and operation of the Section 52 Facilities.

Conditions for the Certificate, if Granted

General

1. ***Condition Compliance***

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

2. ***Section 52 Facilities Design, Construction, and Operation***

NGTL shall cause the Section 52 Facilities to be designed, located, constructed, installed and operated in accordance with the specifications, standards, commitments made and other information referred to in its Application 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 for the protection of the environment included in or referred to in its Application or in its related submissions.

Prior to Commencing Construction

4. ***Environmental Protection Plan***

NGTL shall file with the Board for approval, at least 60 days prior to commencing construction, a final and updated project-specific Environmental Protection Plan (EPP) for the Section 52 Facilities, including Environmental Alignment Sheets. The EPP shall describe all environmental protection procedures, and mitigation and monitoring commitments, as set out in NGTL's Application or in its related submissions, including but not limited to site-specific mitigation for Key Wildlife and Biodiversity Zones and trumpeter swan water bodies. The EPP shall also include current drawings of typical construction practices.

The EPP shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments.

5. ***Outstanding Traditional Land Use Investigations***

At least 60 days prior to commencing construction, NGTL shall file with the Board for approval, and serve a copy on all participating Aboriginal groups, a plan to address outstanding Traditional Land Use (TLU) investigations for the Section 52 Facilities. The plan shall include, but not be limited to:

a) a summary of the status of TLU investigations undertaken for the Section 52 Facilities, 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 Section 52 Facilities 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 the effects of the Section 52 Facilities identified in the investigations;

d) a description of how NGTL has incorporated any additional mitigation measures into its EPP for the Section 52 Facilities;

e) a description of any outstanding concerns raised by potentially affected Aboriginal groups regarding the potential effects of the Section 52 Facilities 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, an estimated completion date, if applicable, and a description of how any additional information provided by Aboriginal groups has been considered and addressed to the extent possible in the EPP or other mitigation measures for the Section 52 Facilities.

6. ***Aboriginal Consultation Reports***

NGTL shall file with the Board, at least 30 days prior to commencing construction, and every 60 days thereafter until completing construction, a report summarizing NGTL's consultations with all potentially affected Aboriginal groups identified for the Section 52 Facilities, including Woodland Cree First Nation and Mountain Cree (Asini Wachi Nehiyawak) Traditional Band. These reports must include, but not be limited to:

a) a summary of the concerns raised by Aboriginal groups;

b) how NGTL has addressed or will address the concerns raised;

c) a description of any outstanding concerns ; and

d) how NGTL intends to address any outstanding concerns, or an explanation of why no further steps will be taken.

7. ***Aboriginal Monitoring Plan***

At least 30 days prior to commencing construction, NGTL shall file with the Board, and serve a copy on Aboriginal groups identified in a), a plan describing participation by Aboriginal groups in monitoring during construction. The plan shall include, at a minimum:

a) a list of those Aboriginal groups, if any, who have reached agreement with NGTL to participate as monitors during construction; and

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:

   i. a summary of consultations undertaken with participating communities to determine the proposed scope, methodology and measures for monitoring;

   ii. those elements of construction and geographic locations that will involve Aboriginal monitors;

   iii. a description of how information gathered through the participation of Aboriginal monitors will be used by NGTL, and

   iv. a description of how information gathered through the participation of Aboriginal monitors will be provided to participating Aboriginal communities.

8. ***Aboriginal and Local Employment and Contracting Monitoring Reports***

NGTL shall file with the Board, at least 30 days prior to commencing construction, and every 60 days thereafter (coinciding with, or included in, the reports on Aboriginal consultation as per Condition 6 until completing construction), monitoring reports for Aboriginal and local employment and contracting for the Section 52 Facilities. The reports must include:

a) a summary and analysis of the total Aboriginal and local employment and contracting during the reporting period;

b) any proposed measures to address identified or potential gaps or barriers in relation to Aboriginal and local employment and contracting opportunities for the Section 52 Facilities; and

c) a summary of NGTL's consultation with relevant Aboriginal and local groups or representatives regarding employment and contracting for the reporting period, including any issues or concerns raised and how NGTL has addressed or responded to them.

NGTL shall file with the Board, within three months of completing construction, a final report on employment and contracting during the construction phase.

9. ***Commitments Tracking Table***

NGTL shall:

a) at least 30 days prior to commencing construction, file with the Board a table listing all commitments made by NGTL during the GH-003-2014 proceeding in relation to the Section 52 Facilities, the conditions included in the Certificate, and the deadlines associated with each; and

b) maintain at its construction office(s):

    i. the Commitments Tracking Table listing all commitments and conditions described in a) and their completion status, and

    ii. copies of any permits, approvals or authorizations for the Section 52 Facilities issued by federal, provincial or other permitting authorities.

10. ***Slope and Bank Failures***

NGTL shall file with the Board, at least 14 days prior to commencing construction, a detailed description of the mitigation necessary to protect the pipeline and right-of-way from future bank or slope failures, and the criteria for applying the mitigation.

11. ***Programs and Manuals***

NGTL shall file with the Board the following programs and manuals within the time specified:

a) Construction Safety Manual at least 14 days prior to commencing construction;

b) Field Emergency Preparedness and Response Plan at least 14 days prior to commencing construction;

c) Field joining program - 14 days prior to joining; and

d) Field pressure testing program - 14 days prior to pressure test.

12. ***Construction Schedule***

NGTL shall, at least 14 days prior to commencing construction, file with the Board a detailed construction schedule or schedules identifying major construction activities and shall notify the Board of any modifications to the schedule or schedules as they occur.

<u>During Construction</u>

13. ***Construction Progress Reports***

NGTL shall file with the Board construction progress reports at the middle and end of each month during construction. The reports must include information on the activities carried out during the reporting period. These reports must include safety, security, environmental and socio-economic issues, non-compliances, and the measures undertaken for the resolution of each issue and non-compliance.

<u>Post-Construction and Operations</u>

14. ***Condition Compliance by a Company Officer***

Within 30 days of the date that the last order was issued for leave to open, NGTL shall file with the Board a confirmation, by an officer of the company, that the Section 52 Facilities were 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.

15. ***Post-Construction Monitoring Reports***

On or before the 31 of January of each of the first, third and fifth growing seasons following completion of final cleanup of the Section 52 Facilities, NGTL shall file with the Board a post-construction monitoring report that includes, but is not limited to, the following:

a) describes the methodology used for monitoring, the criteria established for evaluating success and the results found;

b) identifies any deviations from plans, and alternate mitigation applied as approved by the Board;

c) identifies locations on a map or diagram where environmental issues arose during construction and where corrective actions were taken;

d) assesses the effectiveness of mitigation measures applied during construction against the criteria for success;

e) assesses the accuracy of the predicted effects presented in the ESA;

f) identifies the current status of the issues identified (resolved or unresolved), and corrective actions undertaken;

g) includes details of consultation undertaken with appropriate provincial/or federal departments; and

h) provides proposed measures and the schedule that NGTL shall follow to address any unresolved issues or concerns.

The report must include information specific to the effectiveness of mitigation applied to minimize effects on: rare plants, wildlife species at risk and of special concern, including western toad habitat, Key Wildlife Biodiversity Zones, riparian areas and wetlands, including trumpeter swan water bodies.

16. ***Sunset Clause***

This Certificate shall expire on [*one year from the date the Certificate is granted*] unless construction in respect of the Section 52 Facilities has commenced by that date.

Appendix III

Section 58 Order Conditions

Conditions for the Order

General

1. ***Condition Compliance***

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

2. ***Section 58 Activities Design, Construction, and Operation***

NGTL shall cause the Section 58 Activities to be designed, located, constructed, installed and operated in accordance with the specifications, standards, commitments made and other information referred to in its Application 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 for the protection of the environment included in or referred to in its Application or in its related submissions.

Prior to Commencing Construction

4. ***Outstanding Traditional Land Use Investigations***

At least 60 days prior to commencing construction, NGTL shall file with the Board for approval, and serve a copy on all participating Aboriginal groups, a plan to address outstanding Traditional Land Use (TLU) investigations for the Section 58 Activities. The plan shall include, but not be limited to:

a) a summary of the status of TLU investigations undertaken for the Section 58 Activities, 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 Section 58 Activities 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 the effects of the Section 58 Activities identified in the investigations;

d) a description of how NGTL has incorporated any additional mitigation measures into its Environmental Protection Plan (EPP) for the Section 58 Activities;

e) a description of any outstanding concerns raised by potentially affected Aboriginal groups regarding the potential effects of the Section 58 Activities 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, an estimated completion date, if applicable, and a description of how any additional information provided by Aboriginal groups has been considered and addressed to the extent possible in the EPP or other mitigation measures for the Section 58 Activities.

5. ***Environmental Protection Plan***

NGTL shall file with the Board for approval, at least 45 days prior to commencing construction, a final and updated project-specific EPP for the Section 58 Activities, including Environmental Alignment Sheets. The EPP shall describe all environmental protection procedures, and mitigation and monitoring commitments, as set out in NGTL's Application or in its related submissions, including any resource-specific mitigation. The EPP shall also include current drawings of typical construction practices.

The EPP shall use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments.

6. ***Commitments Tracking Table***

NGTL shall:

a) at least 30 days prior to commencing construction, file with the Board a table listing all commitments made by NGTL during the GH-003-2014 proceeding in relation to the Section 58 Activities, the conditions included in the Order, and the deadlines associated with each; and

b) maintain at its construction office(s):

   i. the Commitments Tracking Table listing all commitments and conditions described in a) and their completion status, and

   ii. copies of any permits, approvals or authorizations for the Section 58 Activities issued by federal, provincial or other permitting authorities.

7. ***Programs and Manuals***

NGTL shall file with the Board the following programs and manuals within the time specified.

a) Construction Safety Manual at least 14 days prior to commencing construction; and

b) Field Emergency Preparedness and Response Plan at least 14 days prior to commencing construction.

Post-Construction and Operations

8. ***Sunset Clause***

This Order shall expire on [*one year from the date the Order is granted*] unless construction in respect of the Section 58 Activities has commenced by that date.