National Energy Board

Office national de l'énergie

National Energy Board Report

NOVA Gas Transmission Ltd.

GH-002-2015

June 2016

Facilities

Canada

National Energy Board

National Energy Board Report

In the Matter of

NOVA Gas Transmission Ltd.

Application dated 31 March 2015 for the
2017 NGTL System Expansion Project

GH-002-2015

June 2016

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Glossary of Terms and Abbreviations

AB	Alberta
ACE	Abandonment Cost Estimates
ACFN	Athabasca Chipewyan First Nation
AEP	Alberta Environment and Parks
AER	Alberta Energy Regulator
Alces River Unit Addition	NGTL's proposed unit addition at its existing Alces River Compressor Station
ANSN	Alexis Nakota Sioux Nation
Application	Application submitted to the National Energy Board by NGTL on 31 March 2015 for the proposed 2017 NGTL System Expansion Project
ASME	American Society of Mechanical Engineers
ATP	Application to Participate
AWNTB	Asini Wachi Nehiyawak (Mountain Cree) Traditional Band
BC	British Columbia
Bear Canyon Section	NGTL's proposed Northwest Mainline Loop No. 2 - Bear Canyon Section of the Project; consisting of approximately 27 km of 914 mm (36 inch) outside diameter pipeline
Bigstone	Bigstone Cree Nation
Board or NEB	National Energy Board
Boundary Lake Section	NGTL's proposed Northwest Mainline Loop - Boundary Lake Section of the Project; consisting of approximately 91 km of 914 mm (36 inch) outside diameter pipeline
CAPP	The Canadian Association of Petroleum Producers
CBM	Coalbed methane
CEAA 2012	*Canadian Environmental Assessment Act, 2012*

Certificate	Certificate of Public Convenience and Necessity issued under section 52 of the *National Energy Board Act*
Chard Métis	Chard Métis Society
CHR	Caribou Habitat Restoration
Christina River Section	NGTL's proposed Kettle River Lateral Loop - Christina River Section of the Project; consisting of approximately 20 km of 610 mm (24 inch) outside diameter pipeline
CHROMMP	Caribou Habitat Restoration and Offset Measures Monitoring Program
CHR&OMP	Caribou Habitat Restoration and Offset Measures Plan
Commenter	A person or group who has been approved by the Board to participate in the GH-002-2015 hearing by submitting a Letter of Comment
COS	Cost of Service
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CP	cathodic protection
CPDFN	Chipewyan Prairie Dene First Nation
CPIRC	Chipewyan Prairie Industry Relations Corporation is the authorized representative of CPDFN in the GH-002-2015 hearing
CSA	Canadian Standards Association
"designated project"	A project designated under the *Canadian Environmental Assessment Act, 2012* as requiring a federal environmental assessment
DFO	Fisheries and Oceans Canada
DPI	Direct Pipe® Installation
DRFN	Doig River First Nation
EA	Environmental Assessment
EAE	Enhanced Aboriginal Engagement

ECCC	Environment and Climate Change Canada, formerly Environment Canada
EMP	Emergency Management Plan
EPAC	The Explorers and Producers Association of Canada
EPMS	East Prairie Métis Settlement
EPP	Environmental Protection Plan
ERP	Emergency Response Plan
ESA	Environmental and Socio-Economic Assessment
ESAR	East Side Athabasca River boreal woodland caribou range
Filing Manual	National Energy Board Filing Manual
FT-D	Firm Transportation – Delivery
FT-R	Firm Transportation – Receipt
Gift Lake	Gift Lake Métis Settlement
GIS	Geographic Information System
GML 55	Métis Nation of Alberta – Gunn Métis Local 55
Governor in Council	The Governor General acting on the advice of the federal cabinet
GPML	Grand Prairie Mainline of the existing NGTL System
HDD	horizontal directional drilling
HSE	Health, Safety, and Environment
HSE Framework	HSE Management System Framework
HRA	*Historical Resources Act* (Alberta)
ILI	in-line inspection
IMP	Integrity Management Program
IMU	inertial measurement unit

Intervenor	A person or group who has been approved by the Board to participate in the GH-002-2015 hearing as an Intervenor
IR or Information Request	A written question to an applicant or intervenor in relation to its evidence, filed by the Board, an intervenor or the applicant during the written portion of the hearing pursuant to the deadlines set out by the Board, to which a response must be subsequently filed
IT-R	Interruptible Transportation – Receipt
KTP	An area of approximately 90,000 hectares of land within Doig River First Nation's traditional territory in northeastern British Columbia and northwestern Alberta which Doig River First Nation refers to as the K'ih tsaa?dze Tribal Park
KWBZ	Key Wildlife and Biodiversity Zone
LNG	liquefied natural gas
LSA	Local Study Area
McLeod River Section	NGTL's proposed Grande Prairie Mainline Loop No. 2 – McLeod River Section of the Project, consisting of approximately 37 km of 1219 mm (48 inch) outside diameter pipeline
McMurray Métis	Métis Nation of Alberta Association – Fort McMurray Local Council 1935
M.D.	Municipal District
MOP	maximum operating pressure
MPMO	The Government of Canada's Major Projects Management Office, whose mandate is to provide overarching management and accountability for major resource projects in the federal regulatory review process, and to facilitate improvements to the federal regulatory system for major resource projects
MRTN	Marten Hills Lateral
NCC	North Central Corridor
NDE	non-destructive examination
NEB Act	*National Energy Board Act*
NGL	natural gas liquids

NLAT	North Lateral
North of Bens Lake Area	Area in the eastern portion of Alberta in which the Oil Sands Delivery Area resides
NGTL	NOVA Gas Transmission Ltd. is the company that has submitted the Application for the Project. NGTL is a wholly-owned subsidiary of TransCanada PipeLines Limited.
NGTL System	NGTL's natural gas pipeline system comprised of approximately 24,500 km of pipeline, associated compression, and other facilities located in Alberta and British Columbia
NWML	Northwest Mainline of the existing NGTL System
NPS	nominal pipe size (in inches)
OCC	TransCanada Operational Control Centre
OD	outside diameter
OM	Offset Measures
OM&A	Operating Maintenance and Administration
OPR	*National Energy Board Onshore Pipeline Regulations*
Order	A Board Order made under the NEB Act
OSDA	Oil Sands Delivery Area
Otter Lake Unit Addition	NGTL's proposed unit addition at the existing Otter Lake Compressor Station
Participant	An individual, company or group who has applied to participate in the GH-002-2015 hearing, and whose application to participate was approved by the Board. Participants include NGTL, Intervenors, and Commenters.
PCM	Post-Construction Monitoring
Pelican Lake Section	NGTL's proposed Liege Lateral Loop No. 2 - Pelican Lake Section of the Project; consisting of approximately 55 km of 762 mm (NPS 30) OD pipeline
PFP	The National Energy Board's Participant Funding Program

Pipeline	Together, NGTL's proposed five pipeline section loops for the Project which are listed and described in Chapter 1
proceeding or hearing	The Board's GH-002-2015 public hearing for its regulatory review of NGTL's Application for the proposed 2017 NGTL System Expansion Project
Project	The proposed 2017 NGTL System Expansion Project which includes the five pipeline section loops and two compressor station unit additions described in Chapter 1
RAP	restricted activity period or restricted timing window
Recovery Strategy	*Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada*
Report or National Energy Board Report	Report prepared by the Board and submitted to the Governor in Council that sets out the Board's recommendation and decisions as to whether a Certificate and Orders should be granted for NGTL's proposed Project, the reasons for the Board's recommendation and decisions, and any terms and conditions to be included if the Project is approved and goes forward
RICC	Regional Industry Caribou Collaboration, a multi-industry partnership focused on restoring caribou habitat through regional, collaborative, range-based efforts
rolled-in	Combining costs from various facilities into one cost pool with, for example, one joint revenue requirement for toll making purposes
RoW	right-of-way
RSA	Regional Study Area
Samson	Samson Cree Nation
SARA	*Species at Risk Act*
SCADA	supervisory control and data acquisition system
Section 52 Facilities	NGTL's applied-for Project facilities described in Chapter 1, which consist of approximately 230 kilometres of pipeline in five new and separate pipeline section loops and two new compressor station unit additions in various locations in northern Alberta

Section 58 Components	Temporary infrastructure and right-of-way preparation activities required for the Project, as described in Chapters 1 and 10
SMP	Safety Management Plan
Swan River	Swan River First Nation
Tariff	The terms and conditions under which the service of a pipeline are offered or provided, including the tolls, the rules and regulations, and the practices relating to specific services
TEK	Traditional Ecological Knowledge
TLRU	Traditional Land and Resource Use
TLU	Traditional Land Use
TOP	TransCanada Operating Procedure
TransCanada	TransCanada PipeLines Limited; subsidiary of TransCanada Corporation; parent company of NOVA Gas Transmission Ltd.
TTFP	Tolls, Tariff, Facilities & Procedures
TWS	temporary workspace
UJRA	Upstream of James River Area
WCSB	Western Canadian Sedimentary Basin
WEG	The Western Export Group
Woodland Cree	Woodland Cree First Nation
WSAR	West Side Athabasca River boreal woodland caribou range

Symbols, Formulas and Units

$	dollars (CND)
%	per cent
°C	degrees Celsius
10^3m^3/day	thousand cubic metres per day
Bcf/d	billion cubic feet per day
cents/Mcf/d	cents per thousand cubic feet per day
cm	centimetre
dBA leq	average sound pressure level in decibels (adjusted for human response)
ha	hectare
km	kilometre
km^2	square kilometres
kPa	kilopascal
m	metre
m^3/d	cubic metres per day
M	million
Mcf	thousand cubic feet
MMb/d	million barrels per day
MPa	megapascal
mm	millimetre
MMcf/d	million cubic feet per day
MW	megawatt
TJ/d	terajoule per day

Recital

IN THE MATTER OF the *National Energy Board Act*, R.S.C. 1985, c. N-7, as amended, and the regulations made thereunder;

IN THE MATTER OF the *Canadian Environmental Assessment Act*, 2012 (S.C. 2012, c. 19, s. 52), as amended, and the regulations made thereunder;

IN THE MATTER OF an application by NOVA Gas Transmission Ltd. before the National Energy Board for a Certificate of Public Convenience and Necessity and other related approvals pursuant to sections 52 and 58 of Part III, and Part IV of the *National Energy Board Act*, filed under File No. OF-Fac-Gas-N081-2014-20 02 on 31 March 2015;

IN THE MATTER OF National Energy Board Hearing Order GH-002-2015 dated 31 July 2015;

HEARD by way of written submissions; and oral traditional evidence sessions held in Fort McMurray, Alberta on 27 October 2015; Grande Prairie, Alberta on 30 October 2015; and Edmonton, Alberta on 4 and 5 November 2015;

BEFORE:

R. R. George	Presiding Member
S. Parrish	Member
R. Wallace	Member

Executive Summary

On 31 March 2015, NOVA Gas Transmission Ltd. (NGTL) applied to the National Energy Board (Board) under sections 52 and 58 of Part III, and Part IV of the *National Energy Board Act* (NEB Act), for a recommendation and related approvals to construct and operate the 2017 NGTL System Expansion Project (Project). The Project is an expansion of the existing NGTL System to receive and deliver sweet natural gas in Alberta. The Project consists of approximately 230 kilometres of pipeline in five pipeline section loops and two compressor station unit additions, and is located in northern Alberta, mostly adjacent to existing sites.

The Project is a "designated project" pursuant to subsection 2(b) of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), for which the Board is the responsible authority.

The Board received and considered a total of 45 applications to participate in the proceeding, and granted standing to participate to 44 of those who applied. In addition to NGTL, the Participants included 16 Aboriginal groups, 24 commercial parties, three federal government departments and one provincial government department.

The Board received 16 applications for participant funding from Aboriginal groups, and a funding review committee, independent of the Board's hearing process, reviewed the applications and allocated the funding awards.

The Board established a hearing process which included opportunities for Participants to ask information requests on the evidence, submit letters of comment, and present arguments, in writing and through oral traditional evidence presentations. The Board's hearing process encouraged and supported meaningful public and Aboriginal participation. Some federal government departments also provided advice and recommendations related to their mandated responsibilities.

The Board, supported by expert staff, conducted its regulatory review and environmental assessment of the Project through a public hearing, during which it reviewed NGTL's Project application and all related evidence submitted on the hearing record by NGTL and other Participants. In determining if the Project is in the Canadian public interest, the Board considered the issues listed in Appendix I, including the potential impacts of the Project on Aboriginal rights and interests, the environmental and socio-economic effects of the Project, the engineering and integrity of the proposed facilities, the safety and security during construction and operation of the Project, and the economic need and necessity for the Project.

The Board extended an invitation to all Aboriginal Intervenors in the proceeding to provide oral traditional evidence. Six Aboriginal groups made oral traditional evidence presentations in Fort McMurray, Grande Prairie and Edmonton, Alberta. The Board found this local and traditional knowledge of value as it provided important context and information that allowed the Board to better understand the nature and extent of the interests and concerns of the participating Aboriginal Intervenors and how the Project may affect their interests.

Chapters 5 and 7 provide samples of the information heard at the oral traditional evidence sessions, including the following remark made by one of the presenters:

"We're trying to work with you because those animals…need to live. They have a right to live. So caribou is important to us too. There's all kinds of medicines in this animal that – the one that you take it and then you make into a fleece… so our fleece are gone…" (Paragraphs 1486 and 1487, Hearing Transcript Volume 3)

The Project traverses three boreal woodland caribou ranges. Boreal woodland caribou is listed as Threatened on Schedule 1 of the *Species at Risk Act*. In anticipation of Board conditions, NGTL submitted to the Board a preliminary Caribou Habitat Restoration and Offset Measures Plan for the Project as part of its evidence. Due to the status of caribou and Aboriginal concerns, a substantial amount of information was attained throughout the hearing process on this subject. The Board sent a letter pursuant to section 20(a) of the CEAA 2012 to Environment and Climate Change Canada (ECCC), requesting any additional information in its possession regarding caribou. ECCC replied and the Board has responded to ECCC's letter as noted in Chapter 7. The Board has set out five conditions specific to caribou and caribou habitat in regard to habitat restoration, offset measures, monitoring and reporting.

This Report to the Minister of Natural Resources Canada constitutes the Board's recommendation and decisions in respect of NGTL's Project Application, and includes the Board's environmental assessment of the Project in Chapter 7.

The Governor in Council will make a final decision on whether it approves the proposed Project.

Recommendation

The Board is satisfied that the Project is, and will be, required by the present and future public convenience and necessity. This conclusion reflects the Board's consideration of the entire GH-002-2015 hearing record, including but not limited to, environmental effects to be taken into account for the Project under the *Canadian Environmental Assessment Act, 2012* and the conclusion and recommendation made in the Board's environmental assessment of the Project in Chapter 7.

Pursuant to section 52 of the NEB Act, the Board recommends that a Certificate of Public Convenience and Necessity (Certificate) be issued for the Project, incorporating the terms and conditions set out in Appendix III, and including all commitments made by NGTL during the hearing.

Decisions

The Board has decided to grant the following relief to NGTL:

Order XG-N081-013-2016 pursuant to section 58 of the NEB Act exempting NGTL from the requirements of subsections 31(c) and 31(d), and section 33 of the NEB Act in relation to temporary infrastructure required for the Project and right-of-way preparation activities, subject to the terms and conditions set out in Appendix IV;

Order XG-N081-014-2016 pursuant to section 48 of the NEB Act exempting NGTL from certain requirements of section 17 of the *National Energy Board Onshore Pipeline Regulations*; and

Order TG-006-2016 pursuant to Part IV of the NEB Act affirming the inclusion of Project costs in the determination of the NGTL System revenue requirement and NGTL's tolling methodology with respect to the Project.

These three orders take effect only upon the issuance of a Certificate in respect of the Project.

Conditions and Lifecycle Regulation

If a Certificate is granted, the terms and conditions the Board has set out for the Project facilities and components will be legal requirements. Some conditions govern the pre-construction and construction of the Project, and others pertain to the operation of the Project. In total, the Board would attach 36 conditions to the Certificate and 12 conditions to the section 58 Order that cover a wide range of matters, including:

- protection of the environment, including the protection and restoration of caribou habitat;
- impacts of the Project on Aboriginal interests and land use;
- socio-economic matters;
- emergency preparedness and response during the lifecycle of the Project; and
- safety and integrity of the Project.

If the Governor in Council approves the Project, the Board would monitor all conditions and regulate all lifecycle phases of the Project; including prior to and during construction, operation and eventual abandonment of the Project.

Conclusion

The Board encourages anyone wishing to more fully understand the context of the information and evidence provided by all those who participated in this public hearing to consult the Board's online public registry (hearing record) for the Project, which is available on the Board's website at www.neb-one.gc.ca.

The Board thanks all Participants for their contributions to the proceeding. The Board sincerely appreciates the time and effort all Participants put into their submissions, written or oral.

R. R. George
Presiding Member

S. Parrish
Member

R. Wallace
Member

Chapter 1

Introduction

1.1 The Project

On 31 March 2015, NOVA Gas Transmission Limited (NGTL) applied to the National Energy Board (Board or NEB) under sections 52 and 58 of Part III, and Part IV of the *National Energy Board Act* (NEB Act) for a recommendation and related approvals to construct and operate the 2017 NGTL System Expansion Project (Project), which is a proposed expansion to the NGTL System (Application).

The Project consists of approximately 230 kilometres (km) of pipeline in five pipeline section loops (together, the Pipeline) and two compressor station unit additions. The Project is located in northern Alberta, mostly adjacent to existing sites.

The primary purpose of the Project is to receive and deliver sweet natural gas in Alberta to meet aggregate service requirements of the NGTL System.

The total estimated capital cost of the Project, in 2015 dollars, is $1.29 billion. NGTL said the planned in-service date is 1 April 2017.

1.1.1 The Proposed Project Facilities

NGTL applied under section 52 of Part III of the NEB Act for a Certificate of Public Convenience and Necessity (Certificate) authorizing the construction and operation of the five new pipeline section loops and two compressor station unit additions (together, the Section 52 Facilities). If approved, NGTL indicated that construction of the Section 52 Facilities is scheduled to begin in the fourth quarter of 2016.

The proposed Section 52 Facilities of the Project are:

- Northwest Mainline (NWML) Loop - Boundary Lake Section (Boundary Lake Section): approximately 91 km of 914 mm (36 inch) outside diameter (OD) pipeline, of which approximately 85 km (93 per cent) will be parallel to or contiguous with existing right-of way (RoW) or other linear disturbances;
- NWML Loop No. 2 - Bear Canyon Section (Bear Canyon Section): approximately 27 km of 914 mm (36 inch) OD pipeline; of which approximately 21 km (77 per cent) will be parallel to or contiguous with existing RoW or other linear disturbances;
- Grande Prairie Mainline (GPML) Loop No. 2 - McLeod River Section (McLeod River Section): approximately 37 km of 1219 mm (48 inch) OD pipeline, of which approximately 34 km (92 per cent) will be parallel to or contiguous with existing RoW or other linear disturbances;

- Liege Lateral Loop No. 2 - Pelican Lake Section (Pelican Lake Section): approximately 55 km of 762 mm (30 inch) OD pipeline, of which approximately 51 km (93 per cent) will be parallel to or contiguous with existing RoW or other linear disturbances;
- Kettle River Lateral Loop - Christina River Section (Christina River Section): approximately 20 km of 610 mm (24 inch) OD pipeline, of which approximately 18 km (90 per cent) will be parallel to or contiguous with existing RoW or other linear disturbances;
- Alces River Compressor Station Unit Addition (Alces River Unit Addition): a 16.5 megawatt (MW) compressor unit addition located partially within the existing footprint of the Alces River Compressor Station; and
- Otter Lake Compressor Station Unit Addition (Otter Lake Unit Addition): a 30 MW compressor unit addition located entirely within the existing footprint of the Otter Lake Compressor Station.

See Figure 1-1 for a Map of the proposed Section 52 Facilities of the Project.

1.1.2 Temporary Infrastructure and Preparation Activities

NGTL also applied under section 58 of Part III of the NEB Act for exemptions from certain requirements of sections 31 and 33 of the NEB Act in order to build temporary infrastructure required for the construction of the Pipeline and conduct certain RoW preparation activities in select areas along the proposed route (together, the Section 58 Components).

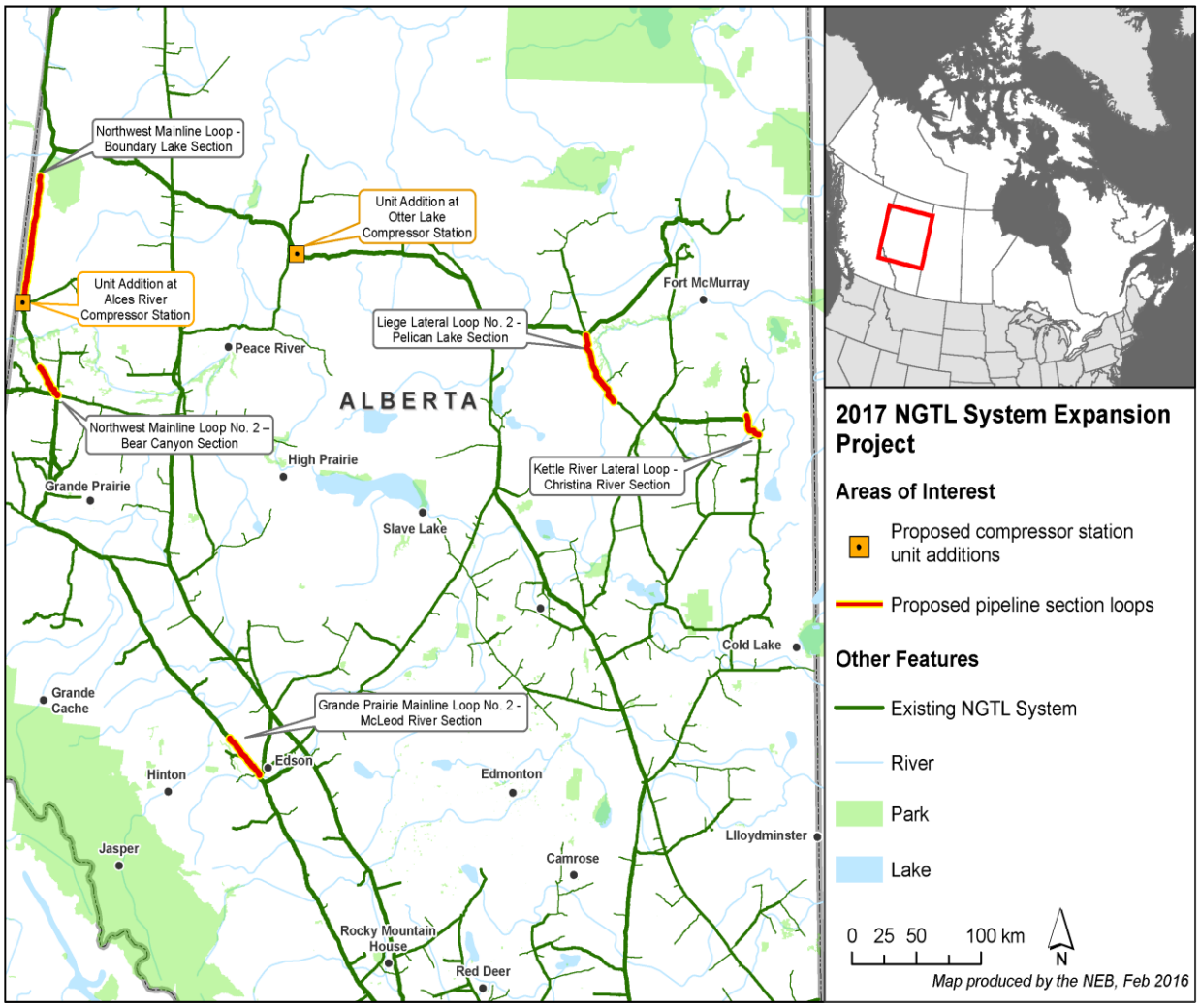
The Section 58 Components include stockpile sites, contractor yards, access roads and travel lanes, helicopter landing pads, borrow pits/dugouts, laydown yards, and construction camps.

NGTL indicated in its Application that subject to the Board's regulatory approval, work on the temporary infrastructure for the Project is scheduled to begin in the third quarter of 2016.

Chapter 10 describes the Section 58 Components in further detail.

Figure 1-1: Map of the 2017 NGTL System Expansion Project

More than 90 per cent of the Project will be on provincial Crown lands. The five proposed pipeline section loops will parallel NGTL's existing RoW or existing disturbances for approximately 91 per cent of the total route. Both compressor station unit additions will be located at NGTL's existing compressor stations. This map, created by the Board based on NGTL's Application for the Project, is for illustrative purposes only.



Source: NGTL's Project Application, Executive Summary [A69317].

1.2 Relief Requested by NGTL

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

- a recommendation in its Report for the issuance of a Certificate, pursuant to section 52 of Part III of the NEB Act, authorizing the construction and operation of the Project to receive and deliver sweet natural gas in northern Alberta;
- an Order, pursuant to section 58 of Part III of the NEB Act, exempting NGTL from the requirements of subsections 31(c) and 31(d), and section 33 of the NEB Act in relation to:
  - temporary infrastructure required for construction of the Pipeline;
  - right-of-way preparation activities in select areas along the proposed route;
- an Order pursuant to Part IV of the NEB Act affirming that:
  - prudently incurred costs required to provide service on the applied-for facilities will be included in the determination of the NGTL System revenue requirement; and
  - the tolls for services on the applied-for facilities will be calculated using the same methodology used to calculate tolls for services on all other facilities; and
- that it grants such further and other related relief as NGTL may request or the Board may consider appropriate.

1.3 Environmental Assessment

NGTL's proposed pipeline section loops for the Project collectively exceed 40 km in length; therefore, the Project is a "designated project" under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and requires a CEAA 2012 environmental assessment for which the Board is the responsible authority. The Board also considers environmental protection as part of its broader mandate.

The Board's complete environmental assessment for the Project is provided in Chapter 7.

1.4 Regulatory Review Process

1.4.1 Hearing Participation

On 29 May 2015, the Board issued a Notice of Public Hearing and Application to Participate (ATP) for the GH-002-2015 hearing (hearing or proceeding), indicating that the ATP form would be available on the Board's website starting 18 June 2015. Those who wished to participate in the hearing had until 9 July 2015 to apply using the Board's online ATP form.

The Board received and considered a total of 45 ATPs for the GH-002-2015 hearing, some of which were received after the ATP deadline had passed. The Board granted standing to participate to 44 of those who applied.

Out of these 44 hearing Participants, 37 participated as Intervenors which included 15 Aboriginal groups, 20 commercial parties, one federal government department and one provincial government department. The remaining seven participated in the hearing as Commenters which included one Aboriginal group, four commercial parties, and two federal government departments. The Board granted one request by an Intervenor to change its status to Commenter partway through the hearing.

The Board notes that its standing decisions made in the hearing do not constitute findings by the Board with respect to the facts or claims asserted in an ATP or by a participant during the proceeding.

1.4.2 Hearing Order

On 31 July 2015, the Board issued Hearing Order GH-002-2015, followed by procedural updates, which established a public hearing process that encouraged and supported meaningful public and Aboriginal participation.

Throughout the hearing, the Board conducted a regulatory review and environmental assessment to determine if the proposed Project is in the Canadian public interest. In its review, the Board considered the issues listed in Appendix I.

The Board also reviewed and considered all the evidence, comments and arguments presented by those who participated in the proceeding, in writing and through oral traditional evidence presentations.

1.4.2.1 Participant Funding

The Board administers a Participant Funding Program (PFP) which provides financial assistance to support the 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 hearing process.

The Board established a funding review committee, independent of the Board's hearing process for the Project, to review applications for participant funding. The Board received 16 applications from Aboriginal groups with a total funding request of $1,105,309. After reviewing the funding applications, the Board allocated funding awards of $331,125 in total.

More information on the PFP and the funding awards allocated for the Project can be found on the Board's website at www.neb-one.gc.ca/pfp.

1.4.3 Written Process

The Board conducted its public hearing primarily through a written process which included two rounds of filing evidence, several rounds of Information Requests (IR), letters of comment, and the submission of final argument; concluding with NGTL's submission of reply argument.

The one oral component of the hearing was the collection of oral traditional evidence from Aboriginal Intervenors, which is described in section 1.4.4 below.

Appendix II provides the types and sources of information and evidence submitted by hearing Participants during the proceeding. It also indicates where the information can be found on the Board's online hearing record for the Project.

1.4.4 Oral Traditional Evidence Sessions

The Board understands that Aboriginal peoples have an oral tradition for sharing stories, lessons, and knowledge from generation to generation and that this information cannot always be shared adequately in writing. The Board found it valuable for its consideration of the Project to gather oral traditional evidence during the proceeding from interested Aboriginal Intervenors.

The Board extended an invitation to all Aboriginal Intervenors in the proceeding who wished to provide oral traditional evidence. The schedule and locations for gathering oral traditional evidence were developed based on the eleven requests the Board received from interested Aboriginal Intervenors.

Of the eleven Aboriginal Intervenors scheduled to provide oral traditional evidence to the Board, six groups attended the sessions and made presentations in Fort McMurray, Grande Prairie and Edmonton, Alberta from 27 October to 5 November 2015.

Chapter 5 provides information about Aboriginal Matters, including more information about oral traditional evidence.

1.5 Lifecycle Approach

The Board takes a lifecycle approach to regulation, holding its regulated companies accountable so that Canadians and the environment are protected throughout the lifecycle of each pipeline or project. The lifecycle includes the planning and pre-application phase, the application assessment and public hearing phase, the construction and post-construction phase, the operations and maintenance phase, and the eventual abandonment phase.

The Board notes that the Project would be part of the existing NGTL System which is subject to the Board's comprehensive regulatory oversight. Should the Project be approved and a Certificate issued, and NGTL decide to proceed with it, the Board will use this same ongoing oversight to regulate the applied-for Project facilities and components.

1.6 Public Interest

In the Board's view, 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 recommendation and/or decision.

In making its recommendation regarding public convenience and necessity, the Board relies on the facts that are established to its satisfaction through the hearing process for the review of a project, and conducts its proceeding consistent with the principles of natural justice.

In reviewing NGTL's Project Application, the Board considered whether it is in the overall Canadian public interest. In determining if the Project is in the Canadian public interest, the Board considered the issues listed in Appendix I, including the potential impacts of the Project on Aboriginal rights and interests, the environmental and socio-economic effects of the Project, the engineering and integrity of the proposed facilities, the safety and security during construction and operation of the Project, and the economic need and necessity for the Project. The Board based its determination on findings of fact, and carefully reviewed and weighed all of the evidence and arguments submitted by Participants in the proceeding, exercising its discretion in balancing the interests of a diverse public.

1.7 Conditions

The NEB Act requires the Board to set out conditions that it considers necessary or desirable in the public interest, should the Governor in Council direct the Board to issue a certificate to authorize a project. The purpose of such conditions is to mitigate potential risks and effects associated with a project so that the project can be designed, constructed, operated or abandoned in a safe manner that protects the public and the environment.

In November 2015, the Board made possible conditions for the Project available for review by hearing Participants. The Board considered all comments it received from NGTL, Intervenors and Commenters before finalizing and setting out the terms and conditions it would impose if the Project is approved by the Governor in Council.

These include:

- 36 conditions in the Certificate for the Section 52 Facilities (Certificate Conditions, Appendix III); and
- 12 conditions in the Order for the Section 58 Components of the Project (Order Conditions, Appendix IV).

The Board notes that any commitments made by NGTL in its Application or in its related submissions during the proceeding would also become regulatory requirements. To be satisfied that NGTL complies with all its commitments for this Project, the Board would impose **Certificate Condition 5** (Appendix III) and **Order Condition 6** (Appendix IV), requiring NGTL to file Commitments Tracking Tables for the Section 52 Facilities and Section 58 Components of the Project.

If the Governor in Council approves the Project, the Board will issue the Certificate and give effect to its Order pursuant to section 58 of the NEB Act. These will be subject to the terms and conditions set out in this Report (Appendices III and IV), unless the Governor in Council orders the Board to reconsider any of its Certificate Conditions.

If the Project is approved and NGTL decides to proceed with it, NGTL will be required to comply with all the terms and conditions set in the Certificate and Section 58 Order, and any commitments it made during the proceeding.

The Board will monitor and enforce compliance with these terms and conditions throughout the lifecycle of the Project through audits, inspections, and other compliance and enforcement tools. Documents filed by NGTL in relation to condition compliance and related Board correspondence will be available to the public on the Board's website at www.neb-one.gc.ca.

Chapter 2

Economic Feasibility and Need for the Project

In making a recommendation on an application for a project pursuant to section 52 of the NEB Act, the Board considers all that appears to be directly related and relevant, and may also consider the following:

- the availability of oil, gas or any other commodity to the pipeline;
- the existence of markets, actual or potential;
- the economic feasibility of the pipeline;
- the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity to participate in the financing, engineering and construction of the pipeline; and
- any public interest that in the Board's opinion may be affected by the issuance of a certificate or the dismissal of the application.

An applicant is expected to demonstrate the economic feasibility or the need for the project; any alternatives to the project that have been evaluated and considered; and the justification for the project over other possible options. In assessing the economic feasibility of a proposed project, the Board considers the need for the project, the product that would be available for transportation on the pipeline, the availability of adequate markets to receive the product to be delivered by the pipeline, and the adequacy of the capacity of the pipeline.

The Board also takes into consideration the potential impacts of a proposed project on commercial third parties. In this regard, the Board seeks assurance that all commercial third parties who may be affected by the outcomes of an application are notified of it and provided an opportunity to comment, and to participate in the hearing process.

The Board also considers other impacts of the project, such as the likelihood of the facilities being used at a reasonable level over the expected economic life of the project, an applicant's ability to finance the construction, the ongoing operation and maintenance of the pipeline and facilities, and the recovery of project costs through tolls. In addition, the Board considers the project's effects on any other relevant matters of public interest.

The Board's expectations regarding the economic feasibility of a proposed project are set out in the Board's Filing Manual.

The Board notes that the data, figures and tables in this chapter are based on evidence provided by NGTL in its Application or in related submissions throughout the proceeding, and that these do not necessarily reflect the Board's outlooks on market supply, demand or other market information presented in this chapter.

Matters relating to toll principles and methodology are discussed in Chapter 9.

2.1 Natural Gas Supply

Views of NGTL

NGTL remarked that supply in the Upstream of James River Area (UJRA) is growing and requires additional capacity to move to markets outside of the UJRA. NGTL commented that market demand growth in the North of Bens Lake Area, and particularly within a sub-area within the North of Bens Lake Area referred to as the Oil Sands Delivery Area (OSDA), requires additional capacity to move supply into the OSDA. NGTL stated that the Section 52 Facilities of the Project combined with the existing NGTL facilities and other facilities currently applied for by NGTL in separate applications would enable NGTL to transport existing and incremental supply from the UJRA, as well as to meet existing and incremental markets in the OSDA.

NGTL submitted that currently, the two primary flow paths to move gas out of the supply area in the northwest portion of the NGTL System are the NWML/North Central Corridor (NCC) flow path, which transports gas north and east toward the OSDA, and the GPML, which transports gas southeast toward the major export delivery points on the NGTL System. NGTL stated that the primary flow paths to transport gas into the OSDA are the NCC, the Marten Hills Lateral (MRTN), and the North Lateral (NLAT).

NGTL indicated that it expects the primary flow paths that transport gas out of the UJRA and into the OSDA will continue as such. As a result, NGTL stated these flow paths form the basis for the project design area. NGTL indicated that the collective Section 52 Facilities of the Project would increase the capability of the flow paths in the OSDA to meet the aggregate contractual requirements to transport additional gas out of the UJRA and into the NGTL System starting in 2017. NGTL's Project design area, in relation to supply and demand areas and constrained flow paths, is shown in Figure 2-1.

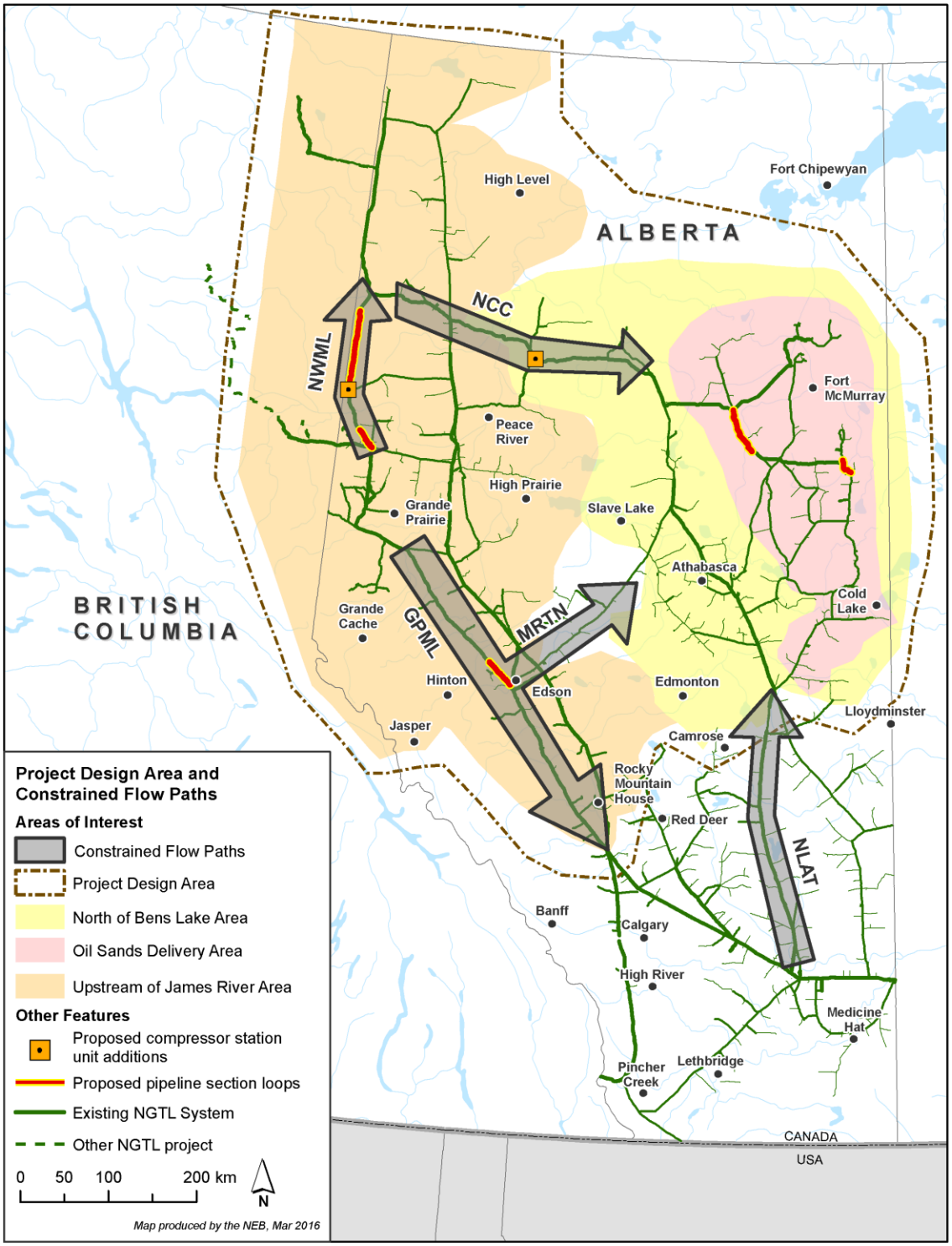
NGTL stated that the Project is best characterized as a capacity expansion to meet aggregate system firm transportation requirements. Furthermore, NGTL stated that the Project is required to accommodate incremental aggregate system flows and is not driven by a need to increase reliability or flexibility for existing customers. NGTL added that however, increased reliability and flexibility could be ancillary benefits of the Project.

Views of Participants

Canadian Association of Petroleum Producers

Canadian Association of Petroleum Producers (CAPP) concurred with NGTL's observation that supply in the UJRA is growing as is market demand in the OSDA.

Figure 2-1 : Project Design Area and Constrained Flow Paths



Source: NGTL's Application, Section 2 - Necessity, Figures 2-1 and 2-2 [A4K1J4]; and NGTL's response to NEB IR 1.15, Figure NEB 1.15-1 [A4R3C9]

Views of the Board

The Board is satisfied that the evidence provided by NGTL reasonably supports the observation that additional capacity would be required to meet the potential supply growth in the UJRA, as well as the potential growing demand in the OSDA.

2.1.1 Supply Sources and Supply Forecast

Views of NGTL

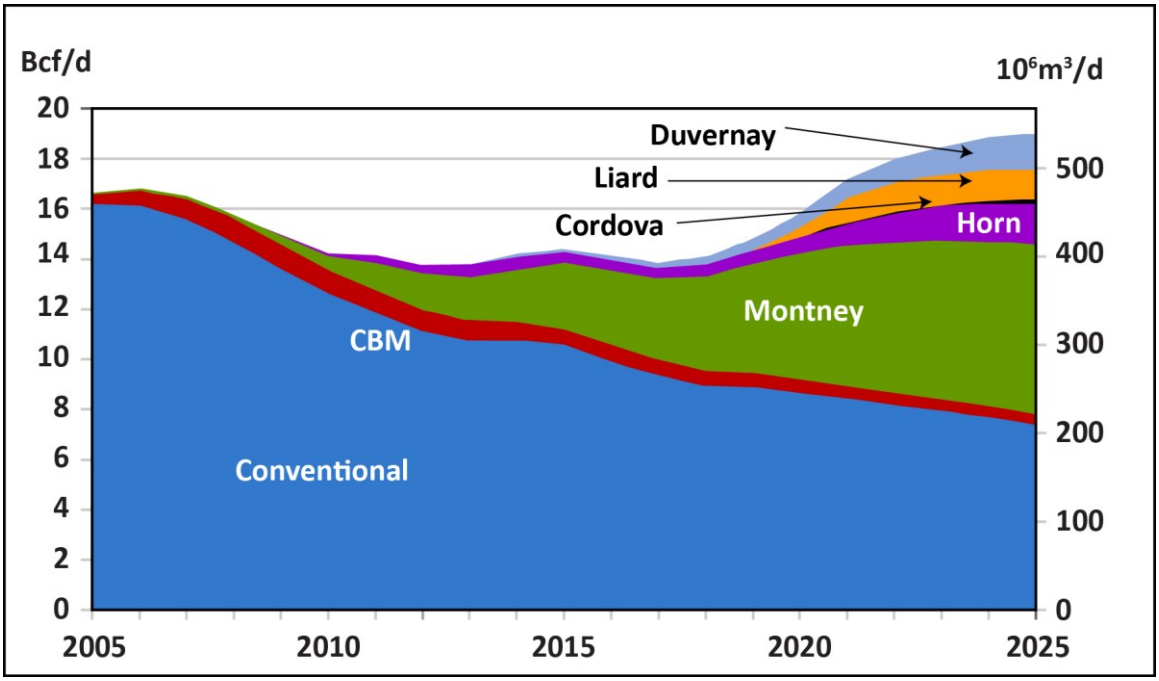
NGTL stated that the Project would not be sourcing gas supply from a specific location or play but rather would provide transportation access to supply sources from emergent shale plays in British Columbia and Alberta as well as additional tight conventional supply sources from the Deep Basin of Alberta.

NGTL submitted a production forecast which stated total gas supply in the Western Canadian Sedimentary Basin (WCSB) is expected to grow from the current 401 $10^6 m^3/d$ to 539 $10^6 m^3/d$ (14.2 to 19.0 Bcf/d) by 2025 (see Figure 2-2); and that NGTL System supply would grow from the current 299 $10^6 m^3/d$ to 425 $10^6 m^3/d$ (10.5 to 15.0 Bcf/d) by 2025 (see Figure 2-3).

NGTL stated that the supply contribution from unconventional plays is expected to increase in the future (as shown in Figure 2-2). Furthermore, NGTL stated that while conventional supply is expected to decline over time, the contribution from unconventional sources (most significantly the Montney, but also the Horn River, Cordova, Liard, and Duvernay basins) will continue to grow steadily and is expected to ramp up more rapidly in the 2018 to 2022 timeframe.

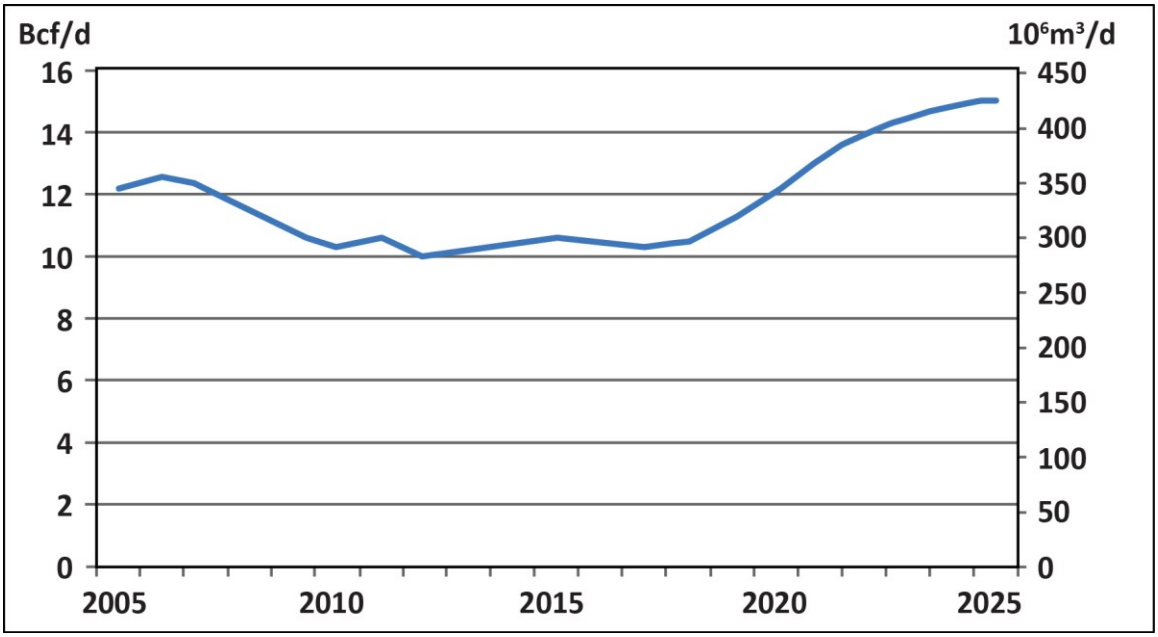
NGTL indicated that it expects receipts to increase in the western portion of its system where most of the unconventional supply is found, and to decrease in areas of conventional production. NGTL submitted that receipts are expected to track overall WCSB supply trends, stabilizing between 409 $10^6 m^3/d$ and 425 $10^6 m^3/d$ (14.4 and 15.0 Bcf/d) over the 2022 to 2025 period (see Figure 2-3). NGTL submitted that based on the growth in unconventional supply, growing intra-basin market demands and the aggregate contractual requirements of the NGTL System, the Section 52 Facilities would be used and useful throughout the economic life of the Project.

Figure 2-2: Western Canadian Sedimentary Basin Supply Outlook



Source: NGTL's response to NEB IR 4.24, Figure NEB 4.24-2 [A74873].

Figure 2-3: NGTL System Supply



Source: NGTL's response to NEB IR 4.24, Figure NEB 4.24-3 [A74873].

NGTL commented on the impact of natural gas liquids (NGL) targeted drilling on its forecast of natural gas production (referred to as 'uplift' or 'liquids uplift'). NGTL indicated that a 20 per cent reduction in NGL pricing would not materially change its production forecast as it is already constrained to align with market demand expectations, and as there is sufficient economic resource for producers to adjust to 20 per cent lower NGL prices to satisfy the prevailing market demand (see Table 2-1).

Table 2-1: Impact of Natural Gas Liquids on Supply Cost

Key Growth Area	2014 Liquids Uplift $/Mcf ($/10^{3}m^3)	Supply Cost with Uplift $/Mcf ($/10^{3}m^3)	Liquids Uplift with 20% NGL price decrease $/Mcf ($/10^{3}m^3)	Supply Cost with 20% less uplift $/Mcf ($/10^{3}m^3)	Anticipated Average Plant Gas Price 2015-2025 2013 $/Mcf 2013 ($/10^{3}m^3)
Montney	1.57 (55.42)	2.33 (82.24)	1.26 (44.84)	2.64 (93.19)	3.65 (128.84)
AB Deep Basin	2.75 (97.07)	2.07 (73.07)	2.20 (77.66)	2.62 (92.48)	3.65 (128.84)
Duvernay	6.88 (242.85)	1.53 (54.01)	5.50 (194.14)	2.90 (102.36)	3.65 (128.84)

Source: NGTL's response to NEB IR 1.21, Table NEB 1.21-1 [A4R3C9].

Views of the Participants

Western Export Group

The Western Export Group (WEG) commented that it is not clear that NGTL's forecasting models appropriately consider the impacts of supply, demand, and evolving flows of gas elsewhere in North America that could have considerable impact on the long-term demand for WCSB supply. However, WEG also indicated support for the Project and commented that its understanding is that the incremental capability provided by the Project is required to transport the expected aggregate peak supply and market demand on the NGTL System. Furthermore, WEG commented that because the Project is underpinned by incremental demand and executed Firm Transportation - Receipt (FT-R) service and Firm Transportation – Delivery (FT-D) service contracts, it provides WEG with the necessary assurance that the Project facilities are required.

Views of the Board

The Board finds that growing supply and demand in the areas indicated by NGTL is consistent with historical trends, current production and future expectations.

The Board is satisfied with the method NGTL used to incorporate NGLs and liquids uplift into its supply forecast. The Board also finds the scenario detailed in NGTL's forecast to present reasonable supply availability for the Project.

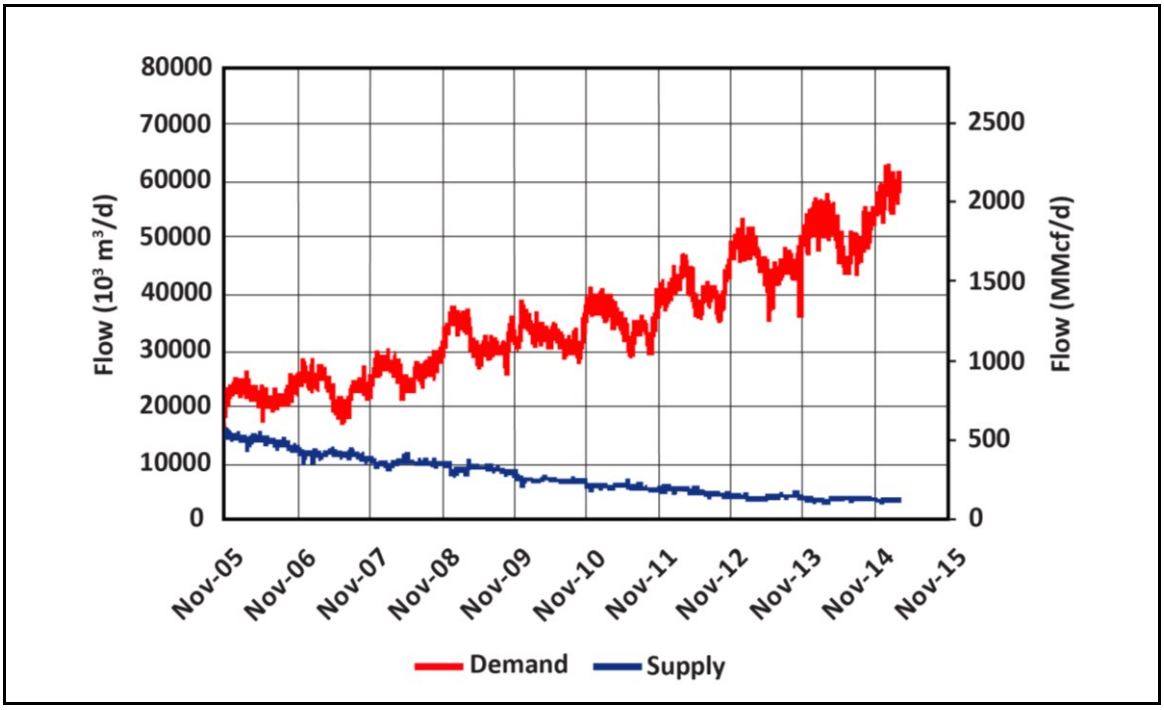
2.2 Markets

2.2.1 Demand

Views of NGTL

NGTL stated that the historical supply and demand in North of Bens Lake Area, and more specifically the OSDA illustrates that supply is declining (see Figure 2-4), as the shift away from conventional to unconventional supply sources found in the UJRA continues, combined with increased demand to support oil sands development. NGTL also stated that this combination of declining supply and increasing demand within the OSDA requires that supply be transported into the OSDA to meet its demand.

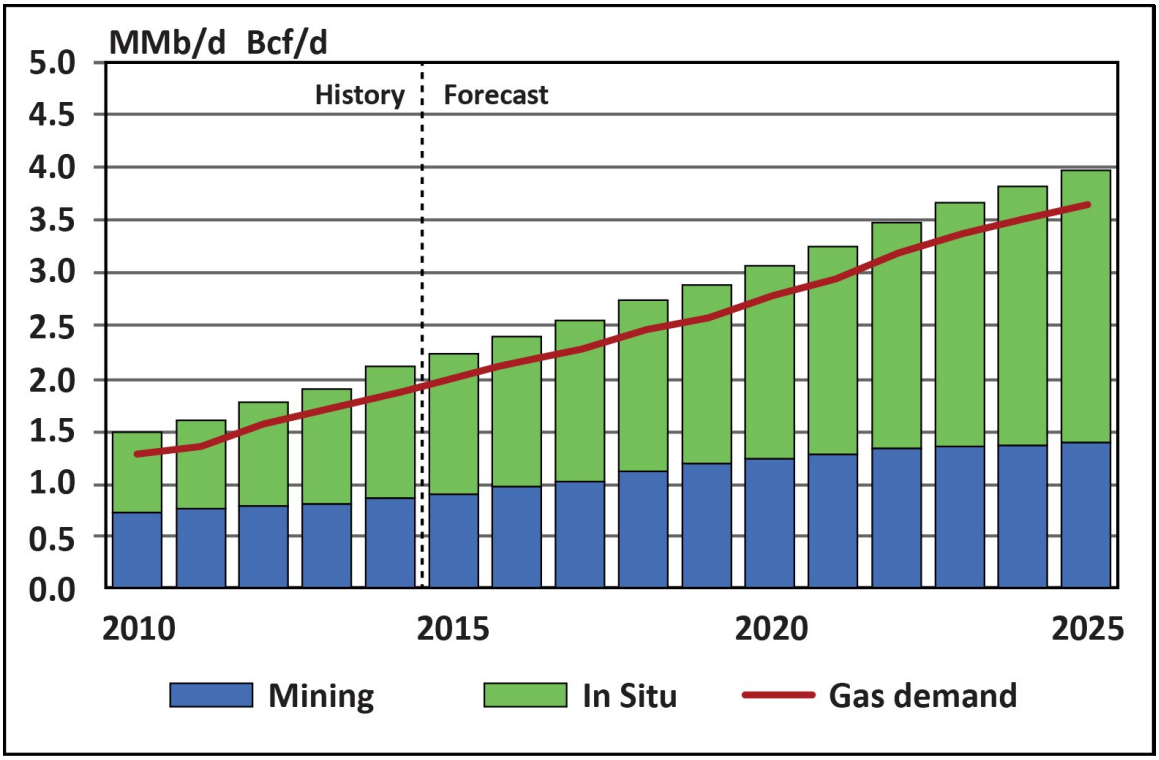
Figure 2-4: Historical Supply and Demand - Oil Sands Delivery Area



Source: NGTL's Application, Section 3 – Supply and Markets, Figure 3-7 [A4K1J4].

NGTL further submitted that the intra-basin demand growth is primarily associated with increased industrial demand, although there is some residential /commercial growth expected. NGTL commented that within the industrial sector, the primary drivers of the forecast increase in gas demand are from gas-fired electrical generation and gas required for Alberta oil sands projects (both mineable and in-situ), and for oil sands upgrading. NGTL submitted Figure 2-5 to illustrate its forecast for oil sands production and its associated gas demand.

Figure 2-5: Alberta Oil Sands Production and Associated Gas Demand



Source: NGTL's response to NEB IR 4.24, Figure NEB 4.24-5 [A74873].

NGTL provided a breakdown of the intra-basin demand forecast which included a list of the incremental oil sands and electrical generation over the 2017-2025 timeframe. NGTL supplied incremental aggregate forecasts (see Table 2-2) and indicated it was unable to provide a likelihood for the timing on a project-specific basis, but asserted that its forecast is a good approximation of the timing for the aggregate of the projects.

NGTL noted that despite the lower crude price environment, the outlook for Western Canadian gas demand supports NGTL's expectation that demand will continue to grow throughout the forecast period. NGTL forecasts growth from 5.8 Bcf/d in 2015, to 8.6 Bcf/d in 2025.

Table 2-2: Yearly Total Incremental Demand

Year	Oil Sands		Electric Generation	
	$10^3m^3/d$	MMcf/d	$10^3m^3/d$	MMcf/d
2017	4018.9	141.9	245.6	8.7
2018	5546.8	195.8	699.8	24.7
2019	3896.4	137.5	(51.9)	(1.8)
2020	6303.9	222.5	2488.1	87.8
2021	4736.5	167.2	625.7	22.1
2022	6292.0	222.1	1240.6	43.8
2023	5557.3	196.2	921.2	32.5
2024	4254.0	150.2	975.0	34.4
2025	3508.0	123.8	673.9	23.8

Source: NGTL's response to NEB IR 4.24, Table NEB 4.24-7 [A74873].

NGTL noted that the NGL market is currently oversupplied, particularly for propane; however NGTL further noted that these conditions were not expected to persist over the entire forecast period. NGTL stated that gas prices along with NGL prices are expected to rebound as significant new incremental NGL demand emerges to satisfy requirements for diluent to facilitate bitumen transportation, petrochemical plant feedstock and construction of offshore export facilities for liquefied natural gas (LNG) and liquid petroleum gas. NGTL indicated that these developments are expected to absorb the current overhang in NGL supply and bring these markets into better balance particularly for condensates. NGTL provided a sensitivity analysis and stated that a 20 per cent reduction in NGL prices is not expected to have a material impact on forecasted flows and consequently it has no expectation that capacity requirements of the Project would be affected.

NGTL submitted that the Project would be required whether or not LNG exports proceed as forecast and that it does not expect Canadian LNG demand to have a material impact on the flows through any of the Project facilities. NGTL stated that it did not design the Project with production associated with any specific market, including the forecasted LNG market. NGTL commented that it does not expect gas demand in the OSDA to be materially influenced by LNG exports and that gas production is expected to increase in the UJRA area regardless of whether LNG exports proceed. NGTL further commented that even if a delay in Canadian LNG export were to result in prices lower than in its forecast, production from major plays in the UJRA would remain economic due to supply cost differentials, and production would continue to increase to meet aggregate demand on the NGTL System.

Views of Participants

Chard Métis Society

Chard Métis Society (Chard Métis) expressed doubt that oil prices will recover enough over the next two years to make the proposed expansion to the NGTL System feasible, and indicated that even with some degree of recovery in the price of oil, the economy will need additional time to adjust. Chard Métis further indicated that natural gas is a preferred hydrocarbon and should not be sold at discounted values. Chard Métis submitted that due to the difference between natural gas and the net profits royalty on oil sands production, the economic rents accruing to the public will be lost when such gas is utilized in oil sands production.

Canadian Association of Petroleum Producers

CAPP commented that shippers are taking a longer-term view of their respective transportation needs and that the current market conditions have not and are not expected to materially change their transportation service requirements in 2017. CAPP further commented that the need for the Project is supported by executed contracts, and noted that those contracts have not gone away.

Western Export Group

WEG commented that the incremental capability provided by the Project is required to transport the expected aggregate peak supply and market demand on the NGTL System. WEG stated that because the Project is underpinned by incremental demand and executed FT-R service and FT-D service contracts, it provides the necessary assurance that the Project is required.

WEG commented that it supports facilities that bring new supply more efficiently to market, particularly when incremental receipts are supported by existing or incremental demand, as this forms a key underpinning for security of supply on the NGTL System and is consistent with cost-based/user-pay principles. WEG supported achieving or enhancing supply security on the NGTL System.

WEG commented that it had a reservation concerning NGTL's Project being justified in part by a demand forecast which may be too optimistic given current economic conditions. WEG further commented that it is not clear that NGTL's forecasting models appropriately consider the impacts of supply, demand and evolving flows of gas elsewhere in North America that could have considerable impact on the long-term demand for WCSB supply. WEG stated that it would much prefer that the forecasts of demand, supply and flows on the NGTL System be backed with a comprehensive comparison to existing and new contracting levels.

WEG requested that the Board recommend issuance of a Certificate, and grant the related regulatory approvals for the Project.

Reply of NGTL

In response to the concerns raised by Chard Métis, NGTL acknowledged that there is currently volatility and decline in oil and gas prices. However, NGTL indicated that the supply forecast for the Project area is expected to continue to grow as it is one of the most economic sources of supply in the WCSB. NGTL noted that in spite of oil and gas prices being lower in the 2014/2015 gas year compared with prices in 2013/2014, gas drilling and production has not decreased as producers continue to develop their resource base to meet current and future market requirements. NGTL further commented that the contracts supporting the need for the Project remain.

NGTL noted that its understanding is that shippers are taking a longer-term view of their respective transportation needs and the current market conditions have not and are not expected to materially change their transportation service requirements in 2017. The aggregate receipt and delivery contracts and expected flow forecasts continue to support the need for the Project.

Views of the Board

The Board is of the view that despite volatility in commodity prices, expecting demand growth within the OSDA to increase over the forecast period is a reasonable assumption. The Board finds NGTL's assumptions concerning NGL uplift consistent with market fundamentals, and is of the view that NGTL has made reasonable assumptions incorporating NGL activity into the supply forecast. The Board is satisfied with NGTL's assumption and explanation that the pace of LNG development in Canada will not significantly impact capacity utilization of the Project. The Board finds the assumptions of NGTL's demand outlook reasonable and sufficient to support the need for the Project.

2.3 Transportation and Throughput

2.3.1 Delivery Contracts

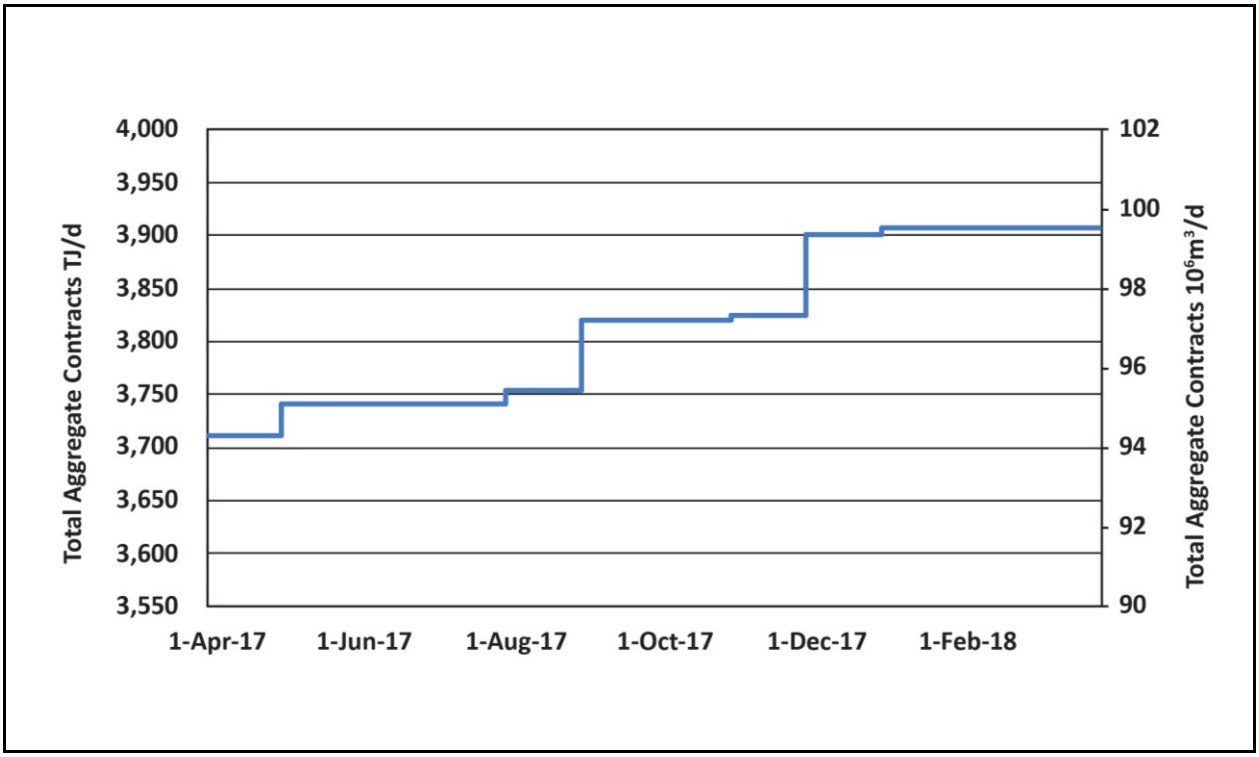
Views of NGTL

NGTL stated that the Project is required to enable NGTL to serve an increase in long-term FT-R service contracts and FT-D service contracts. NGTL indicated that customer requests for FT-D service exceeded the capacity available to meet demand requirements in the OSDA. NGTL also indicated that its plans for the Project were developed to address the shortfall in capacity and that customers were offered FT-D contracts for service with an in-service date of April 2017 or later.

Concerning current delivery contracts, NGTL stated that the existing pipeline segments of the NGTL System in the OSDA have been fully contracted since 2014. NGTL indicated that two of those segments, the Kirby Segment (Segment 11) and the Cold Lake Segment (Segment 14), have been fully contracted since 2011 (January and May 2011, respectively); and the Liege Segment (Segment 10) became fully contracted in March 2014.

NGTL stated that all incremental FT-D contracts have a minimum eight-year term that consists of a minimum five-year primary term followed by a three-year secondary term. NGTL indicated that there are 25 incremental FT-D contracts, signed by seven customers with an in-service date between April 2017 and March 2018, with new contracts totaling 355 TJ/d (9 $10^6 m^3$/d or 318 MMcf/d). NGTL submitted Figure 2-6 and indicated that the existing contract level of 3,552 TJ/d (3.2 Bcf/d) in March 2017 grows to a total of 3,908 TJ/d (3.5 Bcf/d) by March 2018. NGTL further noted that delivery requirements exceed capacity from existing and other NGTL applied-for facilities in the OSDA by April 2017, and that the Project is required to accommodate the area forecast triggered by the incremental contract demand growth.

Figure 2-6: Alberta Oil Sands Delivery Area Contract Profile for the Project



Source: NGTL's Application, Section 5 – Transportation, Figure 5-2 [A4K1J4]

2.3.2 Receipt Contracts

Views of NGTL

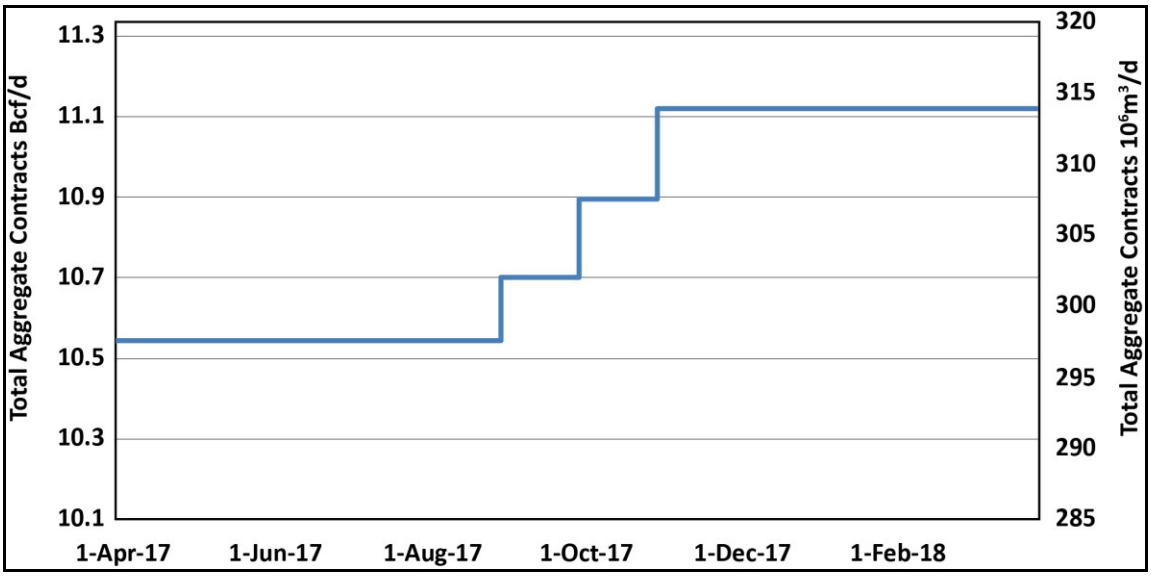
NGTL stated that the Project is required to enable NGTL to serve an increase in long-term FT-R service contracts and FT-D service contracts. NGTL indicated that customer requests for FT-R service exceeded the capacity available to meet receipt requirements in the UJRA. NGTL indicated that its plans for the Project were developed to address the shortfall in capacity and that customers were offered FT-R contracts for service with an in-service date of April 2017 or later.

NGTL asserted that the aggregate contracts associated with supply in the UJRA originate from all current and proposed receipt stations in the western portion of the Project design area. NGTL indicated that many of the existing pipeline segments of the NGTL System in the UJRA have been fully contracted since 2013 while others have been near fully contracted since 2010. In particular, NGTL indicated that the Gordondale Segment (Segment 4) and the GPML Segment (Segment 7) were fully contracted in September 2013, the Western Alberta System Exchange Segment (Segment 5) became fully contracted in March 2014, and the Central and Lodgepole Segments (Segments 8 and 9) became fully contracted in July 2014. The Upper Peace River Mainline and NWML Segments (Segments 1 and 3) have been near fully contracted (95 per cent) since November 2010.

NGTL indicated that receipt requirements will exceed the available capacity from existing and other NGTL applied-for facilities by April 2017 and the Project is required to accommodate the UJRA forecast triggered by the incremental contract demand growth. NGTL submitted that from April 2017 to March 2018, the aggregate FT-R contract level in the UJRA increases by 6 $10^6 m^3/d$ (221.5 MMcf/d) to 307 $10^6 m^3/d$ (10.8 Bcf/d). NGTL stated that the aggregate level of existing and incremental FT-R contracts exceeds the available capacity, resulting in the need for the Project.

NGTL indicated that there are 13 incremental FT-R contracts, signed by four customers with in-service dates between April 2017 and March 2018. Furthermore, NGTL stated all incremental FT-R contracts have a minimum eight-year term that consists of a combination of FT-R contracts with two term structures: 75 per cent of requested contract quantity consists of a minimum five-year primary term followed by a three-year secondary term, and 25 per cent of the requested contract quantity consists of an eight-year Secondary Term. NGTL submitted Figure 2-7, showing the existing contract level of 301 $10^6 m^3/d$ (10.6 Bcf/d) in March 2017 growing to a total of 307 $10^6 m^3/d$ (10.8 Bcf/d) by March 2018.

Figure 2-7: Upper James River Area Receipt Contract Profile for the Project



Source: NGTL's Application, Section 5 – Transportation, Figure 5-3 [A4K1J4]

Views of Participants

Explorers and Producers Association of Canada

The Explorers and Producers Association of Canada (EPAC) submitted that it fully supports and urges approval of the Project as the incremental take-away capacity to be added in the UJRA of the NGTL System as a part of the Project is urgently required by producers.

EPAC asserted that the ability of producers in the UJRA to obtain open access transportation service, which is comparable to the ability of other shippers on the NGTL System, has been and will continue to be significantly constrained due to both a lack of timely and necessary optimization and expansion of the NGTL System and the objective of NGTL to not unnecessarily overbuild it.

EPAC identified a number of concerns by its members, who hold service agreements on the NGTL System. These concerns include NGTL's inability to meet its capacity obligations under service agreements for FT-R service in the UJRA in light of 2015 integrity and operational issues. EPAC stated that as a result, its members have not been able to obtain their full contract capacities when they have sought to. Notwithstanding NGTL's inability to provide service to meet full contract capacities, EPAC said its members have been obligated to pay their full FT-R service contract demand charge. Also in EPAC's view, NGTL is unable to permit the transfer of FT-R service in the UJRA due to a lack of capacity and flexibility on the NGTL System.

EPAC's concerns included NGTL's inability to make any Interruptible Transportation – Receipt (IT-R) rate service available in the UJRA. Also, EPAC indicated that NGTL's ability to add significant capacity to the NGTL System is primarily dependent on large scale project applications which take an extended amount of time to develop, advance and ultimately construct, with the result that new service agreements for FT-R service often will not result in service commencing for upwards of four years.

In addition, EPAC requested that the Board consider the following proposed recommendations. First, EPAC requested that the Board direct NGTL to conduct and implement an efficiency and optimization review of the NGTL System to identify inefficiencies and bottlenecks, and recommend efficiencies and smaller debottlenecking projects that can be implemented in a timely manner. Second, EPAC requested that the Board direct NGTL, when preparing and filing its next NGTL System expansion application, to design the NGTL System in the UJRA so as to result in the system having takeaway capacity equivalent to at least 100 per cent of the FT-R service capacity contracted.

Western Export Group

WEG commented that in its understanding, the Project is designed to enable NGTL to reliably meet all contractual obligations, such that the NGTL System is not overbuilt and can be used and useful over the long term. Based on this, WEG submitted that NGTL's overbuild concerns are appropriate, and are appropriately and prudently considered and addressed by NGTL in its Application.

Canadian Association of Petroleum Producers

Concerning transportation access, CAPP noted that it is familiar with and understands NGTL's transportation access and contracting practices, further commenting that should CAPP or any other party see the need for changes to those practices, CAPP considers that those issues should be brought up initially through the NGTL collaborative process.

Reply of NGTL

NGTL stated that while it agrees with EPAC on the need for the Project, it disagrees with several of EPAC's comments regarding the design of the NGTL System. NGTL notes that many of EPAC's comments pertain to matters applicable to the entire NGTL System, such as the NGTL Tariff and related procedures of NGTL's design criteria. In NGTL's view, these matters are beyond the scope of the Project and are not relevant to the adjudication of its Application.

NGTL added that EPAC's concerns with access to FT-R services, availability of IT-R service, impacts of interruptions and curtailments, and ability to permit transfer of FT-R service in the UJRA are matters which are explicitly governed by the NGTL Tariff and associated procedures. Therefore, NGTL believes that EPAC's concerns with certain requirements of the NGTL Tariff should be addressed at the Tolls, Tariff, Facilities & Procedures (TTFP) Committee, not in this proceeding.

In response to EPAC's recommendation for an efficiency and optimization review, NGTL said it is of the view that such review would be unnecessary and redundant. NGTL added that EPAC's recommendation for a complete change in long-term design criteria for the NGTL System as a whole or for a subset of the NGTL System, such as the UJRA is both inappropriate and unwarranted.

Views of the Board

The Board is of the view that while the issues raised by EPAC may be significant, they are not within the scope of this hearing. The Board shares CAPP and NGTL's view that the TTFP Committee is an appropriate place for NGTL and EPAC to discuss these matters. The Board notes that should this route be exhausted without satisfaction, EPAC can exercise a number of options which includes filing a complaint with the Board.

The Board is of the view that the number and characteristics of contracts NGTL has in place are sufficient to support the need for the Project. Furthermore, the Board finds that the evidence NGTL submitted reasonably supports the assumption that the Project design would likely enable NGTL to reliably meet its relevant contractual obligations, such that the NGTL System is not overbuilt; and would likely be used and useful over the longer term.

2.4 Ability to Finance

Views of NGTL

NGTL estimated the capital cost for the Project, in 2015 dollars, at $1.29 billion ($1.094 billion in pipeline cost and $198 million in compression).

NGTL submitted that it would fund the construction cost of the Project with proceeds from its parent company, TransCanada Pipelines Limited (TransCanada) and that TransCanada may potentially access the debt capital markets on behalf of NGTL and pass through the financing on terms consistent with those entered into with third parties. NGTL further commented that in 2013, TransCanada issued $750 million of long-term debt in the Canadian capital markets on behalf of NGTL. NGTL indicated that the financing transaction comprised $450 million of 10-year medium-term note debentures with a coupon rate of 3.69 per cent and $300 million of 30-year medium-term note debentures with a coupon rate of 4.55 per cent (financing was not required in 2014).

NGTL submitted that TransCanada expects to fund its existing capital program in 2015, including projects undertaken by NGTL, through a combination of cash flow from its consolidated operations, access to capital markets in Canada and the United States, and cash on hand. NGTL also submitted that as of 31 December 2014, TransCanada and other subsidiaries of TransCanada had approximately $5.9 billion of capacity on $6.7 billion of committed revolving credit facilities. NGTL submitted that TransCanada has been assigned an "A-" level investment-grade credit rating by Moody's Investor Service, Inc. and Standard & Poor's Rating Services in the United States., and by DBRS Limited in Canada. Furthermore, NGTL indicated that NGTL's outstanding debt has been assigned an "A" level credit rating by DBRS Limited.

Views of Participants

No Participants expressed views regarding NGTL's ability to finance the Project.

Views of the Board

The Board is satisfied that NGTL's parent company, TransCanada, has sufficient revolving credit facility and access to capital markets to fund the cost of NGTL's Project. The Board finds that NGTL is therefore sufficiently able to finance the Project.

Chapter 3

Facilities and Emergency Response Matters

The Board uses a risk-informed lifecycle 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, or operates facilities, it must do so in accordance with the NEB Act and its regulations, including the *National Energy Board Onshore Pipeline Regulations* (OPR), its commitments made during a proceeding, and the terms and conditions the Board attaches to any approval. The company is responsible for ensuring that the design, specifications, programs, manuals, procedures, measures, and plans developed and implemented by the company are in accordance with the OPR, which includes by reference Canadian Standards Association (CSA) Standard Z662 – Oil and Gas Pipeline Systems.

3.1 Description of Activities

The maximum operating pressure (MOP) of the two NWML pipeline section loops (Boundary Lake Section and Bear Canyon Section) would be 8450 kPa, while the MOP for the GPML McLeod River Section would be 8275 kPa (except for approximately 100 m, where the MOP would be 8690 kPa). The MOP for the other two pipeline section loops (Pelican Lake Section and Christina River Section) would be 9930 kPa. The pipe material grade for all sections is 483 MPa, with varying wall thicknesses.

In addition to the two compressor station unit additions (Alces River Unit Addition and Otter Lake Unit Addition), the Project would include mainline block valves (and in the case of the Christina River Section, side valves) and crossover valves to existing NGTL pipelines and facilities. The Project would also include a permanent launching facility for cleaning and in-line inspection (ILI) on each Pipeline section loop, with the exception of the Christina River Section which would utilize an existing launcher on NGTL's Leismer-Kettle Crossover. New ILI receiver facilities would be installed on the Boundary Lake Section, Bear Canyon Section and Christina River Section. To avoid duplication, the McLeod River Section would utilize a receiver planned to be installed at the existing Schrader Creek Compressor Station. The Pelican Lake Section would also not require a new receiver, as one planned for NGTL's Liege Lateral Loop No. 2 Thornbury Section can be utilized for that section.

3.2 Design

3.2.1 General

Views of NGTL

NGTL submitted that the Project would be designed, constructed, and operated in accordance with the requirements of the OPR and CSA Z662-15, and that if there are any inconsistencies between the OPR and CSA Z662-15, the OPR will govern. NGTL has also submitted that consideration of thermal expansion has been evaluated in accordance with CSA Z662-15, and that design elements would be incorporated in the Project to mitigate thermal stresses. In particular, NGTL confirmed it would ensure the continued safe operation of the pipelines downstream of the Alces River Compressor Station and Otter Lake Compressor Station through validated stress analyses (and remediation, if required).

NGTL has determined that the Project meets the CSA criteria for designation as a Class 1 location, except at six locations on the Boundary Lake Section, three on the Bear Canyon Section, nine on the McLeod River Section, and two on the Pelican Lake Section, which are designated as Class 2 locations[1].

Views of Participants

Health Canada

In its Letter of Comment, Health Canada stated that NGTL should clarify its statement that "mitigation [design] specifications have been incorporated in the noise modelling."

Reply of NGTL

NGTL indicated that it incorporates noise mitigation in its compressor designs. These include pre-engineered steel buildings with exterior metal cladding, thermal insulation, and a metal liner interior steel plate to minimize transmission loss. In addition, gas turbine-compressor packages are fitted with silencers at both the air inlet and exhaust to minimize insertion loss.

Views of the Board

The Board is satisfied that the general design of the Project is appropriate for the intended use. The Board is further satisfied that the Project would be designed, located, constructed, installed, and operated in accordance with the OPR and the widely-accepted CSA Z662-15 standard. The Board is also satisfied that NGTL's compressor design includes noise mitigation for both transmission and insertion losses.

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[1] CSA Z662-15 defines "Class location" as "a geographical area classified according to its approximate population density and other characteristics that are considered when designing and pressure testing piping to be located in the area" with requirements for Class 4 being the most stringent.

Other concerns raised by Participants with regard to noise, and related views of NGTL and the Board, are discussed in Chapters 5 and 7. The Board would impose **Certificate Condition 2** (Appendix III) and **Order Condition 2** (Appendix IV), requiring NGTL to comply with the specifications, standards, commitments made and other information included in or referred to in its Project Application or in its related submissions.

In addition, the Board would also impose **Certificate Condition 30** (Appendix III), requiring NGTL to provide to the Board geographic information system (GIS) data on the Section 52 Facilities in the form of an Esri shapefile.

3.2.2 Material Specifications

Views of NGTL

NGTL stated that the estimated line pipe material grade for each of the five pipeline section loops is 483 MPa and that the final grade(s) would meet or exceed minimum requirements. Other CSA Z662-15-compliant or higher grades of steel could be used depending on material availability and in accordance with TransCanada's specifications. The Project would comply with the latest revision of industry standards, including the latest editions of CSA Z245 standards for steel pipe, fittings, flanges, and valves.

NGTL confirmed that the piping material grade at compressor station sites is 483 MPa and that the pipe material standard is based on CSA Z245-14 and TransCanada's specifications. Process piping and boilers and pressure vessels would comply with the American Society of Mechanical Engineers (ASME) standards, including the Boiler and Pressure Vessel Code, which are incorporated in CSA Z662-15.

NGTL submitted that all purchased items and contracted services would be obtained from suppliers and contractors who have been pre-qualified by TransCanada's internal supplier management and pre-qualification procedures, or, in the case of the Pipeline, have been pre-qualified by a prime contractor to TransCanada.

NGTL also submitted that for newly-purchased materials, TransCanada standards, specifications and applicable procedures would be provided to all suppliers performing work on the Project through purchase orders or contracts, to ensure that suppliers produce pipe and pipeline component materials in accordance with CSA requirements and TransCanada's specifications. NGTL said it also has a multi-step process to ensure pipe quality assurance and control throughout the manufacturing of pipe.

The work performed by the suppliers would be inspected by a third-party inspection provider. NGTL submitted that it would follow TransCanada's procedure for third-party inspection. Inspection of pipe and pipeline component materials, including assessments of manufacturing processes would take place at the manufacturer's facilities.

For any previously purchased materials that NGTL may use for the Project, NGTL submitted that the same process identified above will have been followed at the time of initial purchase.

Materials that have been stored would be inspected by NGTL to ensure quality and fitness for use by the Project.

Views of Participants

No Participants expressed any concerns with respect to NGTL's material specifications for the Project.

Views of the Board

The Board is of the view that the selected pipe grades for the Project meet the requirements set out in CSA Z662-15 and NGTL's Quality Management System , including the purchasing of the pipe for the Project, is appropriate. The Board would impose **Certificate Conditions 15(b) and 17** (Appendix III), requiring NGTL to file with the Board a field joining program and NGTL's final Pipeline construction specifications.

3.2.3 Geotechnical Design

Views of NGTL

The NGTL System comprises a network of approximately 24,500 km of natural gas transmission pipelines throughout Alberta and British Columbia. Through construction and operation of this pipeline network, NGTL and TransCanada have gained substantial experience in the design, construction and operation of pipelines in a variety of terrain types (organic terrain, muskeg and permafrost) and geohazards, including:

- pipeline installation techniques to manage surface water migration along the pipe trench;
- RoW restoration to manage surface water and reduce erosion;
- installation during frozen ground conditions to minimize compaction and soil disturbance;
- use of coolers at compressor stations to reduce thermal effects on the pipeline; and
- application of buoyancy control measures to control pipeline flotation in organic and muskeg terrain.

NGTL hired geotechnical and hydrotechnical engineering consultants to provide additional expertise related to the design and construction of the Project.

Views of Participants

No Participants expressed any concerns with respect to NGTL's competency to meet installation requirements when encountering geohazards, organic terrain and muskeg, and permafrost.

Views of the Board

The Board is satisfied that NGTL has the expertise to meet the installation requirements of CSA Z662-15 when encountering geohazards, organic terrain and muskeg, and permafrost, and that it would either follow geotechnical and hydrotechnical consultant recommendations for the Project or provide explanation(s) as to how it would achieve comparable results. The Board is also satisfied that NGTL would cross roads and watercourses at favourable locations, and would avoid unstable terrain or apply an appropriate course of action where this is not possible.

3.2.3.1 Organic Terrain and Muskeg

Views of NGTL

NGTL submitted ground truth studies as part of its geotechnical information collected by Stantec, Golder Associates, and Thurber Engineering (on behalf of Hatch Mott McDonald). The studies highlight that the Pipeline route crosses a total length of approximately 47 km of muskeg and other organics of varying thickness.

NGTL submitted that potential buoyancy control measures for constructing the Pipeline in organic terrain and muskeg include continuous concrete coating, swamp (saddle) weights, river (bolt-on) weights, and screw anchors.

Views of Participants

No Participants expressed any concerns with respect to NGTL's proposed mitigation measures for muskeg and other organics.

Views of the Board

The Board is satisfied that NGTL's mitigation measures in the design of the Pipeline through zones of muskeg and other organics are appropriate and in accordance with industry practices. However, to verify that NGTL implements field recommendations during construction and for follow-up monitoring, the Board would impose **Certificate Condition 28** (Appendix III), requiring NGTL to file with the Board a geotechnical report regarding muskeg.

3.2.3.2 Permafrost

Views of NGTL

The potential for sporadic permafrost was identified during the terrain analysis in some of the terrain units to be traversed by the Pelican Lake Section. This permafrost could potentially occur in landforms that have shown past evidence of thaw and subsequent subsidence, forming small ponds and lakes. Ground truth studies for the other Project sections indicated that no permafrost was present in these sections.

NGTL submitted that in areas of discontinuous permafrost, mitigation measures would be implemented during field installation, as necessary. Examples of such measures include:

- installing heavy wall pipe encompassing the transition between discontinuous permafrost areas and non-permafrost areas to reduce the effects of settlement;
- installing buoyancy control to inhibit upward movement of the pipeline;
- reducing disturbance of vegetation and the surficial organic layer, where feasible;
- installing stub berms and surface water diversion berms;
- over-excavating high ice-content soils, if feasible, and installing the pipe deeper; and
- reclaiming areas as soon as feasibly possible after construction.

Views of Participants

No Participants expressed any concerns with respect to NGTL's proposed permafrost mitigation measures.

Views of the Board

The Board is satisfied that NGTL's mitigation measures in the design of the Pipeline through zones of isolated patches of permafrost are appropriate and in accordance with industry practices. However, to verify that NGTL implements field recommendations during construction and for follow-up monitoring, the Board would impose **Certificate Condition 29** (Appendix III), requiring NGTL to file with the Board a geotechnical report regarding permafrost.

3.2.3.3 Slope Stability

Views of NGTL

NGTL stated that potential landslides, debris flow, fluvial scour, and significant slopes along the Pipeline routes have been identified and reviewed for stability issues. NGTL lists in its Application geohazard mitigation measures that it would incorporate, as required, along the Pipeline RoW. Stability mitigation measures for design and construction, where required, may include:

- route selection and planning to reduce design slope of pipe and construction RoW;
- detailed geotechnical investigation to understand the nature of instability if it is not possible to avoid the area;
- implementation of slope stabilization measures, including horizontal drains and/or toe buttress, where applicable;
- ditch plugs/cutoff walls to reduce migration of groundwater along the pipeline;

- implementation of erosion protection measures, particularly in toe areas of watercourse crossings;
- diligent effort during construction to avoid reactivating old slides;
- selection of heavy wall pipe to accommodate additional strains potentially induced by slides where they cannot be avoided;
- selection of low-friction backfill, where required and applicable, to minimize the impact of potential hill slides;
- selection of reduced depth of cover to minimize the impact of potential slides and to facilitate strain relief if necessary;
- incorporating diversion berms and erosion control matting for reinstatement and restoration of slopes where appropriate; and
- planning related to replacement of grade cut material on slopes.

Mitigation measures for the operation phase, if required, may include:

- detailed geotechnical investigation and engineering assessment to understand the nature of the slides and their potential impact on pipe integrity;
- monitoring ground movement and/or pipe strains during pipeline operation;
- assessment of pipeline deformation using ILI data;
- implementation of slope stabilization measures, including horizontal drains and/or toe buttress, where applicable;
- strain relief, where necessary; and
- pipe realignment, including placing pipeline on surface with mechanisms to accommodate ground sliding.

Views of Participants

No Participants expressed any concerns with respect to NGTL's slope stability mitigation measures.

Views of the Board

The Board is satisfied that NGTL's mitigation measures in the design of the Pipeline through areas of slopes and slope instability are appropriate and in accordance with industry practices. However, since slope stability is a major integrity concern, the Board would impose **Certificate Condition 21** (Appendix III), requiring NGTL to file with the Board a detailed description and the scope of mitigation measures to be employed in areas of slope instability. In addition, to be satisfied that NGTL implements field recommendations during construction and for follow-up monitoring, the Board would impose **Certificate Condition 27** (Appendix III)**,** requiring NGTL to file a geotechnical report regarding slope stability.

3.2.4 Watercourse and Highway Crossings

Views of NGTL

NGTL stated that the Project includes a total of 17 named watercourse crossings for which it would use three crossing methods: isolated, open cut, and trenchless horizontal directional drilling (HDD). There is also one trenchless road crossing planned. The open cut method, which requires additional workspace but has a smaller footprint and a shorter construction period than other construction methods, would be considered as the preferred contingency method for trenchless crossings.

NGTL plans to use trenched crossing methods (i.e., isolated or open cut) for fish-bearing drainage crossings and all other (unnamed) watercourse crossings. Pipeline installation is planned to occur in winter conditions.

NGTL stated that it hired Hatch Mott McDonald to provide HDD feasibility studies for the Boundary Lake Section, and has submitted that based on these studies, including an updated feasibility report for the Doig River, the Doig River crossing method would be HDD. NGTL submitted that while not anticipated, if the attempted HDD is unsuccessful, a second attempt(s) could be made using a modified alignment(s) but with the same entry and exit locations. This would involve holding a risk mitigation workshop to determine the cause of the initial failure and any mitigation measures that could be adopted to reduce the risk during the second HDD attempt. HDD had also been considered for the Mearon Creek crossing. Based on later findings, NGTL proposed to use an isolate/open cut method for that crossing, for reasons including significantly decreasing the scope of work in caribou range.

The existence of beaver dams upstream of the Ksituan River and Hamelin Creek on the Bear Canyon Section would be flagged in the Weather and Outside Force Integrity Management System. Special attention would be paid to these locations during the regular aerial patrols and mitigative action would be taken when required. Given the nature of the potential threat, special frequency of aerial patrol is not considered necessary. However, additional inspections (aerial or ground based) would be implemented if conditions warrant.

NGTL indicated that it hired CCI Inc. to provide trenchless crossing feasibility studies for the McLeod River Section, Pelican Lake Section, and Christina River Section. It also hired Hatch Mott MacDonald to conduct a hydrotechnical assessment on the Pelican Lake Section, and provide design recommendations based on the results of the assessment.

NGTL confirmed that based on its McLeod River Section study, the crossing method for Highway 16 (McLeod River Section) would be trenchless. It would use an alternative technology, Direct Pipe® Installation (DPI), which is a combination of microtunneling and HDD.

According to NGTL, for the Pelican Lake Section, CCI Inc. indicated that based on feasibility studies, the Loon Creek Tributary, Athabasca River, and Boivin Creek crossing methods would be HDD. For the Christina River Section, CCI Inc. conducted a detailed design based on topographic and linework surveys, hydrological and geotechnical reports, and specifications and other references provided by NGTL, confirming the feasibility of the HDD crossing method for

the Christina River crossing. NGTL has determined that the present location for this crossing is optimal for open cut construction in the unlikely event of an HDD failure.

Views of Participants

Chard Métis Society

During their oral traditional evidence presentation, a Chard Métis representative expressed concern regarding the Christina River HDD crossing of the Nokohoo Road, which is the only road to the community of Janvier.

McMurray Métis

McMurray Métis expressed concern that if the contingency construction method of open-cut trenches for the Athabasca and Christina Rivers is required, it would elevate the risk to fish in the rivers. McMurray Métis added that given the size of the Athabasca River, it is likely that this construction method might be necessary.

Reply of NGTL

In response to concerns regarding the feasibility of crossing the Athabasca and Christina Rivers by HDD, NGTL indicated that it is confident the method would be successful and that it would only use an open-cut contingency if the HDD option was exhausted at either site. NGTL stated that its confidence is supported by other trenchless crossings that have been successfully completed at both rivers, as well as the favourable results of the geotechnical feasibility studies.

Views of the Board

The Board is satisfied with the approach NGTL has adopted for trenchless and trenched crossings for the Project. The Board is of the view that HDD and DPI can be very effective techniques for the installation of pipelines in sensitive areas, and that the success of HDD and DPI installations for pipeline construction depends on accurate feasibility assessments, proper design and planning, and actual conditions encountered during the execution of the crossings.

The Board notes NGTL's plans to pay special attention to beaver dams upstream of crossings on the Bear Canyon Section during the regular aerial patrols, and to take mitigative action when required. The Board accepts NGTL's view that there is high probability that the Athabasca River and Christina River HDD crossings would be successful and therefore the latter crossing is not expected to affect the Nokohoo Road or limit access to local users. The Board is satisfied that in the unlikely event a contingency crossing for either river is required, the concerns raised by Participants would be addressed as discussed in Chapter 7.

The Board would impose **Certificate Condition 19** (Appendix III), requiring NGTL to file its execution programs for trenchless crossings.

3.2.5 Depth of Cover

Views of NGTL

NGTL stated that the Pipeline would generally have a minimum depth of cover of 0.9 m. Depth of cover would increase in the following circumstances:

- agricultural lands would have a minimum depth of cover of 1.2 m;
- valve site locations would have a minimum depth of cover of 1.1 m;
- road crossings would have a minimum depth of cover of 1.5 m or as agreed to with the relevant statutory authority or third-party owner, whichever is greater;
- buried utility and foreign pipeline crossings, above or below the pipeline, would have a minimum clearance of 0.3 m or as agreed to with the third-party owner, whichever is greater; and
- the minimum depth of cover for pipeline crossings of minor watercourses with defined beds and banks would be 1.8 m. This is an increase from NGTL's former practice of having a 1.5 m depth of cover, to account for a trend of stream bed degradation due to climate patterns, land use, and other factors.

Views of Participants

No Participants expressed any concerns with respect to NGTL's proposed depth of cover for the Pipeline.

Views of the Board

The Board is satisfied with NGTL's proposal to bury the Pipeline to a minimum depth of 0.9 m. The Board notes the minimum depth of cover of 1.2 m and 1.5 m for agricultural lands and road crossings, respectively, exceeds the requirements of CSA Z662-15. The Board also notes and is satisfied with NGTL's commitment to increase the minimum depth of cover for Pipeline crossings of minor watercourses with defined beds and banks from 1.5 m to 1.8 m.

3.2.6 Welding and Non-Destructive Examination

Views of NGTL

NGTL stated that welding and non-destructive examination (NDE) testing of pipeline welds would be conducted in accordance with the requirements of CSA Z662-15 and the OPR.

For the compressor station unit additions, NGTL would use 100 per cent NDE coverage for all high pressure gas piping designed to CSA Z662-15. For all other compressor piping systems, NGTL selects material and designs joints in accordance with ASME B31.3-2010, Chemical Plant and Petroleum Refinery Piping, as referenced in clauses 4.14.2.11, 5.1.1, 7.2.4, and 8.1.7 of

CSA Z662-15. NGTL would ensure that the joints are examined in accordance with clause 7.10.3 of CSA Z662-15.

For lower-risk (i.e., instrument air, glycol/water heating, potable water, drainage, lube oil, and vents) auxiliary compressor piping systems, NGTL proposes to conduct NDE on 15 per cent of production welds per day during construction. NGTL indicated that this conforms to CSA Z662-15, clause 7.2.5, and would not compromise the safety of the public or company personnel. NGTL indicated that these systems operate at low stress levels and generally have instrumentation that shuts down the system and limits any leaks if a release incident occurs.

Views of Participants

No Participants expressed any concerns with respect to NGTL's welding and NDE testing for the Project.

Views of the Board

The Board is satisfied with NGTL's commitment that welding specifications and procedures would be developed and welders would be qualified in accordance with the requirements of the OPR and CSA Z662-15. The Board would impose **Certificate Condition 15(c)** (Appendix III), requiring NGTL to file a field pressure testing program. The Board would also impose **Certificate Condition 26** (Appendix III), requiring NGTL to maintain welding procedures, Project NDE examination and testing procedures, and all supporting documentation related to NDE testing at each construction site.

The Board is satisfied with NGTL's proposal for 15 per cent NDE coverage for auxiliary piping systems of the compressor station unit additions. The Board has decided to grant NGTL an exemption from the provisions of section 17 of the OPR in respect of the auxiliary piping systems of the compressor station unit additions, through Order XG-N081-014-2016. This Order is contingent on the Board issuing a Certificate in respect of the Project, should the Governor in Council direct the Board to do so.

3.3 Integrity Management

NGTL stated that the overall incident rate TransCanada experienced over the last four decades meets and exceeds industry benchmarks in Canada, as well as all other jurisdictions where it maintains pipeline assets. It also maintains that it would ensure the safety and integrity [of the Project] by meeting or exceeding all applicable CSA Z662-15 requirements and TransCanada's internal standards and specifications. NGTL acknowledges that it is required to report all failure incidents to the Board and/or Transportation Safety Board of Canada.

3.3.1 Operating Pressures

Views of NGTL

NGTL stated that there are no pressure increases to the established MOP for existing facilities on the NGTL System as a result of the Project. However, NGTL has identified existing pipeline

segments which would be affected by the Project, and filed engineering assessments on the pipeline systems that would experience operating pressures higher than the five-year historical maximum operating pressures.

Views of Participants

No Participants expressed any concerns with respect to the effects of the Project on NGTL's existing pipeline segments.

Views of the Board

The Board is satisfied that NGTL has appropriately identified existing pipeline systems within the NGTL System that are expected to experience significant operating pressure increases as a result of the Project, and conducted engineering assessments to confirm their suitability for the predicted future operating pressures.

3.3.2 Coating

Views of NGTL

NGTL submitted that the primary coating for the external surface of below-ground pipe would be fusion-bonded epoxy. Girth welds would be coated in the field and would be protected with a liquid-applied coating. Abrasion-resistant coating would be used where pipe is installed using boring, drilling or other methods that could cause abrasion to the coating during installation. Below-ground assembly piping would be protected with a suitable liquid-applied coating. NGTL also indicated that aboveground piping would be primed, painted, and acoustically insulated.

Views of Participants

No Participants expressed any concerns with respect to NGTL's proposed coating for the Pipeline.

Views of the Board

The Board is satisfied that NGTL has appropriately considered issues related to coating and integrity threats to the Project during construction and operation. The Board finds the coating measures to be appropriate for the Project.

3.3.3 Cathodic Protection

Views of NGTL

NGTL submitted that in addition to the pipe coating, cathodic protection (CP) would be provided through impressed current CP systems, which may consist of existing CP systems as well as new CP systems, if required. These would include ground beds and rectifiers, as determined during detailed design, located at sites where a convenient source of electrical power exists. NGTL

stated sacrificial anodes may also be used at specific locations, which would be identified during detailed design.

NGTL submitted that CP test points would be installed, where required, along the Pipeline and at road, foreign pipeline and utility crossings. NGTL stated this would allow the effectiveness of the operation of the CP system to be monitored through operations and demonstrates compliance to applicable code requirements.

NGTL has also submitted that compressor station piping and facilities would be protected by impressed current CP systems, consisting of appropriately located and sized anode groundbeds and power sources as determined by detailed design. NGTL specified these systems would be designed in conjunction with the upstream and downstream pipeline system. In addition, NGTL noted sacrificial anodes might be used at specific locations.

Views of Participants

No Participants expressed any concerns with respect to NGTL's proposed CP systems.

Views of the Board

The Board is satisfied that NGTL's CP measures are appropriate for the Project. However, the Board would impose **Certificate Condition 20** (Appendix III), requiring NGTL to file a detailed description of the specific measures NGTL would implement to ensure CP is adequately maintained under concrete coating or weights in wetland areas.

3.3.4 In-Line Inspection

Views of NGTL

NGTL submitted that during construction, it would install launchers on four pipeline section loops for the purposes of ILI and cleaning. NGTL indicated it would utilize an existing launcher at the Christina River Section.

NGTL committed to installing receivers on the Boundary Lake, Bear Canyon and Christina River Sections of the Project. To avoid duplication for the McLeod River and Pelican Lake Sections, NGTL committed to utilizing receivers that are to be installed for other projects.

The specific integrity threat management measures NGTL would employ on the Project include:

- using a high-resolution caliper ILI tool during Project pre-commissioning to inspect for indications of dents or ovality;
- above-ground cathodic protection surveys to identify areas of pipe coating damage; and
- baseline magnetic flux leakage and high-resolution caliper ILI within the first year of operation, after which the Pipeline would be managed according to the Integrity Management Program (IMP).

NGTL indicated that the post-construction caliper ILI and the post-commissioning baseline ILI are equipped with an inertial measurement unit (IMU). NGTL submitted that a comparative strain analysis of the two IMU data sets, from post-construction and post-commissioning ILIs, is done to report bend angle, bend radius and bending strain resulting from soil movement.

Views of Participants

No Participants expressed any concerns with respect to NGTL's ILI facilities and inspection plans.

Views of the Board

The Board notes that ILI is a widely used pipeline industry best practice which uses state of the art technology to monitor the condition of a pipeline. During the early stages of operation, ILI provides important data on the integrity status of a pipeline. Comparing this baseline data with subsequent ILI runs enhances a company's ability to identify potentially threatening changes to the integrity of the pipeline. The Board notes and is satisfied with NGTL's plans to conduct ILI baseline assessments within the first year of operation of the Pipeline. The Board requires NGTL to include this commitment in its Commitments Tracking Table for the Project (**Certificate Condition 5**, Appendix III)**.**

3.3.5 Pipeline Maintenance Plan

Views of NGTL

NGTL stated that coordinated risk-control measures encompassed in its overall pipeline maintenance plan include:

- monitoring via patrols, leak detection, and CP protection surveys, and monitoring of operating conditions, to detect the presence of hazards;
- prevention methods, such as CP, physical barriers, signs, and use of NGTL's Public Awareness Program, to protect against the likelihood of damage and failure;
- assessment methods, such as ILI, hydrostatic testing, and direct assessment, to determine the actual condition of the pipeline;
- remediation, such as recoating, pipeline repairing or replacing, and pressure de-rating, to correct a known pipeline condition issue; and
- mitigation methods, such as pressure de-rating, restricting access, and micro re-routing, to reduce the consequences of a failure.

Views of Participants

Woodland Cree First Nation

Woodland Cree First Nation (Woodland Cree) raised concerns about pipelines and associated infrastructure such as compressor stations. In particular, Woodland Cree is concerned about the

possibility of an explosion and/or forest fire, and what a gas leak would do to the environment and waterways.

Reply of NGTL

NGTL stated it uses industry-accepted best practices and technology and information. NGTL would maintain the Pipeline route, and conduct integrity monitoring and standard maintenance protocols to prevent potential failure. For both compressor station unit additions, NGTL would adhere to its monthly preventative Routine Maintenance Program, Pipe Integrity Program which includes inspections and monitoring, and Major Maintenance Program.

Views of the Board

The Board is of the view that NGTL's pipeline maintenance plan is adequate, and includes programs that would reduce the probability of accidents occurring and the magnitude of any effects in the event of one. The Board is satisfied with NGTL's commitment that if a Certificate is issued for the Project, the Project would be integrated into NGTL's pipeline maintenance plan.

3.3.6 Integrity Management Plan

Views of NGTL

During operations, NGTL uses a company-wide IMP, which uses coordinated risk-control measures designed to ensure all pipe assets are operated and managed to:

- minimize any safety impact to 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 identified potential Project-specific issues for threat management which are used to develop recommendations for design, construction and operations. NGTL's Pipe Integrity group, which NGTL stated is involved from route selection to pre-commissioning of the Pipeline, provides input for mitigation of integrity concerns. Before turnover to operations, the threat identification would be updated to incorporate Project development data and provide input for integration of the Project in NGTL's IMP.

Views of Participants

No Participants expressed any concerns with respect to NGTL's proposed IMP.

Views of the Board

The Board is satisfied that potential integrity threats would be identified and mitigated and the Project would be incorporated into NGTL's IMP once operations commence. The Board requires the companies it regulates develop, implement, and maintain an IMP that anticipates, prevents, manages, and mitigates conditions that could adversely affect safety or the environment. The Board notes that a company's IMP is applied throughout the life of a project.

3.4 Operations

Views of NGTL

NGTL stated that the Project would be monitored and controlled by the TransCanada Operational Control Centre (OCC), located in Calgary, Alberta. The OCC, which is staffed 24 hours per day, remotely monitors and controls the operation of the NGTL System and other TransCanada-owned and operated pipelines. It uses a computer-based supervisory control and data acquisition (SCADA) system which controls gas compression, metering, and remote valve facilities to ensure the required gas volumes, line pack, and contract pressures are achieved daily. The SCADA system alerts the OCC operator of significant operational changes in the pipeline system. If the OCC becomes unavailable for any reason, the fully functional TransCanada Backup Control Centre, with its redundant communication systems, is ready for service at all times.

NGTL submitted that at receipt meter stations, analyzers are installed to ensure gas quality. Analyzers continuously monitor the gas flow and, if high levels of H_2S or H_2O are detected, they cause the station block valves to close automatically. This isolates the station from the NGTL pipeline system. Meter station status is monitored through the OCC. In the unlikely event of a pressure drop, pipeline block valves, which are equipped with actuators with low-pressure detection, will automatically close on sensing low pressure, to isolate the pipe segment.

NGTL stated that the OCC will receive, analyze and dispatch the required personnel to provide the necessary response outlined in its appropriate operating procedures.

Views of Participants

No Participants expressed any concerns regarding the operation of NGTL's proposed Project.

Views of the Board

The Board is satisfied that NGTL's proposed continuous monitoring and control of Project operations by TransCanada's OCC or its Backup Control Centre are adequate.

3.4.1 Emergency Response

Views of NGTL

In its Application, NGTL stated that TransCanada's management system would apply throughout the entire lifecycle of the Project, and includes an Emergency Management Program, Integrity Management Program, Safety Management Program, and Security Management Program.

NGTL stated TransCanada is responsible for emergency management for the NGTL system. NGTL further stated that TransCanada's emergency management system would meet the Board's expectations for emergency preparedness and response, as it governs all aspects of preparedness and response. The system complies with CSA Standard Z731 – Emergency Preparedness and Response.

NGTL stated that before construction, each prime contractor would be responsible for developing and implementing the Emergency Response Plan (ERP) to cover potential emergencies at its worksite and while travelling and hauling to and from its worksite during construction. NGTL would consult with emergency response agencies to ensure that appropriate communications, understanding and cooperation are in place for the Project during construction.

NGTL further stated that once the Project is placed into service, TransCanada's emergency management system would be used to manage all emergency events associated with the facilities. TransCanada's emergency management system is activated in the event of a pipeline rupture or other emergency event.

Views of Participants

Alexis Nakota Sioux Nation

Alexis Nakota Sioux Nation (ANSN) requested that NGTL develop a protocol for unplanned events that include communication of the nature and cause of the event, the next steps, as well as preventive measures to minimize damage.

Bigstone Cree Nation

Bigstone Cree Nation (Bigstone) requested confirmation from NGTL that an accident/upset response plan would be submitted and that this plan would include Bigstone. Bigstone also asked NGTL to commit to providing regular updates on the status of the development of an Accident/Upset Response Plan, and the anticipated timeline for finalization of the plan if the Project is approved.

Chard Métis Society

With regard to a potential pipeline failure, Chard Métis asked how long it would take NGTL to detect, respond to and stop a failure. Chard Métis also asked how its members would be notified and how long it would take NGTL to notify Chard Métis of such a failure. Chard Métis also wanted to know how to protect themselves if a pipeline failure were to occur within their

traditional territory, if NGTL would relocate members if necessary, and if NGTL would compensate or indemnify Chard Métis members for damages incurred. Chard Métis also asked NGTL to identify which provincial regulators would oversee the Project operations and what aspects of the Project would be overseen by the provincial regulators, and requested that NGTL share the ERPs for the Project with members of Chard Métis in the Project vicinity.

Chipewyan Prairie Dene First Nation

Chipewyan Prairie Dene First Nation (CPDFN) requested that NGTL provide a hazard analysis and risk assessment for accidents/upsets in order for First Nations to be able to assess and understand the full range of risks posed by pipelines in their traditional territory. CPDFN indicated that this hazard analysis and risk assessment should include an assessment of NGTL's emergency response capability.

Doig River First Nation

Doig River First Nation (DRFN) requested that NGTL provide support for members' training in emergency response for gas pipelines during construction and operations. DRFN also requested that copies of programs and manuals listed in **Certificate Condition 15** (Appendix III) be sent to affected Aboriginal groups.

Gift Lake Métis Settlement

Gift Lake Métis Settlement (Gift Lake) requested to see NGTL's emergency response and action plans that would be implemented in the event a pipeline break was to occur.

Métis Nation of Alberta - Gunn Métis Local 55

Métis Nation of Alberta – Gunn Métis Local 55 (GML 55) asked NGTL to explain the Project-specific ERP as it applies to hunters, fishers, trappers and gatherers within the vicinity of the Pipeline. GML 55 requested NGTL to implement a Safety Management Plan that would include the requirement to notify the community in the event of a spill or accident.

McMurray Métis

McMurray Métis requested that notification and consultation with McMurray Métis be part of the ERP, and that NGTL allow McMurray Métis to review it.

Samson Cree Nation

Samson Cree Nation (Samson) expressed concerns about the impact of potential ruptures/spills, including contamination of waterways and requested full disclosure of all ERPs directly to Samson through membership meetings with NGTL.

Reply of NGTL

NGTL confirmed that TransCanada submits its Emergency Management Corporate Program Manual to the Board on an annual basis as part of ongoing operations. In addition, NGTL would

develop a Project-specific written ERP, to be completed approximately six months prior to the Project's in-service date.

With respect to the concerns raised by ANSN, Bigstone, Chard Métis, and GML 55, NGTL indicated ERPs for the Project would be included in TransCanada's Emergency Management Program. The Emergency Management Program would include communication protocols, including current contact information for all potentially affected Aboriginal groups and registered trapline holders. In the event of an emergency, the regionally-based Aboriginal and community liaisons would contact the identified community representative and share information related to the incident. During operations, any ongoing stakeholder concerns or issues related to the construction or operation of the Project would be managed through NGTL's Wildrose Region community and Aboriginal liaisons. The liaisons would continue to build and maintain relationships though consistent and ongoing communication with Aboriginal communities guided by the principles of NGTL's Aboriginal engagement program.

NGTL confirmed that the product to be transported by this Project is sweet natural gas. In the event of a pipeline leak or rupture, the natural gas would disperse into the air. Additionally, NGTL said it would implement a combination of incident prevention measures, safety devices and procedures under TransCanada's Emergency Response System to ensure public safety and prevent environmental damage. This Emergency Response System includes the availability of emergency response personnel 24 hours a day, seven days a week. NGTL's first responders consist of employees and contract personnel who specialize in emergency response, and NGTL would call on local police and fire departments as necessary. NGTL would also notify Aboriginal communities in proximity to the location as per its Emergency Response Programs. NGTL would also notify the appropriate regulators and emergency responders in the event of an emergency or spill.

In response to Chard Métis' questions about a large leak or line break, NGTL stated that line pressure will typically drop sufficiently to trigger the automatic closure of mainline block valves. In addition, a pressure drop would be detectable within minutes by the OCC personnel and activation of emergency response procedures would begin immediately. NGTL explained that once a leak is detected, a follow-up investigation is conducted to confirm and locate the leak and the pipeline section is isolated for repair and maintenance. With regard to Chard Métis' questions about compensation, NGTL stated it is obligated to do as little damage as possible, and make full compensation in the manner provided in section 75 of the NEB Act to all persons interested for all damage sustained by them by reason of powers granted to NGTL under the NEB Act. NGTL noted that it cannot provide Chard Métis with the requested broad indemnity in the absence of any facts or circumstances relating to potential damages. NGTL confirmed its operations are regulated by the Board, and that depending on the incident, NGTL may be required to notify provincial agencies.

NGTL stated it would ensure that GML 55 is included in its Public Awareness and System-wide Emergency Management Plans (EMP) during the operation phase of the Project and would provide information about steps to take in the event of an emergency. NGTL committed to continuing dialogue with DRFN regarding the Project. NGTL also committed to continuing discussions on Gift Lake's concerns regarding emergency responses.

With respect to DRFN's request for NGTL to provide copies of certain programs and manuals to all affected Aboriginal groups, NGTL indicated that it intends to file with the Board the documents listed in **Certificate Condition 15** (Appendix III) in hardcopy form and not upload them to the Board's public registry because they contain confidential information and personal contact information.

Views of the Board

The Board is of the view that the measures proposed by NGTL to address emergency preparedness and response are appropriate. The Board acknowledges the concerns presented by some Participants in the hearing pertaining to the development and disclosure by NGTL of Emergency Response and Management Plans for the Project (ERPs and EMPs). The Board is satisfied with NGTL's commitment to continue to communicate with potentially impacted parties with regard to the ERPs and EMPs, as these apply to them. The Board expects NGTL to continue to address stakeholder concerns during the entire lifecycle of the Project.

The Board would impose **Certificate Condition 9** (Appendix III) and **Order Condition 9** (Appendix IV), requiring NGTL to file with the Board a Project-specific ERP that would be implemented should an emergency occur during the construction phase of the Project. The Board would also impose **Certificate Condition 15(e)** (Appendix III), requiring NGTL to file a confirmation that its existing Emergency Procedures Manual(s) are inclusive of the Project or confirmation that its existing Emergency Procedures Manual(s) do not require updating.

3.4.2 Safety

Views of NGTL

NGTL indicated that it would develop a Safety Management Plan (SMP) for the Project to provide prime contractors with awareness of potential construction hazards. Additionally, the SMP would outline key safety guidelines for the prime contractors to consider when developing their site-specific safety plans to ensure that a collaborative commitment to safety on the Project is achieved.

NGTL stated that all activities associated with the Project, including Health, Safety, and Environment (HSE) performance, would meet or exceed applicable laws and regulations. NGTL would address responsibilities for HSE performance of the Project by using TransCanada's HSE Management System Framework (HSE Framework), the supporting Safety Management, and Environmental Protection Plans. NGTL stated that this HSE Framework applies to the complete lifecycle of an asset, from design and construction, through to operations and either to sale or abandonment. TransCanada's HSE Commitment Statement and Program outlines its executive leadership team and management commitment to being an industry leader in health, safety and environmental practices. This HSE Commitment Statement and Program also describes and promotes the development of TransCanada's safety culture and extends and applies to TransCanada personnel, workers and contractors to maintain a safe workplace. In addition, TransCanada promotes its safety culture through expectations around 'what we all must do right'

such as leadership showing their support for safety through their own actions, ensuring adequate systems and resources are in place, ensuring workers are empowered and taking responsibility, and integrating continual learning.

Views of Participants

Chipewyan Prairie Dene First Nation

CPDFN requested that NGTL provide a hazard analysis and risk assessment for accidents/upsets in order for First Nations to be able to assess and understand the full range of risks posed by pipelines in their traditional territory, including an assessment of the safety risk results and discussion.

Doig River First Nation

DRFN requested that NGTL identify whether the increased number of workers in the Boundary Lake Section area would have adverse effects on DRFN harvester safety in the area.

Métis Nation of Alberta – Gunn Métis Local 55

GML 55 asked NGTL how it would ensure the physical and social safety of GML 55 members when the camp for the McLeod River Section is operational.

Woodland Cree First Nation

Woodland Cree expressed concerns about contamination resulting from potential gas leaks and emergency events (ruptures) of the Pipeline and associated infrastructure such as compressor stations, as well as safety concerns related to increased access to their traditional territory.

Reply of NGTL

NGTL stated that incidents, investigation findings, lessons learned and corrective/preventive action information are recorded within TransCanada's Environment, Health, Safety Management Incident Management database. TransCanada's Incident Management Program is used to collect and disseminate this information, including follow-up and sharing of learnings. Hazard Advisories are another primary way of communicating with internal and external stakeholders to raise awareness and prevent incidents. Accountable safety advisors ensure that a Hazard Advisory is electronically distributed to all target areas, including field offices and Maintenance Planning.

NGTL stated safety and security plans would be developed, and worker and contractor orientation sessions would detail all of these requirements. NGTL further stated prime contractors are required to develop and implement safety and security plans to protect employees and mitigate the risk of potential harm to communities and community members. During worker and contractor orientation sessions, the requirement for safe and respectful use of community facilities and the need for respectful behaviour while travelling out of the camp would be emphasized.

With regard to Woodland Cree's concerns, NGTL stated it uses industry-accepted best practices, technology and information, safety measures and contingency plans to reduce the probability of accidents occurring, as well as to reduce the magnitude of any effects in the event of an accident. NGTL said it would also adhere to an Annual Safety Inspection Program for the compressor stations. The goals of its program are to identify and rectify any safety deficiencies.

Views of the Board

The Board recognizes that public safety is paramount throughout the lifecycle of any project. While the Board finds that this Project proposed by NGTL can be built and operated safely, the Board acknowledges that risk cannot be completely eliminated. The Board is committed to strengthening and improving industry wide safety performance and awareness of the role that safety culture plays in creating robust defenses to serious incidents. The Board is satisfied that NGTL will continue its efforts to build and sustain a positive safety culture in order to proactively identify hazards, manage risk, and prevent incidents.

The Board is of the view that the measures proposed by NGTL to address safety (including damage prevention) are appropriate. The Board would impose **Certificate Condition 15(a)** (Appendix III) and **Order Condition 5** (Appendix IV), requiring NGTL to file updated Construction Safety Manual(s) prior to commencing construction.

3.4.3 Security

Views of NGTL

In its Application, NGTL stated that TransCanada's management system would apply to the entire lifecycle of the Project, which includes its Security Management Program. Security management would be governed by TransCanada's corporate security policy and TransCanada's Operating Procedures (TOPs), which adhere to CSA Standard Z246.1 - Security Management For Petroleum Natural Gas Industry Systems. These include the Security Threats TOP and another procedure specific to physical security and construction security. During construction, the Physical Security for Construction Sites TOP would provide detailed security requirements and plan elements for the prime construction contractors on the Project. Prime contractor security management plans would be audited to ensure compliance with the TOP. In addition, the prime contractor is expected to conduct ongoing security assessments to update the security management plan implemented for the Project.

Views of Participants

No Participants expressed any concerns with respect to security of the Project.

Views of the Board

The Board expects construction and operations practices to address security considerations. The Board finds the measures proposed by NGTL to address security considerations are appropriate for the Project.

3.5 Decommissioning and Abandonment

Views of NGTL

NGTL stated that the Pipeline has been designed to have a useful life in excess of 50 years, and the compressor station unit additions have been designed to have a useful life in excess of 25 years. NGTL acknowledged that any future decommissioning and abandonment activities would require prior approval by the Board and other applicable environmental and land agencies.

NGTL also stated that it is difficult at this time to predict when or how the Section 52 Facilities would be decommissioned or abandoned at the end of the Project's useful life. Future service needs as well as current and future land use for the Project would be important factors in the determination of pipeline decommissioning and abandonment methods. However, it can be anticipated that any of the following three scenarios could occur: pipeline removal; leaving the pipelines in place; or a combination of the two.

NGTL said it expects that it would leave a large proportion of any decommissioned or abandoned pipeline buried in-place; however, land use considerations and other factors could lead to selected pipeline segments being removed. NGTL also said it is unlikely that any one decommissioning or abandonment technique would be appropriate for all land uses. The decision to leave pipelines in place or remove them and any associated infrastructure, including facilities and access roads, would be made on a site-specific basis, in consultation with affected parties and in accordance with legislative and regulatory requirements in place at the time of decommissioning or abandonment.

Views of Participants

McMurray Métis expressed concern that no detailed information was submitted by NGTL with regard to the three scenarios of final reclamation [eventual abandonment] of the Project, which could leave the future of the areas around the Pelican Lake Section and Christina River Section of the Project uncertain.

Views of the Board

The Board is satisfied with NGTL's approach to any future decommissioning and abandonment for the Project, and NGTL's acknowledgement that these activities would require prior approval by the Board and other applicable agencies. Specifically, the Board supports NGTL's proposed plan to decide on the appropriate methods for such future activities on a site-specific basis while considering land use and other factors, consulting with affected parties, and complying with legislative and regulatory requirements in place at that time. The Board finds NGTL's approach to be generally consistent with what the Board approved in its MH-001-2012 Reasons for Decision[2]. The Board also notes that the abandonment approach of companies may be reviewed from time to time.

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[2] Board's Reasons for Decision MH-001-2012, dated 14 February 2013 – Abandonment Cost Estimates [A50478].

Chapter 4

Public Consultation

The Board's Filing Manual sets out the Board's expectations of applicants regarding consultation to support a project application. 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 lifecycle of a project (that is, project design, construction, operation and maintenance, and eventual abandonment) to address any potential impacts of that project. This chapter addresses NGTL's public consultation for the Project.

NGTL's engagement with Aboriginal groups for the Project is discussed in Chapter 5.

4.1 NGTL's Stakeholder Engagement Program

Views of NGTL

In its Application for the Project, NGTL stated that it used its stakeholder engagement program to ensure stakeholders are aware of Project plans and have an opportunity to provide input into the Project in a fair, honest, open, consistent, and timely manner. NGTL defined the key stakeholders for the Project to include landowners and users, key officials at all levels of government, community leaders, business development officers in rural municipalities, emergency response service organizations, and other interested parties. NGTL indicated that it identified those stakeholders in advance of engagement.

NGTL further stated that the purpose and goals of its stakeholder engagement program for the Project was to:

- formally introduce the Project to key stakeholders;
- actively seek and consider comments on:
  - pipeline routing and facility site selection;
  - potential environmental and socio-economic effects;
  - mitigation measures, where necessary, to address potential adverse Project effects; and
  - enhancement measures, where necessary, to improve potential positive socio-economic effects;
- identify and respond to stakeholder or public issues and concerns prior to the filing of the Application;
- provide stakeholders with ongoing project updates, including communication about the Project and the anticipated regulatory schedule and planned Application to the Board;

- ensure, where practical and reasonable, that stakeholder concerns or issues, if any, were incorporated into Project planning;
- communicate changes to the Project, if any, to concerned stakeholders; and
- facilitate ongoing communications that continue through the construction and operations phases to ensure future stakeholder concerns and issues, if any, are addressed appropriately and in a timely manner.

NGTL indicated that its stakeholder engagement program for this Project consists of the following phases:

1. Identification of stakeholders and development of project engagement materials, which involves the identification of potentially interested and affected stakeholders in the Project area and developing engagement materials, including letters, maps, and information fact sheets that will be used for notification purposes.
2. Notification and engagement, which involves the public disclosure of the Project and the solicitation of stakeholder input, utilizing various engagement activities and communication tools.
3. Transition of the Project from construction to operation, which involves managing any ongoing stakeholder concerns or issues related to Project construction or operation through NGTL's regionally based liaisons, which will continue to build and maintain relationships through consistent and ongoing communication with stakeholders.

4.2 Design of Public Consultation Activities

Views of NGTL

Through its stakeholder engagement program, NGTL sought to identify potentially interested and affected stakeholders in the Project areas. NGTL stated that it encouraged stakeholders to identify others for inclusion in NGTL's stakeholder engagement program. Through a combination of desktop research, TransCanada's and NGTL's own operating experience in the area, NGTL's established network of contacts in the communities and personal contacts with, and referrals from, some stakeholders, NGTL initially identified for the Project the following stakeholders:

- landowners and occupants whose lands are traversed by the Project;
- adjacent landowners and occupants;
- land users (e.g., guides, outfitters and trappers);
- community members;
- municipal leaders and representatives (e.g., regional districts and municipalities);
- elected officials (i.e., provincial and federal);
- government agencies and representatives;

- non-governmental organizations; and
- emergency responders.

NGTL indicated it used a variety of engagement tools for the Project, including face-to-face meetings, mail-outs of Project information, open houses, and newspaper and radio advertisements. NGTL also stated it provided a Project toll-free telephone number, a website and an e-mail box to provide additional avenues for stakeholders to seek information, ask questions, and express concerns.

NGTL indicated that it began stakeholder notification for the Project in August 2014. NGTL began sending preliminary Project notification emails to local government stakeholders beginning on 19 September 2014.

After the initial notification and subsequent follow-up phone calls with districts and regional district representatives, NGTL mailed Project materials to all primary stakeholders on 7 October 2014.

Starting in October 2014, NGTL extended open offers to meet with regional and local municipalities to further discuss the Project materials provided. NGTL also requested meetings with regional and local municipalities, and conducted Project presentations to district councils and regional boards, as requested.

On 10 February 2015, NGTL hosted an open house in Gordondale, Alberta to provide participants with information about the Project along with other proposed NGTL activities in Saddle Hills County. The open house was requested directly by Saddle Hills County. Thirty-five members of the community attended the event.

4.3 Implementation of Public Consultation Activities

Views of NGTL

NGTL indicated that implementation of its stakeholder engagement program began in August 2014 and is ongoing. NGTL noted that the questions and concerns raised through the open house and engagement with communities were related to:

- reclamation and land use after construction;
- construction RoW width;
- visual effects of RoW construction;
- effects to recreational trail systems;
- watercourse crossing methods;
- contracting opportunities available through the Project;
- potential effect on community infrastructure;

- capacity of local communities to review the variety of projects proposed in the area; and
- capacity of small, local governments with limited staff resources to assess applications and consult through council presentations and meeting requests.

In response to concerns regarding reclamation and land use, NGTL stated that it worked with landowners to ensure that equivalent land capability would be achieved through planned reclamation activities.

For example, NGTL responded to the concerns of a local ski club near the McLeod River Section in the following ways:

- NGTL investigated ways to narrow the RoW by up to 3 m by reallocating workspace to other areas along the RoW and committed to reducing the width of the RoW in the area closest to the ski trails;
- NGTL committed to planting young conifers along the boundaries of the RoW in areas closest to the ski trails adjacent to the current corridor that would be expanded to accommodate construction of the McLeod River Section; and
- NGTL has reached an agreement with the ski club that its concerns about RoW width and visual effects of RoW construction have been mitigated to its satisfaction.

NGTL stated it continues to engage with stakeholders to provide updated Project information and to address any questions, concerns or issues that may arise, including in regard to the other issues and concerns listed above. NGTL also stated that it commits to engaging with stakeholders through the life of the Project and that it would implement TransCanada's Public Awareness Program for the Project.

4.3.1 Consultation with Landowners and Land Users

NGTL indicated that it searched and obtained land title information to identify potentially affected landowners as well as land users such as trappers, grazing lease holders and other disposition holders. NGTL stated that landowners and land users raised a variety of issues and concerns, including the location and route of the Pipeline, snow removal required for access of surveyor and environmental personnel, Project timelines as it relates to landowner operations, potential damages caused while conducting route assessment, the completion of environmental soil studies in winter, and the access to ski trails and associated damage.

In response to these concerns, NGTL submitted that it would take great care to minimize disruption to landowner operations and would compensate landowners for damage from its assessments. NGTL previously worked with the local ski club and the Crown related to the potential issue of access to the ski trails and agreed to implement mitigative measures supported by the ski club to block access and sight lines.

NGTL submitted that it continues to work with one landowner on the Bear Canyon Section to address concerns about the possible spread of noxious weeds on the property. NGTL further submitted that the landowner was concerned with relocation of a dugout that would be required

to accommodate parallel and contiguous proposed RoW along the Bear Canyon Section. In response, NGTL provided the landowner with the mitigation plans included in its Environmental and Socio-Economic Assessment (ESA) for the Project and a copy of its corporate weed-control policy documents, and completed soil samples to test potential weed content. NGTL stated that it performed a walk-through with the landowner to explain possible mitigation, and committed to performing a full weed survey. NGTL indicated that the concerned landowner has signed acquisition documents.

NGTL committed to continue working with all directly affected landowners to address any concerns before and during Project construction.

4.3.2 Consultation with Government Stakeholders

From August 2014 to March 2015, NGTL met with representatives from six regional and local districts in close proximity to the Project to provide information, and to understand and address their questions and concerns regarding the Project.

NGTL made presentations to community representatives at local councils located in:

- Northern Sunrise County – December 9, 2014; and
- Saddle Hills County – February 10, 2015.

NGTL stated that it consulted with the various regulatory agencies listed below, including those involved in environmental management:

- Alberta Environment and Parks (AEP);
- Alberta Culture and Tourism;
- Fisheries and Oceans Canada (DFO); and
- Environment and Climate Change Canada (ECCC).

NGTL stated that it took regulatory agencies' input, issues, and concerns into account to address a variety of matters including:

- development of a Caribou Habitat Restoration and Offset Measures Plan for the portions of the Project within the ranges of boreal woodland caribou;
- environmental mitigation measures for working in Key Wildlife Biodiversity Zones;
- environmental mitigation measures for western toad and trumpeter swans;
- timing windows for Project activities;
- weed control and revegetation; and
- watercourse crossings.

The issues above are discussed in detail in Chapter 7.

NGTL indicated that it engaged with local authorities and municipalities to provide information regarding the Project and to address their questions and concerns. NGTL identified the following municipalities and other entities as being affected by the Project: Spirit River, Rycroft, Fairview, Yellowhead County, Edson, Hinton, Municipal District (M.D.) of Opportunity No. 17, Wabasca, Wood Buffalo, Urban Service Area of Fort McMurray, Anzac, Janvier, Conklin, St. John, Taylor, Clear Hills County, Northern Sunrise County, Manning, Peace River, and Grimshaw.

Views of Participants

While concerns were expressed with respect to engagement with Aboriginal groups (see Chapter 5), no Participants in the hearing otherwise expressed concern with NGTL's public consultation for the Project.

Views of the Board

The Board is of the view that NGTL's design and implementation of Project-specific public consultation activities are appropriate for the scope and scale of the Project, and that NGTL has adequately identified and engaged stakeholders, developed engagement materials, notified stakeholders of the Project, and responded to their input.

The Board notes that stakeholders in general have raised several longer-term concerns, for example, reclamation and land use after construction, spread of weeds, access management, and the effects to recreational trail systems. NGTL committed to continue engaging with them to address any questions, concerns or issues that might arise. NGTL stated that once the Project is in service, regionally based NGTL liaisons would continue to build and maintain relationships through consistent and ongoing communication with stakeholders.

Chapter 5

Aboriginal Matters

The Board takes the interests and concerns of Aboriginal groups into consideration before it makes any recommendations and decisions that could have an impact on those interests. Whenever a project has the potential to impact the rights and interests of Aboriginal groups, the Board seeks to obtain as much evidence as possible in that regard so that it may assess and consider the potential impacts in its recommendation and decisions on a project.

The Board adopted the processes described below to ensure that its recommendation and decisions with respect to NGTL's Application are consistent with section 35 of the *Constitution Act,* 1982 and with the requirements of procedural fairness. The Board considers that the GH-002-2015 hearing process was appropriate, given the nature of the Project, the importance of constitutionally protected rights of Aboriginal peoples, and the Board's obligation to make a recommendation whether NGTL's Application is in the overall Canadian public interest.

The Board understands that Crown consultation is of importance to Aboriginal groups. The Board notes that the Government of Canada, through its Major Projects Management Office (MPMO), issued letters on 17 February 2015 to Aboriginal groups potentially affected by the Project, stating that it would rely on the Board's hearing process to the extent possible to meet its duty to consult. The MPMO stated in the letters that the Crown will be tracking issues raised by Aboriginal groups during the Board's hearing process for the Project. The MPMO further stated that matters brought forward will be assessed to determine whether additional consultation obligations may exist.

The Board learned about the concerns of Aboriginal groups by different mechanisms including through NGTL's direct engagement with potentially affected Aboriginal groups and through the participation of Aboriginal groups in the hearing process. As the Board is an expert tribunal with broad remedial powers not generally within the purview of other government departments, it was important that concerns of affected Aboriginal groups related to the Project were brought to the Board's attention. To the extent that other government departments had information to provide to the Board, they had the opportunity to participate in the Board's hearing process and file relevant information on the Board's hearing record for the Project. The Board has addressed, in this Report, the concerns expressed by Aboriginal groups that are related to the Project and Project impacts.

During the proceeding, the Board received submissions regarding some issues that are outside of its regulatory mandate and beyond the List of Issues for the Project provided in Appendix I.

The Board recognizes that Aboriginal peoples have a broad range of matters and concerns they wish to address and resolve with the Government of Canada or others. The Board carefully considered all of the submissions from Aboriginal groups so that it could have a greater understanding of the context of their concerns about the Project.

This chapter deals with the participation of Aboriginal groups in the regulatory process, and the impacts of the Project on their interests.

5.1 Participation of Aboriginal Groups in the Board's Regulatory Process

As set out in the Board's Filing Manual, Aboriginal groups potentially affected by a project can be identified by:

- considering the location of Indian reserve lands, Métis or other Aboriginal populations, and the traditional territory that may be claimed by one or more Aboriginal groups;
- contacting regional Aboriginal organizations or government agencies familiar with local Aboriginal groups; and
- taking into consideration past experience working in the area.

Once potentially affected Aboriginal groups have been identified, the Board's Filing Manual expects an applicant to describe the results of the project-specific consultation activities in sufficient detail to demonstrate:

- that all persons and groups potentially affected by a project are aware of: the project, the project application to the Board, and how they can contact the Board with outstanding application-related concerns;
- that those potentially affected by a project have been adequately consulted, and
- that any concerns raised have been considered, and addressed as appropriate.

In addition to the one-on-one engagement that may occur between an applicant and an Aboriginal group, the Board's hearing process itself provides further opportunities for engagement between Aboriginal groups and an applicant. Aboriginal groups who are concerned with the potential impact of a proposed project on their rights and interests may also present their views directly to the Board during its hearing process.

This section provides additional details about the participation of Aboriginal groups in the Board's Enhanced Aboriginal Engagement (EAE) process (subsection 5.1.1) and hearing process (subsection 5.1.2), including oral traditional evidence sessions (subsection 5.1.3). It also includes the engagement of Aboriginal groups by NGTL (subsection 5.14).

5.1.1 Participation of Aboriginal groups in the Board's Enhanced Aboriginal Engagement Process

The Board's EAE process involves proactive contact with Aboriginal groups that may be affected by a proposed project. The Board reviews the completeness of the list of potentially affected Aboriginal groups identified in an applicant's project description filed with the Board and the Government of Canada's MPMO. The Board and the MPMO may recommend to the applicant any necessary revisions. The Board then sends a letter to each potentially affected Aboriginal group on the list to inform them of the proposed project and the Board's regulatory

role. Following issuance of the letter, Board staff follow up with phone calls, respond to questions Aboriginal groups may have, and conduct information meetings with them where requested.

For the Project, the Board carried out its EAE activities between February 2015 and June 2015. The Board sent letters to 43 Aboriginal groups identified by the Board and the MPMO as being potentially affected by the Project. In the letters, the Board offered to provide further information about its hearing process and how to participate in it, and about participant funding available through the Board's PFP. The Board also sent a letter from the MPMO to each potentially affected Aboriginal group, which included information about the federal Crown's Aboriginal consultation process for the Project and a point of contact to obtain further information.
The 43 groups identified by the Board and the MPMO are:

1. Alexander First Nation
2. Alexis Nakota Sioux Nation
3. Athabasca Chipewyan First Nation
4. Beaver First Nation
5. Beaver Lake Cree Nation
6. Bigstone Cree Nation
7. Blueberry River First Nations
8. Buffalo Lake Métis Settlement
9. Buffalo River Dene Nation
10. Chipewyan Prairie Dene First Nation
11. Christina River Dene Nation Council
12. Dene Tha' First Nation
13. Doig River First Nation
14. Enoch Cree Nation
15. Fort McKay First Nation
16. Fort McMurray #468 First Nation
17. Gift Lake Métis Settlement
18. Heart Lake First Nation
19. Horse Lake First Nation
20. Ktunaxa Kinbasket Tribal Council
21. Métis Nation of Alberta
22. Métis Nation of Alberta Region 1
23. Métis Nation of Alberta Region 4
24. Métis Nation of Alberta Region 5
25. Métis Nation of Alberta Region 6
26. Métis Settlement General Council
27. Mikisew Cree First Nation
28. Nakcowinewak Nation of Canada
29. O'Chiese First Nation
30. Paddle Prairie Métis Settlement
31. Paul First Nation
32. Peavine Métis Settlement
33. Peerless Trout First Nation
34. Saddle Lake Cree Nation
35. Samson Cree Nation
36. Sawridge First Nation
37. Stoney Nakoda First Nation
38. Sturgeon Lake Cree Nation
39. Sucker Creek First Nation
40. Sunchild First Nation
41. Swan River First Nation
42. Tallcree First Nation
43. Tsuu T'ina Nation

Out of the 43 groups identified by the Board and the MPMO, a total of 14 Aboriginal groups requested and participated in meetings with Board staff to discuss the hearing process, the PFP, and how to participate in the hearing. The list below indicates the dates of meetings with these Aboriginal groups:

- 6 March 2015 – Tsuu T'ina Nation
- 9 March 2015 – Stoney Nakoda First Nation
- 30 March 2015 – Métis Nation of Alberta Region 6
- 31March 2015 – Gift Lake Métis Settlement
- 1 April 2015 – Métis Nation of Alberta Region 1
- 27 April 2015 – Mikisew Cree First Nation
- 28 April2015 – Athabasca Chipewyan First Nation
- 28 April 2015 – Métis Nation of Alberta Association - Fort McMurray Local Council 1935 (or McMurray Métis)
- 29 April 2015 – Bigstone Cree Nation
- 30 April 2015 – Swan River First Nation
- 1 May 2015 – Samson Cree Nation
- 12 June 2015 – Chipewyan Prairie Dene First Nation
- 29 June 2015 – Peavine Métis Settlement
- 30 June 2015 – East Prairie Métis Settlement

5.1.2 Participation of Aboriginal Groups in the Board's Hearing Process

Through its hearing process the Board is able to understand and consider the rights and interests of Aboriginal groups that may be impacted by a project. The Board's hearing process allows for Aboriginal groups to be fully aware of all the evidence that the Board will consider in its decision-making process about a project.

In developing its hearing process for NGTL's Project, the Board considered means by which all potentially affected Aboriginal groups were provided with a reasonable opportunity to make their concerns known to the Board. During the proceeding, Aboriginal Participants were able to present their views to the Board in numerous ways. Through the various stages in the hearing, Aboriginal Intervenors had the opportunity to submit two rounds of written evidence, ask written questions of NGTL and other parties, respond to any written questions asked of them by the Board and NGTL, and submit written final argument. The Board also provided Aboriginal Intervenors with an opportunity to have some of their community members present oral traditional evidence at sessions the Board held in three locations. The Board offered remote participation in these sessions in order to make them as accessible as possible.

During the proceeding, the Board granted several requests by Aboriginal Intervenors to keep confidential culturally and commercially sensitive information they wished to submit on the record.

The following 16 Aboriginal groups applied and were accepted by the Board to participate in the proceeding as Intervenors:

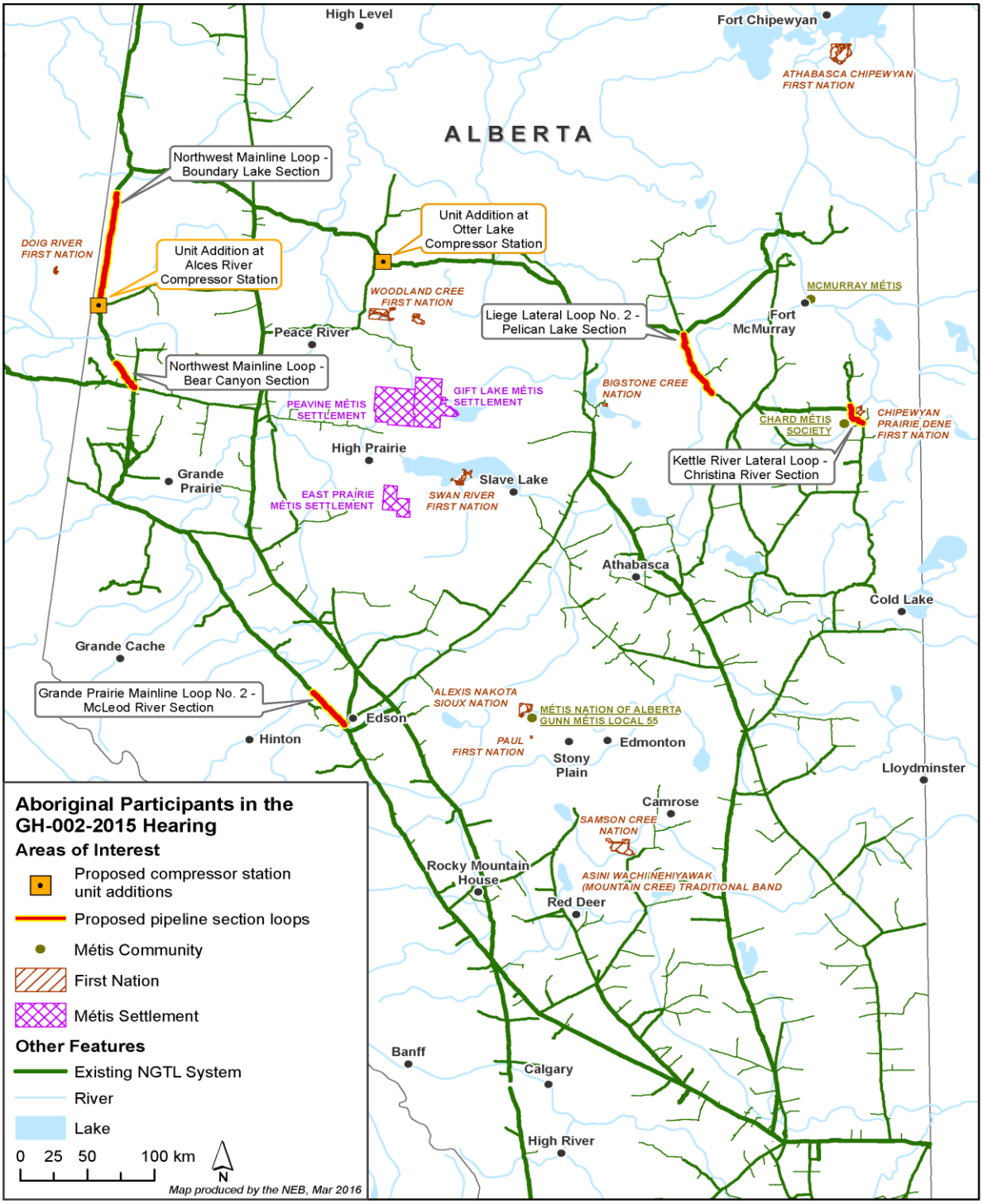
- Alexis Nakota Sioux Nation
- Asini Wachi Nehiyawak (Mountain Cree) Traditional Band
- Athabasca Chipewyan First Nation
- Bigstone Cree Nation
- Chard Métis Society
- Chipewyan Prairie Industry Relations Corporation (authorized representative of Chipewyan Prairie Dene First Nation)
- Doig River First Nation
- East Prairie Métis Settlement
- Gift Lake Métis Settlement
- McMurray Métis
- Métis Nation of Alberta – Gunn Métis Local 55
- Paul First Nation
- Peavine Métis Settlement
- Samson Cree Nation
- Swan River First Nation
- Woodland Cree First Nation

The East Prairie Métis Settlement (EPMS) requested a change in its status during the hearing from an Intervenor to a Commenter and the Board granted its request.

Appendix II provides the types and sources of information submitted by Participants during the proceeding and considered by the Board; including written submissions and oral traditional evidence presentations by Aboriginal Intervenors, and the letter received from the Aboriginal Commenter.

The map in Figure 5-1 shows the approximate locations of the Aboriginal Participants in the proceeding. It was created by the Board based on NGTL's Application, applications to participate filed with the Board for the proceeding, and other publicly available information.

Figure 5-1: Aboriginal Participants in the GH-002-2015 Hearing



Source: NGTL's Application, applications to participate filed with the Board for the proceeding, and other publicly available information.

The Board received 16 participant funding applications from Aboriginal groups an allocated funding awards of $331,125 in total. Additional details about the Board's PFP are provided in subsection 1.4.2.1 of Chapter 1 and on the Board's website.

5.1.3 Participation of Aboriginal Intervenors in Oral Traditional Evidence Sessions

The Board understands that Aboriginal groups have an oral tradition for sharing stories, lessons, and knowledge from generation to generation; and that this information cannot always be shared adequately in writing. The scope of oral traditional evidence focuses on personal and community knowledge and experiences as they may relate to the potential effects of a project and how the project would impact the Aboriginal group's interests and rights.

The Board extended an invitation to provide oral traditional evidence in person or remotely to all Aboriginal Intervenors in the proceeding. Six Aboriginal Intervenors provided oral traditional evidence to the Board as described in Appendix II, Table B. Appendix II also provides details on where to find the transcripts of all the presentations on the Board's hearing record for the Project.

The locations of the oral traditional evidence sessions were selected by the Board based on the proximity of the Aboriginal Intervenors, and the preferences indicated in the eleven Notices of Intent to provide oral traditional evidence the Board received. Participating Aboriginal Intervenors were welcomed to devote part of their presentation to share a prayer or ceremony if they wished.

Highlights from Oral Traditional Evidence

The following quotes selected by the Board from the oral traditional evidence presentations are meant to provide samples of the type of information that was shared with the Board regarding Aboriginal personal and community knowledge and experiences.

Bigstone Cree Nation

"I still to go the land. I have connection to it. To me, it has sentimental value. It's not what I can take out of the trapline that motivates me. I go there for my healing. I go there for my herbs, for subsistence living." (Elder Clement Auger, paragraph 1230, Transcript Volume 3)

"So nevertheless, we are not opposed to development, but in -- also, I'm just tired of being poor, seeing my people live in a third-world country. Like we live with the M.D., in the same community, a municipality under the Alberta government who are so rich, raking in millions out of our traditional area, and what do we get? A few jobs. But that's not all we want." (Elder Michael Beaver, paragraph 1286, Transcript Volume 3)

Chard Métis Society

"But no-one is giving me the chance to speak like this before. Now, what I say today, the truth come from my heart. I don't have a notebook in front of me, but I see; I live in there for the last 52 years. What I say today, it's all true facts because I live and see it day by day." (Mr. Raoul Montgrand, paragraph 185, Transcript Volume 1)

"They are making live as a sad person, sad people, that never did anything for ourselves, which we used to do everything for ourselves and eat whatever we wanted to eat from the bush. And now we have to go travel to Edmonton to buy those meat, trying to plan for it where it is cheaper for us that we can get enough for the whole month for my children, my grandchildren. I go pick up them from Edmonton, because it's cheaper there, that can last me for the whole month with my old pension cheque, which I never did before." (Ms. Marie Agnes Herman, paragraph 78, Transcript Volume 1)

Doig River First Nation

"K'ih tsaa?dze is a healing, spiritual area. I can prove it by somebody want to heal to come to K'ih tsaa?dze and then he got healed there, and just like his spirit renewed. So that was 20 years ago. That same person's still living today and then they can't quit thanking K'ih tsaa?dze. He always go to K'ih tsaa?dze and then he's thank K'ih tsaa?dze." (Elder Samuel Acko, paragraph 1049, Transcript Volume 2)

"We still go to school, but we still can't afford to lose our culture, way of our living. So that's why the land is very important to us." (Elder Robert Dominic, paragraph 987, Transcript Volume 2)

Métis Nation of Alberta – Gunn Métis Local 55

"So I do see the reason behind the pipeline. I do believe that it's the safest way to transport oil and gas, and I'm thankful I have gas to warm my house. We don't have to go get wood anymore or haul in coal like we did before. But I want to caution you, caution the gas company, the oil -- the pipeline people to respect the land when you go through it. I cried when I see what they do to the land." (Elder Gayle McKenzie-Findlay, paragraph 1797, Transcript Volume 4)

"So I'm very happy to have this hearing, that I've had the opportunity to tell you my side of the story. And I'm going to leave here with the hope, the belief that you people are going to do the right thing, tell the pipeline companies to do the right thing so we can carry on for the next 12 generations in our land." (Elder Gayle McKenzie-Findlay, paragraph 1832, Transcript Volume 4)

Samson Cree Nation

"So in order for you to understand, you know, how we perceive things, like sometimes we have to educate why we call this land our real mother, the earth. So in order for all of us to understand, sometimes we have to go right to the beginning and hear those messages, those stories, and why Elders, the older men and women, why we have to advocate for this land." (Elder Kenneth Saddleback, paragraph 1627, Transcript Volume 3)

"So our religion and our spirituality is within the realm of the environment. You remove us from the land, you remove us from our religion. Every individual, every person on this globe has basic human rights, the right to believe in a god, in a higher power, and, my friends, we've shared that with you today." (Ms. Norine Saddleback, paragraph 1693, Transcript Volume 3)

Woodland Cree First Nation

"What I said in my language is I'm honoured and humbled to be here to support my Chief in terms of our values, our culture, our traditions, and to go after what we believe is owed to us as Aboriginal and First Nations people. And it's not only for us that's sitting around here and the Elders; it's for the future generation that we're here on behalf of those that are not yet born, our grandkids." (Mr. Joe Whitehead Jr., paragraph 550, Transcript Volume 2)

"That's all we want, is work with us. But if you cannot work with us, don't build it. Do not come. It doesn't matter to us. At least we can hunt there, we can trap there, we can gather there, and we can do our lifestyle there. We can teach our kids our culture, you know, but help us. In return, we'll help you, 50/50 like they said." (Mr. Joe Whitefield Jr., paragraph 587, Transcript Volume 2)

5.1.4 Engagement of Aboriginal Groups by NGTL

The Board's Filing Manual sets out the Board's requirements for applicants to identify and engage with potentially affected Aboriginal groups early on in the planning phase of a project and to report on these activities to the Board. The Filing Manual encourages companies to augment their applications with local and traditional knowledge, and integrate the information and knowledge, where appropriate, into the design of their projects. Aboriginal groups are also encouraged to engage with project applicants so that their concerns can be identified and considered early during the planning phase of a project, and potentially be resolved before an application is filed.

The Filing Manual includes the requirement for an application to include detailed information on any issues or concerns raised by Aboriginal groups or that are otherwise identified by the project applicant. The applicant is expected to report on all interests and concerns brought to its attention by Aboriginal groups, even if the applicant was unable or unwilling to address those concerns. Therefore, even if an affected Aboriginal group decides not to participate in the Board's hearing process, its concerns can be brought to the attention of the Board through an applicant's evidence.

The Board evaluates the sufficiency of an applicant's project-specific consultation activities along with any other evidence of engagement submitted on the record for a project. Where there is a greater risk of more serious impacts on Aboriginal rights and interests, the Board will have greater expectations in terms of an applicant's engagement with potentially affected Aboriginal groups. Where the likelihood of impacts on Aboriginal rights and interests is low, or where the impacts are minor in nature, the Board will generally not expect an applicant's engagement with potentially affected Aboriginal groups to be as extensive.

The Board's Filing Manual requires an applicant's project-specific consultation activities to be appropriate for the nature of the project. In this instance, the Board notes that the nature of the Project, particularly the paralleling of existing or proposed linear disturbances for approximately 91 per cent of its length, results in it having relatively fewer potential effects on the environment and on the current use of lands and resources for traditional purposes.

Views of NGTL

In its Application, NGTL submitted that the goals for its Aboriginal Engagement Program for the Project are to:

- build and maintain positive long-term relationships with Aboriginal communities and organizations potentially affected by the Project;
- develop and share timely information to allow for informed, effective, and meaningful engagement with communities;
- identify acceptable community engagement protocols and practices;
- respond promptly to commitments and communications with respect to the needs, interests, and concerns identified by each community;
- support the participation (e.g., capacity funding and information sharing) of Aboriginal communities and organizations who may be affected by the Project;
- use traditional knowledge to inform the Project design, where feasible;
- ensure that input and concerns gathered from Aboriginal communities and organizations are gathered, understood, and considered in Project design and execution, including the ESA, as appropriate;
- ensure that Aboriginal communities and organizations are aware of how their participation has influenced the ESA and Project planning;
- ensure that issues and concerns with respect to potential effects related to Aboriginal interests are identified and addressed; and
- identify education, training, employment, and contracting opportunities.

NGTL identified and engaged with 64 Aboriginal groups in total for the Project. NGTL had initially identified and engaged with 44 Aboriginal groups, with the remaining 20 Aboriginal groups added based on input provided by the Board, the MPMO, and by Aboriginal groups themselves requesting to be engaged by NGTL for the Project. The 64 Aboriginal groups are located in Alberta and British Columbia, and are listed on the next page:

1. Alexander First Nation
2. Alexis Nakota Sioux Nation
3. Asini Wachi Nehiyawak (Mountain Cree) Traditional Band
4. Athabasca Chipewyan First Nation
5. Beaver First Nation
6. Beaver Lake Cree Nation
7. Bigstone Cree Nation
8. Blueberry River First Nations
9. Buffalo Lake Métis Settlement
10. Buffalo River Dene Nation
11. Cadotte Métis Local 1994
12. Chard Métis Society
13. Chipewyan Prairie Dene First Nation
14. Christina River Dene Nation Council
15. Clearwater River Dene
16. Conklin Métis Local 193
17. Dene Tha' First Nation
18. Doig River First Nation
19. Duncan's First Nation
20. East Prairie Métis Settlement
21. Enoch Cree Nation
22. Fairview Métis Local 205
23. Fort McKay First Nation
24. Fort McMurray 468 First Nation
25. Métis Nation of Alberta Association - Fort McMurray Local Council 1935 (or McMurry Métis)
26. Gift Lake Métis Settlement
27. Grande Prairie Métis Local 1990
28. Gunn Métis Local 55
29. Heart Lake First Nation
30. Horse Lake First Nation
31. Kelly Lake Cree Nation
32. Ktunaxa Kinbasket Tribal Council
33. Lakeland Métis Local 1909
34. Lubicon Lake Band
35. Marlboro Community Association
36. Métis Nation of Alberta
37. Métis Settlement General Council
38. Mikisew Cree First Nation
39. Métis Nation of Alberta Region 1
40. Métis Nation of Alberta Region 4
41. Métis Nation of Alberta Region 5
42. Métis Nation of Alberta Region 6
43. Montana First Nation
44. Nakcowinewak Nation of Canada
45. O'Chiese First Nation
46. Owl River Métis Local 1949
47. Paddle Prairie Métis Settlement
48. Paul First Nation
49. Peavine Métis Settlement
50. Peerless Trout First Nation
51. Saddle Lake Cree Nation
52. Samson Cree Nation
53. Sawridge First Nation
54. Sturgeon Lake Cree Nation
55. Stoney Nakoda First Nation
56. Sucker Creek First Nation
57. Sunchild First Nation
58. Swan River First Nation
59. Tallcree First Nation
60. Tsuu T'ina Nation
61. Wabasca-Desmarais Métis Local 90
62. Willow Lake Métis Local 780
63. Whitefish Lake No.128 First Nation
64. Woodland Cree First Nation

NGTL said its engagement activities with Aboriginal groups for the Project included:

- providing information packages including a preliminary Project fact sheet and overview map, brochures on TransCanada's safety, stakeholder engagement and Aboriginal engagement, and relevant Board information; and
- meeting face-to-face to introduce the Project, provide a broad understanding of the Board's process, discuss methods for conducting engagement in the community, identify and develop strategies to address capacity issues with Aboriginal communities to participate in the Project review, identify community concerns, interests and opportunities, obtain input and feedback on environmental field studies, identify site-specific issues and concerns, and identify economic development opportunities including training, contracting and employment.

NGTL submitted that it engaged extensively with potentially affected Aboriginal groups on this Project since July 2014, and since 2011 in respect of the McLeod River Section. NGTL identified and contacted those Aboriginal groups that it considered to be potentially affected by the Project. NGTL added that it also engaged with several additional groups identified by the MPMO and the Alberta provincial Aboriginal Consultation Office as being potentially affected by the Project, and three additional groups that expressed an interest in the Project through the Board's hearing process. Some of the Aboriginal groups that NGTL contacted expressed an interest in the Project, and others did not. However, each of these groups was provided with: (i) information about the Project; (ii) opportunities to meet with NGTL to discuss the Project and express any concerns they might have; and, (iii) opportunities to provide details of Traditional Land and Resource Use (TLRU) activities and other site-specific information to inform Project planning.

NGTL further submitted that it compiled detailed engagement logs that demonstrate the substantial efforts NGTL made to provide Aboriginal groups who expressed an interest in the Project with opportunities to participate in its planning of the Project. NGTL engaged with each interested group to determine how it preferred to contribute to the Project. NGTL provided funding to assist Aboriginal groups that elected to conduct community-directed TLRU studies for the Project. In addition, NGTL invited interested Aboriginal groups to participate in a series of biophysical field studies to support the ESA. According to NGTL, these studies provided further opportunities for Aboriginal groups to learn about the Project and provide input and information to NGTL. NGTL is of the view that through its efforts, each interested Aboriginal group had extensive opportunities to inform NGTL of their interests and concerns in relation to the Project, and to share its knowledge about TLRU practices and sites relevant to Project activities.

Views of Participants

Asini Wachi Nehiyawak (Mountain Cree) Traditional Band

Asini Wachi Nehiyawak (Mountain Cree) Traditional Band (AWNTB) submitted that it cannot support the Project as it felt it was not provided with a meaningful consultation process by NGTL and that negotiations conducted by NGTL with AWNTB had not been conducted in good faith.

Athabasca Chipewyan First Nation

Athabasca Chipewyan First Nation (ACFN) submitted that it was dissatisfied with the level of consultation provided by NGTL. ACFN stated that due to the large number of projects submitted for its review, and due to the lack of internal capacity, it was impossible for ACFN to assess the Project and its impacts without an appropriate technical review and associated funding. ACFN stated that it was not able to reach an agreement with NGTL, as to the appropriate scope of work for a technical review of the Project's impacts, despite repeated attempts. ACFN further submitted that its participation has been extremely constrained, and requested that the Board recommend a separate consultation process with affected Aboriginal groups, and ACFN in particular, be completed by the Federal Crown.

Alexis Nakota Sioux Nation

ANSN submitted that responsiveness is a key requirement of both consultation and accommodation. ANSN submitted that NGTL's consultation process was not conducted in a clear and transparent manner, and that NGTL has not upheld its obligations of responsiveness to the procedural and substantive concerns ANSN has raised regarding the Project. ANSN requested that if the Board recommends approval of the Project, it require NGTL to further mitigate and accommodate the outstanding concerns regarding adverse impacts to ANSN's traditional uses in the vicinity of the Project.

Bigstone Cree Nation

Bigstone submitted that it was not meaningfully consulted by NGTL on the Project, arguing that it had not been provided with a consultation process that is accessible and adequate and which provides an opportunity to meaningfully participate. Bigstone also asserted that NGTL failed to provide a "thoughtful response". Bigstone requested that the Board require capacity funding for First Nations be established with respect to conditions in which consultation is mandated.

Additionally, Bigstone requested in its comments on possible conditions that standards be established which would allow the Board to assess whether NGTL has sought to meaningfully engage with First Nations and substantially resolve the concerns raised.

Chard Métis Society

Chard Métis stated that it was not initially acknowledged by NGTL as an Aboriginal group affected by or with an interest in the Project. As a result, Chard Métis indicated that it had missed out on early consultation and engagement opportunities such as participation in field surveys

(aquatic, heritage resources, wetland, and wildlife) or in the sharing of Traditional Ecological Knowledge (TEK) and Traditional Land Use (TLU) Studies. Chard Métis therefore requested that, should the Project be approved, the Board impose a condition requiring NGTL to consult with Chard Métis to determine the adverse impacts of the Project on Chard Métis rights and traditional territory, and to compensate Chard Métis for any adverse impact to its rights and traditional territory.

During its oral traditional evidence presentation, Chard Métis mentioned past issues concerning inadequate consultation with oil and gas companies operating in the region and trust it had with respect to how these companies have handled environmental effects mitigation.

Doig River First Nation

DRFN submitted that it has yet to be engaged in meaningful consultation with NGTL regarding routing around key locations within an area DRFN refers to as the K'ih tsaa?dze Tribal Park (KTP), location-specific revisions to clearing plans, and other impact and/or footprint reduction mechanisms.

In its comments on possible conditions, DRFN requested to be notified when NGTL files with the Board its Commitments Tracking Table, programs and manuals, Construction Progress Reports, and the Caribou Habitat Offset Measures Implementation Report.

Métis Nation of Alberta - Gunn Métis Local 55

GML 55 raised concerns regarding NGTL's consultation activities, stating its position that it had not been adequately consulted. GML 55 asserted that NGTL relied on outdated and irrelevant information regarding its community for this Application. GML 55 also indicated that it has serious concerns with the Project. As a result, GML 55 requested that the pipeline at the McLeod River Section be diverted away from its community or alternatively that the Board impose stringent control and consultation requirements on NGTL before construction it is allowed to proceed.

McMurray Métis

McMurray Métis indicated that it had several outstanding concerns regarding NGTL's approach to consultation. McMurray Métis asked that NGTL more adequately communicate technical and scientific information regarding Project plans and potential impacts particularly to members who are not scientifically trained. McMurray Métis also asked that NGTL engage with its members through sincere dialogue and mutual respect, such that concerns shared by members are adequately dealt with.

Samson Cree Nation

Samson indicated its leadership was not properly engaged or prudently informed regarding the Project and that NGTL did not provide it with meaningful consultation.

Woodland Cree First Nation

During its oral traditional evidence presentation, Woodland Cree stated that it had not been consulted in a meaningful and respectful manner by NGTL. In particular, Woodland Cree submitted that NGTL's response to its concerns regarding noise impacts for the Otter Lake Unit Compressor Station Addition was delayed and unresponsive. Woodland Cree further submitted that the announcement of a unit addition was not shared with them in an open and transparent manner as they were led to believe that no additional work would be contemplated for this compressor station anytime soon.

Woodland Cree described that adequate consultation would involve NGTL providing proper compensation for damage done to the land, providing adequate opportunity for Aboriginal businesses to participate in the Project, and allowing Aboriginal groups to have a greater say during consultation on more substantial issues. Woodland Cree said it would appreciate the opportunity to engage in consultation with "brass" or company representatives with direct and actual decision-making authority, as opposed to legal representatives.

Reply of NGTL

NGTL indicated it made reasonable and appropriate efforts to engage with all Aboriginal groups and has incorporated their input into Project planning, where it was reasonable and feasible to do so. As a result, NGTL argued that its engagement has been adequate and the Board has sufficient information to: (i) determine appropriate consultation and accommodation occurred; (ii) balance the likely impacts of the Project on each Aboriginal group with the likely benefits of the Project to society as a whole; and, (iii) reasonably determine the Project to be in the overall public interest. NGTL submitted it has given each potentially affected group numerous opportunities to provide input, and NGTL should not be held responsible if a particular group did not avail themselves of those opportunities.

NGTL disagreed with AWNTB's assertion that it was not provided a meaningful engagement process. NGTL indicated it offered to discuss any questions or concerns AWNTB, and remain available to discuss the Project. NGTL submitted that it did not receive any response from AWNTB on its offers.

NGTL responded to ACFN's concerns regarding inadequate consultation and AFCN's insufficient capacity to assess the impacts of the Project, by indicating that it has been engaging with them since December 2014 by providing: (i) information about the Project; (ii) opportunities to meet with NGTL to discuss the Project and express any concerns they might have; and, (iii) opportunities to provide details of TLRU activities and other site-specific information to inform Project planning. NGTL indicated that ACFN had not been forthcoming in sharing Project-specific concerns with NGTL, but that NGTL remains available to work with ACFN to reasonably address any Project-specific concerns raised and to identify further opportunities for Project engagement. NGTL indicated that it was unwilling to accept ACFN's proposed terms regarding the appropriate scope of work for a technical review. NGTL also stated that the fact that it has successfully reached funding agreements for technical reviews with other Aboriginal groups should reflect positively on NGTL in this regard.

NGTL disagreed with ANSN that its engagement with ANSN was inadequate. NGTL indicated it had engaged extensively with ANSN since 2011 on the McLeod River Section of the Project, provided ANSN with ample information, held at least seven face-to-face meetings, funded two ANSN community-led TLU studies, and responded to those TLU studies.

NGTL disagreed with Bigstone that its responses were not thoughtful, indicating that it provided specific responses to each issue identified by Bigstone in its TLU Study. NGTL indicated it would work with each Aboriginal group that provided TLRU information, including Bigstone, to determine whether additional mitigation is required to address specific TLRU sites.

NGTL indicated Chard Métis were not initially identified by NGTL for Project engagement based on NGTL's understanding of its asserted traditional territory at the time. NGTL stated it has since shared Project information with Chard Métis and remains open to discuss the Project to understand and address concerns. NGTL submitted Chard Métis gave NGTL permission to use for this Project the TLRU information previously provided by Chard Métis Local No. 214 (Chard Métis' predecessor) for the Leismer to Kettle River Crossover project, which NGTL did use and incorporate into this Project.

NGTL responded to GML 55's concerns about its consultation activities, by stating that it had met with the community on 2 February 2015 to better understand their interests. NGTL said it held two subsequent meetings with GML 55, entered into a Letter of Agreement to provide GML 55 capacity funding to engage with NGTL on the Project and funded a GML 55 community-led TLRU study; which was filed with the Board on 23 September 2015. NGTL submitted that the above engagement activities have provided more than sufficient opportunities for GML 55 to understand the Project and identify possible issues or concerns to NGTL. NGTL disagreed with GML 55's assertions that NGTL never provided a discussion of substantive issues, arguing that it had responded to each of the concerns raised and has committed to providing follow-up opportunities to discuss those responses. NGTL also committed to meet with GML 55 to discuss and evaluate their business and labour capacity, including training requirements. NGTL has also committed to providing follow-up opportunities to discuss the concerns raised by GML 55 in the course of its engagement activities, including those issues and concerns identified in its TLRU study.

NGTL disagreed with Samson's statement that it was not meaningfully engaged, indicating it provided Samson with information about the Project before the Application was filed, met with Samson on two separate occasions to discuss its interest in the Project, proposed an ESA map review session, and responded to the TLU information provided by its community.

NGTL disagreed that its prior engagement with Woodland Cree, including for this Project, has been disrespectful and inadequate. NGTL stated it provided sufficient opportunities for Woodland Cree to learn about the projects NGTL puts forth and adequate opportunity for Woodland Cree to identify to NGTL issues or concerns. NGTL indicated it had notified Woodland Cree of the Project on 5 September 2014 and provided follow-up meetings on the 2 and 3 October 2014. NGTL noted it held five in-person meetings with Woodland Cree; and that senior leadership from NGTL met with Woodland Cree's Chief and Council on 29 October 2014 in Edmonton.

Views of the Board

The Board notes that oral traditional evidence sessions provided an opportunity for Aboriginal Intervenors to share their local and traditional knowledge directly with the Board. The Board values this local and traditional knowledge as it provided important context and information that allowed the Board to better understand the nature and extent of the interests and concerns of the participating Aboriginal Intervenors and how the Project may affect their interests.

In assessing the engagement NGTL undertook with Aboriginal groups potentially affected by the Project, the Board considered NGTL's Project-specific consultation activities. The Board finds that NGTL's design and implementation of these activities were adequate for the scope and scale of the Project, given that the Project would parallel existing or proposed linear disturbances for approximately 91 per cent of its length. In those instances in which groups may not have been initially identified by NGTL, the Board finds that NGTL was responsive in engaging with those groups after their interests in the Project were made known.

The Board notes NGTL's commitment to continue to engage with potentially affected Aboriginal groups throughout the life of the Project. The Board expects NGTL to do so in a meaningful way, and to address concerns brought forward by Aboriginal groups, to the extent possible.

The Board expects NGTL to provide, upon request, relevant information concerning the Project to affected Aboriginal groups. For example, DRFN requested to be informed of NGTL's filings with the Board related to its Commitments Tracking Table (**Certificate Condition 5**, Appendix III and **Order Condition 6**, Appendix IV), programs and manuals (**Certificate Condition 15**, Appendix III), Construction Progress Reports (**Certificate Condition 18**, Appendix III), and the Caribou Habitat Offset Measures Implementation Report (**Certificate Condition 34**, Appendix III) for the Project. The Board expects NGTL to notify DRFN when these filings are made with the Board, as well as any other Aboriginal group who express a similar interest. NGTL must include this commitment in its Commitments Tracking Table for the Project (**Certificate Condition 5**, Appendix III). The Board also notes NGTL's commitment to provide updates or special notifications during construction to Aboriginal groups that express interest.

The Board is of the view that NGTL has sufficiently implemented Project-specific consultation activities to-date. The Board notes the opportunities that were available for Aboriginal groups to raise concerns with the Board and with NGTL, and further notes NGTL's commitment to continue engaging Aboriginal groups. Several Aboriginal Intervenors, for example ACFN, Chard Métis and GML 55, requested that the Board impose conditions requiring NGTL to conduct additional Aboriginal engagement.

To address potential issues of concern to Aboriginal groups which may arise during construction of the Project, the Board would impose **Certificate Condition 13** (Appendix III), requiring NGTL to file Aboriginal Engagement Reports before and during construction of the Project. The Board would also impose **Certificate Condition 12** (Appendix III)

requiring NGTL to file a plan for Aboriginal participation in monitoring construction activities, which would set out further opportunity for Aboriginal groups to identify any specific adverse effects of the Project and mitigation measures.

The Board is of the view that all potentially affected Aboriginal groups were provided with sufficient information about the hearing process and the Project, and had opportunity to make their views about the Project known to NGTL and to the Board. The Board further notes that the MPMO stated it would track issues raised by Aboriginal groups during the Board's hearing process for the Project, and will determine whether additional consultation obligations may exist beyond the Board's hearing process.

5.2 Potential Impacts of the Project on Aboriginal Interests

The Project requires a total of approximately 230 km of RoW in five pipeline section loops. NGTL sought to parallel existing or proposed disturbances to the extent possible and approximately 91 per cent of the proposed Pipeline length would be parallel to or contiguous with existing RoW or other linear disturbances. This approach reduces the Project footprint and minimizes fragmentation of the landscape, which in turn reduces the potential effects of the Project on the environment and on Aboriginal traditional land and resource use. The Board notes that the Project does not traverse any Indian Reserves but it is located on lands used by Aboriginal groups for traditional purposes.

As discussed in subsection 5.1.4, an applicant is required to make all reasonable efforts to engage with potentially affected Aboriginal groups and to file relevant information with the Board. This includes evidence on the nature of the interests and concerns of Aboriginal groups potentially affected by the project, the concerns that were raised, and the manner and degree to which the applicant has addressed or will address those concerns. This complements the technical information submitted to the Board during the hearing process, addressing impacts of a project on, among other things, fisheries, wildlife, vegetation, traditional land and resource use, and heritage resources. In many instances, the applicant may be in a position to respond to Aboriginal concerns about a project before an application is filed and while the project is still in the early stages of development.

In determining the potential impacts of the Project on Aboriginal interests, the Board considered all the relevant information before it, including:

- information regarding the engagement undertaken by NGTL with Aboriginal groups;
- the views of Aboriginal groups as expressed in their oral traditional evidence presentations, written evidence submissions and final arguments; and
- proposed mitigation measures that would avoid or mitigate Project impacts on the rights and interests of Aboriginal groups.

In assessing the potential impacts of the Project and determining whether it is in the public convenience and necessity, the Board considered the nature and extent of the interests and concerns of Aboriginal groups in the context of how the Project may affect such interests.

The Board then considered all of the benefits and burdens associated with the Project and balanced the interests and concerns of Aboriginal groups with other interests and factors.

Views of NGTL

Traditional Ecological Knowledge Studies

NGTL stated that all potentially affected Aboriginal groups were invited to provide TEK during the biophysical and heritage resource field studies. NGTL indicated that, at the request of some Aboriginal groups, information collected would remain confidential.

NGTL said that Aboriginal groups were invited to participate in supplemental biophysical field studies (aquatics, wildlife, wetlands) for the Boundary Lake, Bear Canyon, Pelican Lake, and Christina River Sections from August 2014 to February 2015. NGTL indicated that biophysical field studies for the McLeod River Section were previously conducted with Aboriginal groups from June to August of 2011, when TEK was gathered and recorded.

Traditional Land Use Studies

The following 19 Aboriginal groups submitted or are in the process of updating existing TLU studies for NGTL to incorporate into its Project assessment:

- Alexander First Nation (2011 TLU Study Update - McLeod River Section)
- Alexis Nakota First Nation (2011 TLU Study Update – McLeod River Section)
- Bigstone Cree Nation (Pelican Lake Section)
- Chard Métis Society (2011 TLU Study - Pelican Lake and Christina River Sections)
- Chipewyan Prairie Dene First Nation (Pelican Lake and Christina River Sections)
- Christina River Dene Nation Council (Pelican Lake and Christina River Sections)
- Conklin Métis Local 193 (Pelican Lake and Christina River Sections)
- Dene Tha' First Nation (Boundary Lake Section)
- Doig River First Nation (Boundary Lake and Bear Canyon Sections)
- Enoch Cree Nation (2011 TLU Study – McLeod River Section)
- Métis Nation of Alberta Association - Fort McMurray Local Council 1935 or McMurray Métis (Pelican Lake and Christina River Sections)
- Gift Lake Métis Settlement (Otter Lake Unit Addition)
- Horse Lake First Nation (Boundary Lake and Bear Canyon Sections)
- Marlboro Community Association (2011 TLU Study – McLeod River Section)
- Métis Nation of Alberta – Gunn Métis Local 55 (McLeod River Section)
- Métis Nation of Alberta Region 5 (Pelican Lake Section)

- Nakcowinewak Nation of Canada (2011 TLU Study – McLeod River Section)
- Paul First Nation (2011 TLU Study - McLeod River Section)
- Saddle Lake Cree Nation (2011 TLU Study – McLeod River, Pelican Lake, and Christina River Sections)

NGTL stated that its engagement efforts for the McLeod River Section focused on confirming the existing TEK and TLU information collected in 2011 for another NGTL project located in the region and supplementing that information with any additional information provided by the communities.

NGTL indicated that there are a number of Aboriginal groups that have expressed interest in conducting TLU studies, but have either not yet established an agreement with NGTL or are at various stages of completing the TLU studies.

In addition to collecting information from Aboriginal groups for TLU information, NGTL submitted that it also collected preliminary background data from several other baseline TLU studies. These studies were conducted in the TLU Regional Study Area (RSA) for the Project and provide useful information on the biophysical and social environment potentially encountered within the Project footprint. Prior to field data collection, NGTL compiled preliminary background TLU data using publically available TLU reports, environmental assessments for projects with a similar socio-cultural context or regulatory context, published reports from government agencies involved in administering or regulating a specified area or resource (i.e., integrated resource plans, land and resource management plants), and GIS tools to determine spatial relationships of source data to the Project. NGTL indicated that the preliminary background data were verified and augmented as a result of the field data collection.

According to NGTL, the main concerns raised by Aboriginal groups regarding the Project's potential effects were:

- potential long-term effects of accidents and malfunctions on fish;
- potential contamination of watercourses and related effects to wildlife;
- displacement of wildlife;
- availability of Aboriginal contracting opportunities; and
- use of herbicides for weed control along the Project RoW.

Views of Participants

Alexis Nakota Sioux Nation

ANSN stated that the Project is predicted to have a highly destructive impact to medicinal plants used by ANSN along the entire proposed RoW for the McLeod River Section, but particularly in the low-ground areas. ANSN also anticipates there would be significant negative impacts on hunting in the area during the construction phase, particularly as trails, large game beds, and habitat are destroyed during the construction phase. ANSN submitted that the Project would have

adverse impacts on its TLRU and that NGTL's mitigation measures are inadequate to addressing those impacts and that it feared its TLU study was "simply disregarded" and "ignored" by NGTL. ANSN argued that specific mitigation measures are necessary to address impacts to ANSN's rights, culture, and traditional uses and that NGTL's responses to ANSN did not adequately address these concerns.

ANSN has identified the need to ensure minimal disturbance to low-ground areas and requested that NGTL bore under beaver dams to ensure minimal impacts to wetlands and the habitat relied upon by ANSN for the exercise of its treaty rights to hunt, trap, and gather. ANSN also requested that NGTL establish ANSN-specific protocol for unplanned events, such as accidents, to provide further protection for low-ground habitat areas.

ANSN argued that detailed baseline information is needed to inform and measure the success of reclamation plans. ANSN stated that it would like to see the land and vegetation returned to a pre-disturbance state acceptable for TLU and harvesting.

Bigstone Cree Nation

Bigstone indicated concerns regarding the potential contamination of traditional foods, medicine, and agricultural food crops resulting from pesticide and herbicide use and wanted to see the limitation or elimination of chemical applications. Bigstone also wanted to see greater involvement of First Nation communities in Post-Construction Monitoring (PCM), indicating that PCM should involve post-construction engagement with the relevant Aboriginal groups.

During its oral traditional evidence presentation, Bigstone stated that it had witnessed the loss of whole herds of caribou, moose, deer, and other wildlife in the region and that it is becoming harder to gather the water, medicine, and smudges it needs in nearby areas. Bigstone also shared the sentimental value many of its members have for the traplines, which they intend to pass on to future generations, and which they fear would be negatively affected by development.

Bigstone submitted that it believes the Project would have significant adverse residual and cumulative effects on current TLRU and found that NGTL's proposed mitigation measures are inadequate to address their TLRU concerns. Bigstone described NGTL's approach to the ESA as a "catch-all assessment" which fails to address the unique rights and interests of Bigstone and which fails to incorporate Bigstone's TLU Study or oral traditional evidence submitted in the hearing. Bigstone expressed concern that the List of Issues considered by the Board in its review of the Project (Appendix I) did not require consideration of cumulative environmental effects.

Chard Métis Society

Chard Métis stated that an accurate assessment of the impacts of the proposed Project on Chard Métis treaty rights and interests had not been conducted by NGTL as Chard Métis was not initially acknowledged by NGTL as an Aboriginal group potentially affected by, or with an interest in, the Project.

Chard Métis submitted that the Project would have an adverse impact on Chard Métis members' continuous and ongoing exercise of activities, practices, traditions, and customs significantly related to the lands at issue. Chard Métis submitted it did not believe NGTL's Environmental

Protection Plan (EPP) for the Christina River Section addressed the adverse residual and cumulative impacts on historical sites, structures or burial grounds within its traditional territory. Chard Métis submitted NGTL's broad generalization that subsistence activities are carried out throughout the region is insufficient to address the adverse impacts of the Project on Aboriginal rights. Chard Métis argued that Aboriginal practices and ecological aspects of the environment are distinct to each community.

During its oral traditional evidence presentation, Chard Métis expressed a number of concerns regarding traditional land and resource use, including severe loss of wildlife and wildlife habitat leading to significant challenges in hunting and in providing for the community. Chard Métis specifically identified concerns about significant losses of moose, chicken, and ducks around the Christina River Section and how the Project would add to those concerns. Chard Métis mentioned the significant difficulty of hunting in the region now as compared to a few decades ago. It also mentioned concerns about cumulative impacts relating to the gradual decline of wildlife and wildlife habitat witnessed by Chard Métis over a span of 52 to 64 years.

Chard Métis submitted that the Project would have cumulative adverse impacts and that it is no longer able to hunt, fish, gather or practice its traditional way of life as it used to. Chard Métis voiced concerns that access to the Project area for both its members and for wildlife may be diminished further. Chard Métis indicated that decreasing access to its lands and the growing inability to hunt enough food has caused its members to supplement their diet with food purchased from a grocery store and to hunt and gather farther away, at considerable expense to themselves. Chard Métis stated NGTL's EPP for the Christina River Section does not address the residual Project-specific or cumulative adverse impacts or provide mitigation measures in regard to the decreasing sustenance caused by industrial development in Chard Métis traditional territory and to Chard Métis' way of life.

Chard Métis requested to be notified by NGTL at the start of the Project's construction and to be on site to monitor construction and watercourse crossings.

Chard Métis indicated it is concerned that NGTL's use of areas required for the Project such as temporary workspace, temporary access roads, staging areas, construction yards, and pipe storage areas would adversely impact Chard Métis historical sites, structures, and burial grounds.

Chipewyan Prairie Industry Relations Corporation

Chipewyan Prairie Industry Relations Corporation[3] (CPIRC) questioned NGTL regarding the potential contamination of traditional foods, medicine and agricultural food crops resulting from pesticide and herbicide use; and asked NGTL to limit or eliminate the use of chemical applications.

CPIRC found NGTL's approach to addressing socio-economic and TLRU residual and cumulative effects not adequate. CPIRC expressed concern that the Board has set the socio-economic bar very low and may not be pushing project proponents to provide a thorough and

[3] CPIRC is the authorized representative of the Chipewyan Prairie Dene First Nation in the GH-002-2015 Hearing.

respectful enough description and analysis of Aboriginal societies and cultures that would provide for a meaningful ESA. CPIRC stated that the few statistics presented in NGTL's ESA say nothing about Chipewyan Prairie Dene First Nation culture and are not adequate for the task of predicting socio-cultural effects. Furthermore, CPIRC argued that the ESA included little information describing community, family or household structures and functions; and cannot predict whether or how the Project might affect these matters.

CPIRC indicated the Project would likely cause significant adverse residual effects on CPDFN's TLRU both in the Local Study Area (LSA) and RSA. CPIRC found the Project would lead to displacement of CPDFN from land use areas within the LSA for the exercise of CPDFN's land use and cause loss of use and enjoyment of occupancy sites which are inextricably related to harvesting activities on surrounding lands. Overall, CPIRC found NGTL's proposed mitigation measures inadequate and incomplete for addressing the potential impacts of the Project, and not supported by scientifically reliable impact assessments, data, or evidence.

Doig River First Nation

DRFN stated the Boundary Lake and Bear Canyon Sections of the Project would adversely impact DRFN's traditional land use. DRFN indicated the Boundary Lake Section runs through highly important areas of exceptional use and value and of great cultural and spiritual importance to DRFN; these are the KTP and Treaty Land Entitlement Claim areas.

Section 5.6 provides a detailed discussion about potential impacts on the KTP.

DRFN stated NGTL has not adequately considered the health, socio-economic, cultural or traditional land use effects on DRFN or any other First Nation, resulting from changes to the environment as required under section 5(1)(c) of CEAA 2012.

DRFN further stated its treaty rights should be protected with a focus on the overall importance of an area with respect to its cultural and harvesting practices as opposed to a focus on site-specific mapped values. DRFN said focusing on individual sites most likely misrepresents the importance of the KTP for DRFN.

East Prairie Métis Settlement

EPMS raised concerns regarding potential effects of the Project on increased non-Aboriginal access within its traditional territory, and the potential associated reductions in wildlife which would force reliance on non-traditional foods. EPMS also expressed concern about the risk of Pipeline ruptures which could affect soil quality and cause contamination in local plant populations which could then enter the food chain. EPMS recommended the Board enhance oversight and monitoring requirements imposed on NGTL regarding soil contamination, and ensure EPMS is properly consulted in this regard.

McMurray Métis

McMurray Métis expressed concern about the likelihood of a major malfunction or rupture of the operational Pipeline in the vicinity of water; especially waterways connected to the Athabasca or Clearwater rivers.

McMurray Métis disagreed with NGTL's approach to ignore emissions from pipeline operations, given that NGTL operates approximately 24,500 km of pipeline and with small emissions across the length of the system adding up to significant amounts of total emissions. McMurray Métis also disagreed with relying on the air monitoring data from Fort McMurray – Athabasca Valley station. McMurray Métis recommended that NGTL conduct a proper assessment on Project emissions and provide appropriate mitigation.

McMurray Métis stated the LSA defined by NGTL was too restricted and therefore omitted considerable proximate and indirect impacts to its traditional land use.

McMurray Métis submitted it wanted to see NGTL further separate Aboriginal groups' concerns and mitigation measures summarized in its ESA for each pipeline section loop and Aboriginal community. This approach would include multiple and individual conclusions for each pipeline section loop that would deal with the significance of effects and mitigation measures for TLU, some of which might be community-specific. McMurray Métis further submitted it wanted a baseline study of socio-economic conditions of Métis communities in the region so potential socio-economic impacts from the Project could be properly assessed and fully understood.

McMurray Métis submitted the Project would contribute to significant cumulative effects in the Pelican Lake and Christina River Sections. McMurray Métis indicated concerns regarding the cumulative effects of industrial development in the region on emissions. McMurray Métis also raised particular concerns regarding cumulative effects on fish and fish habitat, stating that the RoW continues to become wider and more densely used by both industry and recreationalists. McMurray Métis argued that in the absence of defined cultural thresholds or targets for TLU in regard to cumulative impacts, measures implemented to address cumulative impacts on TLU should be community-specific and thresholds should be determined by the communities themselves.

McMurray Métis recommended that NGTL incorporate community participation and participation from other affected resource users in the development of a project-specific access management plan. McMurray Métis also recommended that NGTL develop a specific mitigation plan with local land users and McMurray Métis members regarding discouraging camp residents from using traditional lands.

Gift Lake Métis Settlement

Gift Lake requested an emergency response and action plan from NGTL for the Project. Gift Lake also identified concerns regarding impacts to wildlife in the Project area, emergency response, industrial activity displacing big game, and reported a Project interaction with a moose lick.

Métis Nation of Alberta – Gunn Métis Local 55

GML 55 indicated a desire for NGTL to incorporate community participation in the design and implementation of access management and safety management plans. GML 55 also indicated it would like to see its members included in monitoring construction and operational impacts to wildlife and wildlife habitat.

GML 55 expressed concerns about the impacts of the Project on its Aboriginal interests, including treaty rights. GML 55 indicated the current level of development already threatens GML 55 and said further development would exacerbate the pre-existing damage to its members' hunting, gathering, harvesting, and fishing; and to other traditional activities which are critical to their traditional lifestyles. GML 55 expressed concerns that the McLeod River Section could increase access to the land by non-Aboriginal hunters and construction noise could drive animals away, thus negatively impacting GML 55 members who depend on hunting for food.

GML 55 identified 13 watercourses that the McLeod River Section would cross, and indicated that each crossing could potentially hurt fish populations through contamination, fish mortality or blockage. GML 55 further identified several favoured cultural and spiritual areas in the McLeod River Section as being threatened by the Project. It cited as examples of potentially affected areas the Hornbeck Creek Provincial Recreational Area located 5.1 km southwest of the Project, Sundance Provincial Park located 3.4 km southwest of the Project, and Little Sundance Creek Provincial Recreation Area located 0.9 km southwest of the Project.

During its oral traditional evidence presentation, GML 55 elaborated on its concerns pertaining to issues such as water contamination, loss of fish and wildlife populations, and destruction of existing sites for medicinal plants.

GML 55 indicated the mitigation measures proposed by NGTL were overly general and not specific to a particular community, and were therefore insufficient to satisfy GML 55's concerns.

Samson Cree Nation

Samson submitted the Project could have significant negative impacts on a range of traditional land and resource uses and that its people no longer eat the fish, hunt deer or trap its food in certain areas due to the morbid condition the animals are in.

Samson submitted that it did not believe NGTL had conducted a thorough assessment of impacts, including on cumulative effects. Furthermore, Samson submitted that it did not believe NGTL has put appropriate mitigation and accommodation measures in place to address the potential impacts of the Project.

During their oral traditional evidence presentation, representatives from Samson spoke of the close spiritual connection they have with the animals in the McLeod River region and how they see themselves as advocates for these creatures. They described the food and medicine chain in the region and how these natural environmental cycles may become threatened from development. Samson indicated outstanding concerns regarding pesticide use and forest deterioration.

Swan River First Nation

Swan River First Nation (Swan River) recommended that NGTL clarify whether its access control plans are coordinated with other land users (e.g. oil and gas, forestry, First Nations, recreation, and other stakeholders). Swan River also wanted to see greater involvement of First Nation communities in PCM, indicating that PCM should involve post-construction consultation with the relevant Aboriginal groups.

Swan River indicated concerns regarding the potential contamination of traditional foods, medicine and agricultural food crops resulting from pesticide and herbicide use, and asked for the limitation or elimination of chemical applications.

Woodland Cree First Nation

Woodland Cree expressed concern that the Project contributes to the overall industrialization of its traditional territory and cumulative impacts. Woodland Cree stated that the Project would reduce the land available for it to exercise its treaty and Aboriginal rights, would add to the worry and stress in the community regarding potential gas leaks and other accidents, and further increase access to the land for non-Woodland Cree members.

During their oral traditional evidence presentation, Woodland Cree members stated that they had significant concerns regarding noise impacts from the Otter Lake Unit Addition, adding that existing compressor stations in the area were already scaring away wildlife in the region and making it difficult for Woodland Cree members to hunt. Woodland Cree emphasized its concern with cumulative effects, stating that the Project contributes in some part to a "death by a thousand cuts." Woodland Cree voiced concerns about the growing levels of contamination in wildlife habitat and water systems in the region, as evident from the decline of wildlife, fish, and insects which Woodland Cree has observed over the last few decades. Woodland Cree submitted that NGTL's commitment to maintaining noise levels below those permissible by the Alberta Energy Regulator (AER) Directive 38 is inadequate for addressing its cumulative noise concerns.

During its oral traditional evidence presentation, Woodland Cree also expressed concerns that the Project would not provide adequate employment opportunities for Woodland Cree members. Woodland Cree indicated that it was very capable of fielding 20 to 50 people to work on projects around their community.

Reply of NGTL

NGTL noted that several Intervenors requested NGTL or the Board modify the Project, or take other steps to accommodate their interests. NGTL argued that these requests were not supported by evidence on the record. NGTL argued that it made extensive efforts to reasonably mitigate potential effects of the Project on Aboriginal groups. NGTL argued that the specific mitigation suggested by a number of Aboriginal Intervenors was not required as the standard mitigation proposed is adequate for avoiding or minimizing potential impacts of the Project on Aboriginal groups. NGTL further argued that the Project should be assessed based on the greater public interest and that specific interests such as from individual Intervenors are not determinative of the broader public interest. NGTL also committed to continue to work with these Aboriginal groups through construction of the Project to develop additional mitigation, as warranted.

Emergency Response

NGTL responded to Gift Lake's concerns by confirming that it will develop a Project-specific written emergency response plan and is committed to continue discussions with Gift Lake regarding emergency response.

Noise

NGTL responded to Woodland Cree's noise concerns with the Otter Lake Unit Addition by stating that it had conducted a noise impact assessment and had determined that noise levels during operations would increase slightly above baseline conditions but below the daytime permissible sound level of 50 decibels absolute energy level equivalent (dBA leq) and below the nighttime permissible sound level of 40 dBA leq as specified in AER Directive 038 – Noise Control. NGTL stated the assessment results, in addition to the proposed mitigation measures outlined in its ESA, justify its position that no further action is needed to address Woodland Cree's concerns regarding noise and related residual and cumulative effects of the Otter Lake Unit Addition.

Impacts to Wildlife, Vegetation and Soil Contamination

NGTL disagreed with Gift Lake's assertion that a moose lick would be impacted by the Project, arguing that the map Gift Lake presented regarding the moose lick was for a different project (NGTL Wolverine River Lateral Loop - Carmon Creek Section) which is located south of the Otter Lake Compressor Station. NGTL indicated no moose licks were identified near the Otter Lake Unit Addition footprint. However, NGTL indicated that if a moose lick is found during construction, it will implement its Wildlife Species of Concern Discovery Contingency Plan to reduce disturbance to the moose lick.

NGTL responded to concerns raised by Bigstone, CPDFN, Swan River, and other Aboriginal groups by committing to restrict the general application of herbicides on a site-specific basis near discrete traditional land use sites. NGTL indicated specific sites are identified in collaboration with Aboriginal groups. NGTL stated that it would employ standard weed management procedures outlined in TransCanada's Integrated Vegetation Management Program and TransCanada's Invasive Vegetation Weed Control Management TOP. NGTL stated chemical applications would only be used in selected locations and when necessary.

NGTL responded to EPMS's concerns on soil contamination and monitoring by referring EPMS to its ESA, EPPs, Environmental Alignment Sheets, and its Spill Contingency Plan and Chemical and Waste Management Plan.

Access Management

The Project parallels existing RoW and other linear features for approximately 91 per cent of its length. NGTL stated it provided and continues to provide Aboriginal groups with opportunities to provide input on access control, and that NGTL has committed to the inclusion of an Access Monitoring Plan as part of the final submission of the EPPs, and would provide interested Aboriginal groups with the Access Monitoring Plan when it is filed with the Board. NGTL indicated it does not anticipate installing access control measures on the portions of the RoW that parallel existing disturbances.

NGTL responded specifically to Woodland Cree's concerns about temporary camps and associated infrastructure, indicating that no new permanent access would be constructed for the Otter Lake Unit Addition and that the temporary camp proposed for this unit addition is located in an area formerly used as a construction camp and accessible from an existing road. NGTL said

it would also implement mitigation consistent with industry standards to mitigate for increased traffic in the area. Given these measures, NGTL submitted the Project would not increase access into Woodland Cree traditional territory beyond what currently exists.

NGTL committed to monitoring access control measures for their integrity throughout the five-year PCM program. During this period, measures found to be damaged or not functioning would be remedied by similar or new measures. Following the PCM program, NGTL would monitor all RoW annually by aerial patrol, and observations of access management issues would be reported and addressed as feasible. NGTL has committed to engaging with potentially affected Aboriginal groups during PCM, and incorporating their feedback as appropriate.

Aboriginal Participation in Monitoring

NGTL responded to regarding post-construction monitoring raised by Bigstone, Chard Métis, EPMS, GML 55, Swan River, and other Aboriginal groups by indicating its engagement with Aboriginal groups will continue during the post-construction period. NGTL stated it will provide potentially affected Aboriginal groups with notification of scheduled field programs and provide notification and posting information when PCM reports are filed with the Board. NGTL indicated any feedback provided by Aboriginal groups on the PCM reports will be considered and incorporated as appropriate into future PCM or operation plans as necessary. NGTL submitted it will continue to engage with potentially affected Aboriginal groups through the construction and operation of the Project, and will continue to evaluate whether additional mitigation measures are necessary to reduce or avoid effects on TLU.

NGTL disagreed with the need to have Aboriginal monitors on the Project for several reasons. First, NGTL argued that none of the Intervenors provided evidence explaining why monitoring by Aboriginals is required, or any details associated with such monitoring. Second, NGTL argued it would be logistically impractical, for safety reasons, to have representatives from each potentially affected Aboriginal group employed to monitor activities on the RoW. Finally, NGTL indicated it had already committed to continue engaging with each interested group through construction and operations to share information about construction and post-construction monitoring activities, and to address any concerns raised. NGTL indicated this commitment would reasonably balance any Aboriginal group's interest in obtaining information about construction and post-construction activities with NGTL's need to carry out such activities in a safe manner.

ESA and Cumulative Effects Assessment Methodology

NGTL stated it believes that its ESA addresses the potential interactions identified by ANSN, Bigstone, Chard Métis, CPIRC, McMurray Métis, Swan River, and Woodland Cree through the assessment of the likely effects of the Project on the environment and traditional land and resource use. Furthermore, NGTL asserted that its ESA adopted appropriate methodology with sufficient detail provided in accordance with the requirements of the Board's Filing Manual. NGTL stated it relied on information provided by Aboriginal groups through Project-specific TLU studies and determined the significance conclusions of its ESA with regard to TLRU remain unchanged. NGTL also said any additional information gathered during ongoing TLU

studies and engagement would be considered for incorporation into Project planning as appropriate.

NGTL responded to the concerns raised by Chard Métis, CPDFN, Samson, and other Aboriginal groups on its assessment of adverse residual and cumulative effects by stating that it meets the required standards. NGTL argued that its approach is scientifically defensible, is consistent with both the Board's Filing Manual and Canadian Environmental Assessment Agency guidance, and adopts currently accepted practice and past practice on similar projects. NGTL submitted that its approach therefore provides an informed assessment and characterization of potential adverse environmental effects of the Project. NGTL disagreed with CPDFN's assertion that its proposed mitigation measures are not supported by scientifically reliable impact assessments, data, or evidence; arguing that NGTL's mitigation measures have been demonstrated to be successful through past PCM reports on projects that used the same mitigation.

Traditional Land and Resources Use

NGTL responded to ANSN's concerns regarding plant harvesting by indicating that the ESA assumes TLRU activities, including plant harvesting, occur throughout the Project area and that general mitigation measures would be applied to the entire Pipeline route to avoid or minimize potential effects on traditional plant harvesting and resources. NGTL also indicated it would develop additional site-specific mitigation, where appropriate, if an Aboriginal group were to provide NGTL with specific information about a particular area of concern.

NGTL responded to ANSN's concerns on reclamation by indicating that winter construction would allow NGTL to implement minimal disturbance construction techniques in areas where grading is not required. NGTL indicated the techniques adopted would help achieve prompt, natural revegetation following construction. NGTL further indicated revegetation success would be assessed and documented through its PCM program and that NGTL can review the results with ANSN if desired. NGTL stated its PCM program would ensure the lands disturbed by the Project would return to equivalent land capability, which is the standard for reclamation in Alberta. NGTL submitted that to go beyond this standard (i.e., pre-disturbance state) is a matter of government policy that goes beyond the scope of this proceeding.

NGTL responded to Chard Métis' concerns by indicating that it had assessed the Christina River Section for archaeological sites as required by the *Historical Resources Act* (HRA), and no historical sites, structures, or burial grounds were identified as potentially impacted by Project construction. NGTL stated that it had asked Chard Métis to provide details regarding the location and nature of any historical or burial sites in the Project area. NGTL indicated the information received from Chard Métis was not particularly helpful as several of the areas mentioned (i.e. Cowper Lake Reserve, Egg Lake) were many kilometers away from the Project.

NGTL responded to CPDFN's concerns regarding impacts to its reserve by indicating that there is no evidence to suggest the Project would have any effect on the reserve. NGTL responded to CPDFN's concerns regarding the Christina River by indicating that the Project would employ HDD technology to avoid disturbance to the watercourse bed and banks. NGTL reiterated its commitment to maintain water quality in all watercourses crossed by the Project.

NGTL responded to GML 55's concerns about Project effects on Sundance Provincial Park and Sundance Lake by indicating that the Project is not anticipated to affect resources or activities within Sundance Provincial Park, Sundance Lake, or the 500 m Special Management Zone that surrounds the Provincial Park. NGTL indicated the Project is located over 3 km from the Sundance Provincial Park and will not have any effect on TLRU activities or environment receptors within the Park.

NGTL submitted the TLRU studies that it has received to date do not alter the conclusions in its assessment because its ESA already assumed TLRU activities occur throughout the Project area and its EPPs include mitigation measures to address effects on TLRU for the entire length of the Project. NGTL found the information provided in the additional TLRU studies to be consistent with the information used to prepare its ESA.

NGTL asserted that the mitigation measures proposed for impacts to TLRU were not generic and minimal, and offered sufficient solutions towards addressing the breadth of concerns raised by Aboriginal groups. NGTL committed to incorporating any additional mitigation measures resulting from its ongoing engagement with Aboriginal groups for specific sites identified into its final EPPs and Environmental Alignment Sheets to be filed with the Board prior to construction. NGTL indicated additional cultural, heritage, or TLRU sites identified prior to or during construction would be addressed through NGTL's TLU Sites Discovery Contingency Plan and Heritage Resource Discovery Contingency Plan.

Views of the Board

With respect to the current use of lands and resources for traditional purposes, the Board is of the view that the Project-specific effects are not likely to be significant. However, the Board is concerned about the cumulative effects of projects on the current use of lands and resources. The Board's complete environmental assessment is provided in Chapter 7 and provides a discussion of Project-specific and cumulative effects on the current use of lands and resources for traditional purposes. The Board notes NGTL's commitment to completing any outstanding TLU investigations, and to receiving and considering any additional information that may be brought forward by Aboriginal groups regarding their use of the land and resources in the Project area. The Board would impose **Certificate Condition 8** (Appendix III), requiring NGTL to file an update on outstanding TLU investigations for the Project and a description of how information from TLUs would be considered and addressed by NGTL.

The Board heard concerns from Aboriginal groups about environmental protection, health and safety in the case of an accident. Safety and environmental protection are of paramount importance to the Board, and the Board's regulatory oversight is designed to proactively manage safety and environmental protection throughout the entire lifecycle of a pipeline, from design to construction, operation and through to abandonment. The Board's complete environmental assessment is provided in Chapter 7. The Board's complete assessment of Facilities and Emergency Response Matters is provided in Chapter 3.

The Board heard concerns from Woodland Cree about the effects of noise on animals, and concerns from McMurray Métis about the effects of air emissions. The Board is of the view that NGTL's standard mitigation measures adequately address these effects.

The Board heard requests from several Intervenors for NGTL to employ Aboriginal monitors during construction and post-construction activities. The Board notes NGTL's safety and logistical concerns regarding such a request, and NGTL's commitment to share information. Nonetheless, the Board is sufficiently convinced by the submissions of Aboriginal Participants that their participation would be worthwhile. The Board believes NGTL can accommodate active monitoring by Aboriginal groups while balancing its safety concerns, and would impose **Certificate Condition 12** (Appendix III), requiring NGTL to file a plan describing the participation of Aboriginal groups in monitoring construction activities. The Board expects this plan to cover construction activities from the commencement of construction through to final clean up and reclamation.

However, the Board is not convinced that Aboriginal monitors would be required during post-construction activities. The Board notes NGTL's commitment that any feedback provided by Aboriginal groups on the PCM reports would be considered and incorporated as appropriate into future PCM or operation plans as necessary. The Board expects the PCM reports to be prepared for each pipeline section loop of the Project and to be shared with all Aboriginal groups who have expressed to NGTL an interest in this filing (**Certificate Condition 36,** Appendix III).

The Board notes NGTL's commitment to ongoing engagement with Aboriginal groups and to incorporate any additional mitigation measures into the final EPPs and Environmental Alignment Sheets. The Board would impose **Certificate Condition 13** (Appendix III), requiring NGTL to file Aboriginal Engagement Reports before and during construction. These reports would ensure that the Board is informed about any concerns raised by Aboriginal groups during construction of the Project and how NGTL intends to address these concerns.

In conclusion, the Board is of the view that potential Project impacts on the rights and interests of Aboriginal groups would be appropriately mitigated given the nature and scope of the Project and with the implementation of NGTL's commitments, proposed mitigation measures and fulfilment of regulatory requirements, and the conditions imposed by the Board for the Project.

5.3 Potential Impacts of the Project on the K'ih tsaa?dze Tribal Park

The KTP is an area of approximately 90,000 hectares of land within DRFN's traditional territory in northeastern British Columbia and northwestern Alberta which Doig River First Nation refers to as the K'ih tsaa?dze Tribal Park. The Boundary Lake Section runs directly across the KTP for approximately 34.5 km. The Board notes that the portion of the Boundary Lake Section that crosses the KTP parallels existing RoW for approximately 96 per cent of its length and would not create any new access into the KTP.

The Board heard concerns from DRFN about the potential impacts of the Project on the KTP. The Board considered the significant submissions that both NGTL and DRFN made in relation to the KTP, including:

- DRFN indicated that the KTP is of great cultural and spiritual importance and that it is an exceptional place used for hunting, trapping, camping, traveling, gathering, and other treaty-protected practices, and
- NGTL indicated that re-routing the Project around the KTP would increase the overall RoW length by approximately 20-25 km, and would increase the Project footprint within caribou range, Key Wildlife and Biodiversity Zone and Special Access Zone.

Views of Doig River First Nation

DRFN stated that NGTL had not subjected the KTP to detailed assessment as a location of heightened importance in its ESA and that the location-specific significance of Project-specific and cumulative effects on the KTP were not separately considered from those on the Boundary Lake Section as a whole. DRFN therefore believes that additional effects characterization and significance estimations are required.

DRFN also stated that some of the key elements of value within the KTP were not part of NGTL's original assessment of effects and therefore recommends that assessment parameters be revised so the effects of the proposed Project are reconsidered in light of the KTP. DRFN requested that NGTL reassess effects on multiple valued components in the Boundary Lake Section in general, and in and around the KTP in particular, prior to the completion of the Board hearing process.

During its oral traditional evidence presentation, DRFN provided further details on the KTP, mentioning that the area contains a lot of plants which members use, is an important hunting ground, and is an area of great spiritual, historical, and cultural importance. The KTP was also described as a place of healing, not only because of the healing plants that are found there (including some medicinal plants that DRFN says are only found there), but also because members believe it provides spiritual healing as well. DRFN stated that it believed the increasing number of roads due to construction activities in the area was helping wolves more easily hunt and kill moose.

DRFN submitted to the Board a list of conditions it would like to see imposed on the Project with regard to the KTP and argued that the special status it attributes to the KTP justifies these additional conditions. Among DRFN's recommendations were three conditions modelled after conditions the Board imposed, in its GH-001-2014 Report[4], regarding another Aboriginal self-declared protected area, identified as the Peace Moberly Tract.

DRFN emphasized the exceptional value culturally and spiritually that the KTP holds to DRFN. DRFN disagreed with NGTL saying the KTP issue was raised late in the engagement process

[4] Board's Report GH-001-2014, dated April 2015 – North Montney Mainline Project [A4K5R6].

with NGTL, and criticized NGTL's lack of understanding and characterization of DRFN's values in the KTP.

DRFN expressed concern with ground disturbance/clearing involved for temporary infrastructure and workspace contributing to a loss of land in the KTP on which DRFN could make seasonal rounds without encountering industrialized areas.

DRFN stated that it would like to see a "no net loss" to forested areas in the KTP. DRFN expressed concern that non-contiguous clearing activities for "temporary" workspace and infrastructure would cause extensive ground disturbance and activity levels during construction in the KTP that would lead to an extremely long-term regrowth period of 50-80 years.

Views of NGTL

NGTL submitted that it has engaged with DRFN on a number of occasions regarding the KTP, since becoming aware of the concerns DRFN had identified in the area. NGTL indicated that prior to August 2015, DRFN had not raised specific routing issues or concerns in regard to the KTP to NGTL through the engagement activities conducted to that point in time. NGTL disagreed with DRFN's assessment that its ESA was no longer valid in light of DRFN's TLU study or that a reassessment was required in light of particular considerations regarding the KTP. NGTL stated that it stands by its findings in sections 7.0 and 8.0 of its ESA in relation to effects on TLRU in the Boundary Lake Section. NGTL argued that its approach adhered to the requirements of the Board's Filing Manual, was designed to meet CEAA 2012 requirements, followed well-established assessment methods, and considered all information at the time of writing its TLRU assessment. NGTL asserted that its ESA made conservative estimates of the amount of TLRU activities that are carried out throughout the region and that NGTL's confidence in its assessment of potential residual effects to TLRU was increased based on the results of DRFN's TLU Study.

NGTL submitted that DRFN's asserted KTP is fundamentally different than the Peace Moberly Tract and that the unique attention and conditions that the Board imposed on the North Montney Project in relation to it are not necessary or appropriate for the Project. NGTL stated that its view is based on the grounds that the KTP area that is intersected by the Project is already highly disturbed, in contrast to the relatively undisturbed and less impacted area of the Peace Moberly Tract. In addition, the Project would parallel existing RoW for approximately 96 per cent of its length within the KTP, in contrast to the entirely "new cut" RoW that was required in the Peace Moberly Tract. NGTL also highlighted the fact that DRFN's concerns regarding the KTP were identified late in the engagement process and that the KTP is not close to receiving protected status by the Government of Alberta, in contrast to the situation that existed with the Peace Moberly Tract at the time of the GH-001-2014 proceeding. Given the current circumstances of the KTP and the absence of any significant adverse effects of the Project predicted on this area, NGTL submits that there is no basis for the Board to afford special treatment to this area.

NGTL believes that routing the Project parallel to exiting disturbances and implementing the suite of well-established mitigation measures that NGTL has proposed, would effectively reduce any potential adverse effects of the Project on the environment and land users within the asserted KTP area. NGTL submitted that a re-route around the KTP would significantly add to the length

of the Project and adversely affect key wildlife, biodiversity and caribou zones. NGTL stated that it has taken account of DRFN's TLU Study and concluded that the mitigation measures proposed in the Boundary Lake Section EPP address the concerns mentioned.

NGTL argued that many of the conditions proposed by DRFN are inappropriate as they go beyond the jurisdiction of the Board and are unnecessary. These include conditions effectively requiring DRFN and the provincial government to reach an agreement (thus granting DRFN a veto on the Project), request for compensation or funding, monitoring of cumulative effects in British Columbia and Alberta, and requests for additional studies without evidence to suggest these studies are required.

NGTL responded to DRFN's concerns regarding ground disturbance/clearing involved for temporary infrastructure and workspace in the KTP by indicating that the potential temporary camp/stockpile location near KP 37 is not within the KTP. NGTL clarified that this potential camp location is east of NGTL's existing NWML RoW. NGTL notes the potential temporary camp/stockpile near KP 10 is within the KTP, would utilize an existing clearing, and would only require minor additional clearing of up to 1.7 ha (of the 23.7 total ha needed for the temporary facilities within the KTP). If NGTL is not able to use the potential camp/stockpile location near KP 10, NGTL submitted that it would likely be necessary to clear and prepare previously undisturbed parcels. In addition, these new locations would likely be located farther from the construction RoW, which would result in increased travel and traffic. NGTL maintained that the proposed locations have been carefully evaluated to minimize new disturbance, meet construction needs, and minimize overall effects relating to traffic and associated risks.

NGTL indicated that the only infrastructure within the KTP that will not be directly adjacent to the pipeline is the construction camp/stockpile site near KP 10 on the Boundary Lake Section. NGTL submitted that early-stage forest habitat will re-establish relatively quickly on disturbed areas. NGTL disagreed that additional measures are needed to ensure proper regrowth and ecological protection as Project-disturbance would be minimized by the above discussed means. NGTL argued that the Board should not impose the condition requested by DRFN for a "no net-loss" of forested area within the KTP as such a requirement should be established under provincial and federal policies and plans. NGTL indicated that such a condition would be unreasonable, inappropriate, and onerous to NGTL.

Views of the Board

The Board accepts the views of DRFN that their continued use of the lands and resources within the KTP is of great importance to their community. However, the Board finds the circumstances of the KTP differ substantially from those of the Peace Moberly Tract which were the basis for the conditions the Board included in its GH-001-2014 Report on the North Montney Project, and that similar conditions are not warranted in this instance. For example, the Project parallels existing RoW for approximately 96 per cent of its length within the KTP whereas the North Montney Project route through the Peace Moberly Tract was an entirely new RoW. The Board notes **Certificate Condition 12** (Appendix III), requiring NGTL to file a plan for the participation of Aboriginal groups in monitoring construction activities, which would provide further opportunities for DRFN to identify any specific adverse effects and mitigation measures.

The Board notes that DRFN requested that the Board impose a condition requiring enhanced reclamation of forested areas within the KTP. The Board also notes DRFN's desire to see the TWS moved out of the KTP and notes NGTL's concerns in response that a relocation of the TWS would result in more trees lost and ecological damage caused since the proposed TWS location in the KTP encompasses an existing clearing. The Board accepts that using an existing clearing for the TWS is preferable for the reasons described by NGTL. With the objective of attempting to reconcile these competing interests in a meaningful manner, the Board would impose **Certificate Condition 11** (Appendix III), requiring NGTL to file a reclamation plan for its TWS in the KTP. The reclamation plan must describe how the regeneration of vegetation would be enhanced for all or part of the total 23.7 ha TWS footprint within the KTP. The Board notes that given its location, there is no certainty that reclamation in this area would be permanent. In this instance, by enhanced, the Board means it expects NGTL to implement mitigation measures which go beyond its proposed standard reclamation measures and commensurate with the ecological and cultural value that DRFN places on the KTP.

Chapter 6

Land Matters

The Board's Filing Manual sets out the Board's expectations for lands information in support of 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, 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.

Aboriginal Participants raised some concerns with regard to land matters. These concerns primarily related to how the Project would negatively affect their Aboriginal rights and interests. These issues are discussed primarily in the preceding Chapter 5.

6.1 Route Selection

Views of NGTL

As described in NGTL's Application, the proposed Project requires a total of approximately 230 km of RoW in five pipeline section loops: the Boundary Lake Section (91 km), the Bear Canyon Section (27 km), McLeod River Section (37 km), Pelican Lake Section (55 km) and the Christina River Section (20 km) (collectively, the Pipeline).

Several landowners and Crown disposition holders provided NGTL feedback regarding the Pipeline routing. NGTL submitted that this feedback has been, and would continue to be, incorporated in NGTL's routing assessment, to the extent possible and practicable. NGTL also indicated that multiple routing options were explored that balanced landowner concerns with NGTL's other routing criteria. Several route refinements were also made to enable the Pipeline route to parallel other linear facilities to the greatest extent possible.

Since filing its Application, NGTL implemented some minor route refinements on the Boundary Lake, Bear Canyon, McLeod River, Pelican Lake, and Christina River Sections in order to reduce the footprint of the Pipeline and maximize construction efficiencies. The RoW requirements provided by NGTL are listed below in Table 6-1.

Table 6-1: Parallel and New Right-of-Way for the Pipeline Sections

Pipeline Section	Approximate Parallel RoW [1, 2] (km)	Approximate New RoW [2] (km)
Boundary Lake Section	85	6
Bear Canyon Section	21	6
McLeod River Section	34	3
Pelican Lake Section	51	4
Christina River Section	18	2
Total	209	21

[1] Parallel to or contiguous with existing RoW or other linear disturbances; including pipelines and access roads.

[2] Numbers have been rounded up.

Source: NGTL's Additional Written Evidence and Errata, Section 3, Pipeline [A4T8Q5].

6.2 Land Requirements

Views of NGTL

NGTL stated that the Project is located on private and Crown land. Land ownership for the Project is 7 per cent (16.5 km) freehold land and 93 per cent (213.5 km) provincial Crown land.

NGTL stated 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.

NGTL also stated that it would retain a minimum 18 m of permanent easement for operations and maintenance purposes.

NGTL stated that access for the Project would primarily use existing roads where feasible. No new permanent access roads are anticipated for the Project, though additional and temporary access roads may be required for the Christina River Section.

The total land required for the Alces River Unit Addition is approximately 2.3 ha. No additional land is required for the Otter Lake Unit Addition.

6.3 Land Rights and Land Acquisition

Views of NGTL

NGTL determined that the proposed route of the permanent RoW crosses 24 tracts of land owned in fee simple by individuals and five tracts of land owned in fee simple by corporate landowners (Bear Canyon and McLeod River Sections). The remainder of the land is provincial Crown land (Boundary Lake, Pelican Lake and Christina River Sections). NGTL stated that it

began its freehold land acquisition process in the fourth quarter 2014 for the McLeod River Section, and for the Bear Canyon Section in the first quarter of 2015.

In its Application, NGTL provided sample notices of proposed acquisition of lands (drafted pursuant to section 87 of the NEB Act), which include a description of what land is required, and a statement of the value of that land. NGTL also submitted sample land acquisition agreements (drafted pursuant to section 86 of the NEB Act), which contained the terms under which required land would be acquired.

NGTL confirmed that all land rights agreements have been obtained for the Pipeline RoW and TWS. NGTL stated that it anticipates that all remaining land rights required for valve sites, camp sites, and stockpile sites would be acquired and crossing agreements obtained in advance of construction.

Views of Participants

No Participants expressed any concerns with NGTL's land acquisition process for the Project.

Views of the Board

The Board is of the view that NGTL's anticipated requirements for permanent and temporary land rights and NGTL's process for the acquisition of these land rights is satisfactory. The Board is also of the view that NGTL's proposed Pipeline route is acceptable. The Board notes that NGTL has endeavored to reduce adverse Project impacts by paralleling existing RoW to a significant degree.

Chapter 7

Environment and Socio-Economic Matters

As the Project is over 40 km in length, it is a designated project under section 2 of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and therefore requires the Board, as the Responsible Authority, to conduct an environmental assessment (EA) and prepare an EA report. 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 a Project. This chapter represents the Board's EA for the Project.

7.1 The CEAA 2012 Context

The Board posted a Notice of Commencement on the Canadian Environmental Assessment Registry Internet Site on 1 June 2015 and its reference number is 80099. On 10 August 2015, the Board also posted a description of the factors to be taken into account in its EA and the scope of those factors as required by subsections 19(1) and 19(2) of the CEAA 2012. The environmental effects considered include those listed in subsection 5(1) of the CEAA 2012 as well as other effects pursuant to subsection 5(2) and as set out in the Board's Filing Manual.

The CEAA 2012 requires the Board to provide opportunities for public participation and provide participant funding, both of which have been previously described in Chapter 1.

7.2 The Board's Environmental Assessment Methodology

In assessing the environmental and socio-economic effects of the Project, the Board used an issue-based approach as set out in its Filing Manual.

This assessment begins with: (a) a description of the Project (section 7.3), (b) a description of the setting and the environmental and socio-economic elements within that setting (section 7.4), and (c) a summary of those environmental and socio-economic concerns raised by Participants (section 7.5). Based on these, the Board identified Project-environment interactions expected to occur and any resulting potential adverse environmental effects (section 7.6; Table 7-8). Where there were no expected Project-environment interactions, or where interactions resulted in positive or neutral effects, the Board does not consider further examination to be necessary.

The Board then assessed the potential adverse environmental and socio-economic effects, as well as the adequacy of NGTL's proposed environmental protection strategies and mitigation measures (section 7.6). In subsection 7.6.3, the Board discusses the extent to which NGTL relies on standard mitigation to mitigate potential adverse effects. In subsection 7.6.4, the Board provides detailed analysis of 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 any residual effects remain after proposed mitigation, the Board considered cumulative effects, which are discussed in section 7.7. The Board then discusses follow-up under the CEAA 2012 in section 7.8. The Board's determination of significance is given in section 7.9.

7.3 Project Details

A general description of the Project appears in Chapter 1. Table 7-1 provides further details on Project components and activities relevant to the EA.

Table 7-1: Project Components and/or Activities

Project Components and/or Activities

Pipeline construction phase – timeframes:
• Temporary components: fourth quarter 2016
• Compressor station unit additions: fourth quarter 2016 to second quarter 2017
• Pipeline construction: fourth quarter 2016 to second quarter 2017
 	
Principal physical work and/or activities:
• Pipeline route
  o Boundary Lake Section
  ▪ Approximate total length – 91 km; contiguous with existing disturbances – 85 km (93%)
  o Bear Canyon Section
  ▪ Approximate total length – 27 km; contiguous with existing disturbances – 21 km (77%)
  o McLeod River Section
  ▪ Approximate total length – 37 km; contiguous with existing disturbances – 34 km (92%)
  o Pelican Lake Section
  ▪ Approximate total length – 55 km; contiguous with existing disturbances – 51 km (93%)
  o Christina River Section
  ▪ Approximate total length – 20 km; contiguous with existing disturbances – 18 km (90%)
• Compressor station unit additions
  o Alces River Unit Addition
  ▪ Total footprint – 160 m x 190 m; existing footprint – 160 m x 150 m
  o Otter Lake Unit Addition
  ▪ Total footprint – 300 m x 300 m; existing footprint – 300 m x 300 m
• Additions and related components, including valve sites, auxiliary buildings and yard piping

Project Components and/or Activities

RoW preparation and related infrastructure installation:
 	
• Clearing, grubbing and grading for the RoW and all temporary and permanent infrastructure. Minimum construction RoW width of 32 m plus temporary workspace for the Boundary Lake, Bear Canyon, McLeod River and Pelican Lake Sections. Minimum construction RoW width of 27 m plus temporary workspace for the Christina River Section.
• Pipeline stringing, welding, coating, trenching and backfill.
• Construction of compressor stations and other permanent above-ground infrastructure.
• Construction and operation of work camps.
• Temporary access roads (no new permanent access roads anticipated).
• Watercourse Crossings:
  o Trenchless (HDD crossings) at the Doig River, Boivin Creek, the Athabasca River, the unnamed tributary to Loon Creek, and the Christina River (with a trenched open cut as a contingency if needed on the Athabasca and Christina Rivers); and
  o Trenched isolated if water present or open cut if dry or frozen to the bottom for the remaining proposed crossings.
• Highway 16 crossing via DPI (McLeod River Section). The drilling phase of the DPI is only expected to last approximately 4 days.
• Hydrostatic test water to be withdrawn in accordance with the OPR, provincial regulations, and the latest version of CSA Z662.
• RoW clean-up and reclamation.

Operation phase – timeframe: Service life of the Project (approximately 25 years for the compressor station unit additions and 50 years for the Pipeline (estimated in-service date: 1 April 2017). • RoW maintenance including vegetation control, erosion control, line integrity flyovers and third-party activity near lines • Facility maintenance
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 Board.

7.4 Environmental and Socio-Economic Setting

7.4.1 Location

- The Project facilities and components are all located in northern Alberta. See Figure 1-1 in Chapter 1 for a map showing their locations.
- The locations of the Project facilities and components and information on the Natural Subregions are described in Table 7-2.

Table 7-2: Location and Natural Subregions

Project Component	Location	Natural Subregions
Boundary Lake Section	Clear Hills County, 6 km east of the Alberta (AB) / British Columbia (BC) boundary, 135 km west of Manning, AB	Lower Boreal Highlands, Upper Boreal Highlands
Bear Canyon Section	Saddle Hills County, 32 km northwest of Spirit River, AB, and 75 km northwest of Grand Prairie, AB	Dry Mixedwoods, Lower Foothills
McLeod River Section	Yellowhead County, 5 km west of Edson, AB	Lower Foothills, Upper foothills
Pelican Lake Section	Municipal District of Opportunity No. 17 and Regional Municipality of Wood Buffalo, Lower Athabasca Region, 100 km southwest of Fort McMurray, AB, 75 km northeast of Wabasca, AB	Central Mixedwood
Christina River Section	Regional Municipality of Wood Buffalo, Lower Athabasca Region, 107 km southeast of Fort McMurray, AB, and 32 km northeast of the Hamlet of Conklin in northeastern AB	Central Mixedwood
Alces River Unit Addition	Clear Hills County, 156 km northwest of the City of Grande Prairie, AB	Lower Boreal Highlands
Otter Lake Unit Addition and construction camp	Northern Sunrise County, 60 km east of Manning, AB	Lower Boreal Highlands

7.4.2 Land and Human Occupancy and Resource Use

- No permanent or seasonal residences were identified within 1.5 km of the proposed compressor station unit additions.
- No permanent residences were identified within 1 km of the Boundary Lake, Christina River or Pelican Lake Sections.

- A total of 15 residences were identified within 1 km of the Bear Canyon Section and approximately 50 residences were identified within 1 km of the McLeod River Section. Two trapper's cabins were identified near the Pelican Lake Section.
- The Project parallels existing disturbances for 209 km (of 230 km) or approximately 91 per cent of the proposed Pipeline length.
- Approximately 835 ha would be required for permanent RoW and 521 ha for TWS for a total of 1,355 ha. The two new compressor station unit additions would be installed on existing NGTL compressor station sites. The Alces River Unit Addition would require 2.3 ha of Crown land while the Otter Lake Unit Addition would require 2 ha for temporary work space only.
- The Project route crosses 213.1 km of provincial Crown land and 16.6 km of privately-owned land. The predominant land use activity along the entire Project route is forestry and the secondary land use is agriculture. Most of the Project is located in the Green Area of Alberta with only 11.3 km of the McLeod River Section and 13.5 km of the Bear Canyon Section located in the White Area of Alberta. Further details are provided in Table 7-3.

Table 7-3: Land Use

Project Component	Area of Alberta	Additional information
Boundary Lake Section	Green	Forested
Bear Canyon Section	Green (49%) White (51%)	Forested; White Area - cultivated (28%), wooded (21%), hay (19%), pasture (19%), and bush (13%)
McLeod River Section	Green (69%) White (31%)	Forested; White Area - wooded (90%), pasture (10%), and disturbed (< 1%)
Pelican Lake Section	Green	Forested
Christina River Section	Green	Forested
Alces River Unit Addition	Green	Forested
Otter Lake Unit Addition and construction camp	Green	Clearing at the Otter Lake Unit Addition site has already occurred as part of the construction of the camp for the previously approved Otter Lake Compressor Station.

- The Pipeline and compressor station unit additions do not cross the boundaries of any municipal, provincial or federal parks or protected areas. However, the Little Sundance Creek Provincial Recreation Area is located in the Human Occupancy and Resource Use LSA near the McLeod River Section. The Sundance Provincial Park is located in the Human Occupancy and Resource Use RSA near the McLeod River Section 3.4 km southwest of KP 33. The Hornbeck Creek Provincial Recreation Area is located in the Human Occupancy and Resource Use RSA near the McLeod River Section 5.1 km southwest of KP 9.3. The compressor stations unit additions are not located within parks or protected areas.

- No new permanent access roads would be developed.
- The Project does not traverse any federally-owned or administered land including Indian Reserves as defined under the *Indian Act*. However, the Chipewyan Prairie Dene First Nation Indian Reserve Janvier 194 is located 3 km from the Christina River Section and the Woodland Cree Indian Reserve 228 is located 19 km from the Otter Lake Unit Addition.

7.4.3 Physical Environment and Soils

- Soils along the Project footprint and the physiographic regions are described in Table 7-4.

Table 7-4: Soils and Physiographic Regions

Project Component	Surficial Geology	Physiographic regions
Boundary Lake Section	Organic deposits, glaciolacustrine deposits, moraine, fluted moraine, stagnant ice moraine and bedrock	Northern Alberta Lowlands, Northern Alberta Uplands
Bear Canyon Section	Stagnant ice moraine, glaciolacustrine deposits, fluted moraine and moraine	Northern Alberta Lowlands, Northern Alberta Uplands
McLeod River Section	Moraine, glaciolacustrine deposits, glaciofluvial deposits	Western Alberta Plains, Southern Alberta Uplands
Pelican Lake Section	Organic deposits, moraine, colluvial deposits, fluvial deposits, glaciolacustrine deposits, eolian deposits	Northern Alberta Lowlands
Christina River Section	Moraine, fluvial deposits, glaciofluvial deposits, organic deposits	Eastern Alberta Plains, Saskatchewan Plains
Alces River Unit Addition	Glaciolacustrine deposits, organic deposits	Northern Alberta Lowlands
Otter Lake Unit Addition and construction camp	Glaciofluvial deposits, stagnant ice moraine	Northern Alberta Uplands

- The Project route is primarily flat with some steeper slopes encountered. These are isolated and correspond to watercourse crossings and approach slopes.
- The Project does not encounter any areas of permafrost except in the Pelican Lake Section where sporadic permafrost has been identified within some of the organic terrain landforms traversed by the Pipeline route.

7.4.4 Vegetation

- No plant species with special conservation status listed under the *Species at Risk Act* (SARA) or by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) were found during field surveys conducted for the Project.

- Vegetation surveys identified provincially ranked rare plant species (pinesap, cat-tongue liverwort, golden saxifrage, slender-leaved sundew) and one unique ecological community. Thirty-five Alberta Conservation Information Management System -listed vegetation species were observed during vegetation surveys along the Project route in 2014 and 2015.
- Three noxious weed species (Canada thistle, perennial sow-thistle and scentless chamomile) were recorded during the 2014 and 2015 surveys for the Otter Lake Unit Addition and the Boundary Lake, Bear Canyon, Pelican Lake and Christina River Sections. Five noxious weed species were observed during the 2011, 2014 and 2015 surveys along the McLeod River Section: Canada thistle, ox-eye daisy, perennial sow-thistle, scentless chamomile and tall buttercup. No prohibited noxious weed species were observed along the Pipeline or compressor station unit additions.
- Mountain pine beetle damage was observed on the Project footprint on the western side of the province, including along the Boundary Lake, Bear Canyon and McLeod River Sections. The Boundary Lake and Bear Canyon Sections are located within the Inactive Holding Zone where a large number of mountain pine beetle-infested trees have been identified, and where risk of spread outside of these zones is unlikely.

7.4.5 Water Quality and Quantity

- The Boundary Lake and Bear Canyon Sections are both in the Peace River Basin of Alberta (Northern Boreal Watershed Unit NB3). The Pelican Lake and Christina River Sections are both in the Peace River Basin of Alberta (Northern Boreal Watershed Unit NB4). The McLeod River Section is in Northern Boreal Watershed Unit ES3 of the Fish Management Zone 1, which includes the Athabasca and Pembina River watersheds.
- The Project crosses several watercourses as described in Table 7-5.

Table 7-5: Watercourses to be Crossed by the Project

Project Component (Pipeline Route)	# of Watercourse Crossings (Watercourses/ Fish-Bearing Drainages)
Boundary Lake Section	33 (31/2)
Bear Canyon Section	4 (4/0)
McLeod River Section	18 (15/3)
Pelican Lake Section	9 (8/1)
Christina River Section	7 (7/0)

- No watercourses are within the LSA of either compressor station.

- There are 85 registered groundwater wells within 500 m of the Project, of which 38 are for industrial use, 24 for domestic use, eight for investigation, two for observation, three for monitoring, three for stock and seven for other purposes.
- Beaver activity was observed at watercourses in most pipeline sections of the Project.

7.4.6 Fish and Fish Habitat

- A total of 34 fish species, including 13 sport fish species, have the potential to inhabit watercourses crossed by the Pipeline.
- None of the fish species documented in the Project area are designated under the federal SARA. Two COSEWIC fish species listed have the potential to be found in the McLeod River Section RSA: Athabasca rainbow trout (endangered) and bull trout (special concern).
- Provincially, Arctic grayling (sensitive), northern redbelly dace (sensitive), northern pikeminnow (sensitive), spoonhead sculpin (may be at risk), occur within the vicinity of the Project (listed by AEP as Sensitive).
- Of the potential provincially or federally listed species, only rainbow trout was identified during field surveys.
- The results of winter fish surveys suggest that winter construction of watercourse crossings would not adversely affect overwintering fish at the locations investigated.

7.4.7 Wetlands

- The Project traverses 155 wetlands as described in Table 7-6. The most common wetland types are treed fens, treed bogs and shrubby fens.

Table 7–6: Proposed Facilities in Identified Wetlands

Project Component	Abundance of Wetlands (Approximate Length)	Percentage of Length Crossing Wetlands
Boundary Lake Section	70 wetlands (37.8 km)	41.6
Bear Canyon Section	10 wetlands (2.4 km)	8.8
McLeod River Section	22 wetlands (5.7 km)	15.6
Pelican Lake Section	37 wetlands (42.7 km)	77
Christina River Section	14 wetlands (7.5 km)	37.4
Alces River Unit Addition	1 wetland (treed fen) (0.88 ha)	n/a
Otter Lake Unit Addition construction camp	1 wetland (treed fen) (0.7 ha)	n/a

7.4.8 Wildlife and Wildlife Habitat

- The Project crosses or is located in 10 wildlife management units that support a variety of ungulates, carnivores, rodents and birds (mostly migratory), and aquatic and wetland habitats that provide habitat for bird and amphibian species. Some species that have the potential to occur within the Wildlife LSA are deer, moose, caribou, wood bison, black bear, lynx, wolf, mule deer, white-tailed deer, elk, cougar, coyote, wolverine, Columbian ground squirrel, snowshoe hare, grouse, raven, ptarmigan, coots, common snipe, ducks and geese.
- Several Project components cross sensitive wildlife areas as shown in Table 7-7, including some which have timing restrictions on construction activities.

Table 7-7: Proposed Facilities in Sensitive Wildlife Zones

Project Component	Wildlife Feature Zones	Construction Timing Restriction
Boundary Lake Section	Chinchaga caribou range	February 15 to July 15
	Key Wildlife and Biodiversity Zone (KWBZ)	January 15 to April 30
	Grizzly Bear Secondary Zone	n/a
	Special Access Zone	n/a
	Within 800 m buffer of trumpeter swan waterbody	April 1 to September 30
Bear Canyon Section	Within 800 m buffer of trumpeter swan waterbody	April 1 to September 30
McLeod River Section	Within 800 m buffer of trumpeter swan waterbody	April 1 to September 30
	Special Access Zone	n/a
Pelican Lake Section	Two caribou ranges (WSAR & ESAR)	February 15 to July 15
	KWBZ Athabasca River	January 15 to April 30
Christina River Section	KWBZ Christina River	January 15 to April 30
Alces River Unit Addition	N/A	N/A
Otter Lake Unit Addition and Construction Camp	KWBZ (Little Cadotte River)	January 15 to April 30

7.4.9 Species at Risk

- Vegetation - No federal vegetation species at risk were identified in the Project LSA.
- Aquatic species - No COSEWIC or SARA Schedule 1 listed aquatic species are present in the Project LSA. There is potential for bull trout and rainbow trout (COSEWIC) in the RSA.
- Bird and bat species - There are ten SARA Schedule 1 listed bird and bat species at risk with the potential to occur along the Project route. Three threatened: Canada warbler, common nighthawk, and olive-sided flycatcher; three endangered: little brown myotis, loggerhead shrike, and northern myotis; four special concern: peregrine falcon, rusty blackbird, short-eared owl, and yellow rail.
- Terrestrial species – Three SARA Schedule 1 listed species have the potential to occur along the Project route: boreal woodland caribou (threatened), wood bison (threatened) and western toad (special concern).
- Currently, critical habitat is only defined for the boreal woodland caribou. The Project traverses approximately 78 km of identified boreal woodland caribou herd range. Of this, 38.4 km of the Boundary Lake Section traverses the Chinchaga herd range, 31 km of the Pelican Lake Section traverses the East Side Athabasca River (ESAR) Range and 8.9 km of the Pelican Lake Section traverses the West Side Athabasca River (WSAR) Range.
- Alberta provincial guidance states that activities in caribou range are to be initiated as early as possible in the winter to limit late winter activities and that new site preparation or construction must not be initiated between February 15th and July 15th, therefore expecting project proponents to use an "early in/early out" approach. These restrictions are to reduce effects to pregnant cows and their calves. Certain exceptions are identified

7.4.10 Atmospheric and Acoustic Environment

- Baseline air quality in the region is good as all monitored ambient concentrations of nitrogen dioxide (NO_2), fine particulate matter ($PM_{2.5}$) and carbon monoxide (CO) are below the applicable regulatory objectives and standards for ambient air quality. Baseline air quality is primarily influenced by upstream oil and gas producing sites or utilities as well as traffic, agricultural activities (Bear Canyon Section) and residential activities (McLeod River Section).
- Ambient sound levels in the vicinity of the Project have been identified as having a combination of both natural and man-made sources.

7.4.11 Heritage Resources

- The Project does not cross any lands in the Boundary Lake, Bear Canyon, McLeod River, and Christina River Sections that have been given, by the province, a Historical Resource Value for archaeological resources. NGTL indicated that it has obtained HRA clearance documents for the Bear Canyon Section, McLeod River Section, Alces River Unit Addition, Otter Lake Unit Addition, and Otter Lake construction camp.

- Similarly, most lands crossed by the Pelican Lake Section have no Historical Resource Value for archaeological resources. The Pelican Lake Section has one area designated as Historical Resource Value 4a (prior known archaeological resources) at the Livock River crossing and 13 previously recorded archaeological sites in the Heritage Resources RSA. Two of the 13 sites are located within 2 km of the known Project footprint and there are no previously recorded sites within the area. NGTL conducted multiple site visits and identified six areas as having archaeological potential. Historical Resources Impact Assessment field work was conducted in 2015.
- NGTL made a commitment to provide copies of HRA clearance documentation to the Board for the Boundary Lake, Pelican Lake, and Christina River Sections once received from Alberta Culture and Tourism. NGTL also committed to providing any updated HRA clearance documents to the Board.

7.4.12 Traditional Land and Resource Use

- The Project traverses privately-held and Crown lands within Treaty 6 and Treaty 8 areas.
- A total of 64 Aboriginal groups were identified by NGTL, the Board and the MPMO as being potentially affected or having an interest in the Project. The geographic relationship of potentially affected Aboriginal groups with the Project is described in Chapter 5.
- Aboriginal groups indicated that they continue to make use of the land and resources for traditional purposes throughout the region including for fishing, hunting, trapping, navigation, habitation, gathering, and to conduct spiritual and cultural practices.
- Aboriginal groups listed a number of specific sites and areas located along the Project RoW in which they continue to practice their Aboriginal and treaty rights. Aboriginal groups also provided details on those sites and areas, such as the type of wildlife and plants that can be found, a description of the natural habitat, and specific traditional uses of those places.

7.4.13 Navigation and Navigation Safety

- The Project crosses 10 named watercourses which are navigable. The Pipeline route also cross various creeks and tributaries, many unnamed, which may be considered navigable. Uses on such watercourses are unknown, however, could include both commercial and non-commercial activities (*e.g.*, fishing, kayaking, boating, rafting, etc.). Many of the smaller watercourses have navigation obstructions present and are likely to only have sufficient water for navigation in the spring and early summer.
- Aboriginal groups identified 11 watercourses as being used as travelways within the Project area. However, of these watercourses, only the Athabasca River is crossed by the Project (Pelican Lake Section).
- Within the Human Occupancy and Resource Use LSA of the compressor station unit additions, no watercourses that are considered navigable were identified.

7.5 Environmental and Socio-Economic Issues Raised by Participants

Participants in the proceeding expressed a variety of concerns relating to a range of environmental and socio-economic elements, including air emissions, cumulative effects, employment and economy, fish and fish habitat, heritage resources, noise, soils and soil productivity, species at risk, traditional land and resource use, vegetation, water quality and quantity, wildlife and wildlife habitat and wetlands. Sections 7.6 and 7.7 of this chapter, and Chapter 5 provide details.

7.6 Environmental Effects Analysis

7.6.1 Interactions and Potential Adverse Environmental Effects

Table 7-8 on the next page identifies the expected interactions between the Project and the environment, and the potential adverse environmental effects resulting from those interactions.

Table 7-8: Project Environment Interactions

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation (Report Reference)
Bio-Physical	Physical Environment	• Clearing, grading, trenching and backfilling during construction of pipeline and permanent facilities	• Areas of terrain instability may occur as a result of construction activities • Altered landscape contours and drainage patterns	Section 3.2 and subsection 7.6.3
	Soil and Soil Productivity	• Clearing, grading, trenching and backfilling during construction of pipeline and permanent facilities	• Topsoil loss due to wind and water erosion • Topsoil or subsoil degradation during soil handling • Soil compaction and rutting • Altered landscape contours and drainage patterns • Soil contamination from equipment leaks and spills • Decreased soil productivity	Subsection 7.6.3
	Vegetation	• Clearing of vegetation, grading, trenching and backfilling during construction of pipeline and permanent facilities • Potential introduction of weeds from the transfer of heavy machinery from other work sites • Human and equipment traffic during construction and operations maintenance activities	• Reduction in plant species diversity • Reduction in vegetation community diversity	Subsection 7.6.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation (Report Reference)
	Water Quality and Quantity	• Pipeline construction and operation. Clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation may disrupt surface and groundwater flows and quality	• Reduction in surface water quality • Alteration of surface water flow patterns • Changes in groundwater quantity or flow	Subsections 7.6.3 and 7.6.4.1
	Aquatic Species and Habitat	• Trenched isolated crossing method at those watercourses with water present and which are not being crossed by HDD • Hydrostatic testing	• Alteration or reduction of fish habitat • Increase in fish mortality risk or injury • Reduction in water quality • Interbasin transfer of aquatic organisms	Subsections 7.6.3. and 7.6.4.1
	Wetlands	• Pipeline construction (clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation)	• Changes in wetland function (habitat, biogeochemical and hydrological)	Subsections 7.6.3 and 7.6.4.2
	Wildlife and Wildlife Habitat	• Pipeline construction (clearing, grading, trenching, drilling, backfilling, hydrostatic testing, and final reclamation) • Wildlife attraction to wastes from construction and construction camps • Vegetation control for operations and maintenance purposes	• Change in wildlife habitat, including loss of caribou critical habitat • Increased wildlife mortality risk • Changes in and increased wildlife movement with resulting increased energetic costs	Subsections 7.6.3 and 7.7.2

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation (Report Reference)
		• Noise and sensory disturbance from construction vehicles and equipment during construction and operation of the pipeline • Increase in public access as a result of construction activities		
	Species at Risk or Species of Special Status and Related Habitat	• Refer to interactions provided for Vegetation, Aquatic Species and Habitat and Wildlife and Wildlife Habitat	• Stress, injury, reduced reproductive success and mortality of wildlife species at risk, leading to population declines • Change in wildlife habitat • Change in wildlife movement	Subsections 7.6.3 and 7.7.2
	Atmospheric Environment	• Operation of construction equipment • Operation of proposed compressor station unit additions • Emissions from monitoring and surveillance traffic during operations	• Increase in airborne pollutants • Increase in greenhouse gases (GHGs)	Subsection 7.6.3
	Acoustic Environment	• Increases in noise levels from operation of construction equipment • Operation of proposed compressor station unit additions • Sound emissions from monitoring and surveillance traffic during operations	• Sensory disturbance to wildlife	Subsection 7.6.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation (Report Reference)
Socio-Economic	Human Occupancy/Resource Use (including Fisheries)	• Pipeline construction (clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation) • Equipment traffic during operations and maintenance • Operations and maintenance activities • Installation of temporary crossings	• Sensory disturbances of nearby residents • Loss of forestry resources and reduction of land base for timber harvest • Disruption of forestry operations • Disruption of agricultural activities • Disruption of hunting, fishing, guide outfitting and trapping activities • Change in access for land and resource users • Alteration of viewsheds	Subsection 7.6.3
	Heritage Resources	• Pipeline construction on the Pelican Lake Section (clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation) • All other sections are located in areas of low archeological potential	• Disturbance to, or loss of, previously recorded or undiscovered heritage sites.	Subsection 7.6.3
	Current Traditional Land and Resource Use	• Pipeline construction (clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation) • Equipment traffic during operations and maintenance • Operations and maintenance activities	• Disturbance of use of trails and travelways during construction and operations • Loss of habitation sites or reduced use of habitation sites during construction and operations • Alteration of plant gathering sites during construction and operations	Subsection 7.6.3 and 7.7.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation (Report Reference)
			• Disturbance of hunting, fishing, and trapping activities, and of gathering places and sacred sites during construction and operations	
	Navigation and Navigation Safety	• Pipeline construction (clearing, grading, trenching, drilling, backfilling, hydrostatic testing, and final reclamation) at watercourse crossings • Installation of temporary crossings	• Disruption of watercourse users on navigable watercourses during construction • Decrease in access to navigable waters for waterway users including Aboriginal communities	Subsection 7.6.3
	Social and Cultural Well-being	• Construction – influx of temporary workforce	• Disruption of community life by temporary workers	Subsection 7.6.3
	Human Health/Aesthetics	• No permanent receptors or seasonal residences identified within the Acoustic Environment LSAs for the compressor station unit additions, therefore, no interactions with air or noise emissions • Increases in noise levels from the operation of construction equipment (15 residences were identified within 1 km of the Bear Canyon Section, approximately 50 residences were identified within 1 km of the McLeod River Section)	• Potential health effects from changes to the acoustic environment for residents nearest to pipeline construction	Subsections 7.6.3 and 7.6.4.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation (Report Reference)
Other	Accidents/Malfunctions	• Pipeline break or leak • Pipeline repair or replacement • Equipment traffic • Spills of hazardous material (e.g., hydraulic fluid, motor oil, gasoline, antifreeze) • Fire • Release of drilling mud during HDD	• Spill or accidental release of hazardous materials during construction and operation • Release of natural gas as a result of pipeline rupture • Damage to other facilities during pipeline construction	Sections 3.3 and 3.4, subsection 7.6.3
	Effects of the Environment on the Project	• Geohazards (e.g., erosion) and hydrologic hazards • Flooding • Wildfire • Extreme weather	• Exposure of pipeline or loss of depth of cover due to slope instabilities, or flooding and erosion at watercourses • Damage from wildfire • Delay to scheduled construction and operation schedules, with potential for further environmental effects • Worker injury	Section 3.2 and subsection 7.6.3

7.6.2 Mitigation of Potential Adverse Environmental Effects

In its Application, NGTL identified routine design and standard mitigation for most of the potential adverse environmental effects listed in Table 7-8.

In its Application and supporting submissions, including its draft EPPs and preliminary Caribou Habitat Restoration and Offset Measures Plan (CHR&OMP), NGTL provided details on its proposed mitigation.

Where there are outstanding issues regarding key environmental elements or where NGTL's proposed mitigation may not be sufficient and additional mitigation may be necessary, the Board's detailed analysis is presented in subsection 7.6.5.

7.6.3 Standard Mitigation

The Board 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 Board.

Views of NGTL

NGTL's mitigation measures are included in its Application, EPPs, Environmental Alignment Sheets and associated filings. Standard mitigation is proposed by NGTL to avoid or minimize potential adverse environmental effects on the terrain and topography of the area, soil and soil quality, water quantity and quality, native vegetation including rare plant populations and ecological communities, wetlands, wildlife, KWBZs, species of special concern, species at risk, atmospheric and acoustic environments, navigation and navigation safety, and human receptors. Project-specific mitigation is proposed in EPPs for each pipeline section loop and compressor station unit addition of the Project for impacts to valued components such as wildlife, rare plants and wetlands.

Among the mitigation strategies to avoid or minimize the effects of the Project, NGTL is relying in part on avoidance through route and site selection; scheduling activities to avoid sensitive periods (e.g., see Table 7-7); development of detailed, practical, effective mitigation and contingency measures to address site-specific and general issues; inspection during construction to ensure that planned mitigation is implemented and effective; and conducting the maintenance and operation of the pipeline system implementing NGTL's existing programs and procedures to ensure pipeline integrity, public safety and environmental protection.

NGTL would implement the management and contingency plans included in each EPP. The EPPs would include mitigation for managing elements such as chemicals and waste, traffic, bear-human conflict, breeding birds and nests, and access control/management. Contingency plans would be included for spills, adverse weather, floods and excessive flow, wet soils, fire, soil handling, soil erosion, directional and instream drilling mud release, plant species and ecological

communities of concern, wildlife, heritage resource discovery and traditional land use sites discovery.

NGTL evaluated alternative means including alternate routing options and ultimately selected the proposed route. NGTL stated that the route for the Project would parallel existing disturbances for approximately 209 km (91 per cent of its length).

NGTL stated that the proposed schedule would enable construction activities to occur primarily during the winter season to take advantage of frozen ground conditions for access to and along the Pipeline RoW. It stated that the proposed schedule would help reduce overall environmental impact by avoiding caribou and migratory bird restricted activity periods (RAPs), as well as meeting timing restrictions associated with watercourse crossings.

Views of Participants

Aboriginal Participants expressed concern as to whether the proposed standard mitigation measures would adequately address the adverse impacts of the Project, including cumulative effects. Standard mitigation may be adequate to protect values in locations that are not of the highest ecological and cultural value, but Aboriginal Participants argued that standard mitigation is inadequate for locations of high value and importance. Aboriginal Participants also provided comments on the some of the possible conditions the Board issued for comments and suggested their own conditions in order to address outstanding concerns. For example, several Aboriginal Participants sought greater and more direct Aboriginal involvement in monitoring and access management plans, and in reducing or eliminating the use of pesticides and herbicides.

Environment and Climate Change Canada

ECCC submitted a Letter of Comment on the Project, providing advice and recommendations related to its mandated responsibilities. ECCC's comments in its letter to the Board regarding caribou are addressed in subsection 7.7.2. ECCC also recommended that NGTL follow ECCC's guidance related to migratory birds and reiterated that NGTL's commitments to mitigate potential impacts on western toad should be implemented.

Health Canada

Health Canada also submitted a Letter of Comment on the Project providing advice and recommendations related to its mandated responsibilities. In its Letter of Comment to the Board, Health Canada expressed concerns related to mitigation for air quality and noise impacts on human health. Mitigation for noise impacts are further discussed in subsection 7.6.4.3.

Views of the Board

The Board is of the view that sufficient routine design and standard mitigation measures have been identified to mitigate most of the potential adverse environmental effects identified. The Board notes NGTL's consideration of alternative means and accepts the routing as proposed. The Board also notes that many aspects of NGTL's engineering design for the Project address environmental risks, in particular with respect to accidents and

malfunctions, and the effects of the environment on the Project. These are described in Chapter 3, as are the related engineering conditions which the Board would impose.

NGTL is also implementing a number of known best practices to mitigate potential adverse environmental effects associated with the presence of species at risk, rare plants and ecological communities, weeds and wetlands. Of particular note, the Board expects NGTL to follow best practices applicable as identified in relevant SARA recovery strategies and management plans throughout the lifecycle of the Project to ensure that management, conservation and recovery objectives are followed.

To be satisfied that all site-specific mitigation measures are appropriate and would be implemented according to their intent, the Board would impose the conditions below. The Board notes that NGTL and some of the Participants commented on the Board's Possible Conditions for the Project that were made available for review, and in some instances proposed additional conditions. The Board considered all comments received before finalizing and setting out the terms and conditions to be imposed if the Project is approved.

Environmental Protection Plan

The Board would impose **Certificate Condition 6** (Appendix III) and **Order Condition 7** (Appendix IV), requiring NGTL to file an updated Project-specific EPP to communicate all environmental protection procedures and mitigation measures to employees, contractors and regulators. These procedures and mitigation measures must 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, the EPP must 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 must be clearly stated as such. Updated Environmental Alignment Sheets are also to be included with the EPP. The EPP must be comprehensive and cover general and site-specific mitigation related to all environmental elements.

The Board notes that NGTL submitted draft versions of the EPPs on the record during the hearing and that Aboriginal Participants had an opportunity to provide comments on these draft versions. The Board further notes NGTL's ongoing engagement with Aboriginal groups and NGTL's commitment to incorporate any additional mitigation into the final EPPs and Environmental Alignment Sheets prior to construction.

Heritage Resources

The Board would impose **Certificate Condition 10** (Appendix III) and **Order Condition 8** (Appendix IV), requiring NGTL to file information related to heritage resource clearances; including any additional mitigation measures associated with the relevant provincial approval, at least 30 days prior to commencing construction.

Hydrostatic Testing Plan

To verify that withdrawal rates and locations are appropriate and that proper procedures for the protection of the environment would be used for withdrawal and discharge of hydrostatic test

water, the Board would impose **Certificate Condition 25** (Appendix III), requiring NGTL to file a hydrostatic testing plan for the Project at least 30 days prior to pressure testing.

Construction Schedule

To track construction activities, the Board would impose **Certificate Condition 16** (Appendix III) and **Order Condition 10** (Appendix IV), requiring NGTL to provide detailed construction schedule(s) identifying major construction activities.

The Board notes that NGTL committed to providing Aboriginal groups with the proposed construction schedule(s) and Pipeline route maps so that they may schedule their TLRU activities accordingly.

Construction Progress Reports

To track construction activity and environmental, socio-economic, safety and security issues during construction, the Board would impose **Certificate Condition 18** (Appendix III) and **Order Condition 11** (Appendix IV), requiring NGTL to file monthly construction progress reports for each pipeline section loop. These reports must include information on the activities carried out during the construction and report any environmental, socio-economic, safety and security issues and issues of non-compliance, and the measures undertaken for the resolution of each issue and non-compliance.

NGTL indicated that clearing and main pipeline construction activities in caribou ranges would occur between November 2016 and February 2017. Therefore, each construction progress report to be filed under **Certificate Condition 18** in Appendix III for the Boundary Lake and the Pelican Lake Sections of the Project must also include an update on the extent to which any potential construction delays could risk the overlap of construction activities with the caribou critical timing windows, and an explanation of what additional resources and mitigation would be implemented to get back on schedule.

Post-Construction Monitoring Reports

To be satisfied that post-construction environmental monitoring is thorough and effective and that reports are to be developed and submitted, the Board would impose **Certificate Condition 36** (Appendix III).

7.6.4 Detailed Analysis of Environmental Issues Explored Further

This subsection provides a more detailed analysis of issues of public concern or of environmental consequence, and which may require additional mitigation by way of Board conditions. Table 7-9 specifies the definitions for criteria used in evaluating the significance of residual effects. Cumulative effects are further considered in section 7.7.

Table 7-9: 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.
Temporal Extent	Short-term	An effect, either resulting from a single project interaction or from infrequent multiple ones, whose total duration is usually relatively short-term and limited to or less than the duration of construction, or one that usually recovers immediately after construction. An effect usually lasting in the order of weeks or months.
	Medium-term	An effect, either resulting from a single or infrequent project interaction or from multiple project interactions each of short duration and whose total duration may not be long-term but for which the resulting effect may last in the order of months or years.
	Long-term	An effect, either resulting from a single project interaction of long lasting effect; or from multiple project interactions each of short duration but whose total results in a long lasting effect; or from continuous interaction throughout the life of the project. An effect usually lasting in the order of years or decades.
Reversibility	Reversible	An effect expected to, at a minimum, return to baseline conditions within the lifecycle of the Project.
	Permanent	An effect that would persist beyond the lifecycle of the project, or last in the order of decades or generations. Some social or cultural effects that persist beyond a single generation may become permanent.
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	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 the wetlands, vegetation, and wildlife and wildlife habitat consists a 2 km wide band extending approximately 1 km from both sides of the Pipeline route).
	Regional Study Area	Effect would be recognized in the area beyond the LSA that might be affected on the landscape level. This area also varies relative to the receptor being considered (e.g. the RSA for the wetlands, and wildlife and wildlife habitat consists a 30 km band extending approximately 15 km from both sides of the Pipeline route).

Criteria	Rating	Definition
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) long-term, permanent, and of a regional scale.
	Not likely to be significant	Any adverse effect that does not meet the above criteria for "significant".

7.6.4.1 Watercourse Crossings

Background/Issues	The Project crosses 71 watercourses or fish-bearing drainages. Five crossings (Doig River, Loon Creek Tributary, Athabasca River, Boivin Creek, and Christina River) are planned as HDD crossings and 66 as frozen/dry open cut or isolated open cut crossings. Under the Memorandum of Understanding between the Board and DFO, the Board is responsible for referring potential watercourse crossings that are likely to require a *Fisheries Act* authorization to DFO. NGTL used DFO's Self-Assessment Process and determined that all watercourse crossings would avoid serious harm to fish. However, the Contingency Plans for Christina and Athabasca Rivers would potentially cause serious harm if they were implemented.
Views of Participants	Several Aboriginal Participants expressed concerns about any reduction in the quantity of water and quality of watercourses, as well as the health of fish and fish habitat. For example, McMurray Métis expressed concerns regarding fish habitat and water quality for rivers where a contingency crossing method determined to have the potential for adverse effects could be used or if construction extends beyond the winter frozen period.

Proposed Mitigation	Standard mitigation is identified for watercourse crossings that include potential impacts from vehicle crossings, clearing and grading, sediment deposition, bank and riparian restoration, spills, open cut crossings, trenchless crossings, and suspended solids. NGTL committed to continuing to follow DFO's Self-Assessment Process and *Measures to Avoid Causing Harm to Fish and Fish Habitat*, which include avoiding RAPs. NGTL also committed to obtaining a *Fisheries Act* authorization if serious harm is likely to occur. Should serious harm result from having to implement the contingency plans, and if a *Fisheries Act* authorization is required, then NGTL would offset serious harm. NGTL also committed to including measures to minimize impacts to fish and fish habitat in its EPPs and would implement, when warranted, the ERP, Directional Drilling Procedures and Instream Drilling Mud Release Contingency Plan, Soil Erosion Contingency Plan and Flood and Excessive Flow Contingency Plan.
Proposed Monitoring	NGTL stated that during the construction phase of the Project, water quality monitoring plans would be developed to monitor for sediment events during instream construction activities to adhere to the DFO *Measures to Avoid Causing Harm to Fish and Fish Habitat* and any applicable regulatory requirements. If monitoring reveals that values are approaching threshold values, the water quality monitors would alert the Environmental Inspector(s) and work with them to develop corrective actions. If corrective actions are not successful, construction activities would be temporarily suspended until effective solutions are identified.
Views of the Board	To ensure the appropriateness and sufficiency of mitigation measures for watercourse crossings, The Board would impose **Certificate Condition 22 – Watercourse Crossing Inventory** (Appendix III), requiring NGTL to finalize watercourse crossing site-specific information prior to construction. To address uncertainty in the unlikely event that an authorization is required, the Board would also impose **Certificate Condition 23** (Appendix III), requiring NGTL to provide confirmation that any required authorizations under paragraph 35(2)(b) of the *Fisheries Act* were obtained. Where NGTL would employ a contingency crossing method instead of its proposed primary method, the Board would impose **Certificate Condition 24 – Contingency Watercourse Crossings** (Appendix III), requiring NGTL to notify the Board of any changes or alternatives. The Board is of the view that with NGTL's proposed mitigation measures and the related Certificate conditions which the Board would impose, there are not likely to be significant adverse effects to the environment from watercourse crossings.
Evaluation of Significance of Residual Effects	Temporal Extent: Short-term Reversibility: Reversible Geographical Extent: LSA Magnitude: Low Adverse Effect: Not likely to be significant

7.6.4.2 Wetland Function

Background/Issues	There are 155 wetlands identified to be crossed by the Project, with a total approximate area of 325 ha crossed. NGTL indicated that, of these wetlands, six would have a small portion that would be impacted for an extended term by the Alces River Unit Addition and five valve sites. The remaining wetlands would be impacted over the medium to long term.
Views of Participants	Certain Aboriginal Participants raised concerns about possible impacts to wetlands. For example, ANSN identified wetlands as an environmental component of concern and requested that NGTL bore under beaver dams to ensure minimal impacts to wetlands.
Proposed Mitigation	Standard mitigation measures are identified to avoid and minimize disturbance to wetland hydrology, habitat, and biogeochemistry. Examples are: • Reducing grading, removal of vegetation and grubbing; • Preventing ground disturbance (i.e., using protective layers such as biodegradable geotextile); • Ensuring adequate drainage; • Minimizing facility footprints; and • Implementing, when warranted, a Wet Soils Contingency Plan. NGTL stated that the mitigation measures recommended in its ESA reflect best management practices and industry-standard mitigation within the Project region. With regard to beaver dams, NGTL stated in its EPPs that in the event beaver dams or lodges would be disturbed, NGTL would provide notification or obtain the necessary provincial permits prior to commencing activities. NGTL also indicated that beaver dams would be breached slowly to avoid the rapid release of water. NGTL also stated that should wetland function not return to pre-construction conditions following the PCM Program or decommissioning and abandonment, compensatory measures may be implemented. NGTL argues that a small reduction in wetland area for an extended period of time, with the intention to reclaim following decommissioning and abandonment, does not necessarily equate to a loss of overall wetland function within such large wetland complexes.
Proposed Monitoring	Post-construction monitoring is proposed for wetlands. In the event that a loss of wetland function has been determined following the completion of the PCM Program, consultation with the appropriate regulatory agency (e.g., ECCC) would be conducted to discuss potential compensation or remediation measures.
Views of the Board	The Board notes NGTL's identification of the Alces River Unit Addition and five valve sites which could result in extended-term disturbances to wetlands. The Board considers NGTL's reference to the term "extended-term disturbance" to the six wetlands to be more correctly referred to as permanent disturbances.

	Notwithstanding these areas of permanent disturbance, the Board notes that the function of wetlands is their main component of value, and that the Project disturbances would occur in large wetland complexes. As such, the Board is of the view that with the proposed mitigation measures and NGTL's commitment to monitoring of the surrounding wetlands, there would likely be no permanent loss in the function of the affected wetlands. The Board also notes Aboriginal concerns regarding wetland function as it relates to beaver dams, but is of the view that NGTL's proposed mitigation measures are acceptable. In the event that wetland function does not return to pre-construction conditions following the five-year PCM Program, the Board expects NGTL to consult with ECCC and implement compensatory measures. The Board is of the view that wetlands are important and wetland mitigation measures should be included in NGTL's EPPs (C**ertificate Condition 6** in Appendix III; **Order Condition 7** in Appendix IV) and the PCM Program, and that the results of wetland monitoring are included in PCM reports (**Certificate Condition 36** in Appendix III).
Evaluation of Significance of Residual Effects	Temporal Extent: Medium-term to Long-term Reversibility: Reversible Geographical Extent: Project Footprint to LSA Magnitude: Low to Moderate Adverse Effect: Not likely to be significant

7.6.4.3 Human Health – Noise during Construction

Background/Issues	NGTL indicated that it expects the construction of the Project to last for less than 2 months at any location along the Pipeline route. NGTL also indicated that the drilling phase of the DPI is only expected to last approximately 4 days, and that noise mitigation is presented in the EPPs for the Project. NGTL stated that the effects of construction noise would be localized to within proximity of the construction activities and would affect a limited number of human receptors. NGTL further stated that it would continue consultation with potentially affected residents to determine the need for and selection of appropriate mitigation measures to address construction noise. NGTL referenced the Health Canada Draft (2011) "Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise." NGTL submitted that the typical distance to meet threshold compliance from construction noise using Health Canada noise guidance, due to pipeline construction was 200 m, and construction of short duration trenchless watercourse crossing (with HDD) was 350 m. NGTL noted that there is one residence within 200 m of the Bear Canyon Section, one residence located within 350 m of the DPI under Highway 16 on the McLeod River Section, and two potentially affected seasonal cabins located within 1 km of the Pelican Lake Section.

Views of Health Canada	Health Canada submitted a Letter of Comment providing advice and recommendations related to its mandated responsibilities. In its letter to the Board, Health Canada expressed concerns related to noise impacts on human health. Health Canada recommended that the noise assessment include the noise associated with construction activities and HDD activities, and its impact on receptors in the vicinity of the Pipeline.
Proposed Mitigation	Noise mitigation protocols and practices are presented in the EPPs for the Project.
Proposed Monitoring	NGTL stated that it is committed to managing noise issues and responding promptly to any noise complaints.
Views of the Board	The Board is of the view that the standard mitigation measures NGTL committed to implementing would address the majority of impacts to human health from noise during construction. The Board notes the willingness of NGTL to continue consultation with potentially affected residents to determine the need for and selection of appropriate mitigation to address construction noise. The Board expects companies to proactively minimize the negative impacts of a Project. The Board notes there may be a noticeable increase in noise during construction at certain locations, specifically at one residence within 200 m of the Bear Canyon Section, one residence located within 350 m of the DPI under Highway 16 on the McLeod River Section, and potentially affecting two seasonal cabins on the Pelican Lake Section. Given the potential for noise complaints during construction activities, the Board would impose **Certificate Condition 14** (Appendix III), requiring NGTL to file an update on consultation regarding construction noise mitigation prior to starting that construction. Given NGTL's standard mitigation measures and the Board's imposed **Certificate Condition 14**, and that the noise would be short-term, the Board is of the view that any adverse effects of noise on human health are not likely to be significant.
Evaluation of Significance of Residual Effects	Temporal Extent: Short-term Reversibility: Reversible Geographical Extent: LSA Magnitude: Low to Moderate Adverse Effect: Not likely to be significant

7.6.4.4 Aboriginal Traditional Land and Resource Use

Background/Issues	In order to identify potential Project effects on TLRU (e.g., trapping, hunting, fishing, gathering, traveling, camping) NGTL relied on Project-specific information provided by Aboriginal groups through TLRU studies, participation in biophysical field studies, and participation in its Aboriginal engagement program; as well as a comprehensive literature review; desktop analysis; and publicly available reports. In its assessment of potential effects on TLRU, NGTL considered the potential for the Project to disrupt specific TLRU sites such as trails, gathering places, habitation sites and sacred sites, as well as the potential for the Project to disrupt subsistence activities, alter subsistence resources and create additional access for non-Aboriginal land users in the Project area, which could indirectly affect TLRU activities. The following 19 Aboriginal groups submitted or are in the process of updating existing TLU studies for the Project: • Alexander First Nation (2011 TLU Study Update – McLeod River Section) • Alexis Nakota First Nation (2011 TLU Study Update – McLeod River Section) • Bigstone Cree Nation (Pelican Lake Section) • Chard Métis Society (2011 TLU Study- Pelican Lake and Christina River Sections) • Chipewyan Prairie Dene First Nation (Pelican Lake and Christina River Sections) • Christina River Dene Nation Council (Pelican Lake and Christina River Sections) • Conklin Métis Local 193 (Pelican Lake and Christina River Sections) • Dene Tha' First Nation (Boundary Lake Section) • Doig River First Nation (Boundary Lake and Bear Canyon Sections) • Enoch Cree Nation (2011 TLU Study) • Métis Nation of Alberta - Fort McMurray Métis Local 1935 or McMurray Métis (Pelican Lake and Christina River Sections) • Gift Lake Métis Settlement (Otter Lake Unit Addition) • Horse Lake First Nation (Boundary Lake and Bear Canyon Sections) • Marlboro Community Association (2011/2012 TLU Study) • Métis Nation of Alberta – Gunn Métis Local 55 (McLeod River Section) • Métis Nation of Alberta Region 5 (Pelican Lake Section) • Nakcowinewak Nation of Canada (2011 TLU Study – McLeod River Section) • Paul First Nation (2011 TLU Study, McLeod River Section) • Saddle Lake Cree Nation (2011 TLU Study – McLeod River, Pelican Lake, and Christina River Sections) NGTL indicated that a number of Aboriginal groups, apart from the groups listed above, expressed interest in conducting TLU studies and that those studies are at various stages of completion.

Views of Participants	The following Aboriginal groups noted specific concerns regarding traditional land and resource use in the Project area: **Alexis Nakota Sioux Nation** ANSN identified broad concerns regarding Project impacts on hunting, trapping, and gathering around the McLeod River Section and identified specific animals, plants, fungi, types of medicine, and berries that can be found in the region. ANSN also identified the proposed RoW for the McLeod River Section as being heavily used for cultural and traditional purposes. ANSN mentioned regular signs of big game animals in the area such as moose, deer, elk, and bear. ANSN also mentioned seeing small game trails, woodpeckers, small song birds, hawks, and one bald eagle along the proposed RoW. ANSN noted that various birds found in the area are used as a food source and for ceremonial purposes. ANSN expressed concern that the pipeline RoW would lead to the destruction of small to middle sized mammal dens and squirrel dens during the construction phrase. ANSN indicated that the area along the proposed RoW is rich in fur-bearing mammals including mice, squirrels, foxes, badgers, and wolves. ANSN also expressed concern regarding the potential destruction of medicinal plants used by ANSN people along the full length of the McLeod River Section Loop RoW, but particularly in the low-ground areas. ANSN indicated that these low-ground areas tend to have more plentiful and rare varieties of medicinal plants and more plentiful water and forage for the animals it hunts. ANSN expressed concern that the habitats that cultivate these medicines may be lost due to construction of the McLeod River Section and noted that approximately 30 per cent of the RoW crosses these low lying areas. Therefore, ANSN expressed a desire to see parts of the McLeod River Section rerouted to high-ground areas. **Bigstone Cree Nation** Bigstone questioned NGTL regarding the potential contamination of traditional foods, medicine, and agricultural food crops from pesticide and herbicide use, and impacts to plant gathering. In its oral traditional evidence presentation, Bigstone stated that it had witnessed, over time, the loss of whole herds of caribou, moose, deer, and other wildlife in the Pelican Lake region and that it is becoming harder for it to gather the water, medicine, and smudges it needs in nearby areas. Bigstone also indicated particular concerns with Project impacts to the traplines in the region. **Chard Métis Society** Chard Métis indicated that the Project would have an adverse impact on the Chard Métis members' continuous and ongoing exercise of their activities, practices, traditions and customs that are significantly related to the lands at issue. Chard Métis members identified significant losses of moose and bird species within the Christina River Section as cause for concern and expressed that the Project would add to those concerns.

Chard Métis submitted that it did not believe NGTL's EPP for the Christina River Section addressed the adverse residual and cumulative impacts on its historical sites, structures or burial grounds within its traditional territory.

Chard Métis submitted that NGTL's broad generalization that subsistence activities are carried out throughout the region is insufficient to address the adverse impacts of the Project on Aboriginal rights and interests. Chard Métis argued that Aboriginal practices are distinct to each community and that ecological aspects of the environment are distinct.

Chipewyan Prairie Industry Relations Corporation

CPIRC questioned NGTL regarding the potential contamination of traditional foods, medicine and agricultural food crops resulting from pesticide and herbicide use and wanted to see the limitation or elimination of chemical applications. CPIRC also expressed particular concerns that the Project would adversely impact the use of its Janvier Reserve as well as the Christina River, which is a critical location for CPDFN's TLRU and drinking needs.

CPIRC submitted that it was dissatisfied with the methodology adopted for the ESA and argued that it is not supported by scientifically reliable impact assessments, data, or evidence. CPIRC argued that the ESA must include information describing community, family or household structures and functions in order to predict whether or how the Project might affect their TLRU.

Doig River First Nation

DRFN identified 84 site-specific use values within the Project footprint and 291 site-specific use values within the LSA (including the Project footprint) at the Boundary Lake Section. DRFN stated that use and value of the sites vary and encompass areas of historical and/or cultural importance, relatively pristine wildlife habitat areas, and places DRFN members frequent for hunting, trapping, plant gathering, camping, travelling, and other cultural activities. DRFN expressed concern that the Project would have a negative impact on the above-mentioned uses.

DRFN identified the southern portion of the Boundary Lake Section as being of exceptionally high use and value for DRFN, including for hunting. DRFN expressed concerns related to disruption of hunting, trapping and harvesting practices due to displacement of wildlife, loss or alteration of wildlife habitat and increased access to non-Aboriginal hunters including disruption of wildlife from sensory disturbances.

DRFN indicated that the Project footprint at the Boundary Lake Section runs through an area identified by DRFN as the KTP, which DRFN stated as being of great cultural and spiritual importance to DRFN. DRFN mentioned that the KTP contains the spiritual area of Kih tsaa?dze at its core, but extends out further to also protect crucial hunting and trapping grounds and camping areas for the community. DRFN made a public announcement in 2011 of its intent to have the area preserved for continued hunting, trapping, and cultural practices.

East Prairie Métis Settlement

EPMS raised concerns regarding potential effects of the Project on increased non-Aboriginal access within its traditional territory, potential reductions in wildlife forcing reliance on non-traditional foods, and the risk of pipeline ruptures which could affect soil

quality and cause contamination in local plant populations which could enter the food chain. EPMS also noted concerns regarding monitoring for the Project and about soil contamination and soil disruption.

McMurray Métis

McMurray Métis indicated it would like to see greater inclusion and participation of Aboriginal groups and other affected stakeholders in the creation of access management plans. McMurray Métis also recommended that NGTL develop a specific mitigation plan with local land users and McMurray Métis community members on how to minimize camp residents (pipeline construction workers) from using traditional lands.

McMurray Métis expressed concerns related to potential Project impacts on wildlife habitats and populations (displacement and decline), including furbearers such as rabbit, fisher and marten, bird habitat for grouse, duck and geese, and large game such as caribou, moose and deer.

McMurray Métis submitted that it disagreed with the methodology NGTL applied for this Project in assessing residual and cumulative effects on TLRU. For example, McMurray Métis stated that it felt the LSA defined by NGTL was too restricted and therefore omits considerable proximate and indirect impacts to its TLU.

Gift Lake Métis Settlement

Gift Lake expressed concerns that development activity in the area may scare big game further north and concerns over moose licks.

Gift Lake also identified concerns regarding wildlife in the Project area, emergency response, industrial activity displacing big game, and reported Project interaction with a moose lick.

Métis Nation of Alberta – Gunn Métis Local 55

GML 55 indicated that the surrounding areas around the communities of Marlboro and Edson were used as specific routes used for hunting by its members. GML 55 considers the region north of Marlboro, where many of these roads are found, one of the community's hunting grounds. GML 55 expressed concerns that the Project could increase access to the land by non-Aboriginal hunters and that construction noise could scare away animals living in the area, thus negatively impacting GML 55 members who depend on hunting for food. GML 55 asked for NGTL to incorporate community participation in the design and implementation of Access Management and Safety Management Plans. GML 55 also indicated that it would like to see its members included in monitoring construction and operational impacts to wildlife and its habitat.

In its oral traditional evidence presentation, GML 55 voiced specific concerns regarding water contamination, loss of fish and wildlife populations, and destruction of existing sites for medicinal plants.

GML 55 identified the Little Sundance Creek and the Edson River, as well as tributaries of Sundance Creek and from Sundance Lake to the McLeod River, as areas particularly used for traditional fishing. GML 55 also identified 13 watercourses that would be crossed by the McLeod River Section and indicated that each crossing could potentially hurt fish populations through contamination, fish morality or blockage.

	GML 55 indicated that medicinal plants were harvested only in the Traditional Land and Resource Use LSA, near Sundance Lake. GML 55 also indicated that the Sundance Creek, which runs into the McLeod River, is an ecologically productive area that is home to many rare wild plants that are valued for their medicinal properties. GML 55 submitted that the Hornbeck Creek Provincial Recreational Area located 5.1 km southwest of the Project, Sundance Provincial Park located 3.4 km southwest of the Project and the Little Sundance Creek Provincial Recreation Area 0.9 km southwest of the Project are specific locations of spiritual and historical value to them. GML 55 submitted that the mitigation measures proposed by NGTL are overly general and not specific to a particular community and is therefore insufficient to satisfy the concerns of GML 55. **Samson Cree Nation** Samson indicated it had particular concerns regarding Project impacts on fishing and hunting, mentioning that it no longer fishes or hunts in certain areas due to the morbid condition in which it finds the animals. SCN submits that the proposed mitigation measures by NGTL are insufficient and that the Project would cause irreparable harm to the local environment and to its cultural heritage sites, treaty rights and sacred areas. **Swan River First Nation** Swan River questioned NGTL regarding the potential contamination of traditional foods, medicine and agricultural food crops resulting from pesticide and herbicide use. Swan River wants to see the limitation or elimination of chemical applications. Swan River requested greater involvement of First Nation communities in PCM and requested that NGTL clarify the degree and the mechanism by which First Nation perspectives and participation would be incorporated into the design and implementation of PCM. **Woodland Cree First Nation** Woodland Cree stated that the Project would reduce the land available for it to exercise its treaty and Aboriginal rights, would add to the worry and stress in the community regarding potential gas leaks and other accidents, and further increase access to the land for non-Woodland Cree members. Woodland Cree identified broad concerns regarding Project impacts on its spiritual and economic practices. These concerns include the potentially adverse impact the Project might have on hunting, fishing, trapping, gathering of medicines, and gathering of food sources. Woodland Cree raised concerns regarding noise impacts from the Project and how this might scare off game animals for long periods of time, thus affecting their ability to hunt. Woodland Cree also raised a concern regarding access and trailway impacts and how the Project could open up new access for non-Aboriginal peoples, leading to potential overhunting and the destruction of plants, wildlife, and wildlife habitats.
Proposed Mitigation	NGTL stated it would limit adverse residual and cumulative Project effects to the extent possible, by paralleling existing RoW as much it can, by using existing compressor

stations for the compressor station unit additions, and by confining all construction activities to the RoW. NGTL committed to working with the respective Aboriginal groups in order to address various concerns and NGTL stated it has proposed a comprehensive suite of mitigation measures to reduce the adverse effects of the Project on the environment and, in turn, on the use of those lands by Aboriginal groups. NGTL also committed to monitoring and evaluating the effectiveness of its environmental mitigation during its PCM program.

More specific to TLRU matters, NGTL also proposed a comprehensive suite of mitigation measures to reduce the adverse effects of the Project on TLRU. This includes an Access Management Plan to maintain and control access to traditional territory, working with Aboriginal groups to identify and protect TLU sites through standard mitigation measures, and reducing adverse effects on vegetation by limiting the use of chemical applications and by ensuring all equipment arrives at the project site clean and free of soil or vegetative debris. NGTL would adhere to all the regulations, standards and guidelines set by provincial and federal regulatory authorities for watercourse crossings.

NGTL stated it relied on information provided by Aboriginal groups through Project-specific TLU studies and determined that the significance conclusions of its ESA with regard to TLRU remained unchanged. NGTL also stated that any additional information gathered during ongoing TLU studies and engagement would be considered for incorporation into Project planning as appropriate. NGTL indicated that if any additional TLU sites are found during construction, it would implement its TLU Sites Discovery Contingency Plan. Similarly, NGTL also has standard mitigation measures for potential undiscovered archaeological, historical or paleontological resources sites that may be encountered during construction for which it would implement its Heritage Resource Discovery Contingency Plan.

NGTL is of the view that, with the implementation of these mitigation measures, the Project is not expected to hinder opportunities for TLU activities such as hunting, fishing, and trapping.

For those locations where NGTL would implement access control measures, NGTL committed to monitoring the integrity of these control measures throughout the five-year PCM Program.

NGTL stated that it provided and continues to provide Aboriginal groups with opportunities to give their input on access control. NGTL committed to the inclusion of an Access Management Plan as part of the final submission of its EPPs, and committed to providing it to interested Aboriginal groups when it is filed with the Board. The Access Management Plan would identify initial provisional access control locations on the Environmental Alignment Sheets.

NGTL stated that information gathered through ongoing engagement would be considered for incorporation into Project planning, including Environmental Alignment Sheets, as appropriate, and NGTL would further incorporate input or issues identified during construction into the PCM Program.

In response to requests for NGTL to employ Aboriginal monitors during construction and post-construction activities, NGTL submitted that none of the Aboriginal Intervenors provided evidence explaining why this monitoring is required or the details associated with any such monitoring. NGTL further submitted that for safety reasons, employing representatives from each potentially affected Aboriginal group to monitor activities on the RoW is logistically impractical. NGTL committed to continue engaging with each

	interested Aboriginal group through the construction and operation phases of the Project to share information about construction and post-construction monitoring activities and to address any concerns that arise. In response to a number of concerns raised regarding the use of chemical applications, NGTL committed to restricting the general application of herbicides near discrete TLU sites, with these sites being identified in collaboration with Aboriginal groups. NGTL stated that it would employ standard weed management procedures and would only use chemical applications in select locations when necessary. NGTL did not commit to any additional mitigation measures specific to the KTP, arguing that the KTP area intersected by the Project is already highly disturbed and the Project would parallel existing RoW for approximately 96 per cent of that route, thus minimizing any adverse effects to the extent possible. NGTL also argued that its ESA effectively covers whatever issues or concerns that have been raised by the DRFN regarding the KTP. In conclusion, NGTL believes the ESA appropriately addresses the effects of the Project on the environment and TLRU, and that the ESA adopts appropriate methodology consistent with the requirements of the Board's Filing Manual and with the CEAA 2012.
Proposed Monitoring	NGTL would implement a PCM Program as described in the EPPs and ESA. Areas of potential terrain instability would be monitored for two years following construction. The RoW would be inspected during operations with regular aerial patrols after heavy snow melt or heavy, persistent rainfall to identify areas of erosion. Areas that are susceptible to erosion or difficult to revegetate would be identified, and NGTL would maintain records of remedial measures implemented and the success of these measures. NGTL would record locations of concern identified during construction related to weeds, vegetation establishment, general RoW conditions, water crossing stability, and reclamation success. NGTL stated that during the post-construction period, access control measures found to be damaged or not functioning would be remedied by similar or new measures. Following the PCM Program, all RoW are monitored annually by aerial patrol, and observations of access management issues are reported and addressed as possible. NGTL committed to providing potentially affected Aboriginal groups with notification of scheduled field programs and to provide notification when PCM reports are filed with the Board. NGTL noted that any feedback provided by Aboriginal groups on the PCM reports would be considered and incorporated as appropriate into future PCM or operation plans as necessary.
Views of the Board	The Board notes that approximately 91 per cent of the Pipeline route parallels existing disturbances. This approach allows the Project footprint to be reduced by utilizing temporary workspace on the adjacent dispositions and minimizes the creation of new access and fragmentation of the landscape. As a result, the Board finds that potential effects of the Project on the environment and on Aboriginal traditional land and resource use are reduced. The Board notes that NGTL used multiple approaches to identify potential effects on the current use of lands and resources for traditional purposes by Aboriginal groups. The Board is of the view that these multiple approaches provided reasonable opportunities for potentially affected Aboriginal groups to provide Project-specific information to assist in developing appropriate mitigation to reduce potential adverse effects. The Board notes that NGTL continues to work with Aboriginal groups with respect to

obtaining site-specific TLRU information for the Project areas. The Board would impose **Certificate Condition 8** (Appendix III), requiring NGTL to file a report outlining NGTL's plan for any outstanding traditional land use investigations for the Project.

Given that NGTL committed to including access management plans in the EPPs, the Board expects that monitoring of access control measures would be included in the PCM Program. Therefore, the Board would impose **Certificate Condition 36 (**Appendix III), requiring access management measures to be monitored and reported on in PCM reports. Access management in caribou habitat is discussed in subsection 7.7.2.

The Board heard requests from several Intervenors to require NGTL to employ Aboriginal monitors during construction and post-construction activities. The Board notes NGTL's safety and logistical concerns regarding such a request, and NGTL's commitment to share information. Nonetheless, the Board is sufficiently convinced by the submissions of Aboriginal Participants that their participation would be worthwhile. The Board believes NGTL can accommodate active monitoring by Aboriginal groups while balancing its safety concerns, and would impose **Certificate Condition 12** (Appendix III), requiring NGTL to file a plan describing the participation of Aboriginal groups in monitoring construction activities. The Board expects the plan to cover construction activities from the commencement of construction through to final clean up and reclamation.

However, the Board is not convinced that Aboriginal monitors would be required during post-construction activities. The Board notes NGTL's commitment that any feedback provided by Aboriginal groups on the PCM reports would be considered and incorporated as appropriate into future PCM or operation plans as necessary. The Board expects the PCM reports to be prepared for each pipeline section loop of the Project and to be shared with all Aboriginal groups who have expressed to NGTL an interest in this filing (**Certificate Condition 36**, Appendix III).

The Board heard concerns from several Aboriginal Intervenors about the protection and reclamation of plants used for traditional purposes. The Board notes the standard mitigation measures identified in subsection 7.6.3, NGTL's commitment to develop additional mitigation in advance of construction, and NGTL's commitment to consider feedback on the PCM reports. The Board encourages NGTL to look for opportunities during reclamation to enhance the value of its RoW by considering planting species that may be beneficial for traditional use purposes at appropriate locations.

The Board also heard concerns from several Aboriginal Intervenors about the use of herbicides. The Board notes NGTL's commitment to restricting the general application of herbicides on a site-specific basis near discrete traditional land use sites.

The Board notes NGTL's commitment to continue working with potentially affected Aboriginal groups to understand the potential effects of the Project and determine whether additional mitigation is required. The Board further notes that should additional cultural, heritage or TLRU sites be identified prior to or during construction, any potential effects on these sites would be addressed through NGTL's TLU Sites Discovery Contingency Plan and Heritage Resource Discovery Contingency Plan.

Given all of the above, in the Board's view, the potential adverse effects of the Project on the current use of lands and resources for traditional purposes by Aboriginal persons are not likely to be significant. Refer to subsection 7.7.3 for a discussion about the cumulative effects on the current use of lands and resources for traditional purposes.

Evaluation of Significance of Residual Effects	Temporal Extent	Reversibility	Geographical Extent	Magnitude
	Medium-term	Reversible	Regional StudyArea	Low to Moderate
	Adverse Effect			
	Not likely to be significant			

7.7 Cumulative Effects Assessment

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

7.7.1 Overview

From the preceding assessment so far, potential residual effects of the Project are as follows:

- physical elements - physical and meteorological environment, soil and soil productivity, water quantity and quality, air emissions, GHG emissions, and acoustic environment;
- biological elements - fish and fish habitat, wetlands, vegetation, wildlife and wildlife habitat, and species at risk; and
- socio-economic elements – Human Occupancy and Resource Use and TLRU, heritage resources, social and cultural well-being, human health, infrastructure and services, navigation and navigation safety, and employment and economy.

Existing and proposed projects and activities that have potential for spatial and temporal interaction of effects, and therefore potential for cumulative effects, include: agriculture and livestock grazing, energy transmission, forestry, mineral resources, oil and gas, recreation and tourism, settlement and rural and urban development; and transportation and infrastructure.

NGTL submitted that provincial regulators have responsibility for managing cumulative effects issues in areas of provincial jurisdiction, such as setting resource harvest quotas (for fish, wildlife and timber), managing old forest retention and populations of fish, wildlife and vegetation. They also have responsibility for reviewing developments under various provincial legislation and regulations.

Although there are possible cumulative effects for a number of biophysical and socio-economic elements, the Board is of the view that most of these cumulative interactions and effects are limited to the duration of construction, are fairly localized, are minor in nature, and would be mitigated by NGTL's environmental protection and mitigation measures and the Board's additional related recommendations and conditions. Therefore, the Board concludes that for most of these elements the Project would not likely result in significant adverse cumulative effects.

However, as the Board stated previously in several of its recent reports[5] for other northern Alberta and northeastern British Columbia NGTL projects in caribou ranges, the key long-term cumulative environmental impact is the ongoing loss, alteration, access to and fragmentation of the natural landscape in the region. While the changing land use has a number of incremental cascading effects, the Board notes that impacts on caribou and caribou habitat may be used as an overall indicator of the adverse changes on the landscape. Given the status of caribou as threatened under SARA, the presence of critical habitat in the Project area, the species' sensitivity to disturbance and the cumulative habitat disturbance of the area, caribou and caribou habitat are discussed separately in subsection 7.7.2.

In addition, given the concerns raised by Aboriginal groups related to cumulative effects on their current use of lands and resources for traditional purposes, TLRU is discussed separately in subsection 7.7.3.

7.7.2 Caribou and Caribou Habitat

7.7.2.1 Background

Two of the five pipeline section loops traverse three boreal woodland caribou ranges: Chinchaga range (Boundary Lake Section), ESAR (Agnes herd) (Pelican Lake Section), and WSAR (Pelican Lake Section) as shown in the Board's Figure 7-1. The Board created Figure 7-1 for illustrative purposes, to show the approximate locations of the Project in relation to caribou ranges.

Status: The boreal woodland caribou is listed as Threatened on Schedule 1 of the SARA. In 2012, Environment Canada (currently known as Environment and Climate Change Canada or ECCC) released the *Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada* (Recovery Strategy), which identifies critical habitat for each herd and the habitat threshold for a local caribou population to be self-sustaining as 65 per cent undisturbed habitat within the range. For the Chinchaga, WSAR and ESAR ranges, the levels of disturbance are already at 76 per cent, 69 per cent and 81 per cent respectively, indicating a high cumulative effects risk under current conditions.

Potential Effects: The Project has the potential to alter habitat by widening existing RoW, and by creating some new RoW in undisturbed areas, which increases the density of linear features on the landscape which, in turn, can change the suitability of habitat, affect movement patterns and increase mortality risk. During construction, effects on caribou and caribou habitat would occur directly and indirectly, mostly through sensory disturbance and vegetation clearing. During operation, mortality risk would occur indirectly through altered habitat and improved access for hunters and predators. In sum, potential effects to caribou entail changes in habitat, movement, and mortality risk.

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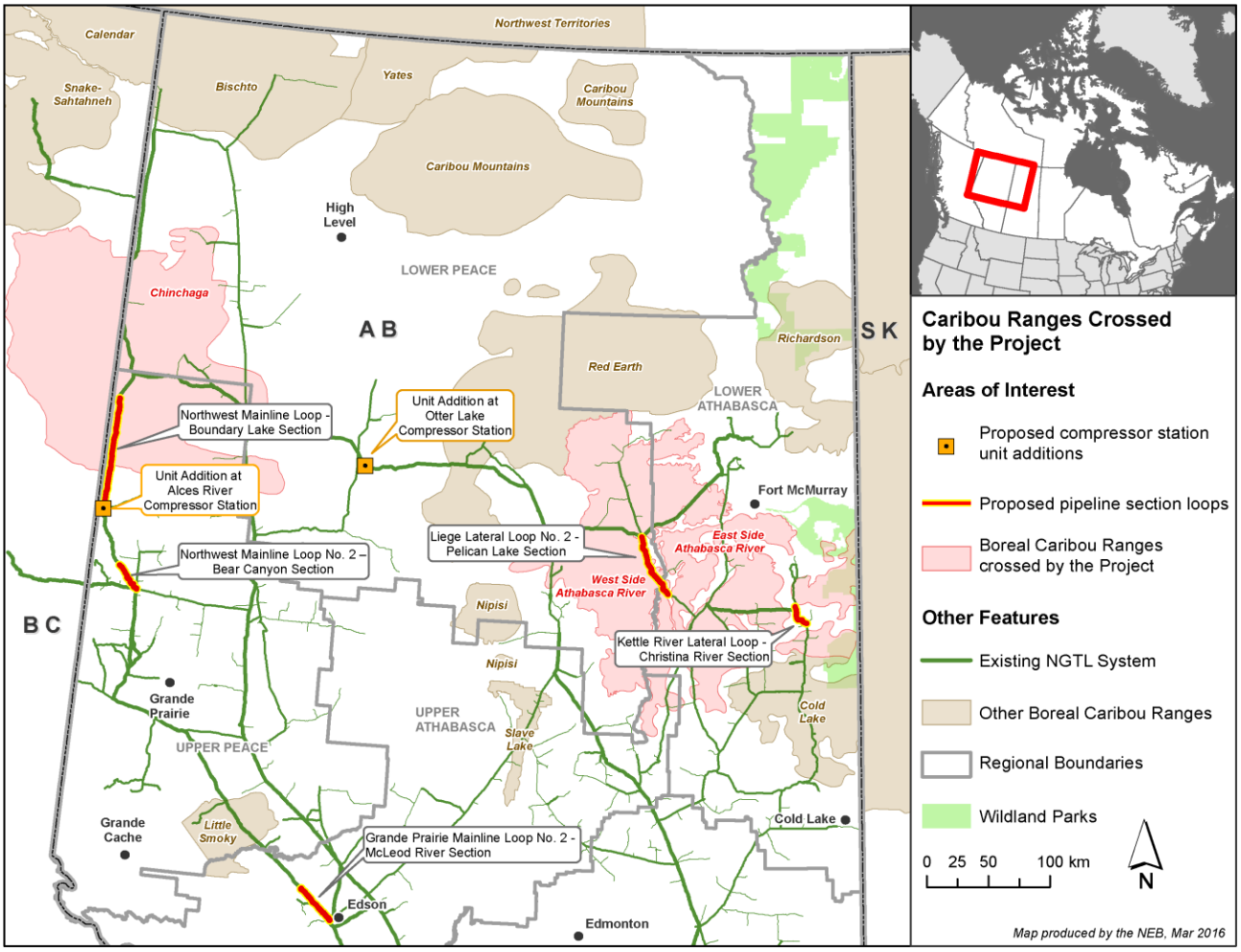
[5] Board's Report GH-001-2012, dated 30 January 2013 – Northwest Mainline Komie North Extension [A50255].

Involvement of ECCC: On 1 June 2015, pursuant to the SARA, the Board issued a notification letter to ECCC to advise the Minister that the Project, if approved and constructed, may affect thirteen species listed on Schedule 1 of the SARA and/or their habitat which included the Woodland caribou, boreal population. On 21 October 2015, the Board also sent a letter to ECCC pursuant to section 20(a) of the CEAA 2012. The Board requested confirmation that the contents of the 2012 Recovery Strategy are still current and accurate and requested any additional information with respect to the Chinchaga, ESAR and WSAR caribou ranges that has been accumulated by ECCC subsequent to the Recovery Strategy's publication. ECCC submitted a Letter of Comment on the Project, providing advice and recommendations related to its mandated responsibilities including boreal caribou as a species at risk, and also its response to the Board's CEAA 2012 section 20(a) letter. ECCC confirmed that the Recovery Strategy remains valid and noted that the provincial range plans for the Chinchaga, ESAR and WSAR ranges have not yet been completed. It also provided brief comments on NGTL's proposed offsets and on the Project's impact on critical habitat (see subsections 7.7.2.3 and 7.7.2.5).

Figure 7-1: Caribou Ranges Crossed by the Project



Sources: The Alberta regional land use planning boundaries, Wildland Parks and caribou ranges are from publicly available shapefiles from AEP and the Species at Risk Public Registry. Information regarding the existing NGTL System and proposed Project is sourced from NGTL's Application [A69317]

Previous Board recommendations and decisions: In its recent reports[6] for pipeline projects in areas containing caribou habitat the Board has imposed a suite of habitat related conditions. These conditions have required project applicants to not only restore habitat on project RoW in areas that have been identified by ECCC as critical habitat, but also to provide offsets for any remaining project-related disturbances, and to conduct long-term and rigorous follow-up or monitoring of the restoration and offsets. In response to this, NGTL has in recent years developed a detailed Caribou Habitat Restoration (CHR) plan, Offset Measures (OM) plan and CHR and OM Monitoring Program. The Board has continued to impose such conditions on NGTL projects where the Board determines them to be appropriate, as well as to review and assess the plans as they continue to evolve.

NGTL's overall mitigation and approach are highlighted in subsection 7.7.2.2. Habitat restoration and offsets are discussed in subsection 7.7.2.3, monitoring in subsection 7.7.2.4, and the cumulative impact on caribou habitat in subsection 7.7.2.5.

7.7.2.2 Overview of NGTL's Proposed Mitigation

Mitigation: NGTL provided both standard mitigation measures for Wildlife and Wildlife Habitat that would also be beneficial for caribou, and additional mitigation measures specific for caribou ranges. This mitigation is listed in the EPPs and in NGTL's preliminary CHR&OMP. Key mitigation categories are identified as follows: limit disturbance, control access, revegetation with non-high value forage habitat for ungulates, maintain or restore connectivity, and work outside of the RAP.

Limiting Disturbance/Routing: Whereas the Project RoW would parallel existing RoW for approximately 91 per cent of the entire Project route, NGTL noted that for the 78 km of the route that would cross caribou ranges 95 per cent would parallel existing disturbance. NGTL further stated that new construction access and temporary construction facilities in undisturbed caribou range would be avoided. Potential Pipeline route options were identified and evaluated using pipeline route selection criteria identified by NGTL where routing considered reducing the total pipeline route length and the amount of new land disturbance. NGTL indicated that it avoided creating new RoW to the extent possible, but due to the presence of wetlands, terrain instability, and other third-party dispositions, non-contiguous routing was required in certain areas. For example in its additional written evidence, NGTL proposed relocating 7.3 km of the Boundary Lake Section to overlap with an existing third-party RoW for TWS purposes in order to further reduce tree clearing within mapped caribou range.

RoW Width: With respect to the width of the RoW to be kept clear during operations, NGTL stated that it would actively control vegetation across 10 m of the RoW. However, in certain locations within caribou habitat, NGTL may deviate from the 5 m on either side of the centerline to minimize line of sight. Similarly, NGTL may also deviate from its standard RoW maintenance

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[6] Board's Reasons for Decision GH-2-2011, dated 28 February 2012 – Northwest Mainline Expansion [A39577]; Board's Reasons for Decision GH-4-2011, dated 26 July 2012 – Leismer to Kettle River Crossover Project [A43100]; Board's Report GH-001-2012, dated 30 January 2013 – Northwest Mainline Komie North Extension [A50255].

by allowing vegetation to regrow above the pipe in caribou areas where aerial leak detection would be conducted using gas detection instrumentation.

RAP and Construction Activity Timing: In its ESA, NGTL indicated that AEP recommends NGTL adherence to the restricted timing window from February 15th to July 15th (i.e., new site preparation or construction within caribou ranges shall not be initiated in this timeframe to reduce impacts to pregnant cows and their calves). AEP recommends an "early in/early out" approach to reduce disturbance of caribou by initiating activities as early as possible in the winter and working expeditiously to limit late winter activities. NGTL committed to avoid working, where feasible, within the restricted timing window set by AEP. NGTL's proposed schedule enables construction activities to occur primarily during the winter season to take advantage of frozen ground conditions for access to and along the Pipeline RoW and the proposed schedule would help reduce disturbance during the caribou RAP. NGTL has developed a Project issue tracker that would allow the identification of major risks to the Project schedule. NGTL also submitted a table that discusses the potential causes of construction delay and mitigation options. NGTL committed to completing final cleanup activities in the winter season that would follow after Pipeline construction.

Temporary Camps: NGTL stated that all potential construction camps on the Boundary Lake Section are outside of caribou range with the closest one expected to be 1 km from the Chinchaga caribou range. For the Pelican Lake Section, the entirety of which intersects caribou range, all potential camps would be in caribou range but NGTL stated that only existing camps would be used and no new camps (no new habitat disturbance and no new roads) are expected. NGTL stated that the residual effects on caribou as a result of NGTL's use of existing active camps are expected to be limited to sensory disturbance.

Hydrostatic Test Water: NGTL submitted that it has minimized the number of hydrostatic testing locations to the extent possible in caribou habitat. However, NGTL identified some preliminary source options for hydrostatic test water withdrawal that are in caribou habitat. NGTL also noted that while one fill point on the RoW is not located in caribou range, the water source itself and a portion of the planned access are within the Chinchaga caribou range. Brushing and minor tree felling may be required to use the existing linear feature for temporary access, but any clearing required would be completed prior to February 15th when the caribou RAP begins.

CHR&OMP Submission: In anticipation of Board conditions based on previous precedence, NGTL filed a preliminary plan for caribou habitat restoration on the RoW and a preliminary offset measures plan to compensate for remaining residual effects (together, a preliminary CHR&OMP) on 30 September 2015 to address construction and operational effects of the Project on caribou. NGTL stated that the preliminary CHR&OMP was designed to follow the typical hierarchy of mitigation actions (i.e., avoid, minimize, mitigate, restore and offset if warranted), and identifies a "toolbox" of measures that can be implemented.

Views of the Board

The Board recognizes NGTL's efforts at routing the Pipeline to follow existing RoW and substantially minimize the creation of new linear disturbances in caribou ranges. The Board similarly notes NGTL's efforts to minimize new disturbance from associated facilities such

as construction camps and access for hydrostatic test water. Notwithstanding this, the Board reminds NGTL that all areas of Project disturbance within caribou range, including those needed for access to hydrostatic test water, would be subject to the suite of caribou-related conditions imposed by the Board. The Board also expects that NGTL's EPPs for the Boundary Lake and Pelican Lake Sections would include any construction mitigation associated with accessing hydrostatic test water and RAPs.

The Board notes NGTL's commitment to avoid working, where feasible, within the restricted timing window set by AEP. The Board therefore expects NGTL to proactively plan its construction work to ensure that it is indeed feasible for NGTL to adhere to the timing restrictions for construction in caribou ranges. To promote the achievement of this goal, the Board would impose **Certificate Condition 18** (Appendix III) and **Order Condition 11** (Appendix IV), requiring NGTL to file construction progress reports. NGTL's reports must include information on how NGTL would ensure that all construction activities are well underway for the entire RoW within caribou ranges before the start of RAP.

The Board also recognizes that NGTL made commitments related to caribou and caribou habitat to Participants as well as to the Board. To satisfy itself that NGTL complies with all the commitments it made on the record for this Project, the Board would impose **Certificate Condition 5** (Appendix III) and **Order Condition 6** (Appendix IV).

7.7.2.3 Habitat Restoration and Offsets

As noted above, NGTL filed a preliminary CHR&OMP that enabled the Board and Participants to assess NGTL's plan at an early stage of the hearing. It enabled information related to habitat restoration and offset methods, specific measures, locations, criteria and rationales and monitoring, to be reviewed by Participants, and to be clarified through information requests during the hearing process.

Habitat Restoration

NGTL's caribou habitat restoration measures identified in its CHR&OMP have two overarching goals:

- being ecologically relevant, practically located and reasonably protected to minimize potential for redisturbance by human activity; and
- establishing self-sustaining and ecologically appropriate vegetation communities that are on a trajectory with the comparable surrounding landscape.

To achieve these, NGTL's approach to restoration relies primarily on measures related to access management, line of sight blocking and revegetation.

Access Control: NGTL stated that, based on current industry best practices and achievable access control measures whose reliability can be observed, rollback, mounding and planting vegetation would be the key access control measures it would implement for the Project in caribou ranges. Locations for access control measures would focus on intersections with other active linear

features and watercourses, and on non-contiguous sections of the RoW. NGTL noted that there is greater confidence in the effectiveness of access control measures when applied on non-contiguous RoW. NGTL does not propose installing access control measures on the portions of the RoW that parallel existing disturbances. NGTL stated that it strives for access to be lower on controlled segments compared to uncontrolled segments of the Project RoW in caribou range.

Line of Sight: NGTL acknowledged that different line of sight targets have been proposed including 200 m, 400 m and 500 m. NGTL stated that it would implement line of sight blocking via woody debris berms, vegetation screens or earth berms on the Project sections in caribou range particularly where they intersect with existing road access and in areas where sightlines are not blocked by terrain elevation or bends. However, NGTL argued that attempting to achieve 200 - 400 m is unrealistic given materials to construct line of sight blocks are often not available, there are conflicting interests for timber and woody materials and there are operational concerns. Hence, NGTL stated it can realistically only achieve a 500 m target. NGTL also noted that line of sight measures are considered of limited value compared to the other restoration measures (i.e., access management and revegetation).

Tree planting: NGTL identified targets to ensure that vegetation communities are on trajectory to becoming compatible with the surrounding landscape. These targets included species composition regenerating on a typical path of ecological succession and a sustained growth trend being comparable to that of the surrounding landscape. NGTL stated that its planting approach is to mimic natural variation and complexity by optimizing density and spacing at the feature level. NGTL's CHR plan elaborates further on various field techniques related to vegetation planting such as creating more favorable microsite conditions, winter tree planting, or tree bending to increase cone deposition, and planting like-for-like species, among others.

Offsets

As part of NGTL's preliminary CHR&OMP, and consistent with the Board's previous offset conditions[7], NGTL provided a review of the literature on offsets and on which various aspects of its offset program could be based. NGTL defined offsets for the Project as measures to compensate for residual adverse effects arising from the Project after appropriate mitigation measures are applied. NGTL's OM plan proposes implementation of direct offsets through physical habitat restoration measures rather than relying on indirect offset measures, such as contributing to research programs or other financial mechanisms. NGTL's offsets would rely on mostly the same habitat restoration measures it would be using on the Project RoW, but applied to restore other linear disturbances elsewhere in caribou range. The literature on offsets discusses a variety of design elements for offsets, many of which are often overlapping and sometimes complex, but which include among others, notions of additionality, permanence and equivalence.

Locations: NGTL's current candidate sites are in established Wildland Parks in northeastern Alberta, and overlap with AEP's priority caribou habitat restoration areas. NGTL confirmed that

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[7] Board's Report GH-001-2012, dated 30 January 2013 – Northwest Mainline Komie North Extension, Appendix III Certificate Conditions for the Chinchaga Section, Condition 20, Offset Measures Plan for Residual Impacts to Caribou Habitat [A50255].

it continues to work with AEP to identify areas of protection. In response to questions on the possibility of restoring areas in the same range as where the Project disturbance would occur or in other areas suggested during the hearing process, NGTL stated that it cannot guarantee that restoration in these areas would not be disturbed again in the future. Consequently, NGTL chooses offset locations where there is greater certainty that the area would be afforded long-term protection. To date, only Wildland Parks in northeastern Alberta that overlap with priority caribou habitat restoration areas identified by the province have been identified as priority offset locations with long-term protection.

Multipliers/Ratio: NGTL's literature review noted that multipliers are used to address the risks and uncertainties associated with the delivery of the different types of restoration or offset measures. NGTL identified that its offset method (discrepancy risk model) relies on multipliers to account for three key risks and uncertainties. In addition, it also applies an inherent effect multiplier. There is a theoretical range, from a minimum of 1.0 up to 5.0, for each multiplier; and in turn the multipliers contribute to an overall offset ratio. The multipliers include:

- Spatial risk multiplier
  - Key factors - Proximity to the affected herd and the equivalence of habitat. This multiplier increases as the proximity of offset habitat to disturbance habitat increases.
  - Example - A multiplier of 1 if offset measures are implemented on RoW in the caribou range where the Project disturbance occurred, but a higher multiplier would be applied where offset measures are implemented outside the caribou range where the Project disturbance occurs.
- Delivery risk multiplier
  - Key factors - Effectiveness of implemented measures, additionality, and permanence. This multiplier increases as effectiveness, additionality and permanence decline.
  - Example - Multipliers could range from 1.25 for upland seedling planting for parallel RoW alignment to 3.3 for lowland mounding for parallel RoW alignment.
- Temporal risk multiplier
  - Key factor - Accounts for the time delay until a measure would become effective.
  - Example - Multipliers could range from 1 for lowland mounding for parallel RoW alignment and which should be effective as soon as it is implemented, to 2.8 for lowland seedling planting for new RoW alignment.
- Inherent Effect
  - Key factors – Whether proposed RoW is adjacent to existing disturbances or creates a new linear disturbance.
  - Example - Parallel RoW alignment is assigned a 20 per cent inherent effect whereas new RoW alignment is not afforded a reduction, hence assigned a 100 per cent inherent effect.

In response to questioning, NGTL noted that circumstances on previous NGTL projects have reached up to 7.5 for a maximum ratio.

Proposed Schedule: In its Application, NGTL proposed a schedule for the approximate timing of construction, restoration and offset implementation, along with its proposed timing for filing the caribou-related condition requirements. The Board issued possible conditions for comment, proposing dates for submission of caribou-related condition filings that would be earlier than NGTL's original proposed dates. In response, although NGTL initially proposed to implement offset measures in 2019 to 2020, it stated in its final argument that offset measures are expected to be undertaken from the summer to the fall of 2019, following the RAP. NGTL further noted in its comments on possible conditions that it could file a final CHR&OMP one year earlier than originally proposed.

NGTL expressed that although early implementation of offsets would be desirable, a number of factors act to constrain this. Some of these factors are: a lack of spatial data prior to construction completion, a need to align with anticipated provincial range plans, and to ensure offset locations are afforded long-term protection. NGTL anticipates that negotiations with the province would be completed prior to the scheduled implementation of offset measures for the Project, but the actual timeline for conclusion of these negotiations is not certain.

Decision Frameworks: NGTL's CHR&OMP includes decision frameworks for each of the three main habitat restoration approaches and for offset measures and locations to be implemented. The frameworks follow a principle-based logic model to decide what specific restoration measures to apply at what sites, in order to achieve habitat restoration. In the hearing process, NGTL committed to updating the decision framework in future submissions to include detail clarifying the decision process.

Views of Participants

Aboriginal groups such as DRFN, Bigstone and Swan River expressed concerns related to the adequacy of NGTL's CHR&OMP for the Project. Aboriginal Intervenors indicated that in their view, NGTL's preliminary CHR&OMP did not provide sufficient evidence to support the chosen approach to restoration, and that performance indicators require more detail.

Environment and Climate Change Canada

ECCC recommended that offsetting occur within the affected caribou ranges and that because of challenges with implementation, effectiveness and delays of restoration and offsets, ratios should be vigorous, functionally additive, protect critical habitat effectively and should be 4:1.

Views of the Board

Consistent with conditions imposed previously by the Board on recently-approved NGTL projects in caribou range and considering the generally well-developed state of NGTL's CHR and OM plans, the Board finds it appropriate that NGTL filed these as preliminary plans during the GH-002-2015 proceeding. The Board is of the view that having these plans available for public review at an early stage in the Board's hearing process for the Project provided Participants with the opportunity to ask questions on the proposed plans and to

provide comment on them. The Board would expect NGTL to continue providing such a preliminary plan in the future for reasons of transparency and would encourage interested parties in future hearings to provide constructive and specific suggestions.

Regarding maximum permissible line of sight distances, the Board recognizes the constraints in the field and accepts NGTL's target of 500 m. However, noting the greater distance, and the more limited relative value of this as mitigation compared to other measures, the Board would expect this to be reflected accordingly in NGTL's delivery multipliers.

Regarding access control, the Board is of the view that access management is important in reducing long-term impacts to the environment, in particular to caribou and caribou habitat. The Board acknowledges the limitations of placing access control measures on Project RoW that is adjacent to other existing RoW. The Board therefore encourages NGTL to communicate and negotiate with companies that own adjacent RoW in order to fully assess feasible options. The Board acknowledges NGTL's commitment to implement access control along new non-contiguous RoW and discusses monitoring of access further in subsection 7.7.2.4.

With regard to tree planting, the Board accepts NGTL's general approach to mimic natural variation and complexity.

With respect to offsets, consistent with the Board's previous decisions and recommendations and with the literature on the current state of boreal woodland caribou in the region, the Board approves of NGTL's reliance on direct on-the-ground offsets focused on relevant habitat attributes and also that these offsets consist of restoring other existing linear disturbances.

As far as the locations for offsets are concerned, the Board understands that offset measures would ideally occur within the same ranges as those affected by the Project. However, the Board also notes the important offset principle that measures should be placed in areas that provide long-term protection and the greatest likelihood of durable results. The Board notes the absence of completed provincial range plans and is concerned that if offsets are placed in a range without long-term protection there is a risk those offsets may be lost in the future. It is the Board's view that, should areas with long-term protection become available in the affected caribou ranges, then offsets should be located there. However, in the absence of this long-term protection, the Board is satisfied that NGTL committed to continue discussing with AEP the identification of priority offset locations. Finally, given the multiple offsets required for different NGTL projects, the Board also expects NGTL to discuss with AEP how to coordinate all offsets in order to restore the most optimal caribou habitat areas.

With respect to offset ratios, the Board is of the view that in the absence of provincial range plans and any provincial framework for offsets, NGTL's OM plan provides a defensible approach with which to address the remaining residual impacts of the Project after the application of on-RoW restoration efforts. The Board encourages NGTL to encourage the province to complete its plans for land use determinations so that more certainty can be brought to offsets. The Board also finds that overall, NGTL's offset framework provides

incentive for it to plan so as to avoid and minimize project impacts on critical habitat as much as possible. The discrepancy risk model's incorporation of multipliers for delivery, temporal and spatial risks, as well as for the inherent effect, accounts for a wide range of variables that may be encountered.

Regarding the comments received from ECCC, the Board has a number of concerns. Although ECCC requested that ratios be vigorous, functionally additive and protect habitat effectively, the Board finds that ECCC's proposed 4:1 ratio appears to be arbitrary, as no justification, analysis or evidence explains how this number was derived. The Board also notes the lack of guidance ECCC provided around how this ratio would be applied.

In contrast, the Board notes the detailed analysis NGTL has put into its offset plan to account for a wide variety of mitigation- and habitat-related variables. By prescribing a 4:1 ratio that does not consider any variables or specific risks such as the inherent value, and the delivery, temporal, and spatial risks associated with different conditions, the Board is concerned that a blanket 4:1 ratio would remove any incentive to avoid new cut, or ensure that the offset measures selected would be effective, or account for the timing of implementation or proximity of offsets. The Board notes, for example, that NGTL's inherent effect values provide a 5:1 incentive for NGTL to follow existing RoW, which for this Project amounts to 95 per cent of the RoW in caribou ranges. In contrast, a blanket recommendation of a 4 hectare offset for every 1 hectare of critical habitat destroyed regardless of existing conditions on the ground would likely create an incentive to simply take the shortest, most direct route regardless of considering existing disturbances versus creating additional new linear corridors. The Board also notes that while the final overall offset ratio derived from NGTL's discrepancy risk model multipliers may vary and not always result in a ratio of 4:1, it may sometimes result in ratios greater than 4:1. Based on the evidence before it, the Board therefore does not find sufficient basis with which to accept ECCC's recommendation of a 4:1 offset ratio for the Project. With regard to ECCC's letter of comment, the Board values such input from expert departments and would find it valuable if in the future ECCC could engage more fully to better understand the complexities around offsetting linear disturbances in the absence of provincial range plans and an offset framework and provide the results of this to the Board. The Board is of the view that NGTL's approach to offsets is sufficiently robust and defensible under the current circumstances.

Given the particular requirements of the previous preliminary and final CHR and OM plan conditions, their timing, NGTL's combining of these two plans into a single CHR&OMP, and NGTL's proposed schedule and offer of status updates, the Board finds it necessary to revise the structure and timing of the previous caribou habitat related conditions.

The Board would impose **Certificate Condition 7** (Appendix III), requiring NGTL to prepare a Revised Caribou Habitat Restoration and Offset Measures Plan (CHR&OMP). The Board recognizes that NGTL only proposed submitting a Final CHR&OMP at a later date. However the Board notes that in previous iterations the CHR and OM plans were separate filings at different dates. The Board notes that since the proposed offset measures are largely based on the same restoration measures there is some rationale for combining the two plans into one. However, as a "plan" for restoration of the RoW (as well as for

offsetting) the Board is of the view that plans should be finalized before their use, not after, and so the Board requires that the Revised CHR&OMP be filed prior to construction. The Board further notes that NGTL already filed a preliminary version. The Board expects the Revised CHR&OMP to include any clarifications provided during the hearing process that may be relevant to improving the understanding and interpretation of the CHR&OMP for the Board, its staff, or other interested parties. In addition, the Board would remind NGTL to include relevant supporting details such as a description and the results of the questionnaire-based survey.

To review the implementation of habitat restoration measures and the calculations of the Initial Offset Value based on the residual effects of the Project, prior to NGTL moving forward with the implementation of offset measures, the Board would impose **Certificate Condition 31** (Appendix III), requiring NGTL to file a Caribou Habitat Restoration Implementation Report and Status Update. Furthermore, to review the results of the measures implemented to compensate for all residual Project-related effects and verify the calculations for the total required offset area, the Board would also impose **Certificate Condition 34** (Appendix III), requiring NGTL to file a Caribou Habitat Offset Measures Implementation Report. In the filing, the Board asks that NGTL include GIS references for the offset measure locations in order to enable effective tracking and mapping, as well as related summary information for each of the NGTL project offsets implemented to date.

7.7.2.4 Monitoring

CHROMMP Overview: NGTL committed to implementing a Caribou Habitat Restoration and Offset Measures Monitoring Program (CHROMMP). This would closely follow previous NGTL condition filings. NGTL would use a combination of ground-based, aerial and remote camera monitoring approaches to assess whether mitigation is achieving its intent and NGTL would use adaptive management should corrective measures be needed. The CHROMMP for this Project would also include any new information that is developed and lessons learned, including refinements arising from the monitoring programs of already approved NGTL projects in caribou habitat.

Duration: NGTL proposed that it would monitor habitat restoration measures for 15 years post-implementation. In an information request to NGTL, the Board questioned whether it may be possible that different habitat restoration methods warrant different durations of monitoring and suggested that access management be monitored for 20 years. NGTL responded that it does not support a program change at this time and that its corporate caribou restoration strategy is to implement restoration and offset measures in a consistent way across its projects to allow appropriate data analysis across all NGTL projects.

Continual Improvement: NGTL stated that it has recently joined the Regional Industry Caribou Collaboration (RICC), which is a multi-industry partnership focused on restoring caribou habitat through regional, collaborative, range-based efforts. To address current knowledge gaps in habitat use and function and verify the effectiveness of restoration measures, NGTL said it is participating in a major RICC research effort using a multi-scale predator/prey collaring

program. NGTL intends to incorporate any new information as it becomes available into its planning and implementation process for its projects in caribou habitat.

Views of the Board

In order to verify the methodological details and validity of the CHROMMP and to ensure rigorous monitoring of the effectiveness of the CHR and OM plans, the Board would impose **Certificate Condition 32** (Appendix III), requiring NGTL to file its CHROMMP; and **Certificate Condition 33** (Appendix III), requiring NGTL to also file the associated Caribou Monitoring Reports. The Board notes that although NGTL committed to 15 years of monitoring, the objective of access control and monitoring should extend throughout the lifetime of a project. The Board is therefore inclined to further lengthen the period of active monitoring, and for which corrective adaptive management measures should be implemented. The Board therefore expects that monitoring pursuant to **Certificate Conditions 32 and 33** in Appendix III should be conducted for a minimum of 20 years.

The Board reiterates its expectation that offsets should be direct and entail on-the-ground measures, in addition to NGTL's habitat restoration efforts. Nonetheless the Board commends NGTL's recent participation in the RICC and encourages NGTL to apply any knowledge gained from the RICC initiatives to continue improving the effectiveness of its restoration methods as well as it monitoring program and adaptive management.

7.7.2.5 Cumulative Impact on Caribou Habitat

Views of NGTL

NGTL's ESA noted that the existing levels of disturbance in the Chinchaga, ESAR and WSAR caribou ranges indicate a high level of cumulative effects risks. NGTL added that the Project's contribution to the overall level of disturbance in the three ranges would be less than 0.1 per cent and that this would not meaningfully change the level of overall disturbance from existing conditions. The existing disturbance is likely to persist on the landscape for the foreseeable future, with or without the Project.

With regard to the significance of cumulative effects on caribou habitat, NGTL noted that in the absence of NGTL's additional habitat restoration and offset measures, its assessment would have predicted significant cumulative effects. However, in consideration of these additional measures, NGTL submits that the Project's contribution to cumulative effects on caribou is predicted to be not significant.

Views of Participants

Several Aboriginal groups expressed that caribou are being negatively impacted by cumulative impacts and that it is a very important species to their communities. For example, CPDFN identified that caribou is a key cultural species for its members.

Some Aboriginal groups indicated that they have restricted or suspended harvesting of caribou until such a time as their communities consider caribou populations to be stable; and that in their

view the Project may delay the recovery of the caribou populations to acceptable levels. Bigstone, DRFN, McMurray Métis and Chard Métis all expressed a number of similar related concerns. Consistent themes that were expressed include, being witness to the reduction in caribou numbers and herds, too much cumulative disturbance and industrial development, and ease of hunter and predator access. Several Aboriginal Participants noted that they no longer hunt this important traditional resource anymore. Chard Métis also expressed that additional measures are needed to restore populations, and Bigstone submitted that the Project would have significant effects on caribou habitat within its territory.

Aboriginal Participants also expressed interest in NGTL developing its mitigation strategies and caribou plans in cooperation with their communities. Certain Aboriginal Participants also requested copies of caribou-related documents.

Environment Canada and Climate Change

ECCC stated that its position is that any direct or indirect destruction of boreal caribou critical habitat is significant. ECCC stated that the Project's contribution to direct and indirect effects on caribou is additive and that the cumulative effects of this Project with other past, proposed and reasonably foreseeable activities would be significant.

Views of the Board

As noted in several of its recent reports[8], the Board is concerned about the impacts of projects on caribou and caribou habitat, and considers caribou habitat an appropriate indicator of landscape level cumulative impacts.

The Board notes that there are already substantial ongoing cumulative effects on the landscape and that the Chinchaga, ESAR and WSAR caribou ranges are not self-sustaining, largely due to existing habitat disturbance. The Board also notes that even with NGTL's proposed mitigation, residual effects on the Project RoW would remain that could potentially contribute to cumulative effects on caribou and their habitat. These long term residual effects would widen existing linear disturbances, potentially increase the duration of these disturbances, as well as create some new direct and indirect disturbance where the RoW entails new cut. The Board notes that it has commented on the nature of cumulative effects on species at risk and the need to fully address residual effects in past reports[9] and in its Filing Manual. Given the already substantial ongoing cumulative effects on the landscape and on caribou in the region due to both direct and indirect habitat disturbance, the Board is therefore of the view that all residual effects on caribou habitat should be considered and fully compensated. Consequently, the Board expects NGTL to offset all potential direct and indirect residual effects of the Project in order to ensure no net loss of caribou habitat and no incremental increase in adverse cumulative effects on caribou habitat. To this end, the Board

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[8] Board's Reasons for Decision GH-2-2011, dated 28 February 2012 – Northwest Mainline Expansion [A39577]; Board's Reasons for Decision GH-4-2011, dated 26 July 2012 – Leismer to Kettle River Crossover Project [A43100]; Board's Report GH-001-2012, dated 30 January 2013 – Northwest Mainline Komie North Extension [A50255].

[9] ibid

would impose the following conditions as described in the preceding subsections 7.7.2.3 and 7.7.2.4:

- a Revised Caribou Habitat Restoration and Offset Measures Plan (CHR&OMP): **Certificate Condition 7** (Appendix III);
- a Caribou Habitat Restoration Implementation Report and Status Update: **Certificate Condition 31** (Appendix III);
- a Caribou Habitat Restoration and Offset Measures Monitoring Program (CHROMMP): **Certificate Condition 32** (Appendix III);
- Caribou Monitoring Reports: **Certificate Condition 33** (Appendix III); and
- a Caribou Habitat Offset Measures Implementation Report: **Certificate Condition 34** (Appendix III).

The Board notes that certain Aboriginal Participants expressed their desire to be involved in, and be kept informed of, caribou mitigation and monitoring plans. The Board expects NGTL to notify Aboriginal groups who have expressed interest in caribou-related filings when these are filed as indicated in **Certificate Conditions 7, 31, 32, 33 and 34**.

As noted earlier in its views in subsection 7.7.2.3, the Board appreciates receiving ECCC's comments and encourages ECCC to continue to be involved in NEB application assessment processes. With respect to possible determinations of significance however, the Board finds ECCC's position somewhat ambiguous and wishes to clarify two important points.

First, it is unclear whether ECCC is or is not factoring in offsets into its significance conclusion. To be clear, the Board does not dispute that the Project's clearing of RoW and construction and operation of new pipeline would indeed destroy critical habitat. However, as part of the Project's activities, the restoration of other linear disturbances to offset residual effects would also help enhance critical habitat. It is precisely because of the potential significance of destroying critical habitat that the Board is requiring offsets as compensation. As the Board has previously stated, the intent of the Board's requirements for offsets is to achieve no net loss so that the Project is not further adding to any already significant, existing cumulative effects. As is standard EA practice the assessment of effects significance is normally conducted after the consideration of avoidance, mitigation and compensation measures. Considering the Board's requirement for offsets and long term monitoring with adaptive management measures, the Project should not affect the status of existing cumulative effects on overall caribou habitat.

Second, the Board finds noteworthy ECCC's submissions that the provincial range plans have not yet been completed, that the ranges crossed by the Project are unsustainable, and that section 61(4) of the SARA provides for the Minister to recommend an order if and where critical habitat is not considered to be effectively protected. The Board notes that the percentage of undisturbed habitat in each of the ranges is substantially below the 65 per cent undisturbed threshold, but that ECCC has not found the existing cumulative effects or the absence of range plans to be significant enough to warrant a broader cumulative solution pursuant to its own legislation. Consequently, the Board believes it would be inconsistent

and inappropriate to single out a particular project as being cumulatively significant, especially when the project is being held to possibly the highest standards by way of offsets, while other cumulative activities continue on without such mitigation or requirements.

7.7.3 Traditional Land and Resource Use

In the Board's GH-1-2009 Reasons for Decision[10], the Board noted the concerns raised by an Aboriginal intervenor in that proceeding, Duncan's First Nation, about assessment of cumulative effects. In response to those concerns, the Board noted there was:

"[an] evolving and increased awareness and demand for information regarding the assessment and management of cumulative effects, and [the Board] is of the view that it is important for the companies it regulates to be responsive to such interest. The Board considers that it would be desirable to see continuing improvement in cumulative effects assessments that support project applications."

It is the Board's desire to see continuing improvement in the assessment of cumulative effects with respect to project applications. The Board acknowledges that development at the regional level within the Project area involves areas of provincial jurisdiction, both for approving development across a number of sectors, as well the regional and provincial land use planning process.

Views of NGTL

NGTL argued that many of the broader concerns that have been raised by Aboriginal groups pertaining to the Project relate to the regional cumulative effects associated with increasing oil and gas development. NGTL indicated that some of the effects associated with this ongoing development activity (such as water contamination) would not result from the Project and, as a result, were not considered in its ESA of the Project. NGTL also indicated however, that to the extent the Project's effects would overlap with the effects of other existing or reasonably foreseeable future developments, these cumulative effects were thoroughly assessed in the cumulative effects assessment that NGTL included in its ESA.

NGTL further argued that the cumulative effects assessment that was undertaken for the Project followed the requirements of the CEAA 2012, followed guidance from the Canadian Environmental Assessment Agency, and is consistent with the approach for cumulative effects assessment prescribed in the Board's Filing Manual. NGTL's ESA concluded that the Project's contribution to cumulative effects on the environmental and socio-economic elements within the LSA and RSA would not be significant.

NGTL also evaluated the total cumulative effects, meaning the combined effects of existing activities, the Project and reasonably foreseeable future developments. This approach required NGTL to consider the significance of human development in the Project area since pre-disturbance conditions, including the effects of municipalities, forestry and agriculture on the

[10] Board's Reasons for Decision GH-1-2009, dated 4 March 2010 – NGTL Groundbirch Pipeline Project [A24595].

landscape. NGTL submits that this analysis goes beyond the proper scope of a cumulative effects assessment under the CEAA 2012, which is intended to evaluate the potential for, and avoid, significant adverse environmental effects caused by a designated project. NGTL argued that total cumulated effects may be completely unrelated to the Project, and the responsibility for managing it rests with the resource managers (i.e., provincial regulatory agencies), not with NGTL or the Board.

NGTL submitted that several Aboriginal Participants, including Samson, Bigstone and ACFN, suggested that community-specific TLRU studies from their communities are required before the Project can be approved. NGTL disagreed with this position, stating that nowhere in the CEAA 2012 or the Board's Filing Manual does it say that community-specific assessments are required. NGTL argued that the practice of preparing project-specific as opposed to community-specific assessments for TLRU is common before the Board and has been accepted on numerous prior occasions.

Views of Participants

Bigstone Cree Nation

Bigstone submitted that the Project would have significant adverse cumulative effects on current TLRU and found NGTL's proposed mitigation measures inadequate in addressing their TLRU concerns. During its oral traditional evidence presentation, Bigstone expressed broad concerns on cumulative effects regarding caribou.

"…part of the problem is the massive projects that disrupt their [caribou] habitat. They're real sensitive to change, their calving grounds, their migration routes…they're really declining…I think it's kind of too late for them… Sometimes I see one, sometimes two, not like in the seventies when there was 20 or 25 in the herd. But now today they're really declining." (Elder Clement Auger, Par. 1224 to 1226, Transcript Volume 3)

"Their [caribou] prime calving areas were located around there, but now I think you would be lucky to see a caribou today compared to the late seventies. There used to be big herds." (Elder Clement Auger, Par. 1260, Transcript Volume 3)

Chard Métis Society

Chard Métis submitted that the Project would have cumulative adverse impacts and that its members are no longer able to hunt, fish, gather or practice its traditional way of life as it used to. The inability to hunt enough food has caused Chard Métis members to supplement their diet with food purchased from a grocery store, at considerable expense to them. Chard Métis stated that NGTL's EPP for the Christina River Section does not address the adverse impacts to Chard Métis way of life, cumulative adverse impacts or mitigation measures in regard to the decreasing sustenance caused by industrial development in Chard Métis traditional territory.

"…my boys and my grandsons, they used to go up and down the river…to kill moose, caribou and anything; that's chickens, anything that we could eat. Last year they still got about two moose on those two rivers. And this summer they went up and down the river I don't know how many times. They didn't get one moose yet. And there [are] hardly any chickens around there

too. And even ducks, there used to be lots at this time of the year… We don't see one duck now…" (Ms. Marie Agnes Herman, Par. 59 and 60, Transcript Volume 1)

Chipewyan Prairie Industry Relations Corporation

CPIRC submitted that it did not find NGTL's response to address socio-economic and TLRU cumulative effects to be adequate. CPIRC expressed concern that the Board has set the socio-economic bar very low and may not be pushing project proponents to provide a thorough and respectful enough description and analysis of Aboriginal societies and cultures that would provide for a meaningful ESA.

Doig River First Nation

DRFN stated that cumulative impacts of the Project added to the impacts from other industrial operations in increasing contamination or perceived contamination of water and fish throughout the Project footprint, LSA, at Boundary Lake, and downstream for large distances.

DRFN also stated that the cumulative impacts from other industrial activities in the Boundary Lake region added to the impacts of the Project on DRFN camping and to its spiritual connection in the study area. DRFN stated that although the Boundary Lake Section of the study in comparison to many other areas used by DRFN is relatively undisturbed in terms of cumulative effects, this area has grown in importance for DRFN members precisely because it has become one of the few remaining areas in the wider region where DRFN members can still practice their treaty rights.

DRFN's position is that that NGTL's ESA and evidence lacks the information necessary to make a determination with respect to the significance of adverse Project-specific and total cumulative environmental effects on the components listed under section 5(1)(c) of the CEAA 2012.

"…Every once in a while the Elders would say, "Oh, not enough game here…"…porcupine are gone. What caused that, we don't know. Rabbits are gone too…now we thought wolves are killing the moose..." (Councillor Gerry Attachie, Par. 899, Transcript Volume 2)

"I remember we used to camp at Sweeney and…the (men) would kill a lot of moose…big bull moose with the big antlers…Now I don't see those anymore." (Elder Margaret Davis, Par. 914 and 915, Transcript Volume 2)

McMurray Métis

McMurray Métis submitted that the Project would contribute to significant cumulative effects in the Pelican Lake and Christina River Sections. McMurray Métis raised particular concerns regarding cumulative effects on fish and fish habitat and lamented that the RoW is continuing to become wider and more densely used by both industry and recreationalists. McMurray Métis argued that in the absence of defined cultural thresholds or targets for TLU in regard to cumulative impacts, measures implemented to address cumulative impacts on TLU should be community-specific and thresholds should be determined by the communities themselves.

McMurray Métis submitted this approach would include multiple conclusions for each pipeline section loop individually that deals with the significance of effects and mitigation measures for TLU, some of which might be community-specific. McMurray Métis further submitted that it would like to see a baseline study of socio-economic conditions of Métis communities in the region so that potential socio-economic impacts from the Project could be properly assessed and fully understood.

Métis Nation of Alberta- Gunn Métis Local 55

GML 55 submitted that the current level of development already threatens GML 55 and that further development would exacerbate the pre-existing damage to members' hunting, gathering, harvesting, fishing, and other traditional activities which are critical to its traditional lifestyles.

During its oral traditional evidence presentation, GML 55 identified broad concerns on cumulative effects regarding wildlife and water and soil contamination.

"That's how many thousands of buffalo there was in this country. That's about 200 years ago… today there's very few buffalo. You know, their land is destroyed so they can't live in that land anymore." (Elder Gayle McKenzie-Findlay, Par. 1781 to 1782, Transcript Volume 4)

"Right now, around Marlboro, the land is…so polluted. There's four people that I know of within the past year that has poisonous bacteria in their stomach." (Elder Gayle McKenzie-Findlay, Par. 1802, Transcript Volume 4)

"But our whole hunting area and picking plants in the northeast of Marlboro there and down to the – right down to the Sundance and even to the McLeod River, that's where all the plants and most of the animals, our hunting ground at one time." (Ms. Shelly Belcourt, Par. 1940, Transcript Volume 4)

Samson Cree Nation

Samson submitted that the ESA does not provide a thorough assessment of cumulative impacts related to the Project. During its oral traditional evidence presentation, Samson submitted broad concerns on cumulative effects.

"We're trying to work with you because those animals…need to live. They have a right to live. So caribou is important to us too. There's all kinds of medicines in this animal that – the one that you take it and then you make into a fleece… so our fleece are gone…" (Elder Leonard Saddleback, Par. 1486 and 1487, Transcript Volume 3)

"Cumulative impact will continue. I know on this line we're only referred to as Samson Cree Nation on the McLeod portion. You'll look at our map. We should be involved in every portion because we use the entire areas." (Ms. Norine Saddleback, Par. 1687, Transcript Volume 3)

"…we have to advocate together because if there's no clean air, who's left? If there's no clean water, who's left? And if the animals can't survive, what's left for us all to eat?" (Ms. Norine Saddleback, Par. 1708, Transcript Volume 3)

Woodland Cree First Nation

In its oral traditional evidence presentation, Woodland Cree stated that it had serious concerns regarding noise impacts from the Otter Lake Unit Addition, adding that existing compressor stations in the area were contributing to growing, cumulative impacts in the area, scaring away wildlife, and making it difficult for members to hunt.

"…I literally learned to hunt and trap within the area…before the roads and stuff were there, we used to go up there with horse and wagon and just live a good traditional, holistic, healthy lifestyle. Now, we are being overwhelmed in activity…" (Chief Isaac Laboucan-Avirom, Par. 413 and 414, Transcript Volume 2)

"…I hunted and I got within about 5 km or more away from the (compressor) site, and you could still start to hear the noise immediately…you notice that the signs that you look for and the moose stuff just ain't there anymore, and they were there two years ago, a year ago." (Chief Isaac Laboucan-Avirom, Par. 417, Transcript Volume 2)

"…I have four children of my own. I'm not going to be able to utilize that area and let them – teach them on some of the old trails that I was taught, you know, the way my grandfather took me out hunting and when I was eight years old…I'm not going to be able to go there and show my children…" (Chief Isaac Laboucan-Avirom, Par. 419, Transcript Volume 2)

"…as a Chief, I'm also getting overwhelmed with babies born with holes in their heart. You know, that's an anomaly that hasn't happened in—ever before… and it goes into the cumulative effects is why every little piece we are concerned about because it's death by a thousand cuts…" (Chief Isaac Laboucan-Avirom, Par. 472, Transcript Volume 2)

"…there would be herbs and spices, and we'd go out and dig some roots…And nowadays…you have to go miles. You couldn't go in your backyard and find your medicines."(Elder Tom Cardinal, Par. 540 and 541, Transcript Volume 2)

"…another thing I want to acknowledge is the impact that we're going to have…their families, generational stuff… It's the air that we breathe…the water that we used to drink in those creeks…The air that we used to breathe in, we don't have that anymore because of all the activities, of all the pollution that's happening." (Elder William Whitehead, Par. 619, Transcript Volume 2)

Views of the Board

The Board is concerned about the impacts of projects on the current use of lands and resources for traditional purposes by Aboriginal peoples. The Board notes the concerns expressed by a number of Aboriginal Participants in this proceeding about the extent of development in the Project area, and the overall effects that previous and continuing development and resource extraction is having on the ability of Aboriginal groups to continue to use the lands and resources for traditional purposes.

The Board notes the cumulative effects concerns raised by Aboriginal Participants about monitoring and access management. Given NGTL has committed to include access management plans in the EPPs, the Board is of the view that monitoring of access control measures would be in line with the post construction monitoring program at 1, 3 and 5 years. The Board expects access management to be implemented and reported as required in **Certificate Condition 36** (Appendix III). Regarding Aboriginal monitors during construction activities, the Board believes NGTL can accommodate active monitoring by Aboriginal groups while balancing safety concerns. Therefore, the Board would impose **Certificate Condition 12** (Appendix III), requiring NGTL to file a plan for Aboriginal participation in monitoring construction activities.

The Board notes the concerns raised by Aboriginal Participants about community-specific TLRU studies. The Board's Filing Manual (for example, Guide A.2: Environmental and Socio-Economic Assessment) requires an assessment of the environmental and socio-economic effects of energy projects. CEAA 2012 (for example, section 19) requires an environmental assessment of a designated project. As a result, the Board does not currently require community-specific TLRU studies. However, the Board expects engagement activities be responsive to the needs, input and concerns of potentially affected persons or groups. The Board encourages applicants and Aboriginal groups to explore possibilities for expanded engagement opportunities (for example, a more collaborative approach during the scoping of environmental and socio-economic assessments might identify more community-appropriate valued components).

The Board notes the concerns raised by Aboriginal Participants about the total cumulative effects in the regions affected by the Project. The extent that the Project's effects would overlap with the effects of other existing or reasonably foreseeable future developments must be assessed in the cumulative effects assessment. The Board understands that an individual project's contribution may be small, but notes that the point of a cumulative effects assessment is precisely to consider the cumulative effect of multiple small incremental contributions. The Board is of the view that a comprehensive cumulative effects assessment is important to establish appropriate mitigation measures for individual projects. The Board encourages NGTL to participate in regional initiatives that discuss and seek to implement mitigation strategies for cumulative impacts.

7.8 Follow-Up Program

The CEAA 2012 requires a follow-up program. The Board would impose **Certificate Conditions 32** and **33** (Appendix III) to be implemented as a follow-up program. Subsection 7.7.2 provides detailed information.

7.9 Board's Conclusion and Recommendation to the Governor in Council

The Board has conducted an environmental assessment of the Project and is of the view that overall, with the implementation of NGTL's environmental protection procedures, mitigation measures and the Board's recommended terms and conditions, the Project is not likely to cause significant adverse environmental effects.

Therefore, pursuant to the CEAA 2012, the Board recommends that the Governor in Council decide that the designated project is not likely to cause significant adverse environmental effects.

Chapter 8

Infrastructure and Services, Employment and Economy

The Board's expectations for an applicant regarding direct socio-economic impacts caused by the existence of a proposed 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.

Potential socio-economic effects as they relate to aboriginal concerns and which are caused by changes to the environment are included in Chapters 5 and 7. Direct socio-economic effects caused by the existence of the Project itself are discussed below. Other economic considerations are addressed in Chapter 2.

8.1 Infrastructure and Services

8.1.1 Infrastructure

Views of NGTL

NGTL submitted that during construction and operation of the Project, the transportation of workers, supplies, and equipment could lead to increased traffic volumes. NGTL noted that some communities raised concerns regarding increased traffic on roads and highways. The Northern Sunrise County raised concerns regarding increased traffic volume on Highway 688 and Haig Lake Road, and on roads between the Town of Peace River and the Hamlet of Red Earth Creek; the Town of Sexsmith regarding Highway 2; the Chipewyan Prairie Dene First Nation regarding Highway 881; and the Métis Nation of Alberta Region 6 regarding the Chinchaga Forestry Road.

NGTL submitted that Project-related increases in traffic volume would be managed by mitigation outlined in its Traffic Control Management Plan; following applicable traffic, road use, and safety regulations; and using multi-passenger vehicles to transport workers from temporary lodging to the Project sites.

NGTL stated that it would use a trenchless method to cross Highway 16 for the McLeod River Section, thus reducing disruption in the use of the highway.

NGTL stated that it would mitigate incremental demands on community infrastructure by housing its construction workforce in temporary construction camps for most of the Project, including the Boundary Lake, Christina River and Pelican Lake Sections, as well as for the Otter Lake Unit Addition.

8.1.2 Services

Views of NGTL

NGTL indicated in its Application that during construction, the Project could lead to increased demand on local emergency, health care, social, and waste disposal services.

NGTL submitted that potential impacts to these services would be managed by mitigation outlined in the following company plans: Fire Suppression Contingency Plan, Spill Contingency Plan, Traffic Control Management Plan, Waste Management Plan, and Chemical and Waste Management Plan. NGTL would adhere to its Health, Safety and Environment Commitment Statement and to the TransCanada Alcohol and Drug Policy. NGTL further stated it would provide Project information to local governments, communities and service providers so they can prepare for potential additional demands on services, including those services identified above and other services such as water demand, rental housing, temporary accommodation, recreational amenities, transportation, and education and training services.

NGTL stated that there is a variety of temporary accommodations for all pipeline section loops of the Project, including commercial accommodation and camping facilities. NGTL estimated that there are 929 rooms and 329 campsites in or near the City of Fort St. John, approximately 900 rooms and 330 campsites in the City of Dawson Creek, and approximately 1,093 rooms available in the Town of Edson. NGTL noted concerns made by Grande Prairie Métis Local No. 1990 that homelessness may result from increases in the cost of accommodations due to the Project. NGTL stated that it would mitigate incremental demands on community services by housing its construction workforce in temporary construction camps for most of the proposed pipeline section loops, including the Boundary Lake, Christina River and Pelican Lake Sections, and for the Otter Lake Unit Addition. NGTL indicated that workers would need to be housed in commercial accommodation at the Bear Canyon Section in the City of Dawson Creek and in part for the Alces River Unit Addition in the City of Fort St. John. NGTL also indicated that commercial accommodation may be required for the McLeod River Section.

Views of Participants

Participants did not raise any outstanding concerns during the proceeding regarding potential Project impacts to infrastructure and services**.**

Views of the Board

The Board is satisfied that NGTL has identified and considered all relevant impacts on infrastructure and services, and has proposed suitable mitigation to address the Project's potential effects. The Board notes that there are no outstanding concerns raised by Participants regarding infrastructure and services.

The Board notes NGTL's commitments to address impacts on infrastructure and services, including continuing to work with local governments, communities and service providers, implementing its Traffic Control Management Plan, and using a trenchless method to cross Highway 16 for the McLeod River Section. In light of the mitigation measures outlined in

NGTL's Application or in its related submissions, the Board is satisfied that the impacts of the Project on infrastructure and services would be adequately addressed.

8.2 Employment and Economy

NGTL submitted that the Project is expected to result in positive impacts on the local, regional, provincial, and national economy through positive residual economic effects related to contract procurement, employment, and government revenues.

NGTL estimated that it would spend approximately $1.29 billion (including contingencies in 2015 dollars in capital expenditures extending from 2016 through 2017). Operating expenditures, including property taxes paid to municipalities, are estimated to total $580 million.

NGTL stated that as a result of construction, federal taxes attributable to direct and indirect economic effects are estimated at $170 million, and that an estimated $34 million would be generated during the operation phase of the Project. NGTL estimated the provincial tax revenue during construction of the Project at $86 million, and at $21 million during operations. NGTL estimated that the Project would generate $3.5 million annually in property taxes to local governments in Alberta during operations.

NGTL expects that the Project will generate an estimated $0.8 billion in labour income during the construction phase and generate an estimated $1.2 billion in gross domestic product in Canada.

NGTL stated in its Application that Canada-wide employment during construction is estimated at 10,731 person-years of employment, with 8,882 person-years of employment generated specifically in Alberta. NGTL estimated total Project-related employment during Project operations to be 454 person-years of employment in Canada, with 326 person-years of employment in Alberta. NGTL stated that no full-time positions are anticipated to be generated during operations.

Additional evidence submitted by NGTL indicated that NGTL would need an additional 250 workers for the Boundary Lake Section and an additional 50 workers for the Christina River Section. NGTL submitted that increased personnel estimates would not affect conclusions made in the ESA. NGTL indicated that overall, the Project would need an estimated total workforce of 3,000 workers over the Project construction period. NGTL's estimated construction resource numbers are provided below in Table 8-1.

Table 8-1: Estimated Construction Resources

Project Component	Estimated Peak Workforce (No. of personnel)	Expected Peak Timeframe (Q = Quarter)
Boundary Lake Section	1,000	Q4 2016 – Q1 2017
Bear Canyon Section	300	Q4 2016 – Q1 2017
McLeod River Section	500	Q4 2016 – Q1 2017
Pelican Lake Section	500	Q4 2016 – Q1 2017
Christina River Section	300	Q4 2016 – Q1 2017
Alces River Unit Addition	200	Q4 2016 – Q1 2017
Otter Lake Unit Addition	200	Q4 2016 – Q1 2017

Source: NGTL's Additional Written Evidence and Errata, Section 4.2, Construction Camps and Project Workforce Accommodations [A72910].

8.2.1 Aboriginal Employment and Economic Benefits

Views of NGTL

NGTL provided in its Application a list of Aboriginal groups that identified an interest in Project-related employment and contracting opportunities.

NGTL submitted that it continues to collaborate with local Aboriginal groups and organizations to identify training needs related to contracting and employment opportunities.

NGTL further submitted that it has the tools and processes required to track Aboriginal employment and contracting on all projects, and would implement these tools and processes for the Project. NGTL submitted that this includes tracking the Aboriginal employment and contracting undertaken by NGTL, prime contractors and subcontractors, in alignment with TransCanada's Aboriginal Contracting and Employment Program. NGTL submits that it would track all commitments to education and training for Aboriginal groups on the Project and would seek opportunities to link program participants to further training, employment and/or contracting opportunities should the skills, qualifications and experience of the individual participants meet those required by NGTL and the company's prime contractors.

NGTL made the following commitments regarding Aboriginal employment and economic benefits:

- Employment opportunities related to RoW clearing, log hauling, medical and security services would be offered to, and set aside for, local Aboriginal service providers and would be incorporated into the contract between NGTL and its prime contractor. Once a prime contractor is selected and its Aboriginal Participation Plan is reviewed by NGTL, any additional contracting and employment opportunities that might be available to the

local Aboriginal communities would be determined and communicated to the communities;

- NGTL would consider all businesses put forward by the Aboriginal communities, including Aboriginal-owned businesses as well as joint venture partnerships;
- NGTL committed that it and its prime contractor would work with local Aboriginal communities to identify additional opportunities based on their business capacity and Project requirements. NGTL indicated that the prime contractor also provides feedback to Aboriginal communities in order to help build their overall capacity and gain a better understanding of contracting requirements for future projects; and
- NGTL strives to create economic opportunities for local Aboriginal communities and regularly meets with Aboriginal communities to solicit feedback on its Aboriginal Contracting and Employment Program. NGTL indicated that post-construction debrief meetings would be held with communities at the completion of the Project to better understand the successes and challenges regarding their economic participation.

NGTL would apply TransCanada's established Aboriginal Contracting and Employment Program to the Project, which it states in 2014 resulted in $106 million in spending on contracting and employment of Aboriginal communities and their joint venture partners. NGTL estimated that 8 per cent to 12 per cent of the total construction contracts for the Project would be awarded to qualified Aboriginal businesses and Aboriginal partnerships, totaling an estimated $54 to $81 million. NGTL also expects that roughly 8 per cent to 10 per cent of the Project workforce would be comprised of Aboriginal individuals. NGTL argued that these local benefits would ensure that the Aboriginal communities that may be affected by the Project have the opportunity to realize meaningful near and longer-term benefits from the Project.

Views of Participants

Chard Métis Society

Chard Métis requested that the Board include NGTL's meeting of its Aboriginal employment estimates as a condition of Project approval. That is, a minimum of 8 per cent of the total value of construction contracts must be awarded to qualified Aboriginal businesses and partnerships, and a minimum of 8 per cent of the project workforce must be comprised of Aboriginal individuals. Chard Métis further requested that the Board include as a condition that a minimum amount of the total value of Project construction contracts and employment within the Christina River Section be awarded to Chard Métis. Without these conditions, Chard Métis argued that there is no certainty that the Aboriginal contracting and employment estimates provided by NGTL would be appreciably achieved.

Métis Nation of Alberta - Gunn Métis Local 55

GML 55 argued that the Board should require an employment and procurement agreement between NGTL and GML 55.

Samson Cree Nation

In the event that the Project is conditionally approved, Samson indicated that it would like to be considered for employment opportunities including any that may generally arise in construction and operation of the Pipeline.

Woodland Cree Nation

During its oral traditional evidence presentation, Woodland Cree expressed general concerns that NGTL would not provide adequate employment opportunities for Woodland Cree members, and indicated that it had not been given adequate employment and procurement opportunities in the past. Woodland Cree indicated that it was very capable of fielding 20 to 50 people to work. Woodland Cree stated that it finds the requirements to bid on contracts for the Project frustrating.

Reply of NGTL

NGTL submitted that Chard Métis' proposed condition would be unreasonable as NGTL has no control over the actual number of Aboriginal groups that are employed or contracted for the Project. NGTL argued that as it cannot control whether or not it can satisfy such a condition, the Board should not include it as a condition.

NGTL indicated that it disagrees with Woodland Cree's concerns of having been given inadequate employment and procurement opportunities. NGTL noted that approximately 30 of the 50 individuals it had recently employed to work on the existing Otter Lake Compressor Station were Woodland Cree members. NGTL also replied that it had provided financial contribution to support Woodland Cree's Job Readiness Training Program for its community members in November 2015.

Views of the Board

The Board notes NGTL's estimates of the economic impacts of the Project, measured in terms of operating expenditures, tax revenues, gross domestic product, labour income, and person-years of employment.

The Board is satisfied that NGTL has identified and considered the relevant socio-economic aspects of the Project regarding Aboriginal employment and economic benefits, and has proposed suitable mitigation to address those aspects.

The Board recognizes the importance of realizing economic benefits to local and Aboriginal groups. The Board notes NGTL's commitments to provide contracting and procurement opportunities to qualified local and Aboriginal businesses during construction, and for the employment of local and Aboriginal workers whenever possible. The Board notes that NGTL has indicated specific services will be set aside for procurement by local Aboriginal service providers. The Board also notes that NGTL has indicated it regularly solicits input from Aboriginal groups to improve its Aboriginal Contracting and Employment Program and provides input for Aboriginal groups to increase their recruitment ability and capacity for future NGTL projects.

The Board is of the view that the Project would provide benefits to Aboriginal, local, regional and provincial economies, and that any adverse economic impacts of the Project would be adequately addressed.

Chapter 9

Toll Principles and Methodology

In its Application, NGTL requested relief under Part IV of the NEB Act regarding its proposed tolling methodology for the Project. In assessing a proposed tolling methodology, the Board considers whether the resulting tolls would be just and reasonable, and whether, under substantially similar circumstances and conditions with respect to all traffic of the same description carried over the same route, the tolls would be charged equally to all persons at the same rate. The Board must also be satisfied that a proposed tolling methodology would not result in any unjust discrimination in tolls, service or facilities. In order to make these determinations, the Board considers all relevant factors specific to each project application.

9.1 Introduction

NGTL has determined that the Project is based on increasing supply in the UJRA and on growing market demand in the OSDA.

NGTL estimates the capital cost of the Project in 2015 dollars to be $1.29 billion. NGTL added that the impact on the full-path tolls associated with the Project would be an increase of 2.3¢/Mcf over the first five years of the Project.

9.2 Part IV Relief Requested by NGTL

NGTL requested an Order from the Board pursuant to Part IV of the NEB Act affirming that:

a) prudently incurred costs required to provide service on the applied-for Project facilities will be included in the determination of the NGTL System revenue requirement; and

b) the tolls for services on the applied-for Project facilities will be calculated using the same methodology used to calculate tolls for services on all other facilities on the NGTL System, as determined through Board order from time to time.

Views of NGTL

NGTL submitted that through the Part IV relief requested, the costs of the proposed Project would be treated the same as the costs of the existing NGTL System in terms of inclusion in rate base and tolling methodology.

NGTL submitted that the Project is an expansion of the NGTL System in the current NGTL System footprint, and both are required to serve existing and incremental firm service requests for FT-D and FT-R services pursuant to the NGTL Tariff. The markets and supply areas that the Project would connect are indistinguishable from markets and supply areas currently served by the NGTL System.

NGTL stated that the Project would form an integral component of the NGTL System and is required to serve the aggregate requirements of the NGTL System, in the same manner as existing facilities of the NGTL System. Accordingly, NGTL is of the view that the allocation of risks (and benefits) of the Project should be no different than the allocation applicable to existing NGTL System facilities.

NGTL said that the allocation of risk across the NGTL System benefits shippers through lower cost of capital and thus lower tolls for the services they use. It also provides a framework under which investments in facilities can be made. NGTL added that therefore, shippers benefit from lower tolls, access to service and the certainty that results from the expectation that the tolling methodology would be applied consistently on the NGTL System.

NGTL indicated that the Part IV relief requested would not affect the existing distribution of risks for the NGTL System facilities between NGTL's shareholder and shippers, under which shippers generally bear the variability risk in costs and year-over-year throughput and the shareholder bears the fundamental risk of the pipeline.

NGTL stated that it is not requesting that the Board exclusively consider the prudency standard in determining whether costs for the Project are recoverable, either now or in the future.

NGTL also indicated that it is not seeking, through the relief requested, assurance of future cost recovery opportunity if fundamental risk materializes on the NGTL System.

Views of Participants

No Participants expressed any concerns with respect to the Part IV relief NGTL requested for the Project.

Views of the Board

The Board finds the proposed tolling methodology (rolled-in) proposed by NGTL to be appropriate for the circumstances of this Project. The rolled-in tolling methodology is consistent with NGTL's long-standing tolling practice for system expansions. The Board is of the view that the use of NGTL's current tolling methodology is supported by the fact that the applied-for Project facilities would be located within the NGTL System existing footprint and would result in the same tolls being applied to all shippers using the same transportation services over the same facilities.

The Board has decided to issue Order TG-006-2016 which grants NGTL relief pursuant to Part IV of the NEB Act. This Order is contingent on the Board issuing a Certificate in respect of the Project, should the Governor in Council direct the Board to do so. In issuing this Order, the Board emphasizes that it would not be precluded from determining that a different tolling treatment would be appropriate in the future. The Board also notes that it is not restricted, now or in the future, to the prudency standard when determining NGTL's opportunity for the recovery of costs associated with this Project.

9.3 NGTL's Proposed Tolling Methodology

NGTL confirmed that it would calculate the tolls for services on the applied-for Project facilities using the same methodology it uses to calculate tolls for services on the existing NGTL System.

Views of NGTL

NGTL submitted that the Project is an expansion that is required to meet the aggregate demand for receipt and delivery service on the NGTL System. In addition, the Project would be fully integrated with the rest of the NGTL System and used to provide transportation services pursuant to the NGTL Tariff. As a result, NGTL proposed to roll in the cost of the Project into the rate base of the NGTL System; and to apply the existing NGTL System tolling methodology, which may change from time to time, to the Project.

NGTL explained that the NGTL System employs a cost-based tolling methodology that reflects the integrated nature of the NGTL System where all system facilities are collectively used to provide service. As such, the capital costs associated with the Project would be added to the rate base of the NGTL System, and that rate base in its entirety and the prevailing toll design would be used as the basis for setting the revenue requirement and tolls over the entire NGTL System.

NGTL noted that its existing tolling methodology was considered by the Board in the RHW-1-2010 proceeding[11] and approved through Order-TG-04-2010. NGTL explained that this tolling methodology begins with the calculation of the annual revenue requirement for the entire NGTL System. From this, revenue for non-transportation and full-path transportation services are deducted, producing a net transportation revenue requirement. This net transportation revenue requirement is split into two functions, transmission and metering. As part of the toll design, the net transmission revenue requirement is allocated equally (50 per cent/50 per cent) between receipt and delivery services.

Views of Participants

Canadian Association of Petroleum Producers

CAPP submitted that its members are significant users of the NGTL System and, consequently, pay a significant portion of NGTL's revenues. CAPP confirmed that it supports NGTL's request to roll the capital costs of the Project into the rate base and to include the related costs in NGTL's regulated revenue requirement.

Western Export Group

WEG submitted that the Project would contribute to the capacity and integrity of the NGTL System as a whole and therefore it supports tolling for the Project on a rolled-in basis.

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[11] Board's Reasons for Decision RHW-1-2010, dated 12 August 2010 – NGTL Rate Design Methodology and Integration Application [A1T9X8].

Views of the Board

The Board is of the view that it is appropriate for NGTL to apply the proposed tolling methodology to this Project. The proposed capital expansion is within the NGTL System footprint and connects markets and supply areas that are similar to the markets and supply areas currently served by the existing NGTL System. In these circumstances, the Board finds applying the proposed tolling methodology to be acceptable. In the context of the Project, the Board is of the view that the proposed tolling methodology reasonably satisfies section 62 of the NEB Act, which requires that the same tolls should apply to all shippers using the same transportation services over the same facilities.

9.4 Tolling Impacts

NGTL used the estimated capital cost of the Project and the resulting incremental cost of service (COS) together with the incremental receipt and delivery contracts to assess the Project's toll impacts.

Views of NGTL

To illustrate the impact of the Project costs on tolls, NGTL modelled and compared two COS scenarios. The Base Case reflected NGTL's long-term throughput outlook, which included the Project's estimated COS presented in Table 9-1 below and the Project's incremental receipt and delivery contracts. A second, Comparative Case was determined based on the same economic assumptions with the exceptions that the Project's COS and incremental receipt and delivery contracts were excluded. NGTL explained that the difference in tolls between these two cases represents the illustrative toll impacts shown in Table 9-2 below. The reference to a full-path toll impact describes the impact on the combined receipt and delivery tolls and is presented as Total Toll Impact in Table 9-2.

NGTL submitted that the Project comprises seven Class 4 cost estimates, with an expected accuracy range of -15 per cent / +20 per cent. The cost estimates for each Project component were evaluated using an established TransCanada process which includes analysis on cost estimate class and accuracy range. This process was developed based on the Association for the Advancement of Cost Engineering Recommended Practice 18R-97. Class 4 estimates are typical at this stage of project design and planning, and would be refined as the Project progresses.

NGTL is of the view that the Operating Maintenance and Administration (OM&A) cost estimate of one per cent of capital is reasonable given historic trends.

In order to assess the incremental COS for the Project, NGTL used the current long-term average debt rate of 6.31 per cent, which is the same rate reflected in its calculation of the 2015 Final Revenue Requirement.

NGTL confirmed that the return on equity used to evaluate Project toll impacts is the current existing established return on equity for NGTL of 10.1 per cent applied to 40 per cent common equity ratio.

NGTL added that the expected increase in NGTL's revenue requirement as a result of rolling the applied-for Project facilities costs into the NGTL System's existing rate base is approximately $152 million in 2018 as shown in Table 9-1, the first full year the applied-for Project facilities are in service.

Table 9-1: Cost of Service ($000s)

Proposed Facilities	2017	2018	2019	2020	2021
Month in Service	April				
Project Capital Cost (2015$)	1,292,106				
Average Incremental Rate Base	994,836	1,298,039	1,260,153	1,222,267	1,184,382
OM&A	10,072	13,698	13,972	14,252	14,537
Depreciation	28,431	37,909	37,909	37,909	37,909
Municipal Taxes	5,344	7,268	7,414	7,562	7,713
Return	77,855	101,583	98,618	95,653	92,688
Income Tax	2,547	(8,557)	(5,305)	(2,454)	42
Total Incremental COS	124,250	151,902	152,608	152,921	152,889

Source: NGTL's Additional Written Evidence, Section 2.1.3 – Tolls, Table 2-3 [A4T8Q5].

NGTL submitted that the Project is a subset of an overall expansion of its NGTL System from 2015 to 2017, which includes a capital cost of $1.8 billion (2017 dollars) and 2.3 Bcf/d of incremental receipt and delivery contract demand. NGTL's three-year expansion plan includes a significant increase in contracts (1.8 Bcf/d) in the first two years, facilitated by only $600 million of the required capital cost.

Although the isolated impact of the applied-for Project facilities in Table 9-2 shows an expected toll increase, NGTL contended that the entire 2015–2017 expansion plan is expected to have a minimal impact on the NGTL full-path tolls as the incremental COS and contract demand revenue would be similar ($207 million versus $174 million). NGTL noted that the incremental FT-D contracts would total 355 TJ/d starting in April 2017 through to March 2018. The incremental FT-R contracts total 6,261 $10^3 m^3$/day (221 MMcf/d) for the same period as shown in Table 9-2.

Table 9-2: Cost of Service and Toll Impacts - 2017 NGTL System Expansion

	2017	2018	2019	2020	2021
Incremental COS ($Millions)	124	152	153	153	153
Incremental Receipt Contract Demand (MMcf/d)	118	221	221	221	221
Incremental Delivery Contract Demand (TJ/d)	174	355	355	355	355
Illustrative Toll Impacts (cents/Mcf/d)					
Average Firm Receipt	1.3	1.3	1.2	1.2	1.1
Average Firm Delivery	1.2	1.1	1.1	1.0	1.0
Total Toll Impact	2.5	2.4	2.3	2.2	2.2

Notes:
1. Contract Demand amounts are annual averages.
2. Average Firm Delivery toll impact represents the average of all three FTD groups.

Source: NGTL's Additional Written Evidence, Section 2.1.3 – Tolls, Table 2-4 [A4T8Q5].

NGTL submitted that the full-path rate impact associated with the applied-for Project facilities is an approximate increase of 2.3¢/Mcf over the first five years. On average, the total annual receipt and delivery revenue for a full year of service is $46 million whereas the incremental COS is about $153 million per year.

NGTL explained that the expected increase in its revenue requirement as a result of the 2015-2017 overall system expansion is approximately $220 million in 2018, the first full year that all Project facilities are expected to be in service. The estimated receipt and delivery revenue is based on average receipt and delivery tolls in the respective years and averages $178 million during the full years of service from 2018 through to 2021.The full-path total toll impact associated with the 2015-2017 system expansion is an approximate increase of 0.8¢/Mcf/d over the first five years.

Views of Participants

No Participants expressed any concerns with respect to the tolling impact of the applied-for Project facilities.

Views of the Board

The Board has reviewed the estimated capital cost of the Project relative to the impact on full-path tolls for shippers on the NGTL system and finds the impact acceptable in these circumstances. The Board is of the view that the increase in full-path tolls as a result of the Project is modest. The Board notes that the accuracy range of the capital cost estimate of the Project would have a small impact on tolls.

9.5 Abandonment Cost Estimate

Views of NGTL

According to NGTL, the Abandonment Cost Estimate (ACE) for the Project in 2014 dollars is $26 million ($22 million for the proposed pipeline section loops and $4 million for the proposed compressor station unit additions), which represents approximately 1.2 per cent of the ACE for the entire NGTL System. NGTL added that there would also be a commensurate impact on the Annual Contribution Amount and abandonment surcharge calculation on the NGTL System. These impacts would be reflected in periodic updates of ACE which NGTL files with the Board, as required by the Board's MH-001-2012[12] Reasons for Decision and in NGTL's Annual Contribution Amount calculation filings.

Views of Participants

No Participants expressed any concerns with respect to the ACE of the applied-for Project facilities.

Views of the Board

The Board notes that there were no concerns raised by Participants regarding the proposed ACE. The Board recognizes that NGTL's ACE for the Project would be addressed in a separate Board process.

[12] Board's Reasons for Decision MH-001-2012, dated 14 February 2013 – Abandonment Cost Estimates [A50478].

Chapter 10

Section 58 Components

NGTL proposed to commence construction of temporary infrastructure required for the Project as well as certain RoW preparation activities under section 58 of the NEB Act, subject to regulatory approvals. The temporary infrastructure required includes stockpile sites, contractor yards, access roads and travel lanes, helicopter landing pads, borrow pits/dugouts, laydown yards and construction camps.

In its Application for the Project, NGTL requested an Order from the Board, pursuant to section 58 of Part III of the NEB Act, exempting NGTL from the requirements of subsections 31(c), 31(d) and section 33 in relation to:

- temporary infrastructure required for pipeline construction; and
- RoW preparation activities in select areas along the proposed route for the Project.

Aboriginal Participants raised some concerns with regard to the Section the 58 Components. These concerns were primarily related to how the Project would negatively affect their Aboriginal rights and interests. The Board's assessment of the concerns raised by Aboriginal Participants and of the impacts on their interests is mostly dealt with in Chapter 5.

Views of NGTL

NGTL said that subject to the Board's approval for the Section 58 Components, work on temporary infrastructure would begin in the third quarter of 2016, before Pipeline construction.

NGTL indicated that it would prepare a stand-alone EPP to support the activities proposed under section 58 of the NEB Act, and that these activities would only be undertaken on limited sections of the Project RoW after the Certificate has been issued for the entire Project, and after any applicable conditions are satisfied.

NGTL also indicated that its proposed construction schedule would enable construction activities to occur primarily during the winter season to take advantage of frozen ground conditions for access to and along the Pipeline RoW. NGTL further stated that the proposed schedule would help reduce overall environmental impact by avoiding caribou and migratory bird restricted activity periods as well as timing restrictions associated with watercourse crossings.

NGTL confirmed that all land rights agreements have been obtained for the Pipeline RoW and TWS. NGTL stated that it anticipates that all remaining land rights required for valve sites, camp sites, and stockpile sites would be acquired and crossing agreements obtained in advance of construction.

Views of Participants

A number of the Aboriginal matters addressed elsewhere in this Report relate to the Section 58 Components, particularly concerns about access management; however, no Participants expressed any objection to the exemptions NGTL has requested in respect of the Section 58 Components.

Views of the Board

The Board's environmental assessment of the Project in Chapter 7 included the Section 58 Components. In it, the Board concluded that with the implementation of NGTL's proposed environmental protection procedures and mitigation measures, any commitments NGTL has made during the proceeding, and the terms and conditions the Board has set out in Appendices III and IV, the construction of the temporary infrastructure for the Project and the RoW preparation activities in select areas along the proposed route are not likely to cause significant adverse environmental effects.

Given the conclusions of the Board's environmental assessment, the stand-alone EPP to support activities related to Section 58 Components, and the commitment from NGTL to acquire all land rights in advance of construction, the Board has decided to grant Order XG-N081-013-2016, exempting NGTL from the requirements of subsections 31(c), 31(d) and section 33 of the NEB Act with respect to certain temporary infrastructure and RoW preparation activities. This Order is contingent on the Board issuing a Certificate in respect of the Project, should the Governor in Council direct the Board to do so.

Appendix I – List of Issues

The National Energy Board (Board) considered the following issues in the hearing:

1. The need for the Project.
2. The economic feasibility of the Project.
3. The potential commercial impacts of the Project.
4. The implications of the requested Part IV relief, including the distribution of long-term potential tolling and financial risks associated with the Project.
5. The potential environmental and socio-economic effects of the Project, including those to be considered under the *Canadian Environmental Assessment Act, 2012*.
6. The appropriateness of the general route and land requirements for the Project.
7. Potential impacts of the Project on Aboriginal interests.
8. Potential impacts of the Project on landowners and land use.
9. The engineering design and integrity of the Project.
10. Contingency planning for spills, accidents or malfunctions, during construction and operation of the Project.
11. Safety and security during construction and operation of the Project, including emergency response planning and third-party damage prevention.
12. The terms and conditions to be included in any recommendation or approval the Board may issue for the Project.

Appendix II – Participation in the Hearing

The National Energy Board (Board) encourages anyone wishing to more fully understand the context of the evidence provided by Participants during the course of the hearing, including written submissions and oral traditional evidenced presentations, to consult the Board's online public registry (hearing record) for the Project, which is accessible from the Board's website at www.neb-one.gc.ca.

Written Submissions by Intervenors

Table A below provides the types and sources of information and evidence submitted by Intervenors during the proceeding. It also indicates where the information can be found on the Board's hearing record for the Project.

Table A – Written Submissions by Intervenors

Intervenor (Folder ID)	Information Requests to NGTL (Exhibit #)	Evidence (Exhibit #)	Final Argument (Exhibit #)
Alexis Nakota Sioux Nation: C001	C1-04	C1-05 C1-07	C1-09
Asini Wachi Nehiyawak (Mountain Cree) Traditional Band: C004	C4-04 C4-06	C4-05	C4-08
Athabasca Chipewyan First Nation: C005	-	C5-02	C5-03
Bigstone Cree Nation: C006	C6-04 C6-05	C6-08	C6-11
Canadian Association of Petroleum Producers: C008	-	-	C8-02
Chard Métis Society: C012	C12-03 C12-05	C12-04 C12-08	C12-10
Chipewyan Prairie Industry Relations Corporation (authorized representative of Chipewyan Prairie Dene First Nation): C013	C13-03 C13-06	C13-09	C13-11
Doig River First Nation: C015	C15-05	C15-03	C15-14
Gift Lake Métis Settlement: C018	-	C18-03	-
McMurray Métis: C021	-	C21-05	-
Métis Nation of Alberta – Gunn Métis Local 55: C023	C23-03 C23-07	C23-04 C23-06	C23-08

Intervenor (Folder ID)	Information Requests to NGTL (Exhibit #)	Evidence (Exhibit #)	Final Argument (Exhibit #)
Paul First Nation: C026	-	-	-
Peavine Métis Settlement: C027	-	-	-
Samson Cree Nation: C029	-	C29-03 C29-04	C29-07
Swan River First Nation : C033	C33-02 C33-03	C33-04	-
Western Export Group: C036	C36-02	-	C36-03
Woodland Cree First Nation: C037	-	C37-03 C37-04	C37-05

Legend: "-" means no submission

Oral Traditional Evidence Presentations

HEARD and COLLECTED during sessions in Fort McMurray, Alberta on 27 October 2015; in Grande Prairie, Alberta on 30 October 2015; and in Edmonton, Alberta on 4 and 5 November 2015.

Table B provides information with regard to the Aboriginal Groups who presented oral traditional evidence during the proceeding. It also indicates where the transcripts of the presentations can be found on the Board's hearing record for the Project.

Table B – Oral Traditional Evidence Presentations

Aboriginal Intervenor	Presenters/Counsels (in order of presentations)	Transcript
In Fort McMurray, Alberta on 27 October 2015:		
Chard Métis Society	R. Montgrand M. A. Herman L. Carter (Counsel) D. Rae (Counsel)	Volume 1
In Grande Prairie, Alberta on 30 October 2015:		
Woodland Cree First Nation	Chief I. Laboucan-Avirom J. Whitehead Jr. Elder W. Whitehead Elder T. Cardinal A.M. Clarke (Counsel)	Volume 2

Doig River First Nation	Chief N. Davis Councillor G. Attachie Elder Margaret Davis Elder Madeleine Davis Elder R. Dominic Elder B. Attachie Elder T. Attachie Elder S. Acko A. Leong (Counsel)	Volume 2, Corrections: C15-13-01
In Edmonton, Alberta on 4 November 2015:		
Bigstone Cree Nation	Elder C. Auger Elder M. Beaver Elder F. Beaver Elder A. Yellowknee A. Lalji (Counsel) K. Bear Robe (Counsel)	Volume 3
Samson Cree Nation	N. Saddleback Elder K. Saddleback Elder L. Saddleback C. Johnson A. Lalji (Counsel) K. Bear Robe (Counsel)	Volume 3
In Edmonton, Alberta on 5 November 2015:		
Métis Nation of Alberta – Gunn Métis Local 55	Elder J. Findlay Elder G. McKenzie- Findlay Elder Stanley Belcourt Shelly Belcourt B. McElhanney (Counsel)	Volume 4

Letter of Comment Submissions

Table C lists those Commenters who filed a letter of comment with the Board during the proceeding. It also indicates where their letters can be found on the Board's hearing record for the Project.

Table C – Letter of Comment Submissions

Commenter (Folder ID)	**Letter of Comment (Exhibit #)**
East Prairie Métis Settlement: C016	C16-02 and C16-03
Environment and Climate Change Canada: D003	D3-02
Health Canada: D004	D4-02
The Explorers and Producers Association of Canada: D005	D5-02

Appendix III – Section 52 Certificate Conditions

In these conditions, the expression "commencing construction" includes the clearing of vegetation, ground-breaking and other forms of right-of-way (RoW) preparation that may have an impact on the environment (activities associated with normal surveying do not constitute commencing construction).

In these conditions, where any condition requires a filing with the National Energy Board (Board) "for approval" prior to taking an action, NGTL must not commence the indicated action or activity until the Board issues its approval of that filing.

In this document, the terms and expressions below (in bold) have the following meaning:

Project: NGTL's proposed 2017 NGTL System Expansion Project, and all its applied-for facilities and components.

Section 52 Facilities: The applied-for Project facilities consisting of approximately 230 kilometres (km) of pipeline in five new and separate pipeline section loops and two compressor station unit additions located at various existing sites in northern Alberta.

Certificate: The Certificate of Public Convenience and Necessity (Certificate) applied for by NGTL under section 52 of Part III of the *National Energy Board Act* (NEB Act), authorizing the construction and operation of the Section 52 Facilities of the Project.

Conditions for the Certificate, if Granted

General / Overarching

1. Condition Compliance

NGTL must comply with all of the Certificate conditions, unless the Board otherwise directs.

2. Engineering

NGTL must cause the Project to be designed, located, constructed, installed and operated in accordance with the specifications, standards, commitments made and other information included in or referred to in its Project Application or in its related submissions.

3. Implementation of Environmental Protection

NGTL must implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations, procedures and its commitments for the protection of the environment included in or referred to in its Project Application or in its related submissions.

4. Sunset Clause (Certificate Expiration)

Unless the Board otherwise directs prior to *two years from the date of the Certificate*, the Certificate shall expire *two years from the date of the Certificate*, unless construction in respect of the Section 52 Facilities has commenced by that date.

<u>Prior to Commencing Construction</u>

5. Commitments Tracking Table

NGTL must:

a) file with the Board and post on its Project website, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, **within 90 days of the Certificate date and at least 30 days prior to commencing construction of the Section 52 Facilities**, a Commitments Tracking Table (CTT) listing all commitments made by NGTL in its Project Application or in its related submissions, including reference to:

   i) the documentation in which the commitment appears (for example, the Project Application, responses to information requests, hearing transcripts, permit requirements, condition filings, or other);

   ii) the accountable lead for implementing each commitment; and

   iii) the estimated timelines associated with the fulfillment of each commitment.

b) update the status of the commitments in a) on its Project website, file these updates with the Board, and notify Aboriginal groups who have expressed to NGTL an interest in this filing on a:

   i) monthly basis until commencement of operation; and

   ii) quarterly basis thereafter until the end of the fifth (5th) year following the commencement of operation; and

c) maintain at its construction office(s):

   i) the CTT listing all regulatory commitments and their completion status, including, but not limited to, those commitments resulting from NGTL's Project Application and subsequent filings and conditions from permits, authorizations and approvals;

   ii) copies of any permits, approvals or authorizations issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and

   iii) any subsequent variances to permits, approvals or authorizations in c) ii).

6. Environmental Protection Plan (EPP)

NGTL must file with the Board for approval, **at least 60 days prior to commencing construction**, an updated EPP specific to the Section 52 Facilities of the Project that includes, but is not limited to, the following:

a) environmental protection procedures (including site-specific plans), criteria for implementing these procedures, mitigation measures and monitoring applicable to all Project phases and activities;

b) a reclamation plan, which includes a description of the condition to which NGTL intends to reclaim and maintain the rights-of-way, once construction has been completed, and a description of measurable goals for reclamation;

c) a list of measures to be taken during construction to minimize disturbance to caribou and caribou habitat and help accelerate habitat restoration, including:

    i) any provincial and federal best practices, requirements and timing restrictions specifically related to minimizing construction disturbance; and

    ii) the criteria for where those measures will be taken.

d) all specific mitigation related to species at risk and their habitat, Key Wildlife and Biodiversity Zones, trumpeter swan waterbodies, Grizzly Bear Secondary Areas and Special Access Zones;

e) updated environmental alignment sheets; and

f) evidence demonstrating that consultation took place with relevant government authorities, where applicable.

The EPP must be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's Project Application, subsequent filings, or as otherwise agreed to through the hearing process. The EPP must describe the criteria for the implementation of all procedures and measures, and must use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. Construction must not commence until NGTL has received approval of its EPP from the Board.

7. Revised Caribou Habitat Restoration and Offset Measures Plan (CHR&OMP)

NGTL must file a revised version of the CHR&OMP with the Board for approval, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, **at least 60 days prior to commencing construction,** for areas of the Project in critical caribou habitat in the Boundary Lake and Pelican Lake Sections. The updated version of the CHR&OMP is to include revisions based on evidence collected during the hearing process; notably, details relevant to the implementation of restoration measures and estimates provided in NGTL's responses to information requests. The filing is also to provide a listing or revision log of the updates made, the reference where they can be found in the revised CHR&OMP, as well as their reference from the hearing evidence.

NGTL must provide a copy of the filing to Environment and Climate Change Canada and also to the appropriate provincial authorities.

8. Outstanding Traditional Land Use Investigations

NGTL must, **at least 60 days prior to commencing construction**, file with the Board for approval, and send copies to the Aboriginal groups included in its consultation activities, a report on any outstanding traditional land use (TLU) investigations for the Project.

The report must include, but is not limited to:

a) a summary of the status of TLU investigations undertaken for the Project, including Aboriginal group-specific TLU studies or planned supplemental surveys;

b) a description of how NGTL has considered and addressed information from any TLU investigations on which it did not report during the GH-002-2015 proceeding;

c) a description of any outstanding concerns raised by potentially-affected Aboriginal groups regarding potential effects of the Project 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;

d) a summary of any outstanding TLU investigations or follow-up activities that will not be completed prior to commencing construction, including an estimated completion date, if applicable, and a description of how NGTL has already identified, or will identify, any potentially-affected TLU sites or resources if the outstanding investigations will not be completed prior to construction; and

e) a description of how NGTL has incorporated any revisions into the TLU Site Discovery Contingency Plan.

9. Emergency Response Plan for Construction

NGTL must file with the Board, **at least 45 days prior to commencing construction,** the Project-specific Emergency Response Plan that would be implemented during the construction phase of the Project. The plan must include spill contingency measures that NGTL will employ in response to accidental spills attributable to construction activities, 24-hour medical evacuation, fire response, and security.

10. Heritage Resources

NGTL must file with the Board, **at least 30 days prior to commencing construction**:

a) for each of the Project pipeline sections, confirmation, signed by an officer of the company, that it has obtained all of the required archeological and heritage resource permits and clearances from the relevant provincial authorities;

b) a description of how NGTL will meet any conditions and respond to any comments and recommendations contained in the permits and clearances referred to in a) above; and

c) a description of how NGTL has incorporated any additional mitigation measures into its Environmental Protection Plans as a result of any conditions or recommendations referred to in b).

11. Reclamation Plan for Temporary Workspace in the K'ih tsaa?dze Tribal Park (KTP)

NGTL must file with the Board, **30 days prior to commencing construction of the Section 52 Facilities**, a Reclamation Plan to enhance the regeneration of vegetation in the temporary workspace in the KTP that includes:

a) a description of the goals for reclamation, including the condition to which NGTL intends to return all or part of the temporary workspace; and

b) confirmation that the status of reclamation will be reported in Post-Construction Monitoring Reports.

12. Plan for Aboriginal Participation in Monitoring Construction Activities

NGTL must file with the Board, and serve a copy on those Aboriginal groups identified in b), **at least 30 days prior to commencing construction**, a plan describing participation by Aboriginal groups in monitoring Project construction activities. The plan must include:

a) a list of the Aboriginal groups engaged concerning participation in monitoring during construction;

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

c) a description of the scope, methodology, and measures for monitoring activities to be undertaken by each participating Aboriginal group identified in b), including:

    i) a summary of engagement activities undertaken with participating Aboriginal groups to determine the proposed scope, methodology, and measures for monitoring;

    ii) those elements of construction and geographic locations that will involve Aboriginal monitoring;

    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 groups.

13. Aboriginal Engagement Reports

NGTL must file with the Board, **at least 30 days prior to commencing construction of the Section 52 Facilities**, and every six months thereafter until completing construction, a report summarizing NGTL's engagement with all potentially affected Aboriginal groups identified. These reports must include:

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

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

c) a description of any outstanding concerns; and

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

14. Update on Consultation Regarding Construction Noise Mitigation

NGTL must file with the Board, **at least 30 days prior to commencing construction**, an update regarding construction noise mitigation, including:

a) a summary of consultation activities with the residents living within 200 metres of the Bear Canyon Section, the residents living within 350 metres of the direct pipe installation under Highway 16 on the McLeod River Section, and the owners of the two potentially affected seasonal cabins on the Pelican Lake Section; and

b) a summary of the need for, and selection of, appropriate mitigation to address any concerns regarding construction noise.

15. Programs and Manuals

NGTL must file the following programs and manuals with the Board, and notify Aboriginal Groups who have expressed to NGTL an interest in these filings, within the time specified:

a) updated Construction Safety Manual(s), pursuant to section 20 of the *National Energy Board Onshore Pipeline Regulations* (OPR): **at least 14 days prior to construction**;

b) Field Joining Program: **at least 14 days prior to the commencement of joining activity**;

c) Field Pressure Testing Program: **at least 14 days prior to the commencement of pressure testing**;

d) Operation & Maintenance Manual: **at least 14 days prior to the commencement of operation**; and

e) confirmation that the existing Emergency Procedures Manual(s) are inclusive of the Project or confirmation the existing Emergency Procedures Manual(s) do not require updating: **at least 14 days prior to the commencement of operation**.

16. Construction Schedule

NGTL must file with the Board, **at least 14 days prior to commencing construction of the Project**, a detailed construction schedule(s) identifying major construction activities, and must notify the Board of any modifications to the schedule(s) as they occur.

17. Final Pipe Specifications

NGTL must file with the Board, at least **14 days prior to commencing construction**, NGTL's final Pipeline Construction Specifications.

<u>During Construction</u>

18. Construction Progress Reports

NGTL must file with the Board, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, **by the middle and end of each month during construction of the Section 52 Facilities**, construction progress reports. The reports must include information on the activities carried out during the reporting period; any environmental, socio-economic, safety and security issues and issues of non-compliance; and the measures undertaken for the resolution of each issue and non-compliance.

Each construction progress report filed for the Boundary Lake and Pelican Lake Sections of the Project must also include:

a) an update as to which construction activities are on schedule or delayed with respect to the construction schedule filed with the Board during the hearing process; and

b) a description of what additional measures will be implemented to remain on schedule to complete construction outside of the caribou critical timing window.

19. Horizontal Directional Drilling and Microtunneling

NGTL must file with the Board, at **least 60 days before commencement of horizontal directional drilling and microtunneling**, NGTL's horizontal directional drilling and microtunneling execution programs.

20. Cathodic Protection

NGTL must file with the Board, at least **14 days prior to installing cathodic protection in wetland areas**, a detailed description of the specific measures NGTL will implement to ensure cathodic protection is adequately maintained under the concrete coating or weights in wetland areas.

21. Slope and Bank Failures

NGTL must file with the Board, at least **14 days prior to commencing geotechnical work**, a detailed description and the scope of the mitigation necessary to protect the Project facilities and the rights-of-way; and to prevent future bank or slope failures.

22. Watercourse Crossing Inventory

NGTL must file with the Board, **at least 60 days prior to commencing any watercourse crossing construction activities**, the following:

a) an updated inventory of all watercourses to be crossed, including, for each crossing:

    i) the name of the watercourse being crossed and an identifier for the crossing;

    ii) the location of the crossing;

    iii) the primary and contingency crossing methods;

iv) planned construction timing;

v) information on the presence of fish and fish habitat;

vi) the restricted activity period;

vii) an indication of whether any of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" cannot be implemented;

b) detailed generic design drawings of trenchless, dry open-cut, frozen open-cut, and isolation crossings of various watercourse types;

c) site-specific information for each watercourse crossing where <u>any</u> of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" cannot be implemented for the primary watercourse construction method:

i) detailed crossing-specific engineered design drawings;

ii) photographs up-stream, down-stream, and at the crossing location;

iii) a description of the fish species and habitat that is present at the crossing location, and if fish spawning is likely to occur within the immediate area;

iv) a description of the composition of the riparian habitat at the crossing location and an indication if the riparian habitat has a limiting effect on the productive capacity of the watercourse, and if its removal or disturbance represents a potential influence on fish communities;

v) the site-specific mitigation and habitat enhancement measures to be used to minimize impacts;

vi) any potential residual effects;

vii) proposed reclamation measures; and

viii) a discussion of the potential impacts to local fisheries resources within the immediate area as a result of the crossing's construction.

23. Authorizations Under Paragraph 35(2)(b) of the Fisheries Act

a) For any watercourse crossings that will require Authorization under paragraph 35(2)(b) of the *Fisheries Act*, NGTL must file with the Board, **at least 10 days prior to commencing the respective instream activities**, a copy of the Authorization under paragraph 35(2)(b) of the Fisheries Act; and

b) NGTL must confirm, **within 30 days after commencing operations**, that any required *Fisheries Act* Authorizations were obtained from Fisheries and Oceans Canada and filed with the Board pursuant to a), or notify the Board if no Authorizations were required.

24. Contingency Watercourse Crossings

a) For any watercourse crossing where NGTL will employ a contingency crossing method instead of its proposed primary method, and where any of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" cannot be

implemented, NGTL must file with the Board **at least 30 days prior to commencing construction of the contingency watercourse crossing**:

i) confirmation of the contingency watercourse crossing method that will be employed, the rationale for employing that method, and a summary of the differences between the primary and contingency watercourse crossing methods; and

ii) the following site-specific information:

i. detailed crossing-specific engineered design drawings;

ii. photographs upstream, downstream, and at the crossing location;

iii. a description of the fish species and habitat that is present at the crossing location, and if fish spawning is likely to occur within the immediate area;

iv. the site-specific mitigation and habitat enhancement measures to be used to minimize impacts;

v. any potential residual effects;

vi. proposed reclamation measures; and

vii. a discussion of the potential impacts to local fisheries resources within the immediate area as a result of the crossing's construction.

b) For all other instances where a contingency crossing method will be employed and all of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" will be implemented, NGTL must file with the Board a notification, **at least 15 days prior to commencing the contingency crossing**, that the contingency method will be employed. With this notification, NGTL must explain why the contingency method is being employed and provide a summary of the differences between the primary and contingency watercourse crossing methods.

c) NGTL must confirm, **within 30 days after commencing operations**, that any contingency watercourse crossing(s) identified to the Board pursuant to a) and b) were the only contingency watercourse crossing(s) implemented for the construction of the pipeline.

25. Hydrostatic Testing Plan

NGTL must file with the Board, **at least 30 days prior to pressure testing**, a Hydrostatic Testing Plan for the Project that includes:

a) details of the location(s) of water withdrawal and discharge, and how these were selected;

b) clearing activities or any other associated works, if required, to allow for access to or transport of the hydrostatic test water to and from the Project facilities;

c) the rate(s) and volume(s) of water withdrawal;

d) the flow rate/volume of water at withdrawal location(s);

e) the volume(s) and rate(s) of water discharge;

f) site-specific mitigation measures to be used for the water withdrawal and discharge locations, or at any other locations required for hydrostatic test water; and

g) any applicable provincial authorizations and mitigation requirements.

26. Welding and Non-Destructive Examination Procedures

NGTL must, during construction, maintain at each construction site:

a) a copy of the welding procedures;

b) a copy of the applicable non-destructive examination and testing procedures used on the Project; and

c) all supporting documentation related to non-destructive testing.

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

27. Geotechnical Report Regarding Slope Stability

NGTL must file with the Board, **within 90 days of the completion of construction**, a geotechnical report which includes:

a) geotechnical observations;

b) field recommendations;

c) how NGTL implemented the field recommendations during construction of the Project;

d) location of trench breakers, drainage and erosion control measures;

e) all of the slope stabilization techniques implemented;

f) recommendations with respect to follow-up monitoring, notably at locations where inactive slide areas have been noted;

g) a plan to follow up on the recommendations made in f); and

h) a rationale for circumstances where field or other recommendations have not been implemented.

28. Geotechnical Report Regarding Muskeg

NGTL must file with the Board, **within 90 days of the completion of construction**, a geotechnical report which includes, but is not limited to:

a) muskeg observations;

b) field recommendations;

c) how NGTL implemented the field recommendations during construction of the Project;

d) recommendations with respect to follow-up monitoring;

e) a plan to follow up on the recommendations made; and

f) a rationale for any instance where recommendations have not been implemented.

29. Geotechnical Report Regarding Permafrost

NGTL must file with the Board, **within 90 days of the completion of construction**, a geotechnical report which summarizes:

a) permafrost observations;

b) field recommendations;

c) how NGTL implemented the field recommendations during construction of the Project;

d) recommendations with respect to follow-up monitoring;

e) a plan to follow up on the recommendations made; and

f) a rationale for any circumstances when recommendations are not followed.

30. Pipeline Geographic Information System (GIS) Data

NGTL must provide to the Board, **within 1 year after commencing operations**, GIS data in the form of an Esri shapefile that contains pipeline segment centre lines, where each segment has a unique outside diameter, wall thickness, maximum operating pressure, external coating, field-applied girth weld coating, and pipe manufacturing specification. If the above values of the pipeline change at any point along the length of the pipeline, the pipeline should be segmented at that point. NGTL must also provide GIS locations and names of facilities such as compressor stations, meter stations, launcher and receiver facilities, and block valves, as applicable.

The datum must be NAD83 and projection must be geographic (latitude and longitude).

31. Caribou Habitat Restoration Implementation Report and Status Update

NGTL must file with the Board for approval, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, an implementation report and status update for the habitat restoration measures implemented on the Project rights-of-way **on or before 1 July after the implementation of rights-of-way habitat restoration measures**, for areas of the Project in critical caribou habitat in the Boundary Lake and Pelican Lake Sections. The implementation and status update must include, but is not limited to:

a) a table of caribou habitat restoration measures implemented including, their location on the rights-of-way, their distance or spatial extent, the site specific method applied at each location, a description of the adjacent off-rights-of-way habitat, as well as any site-specific challenges;

b) updated Environmental Alignment Sheets showing the types of measures implemented and at what locations;

c) a quantitative assessment and populated tables of the total remaining disturbance (direct and indirect) that was carried into the initial offset value (IOV) calculation, including the disturbance before restoration, the restored footprint and the total remaining disturbance;

d) updates to consultation logs;

e) offset measures planning status; and

f) updates or considerations, if any, from relevant Provincial range or action plans.

NGTL must provide a copy of the filing to Environment and Climate Change Canada and also the appropriate provincial authorities.

32. Caribou Habitat Restoration and Offset Measures Monitoring Program (CHROMMP)

NGTL must file with the Board for approval, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, **on or before 1 November after the first complete growing season**, a final Program for monitoring and verifying the effectiveness of the caribou habitat restoration and offset measures implemented as part of the CHRP and OMP. This CHROMMP must include, but not be limited to:

a) the scientific methodology and protocols for short-term and long-term monitoring of the restoration and offset measures, including the appropriate duration of monitoring for each type of measure implemented;

b) sufficient sampling and control locations to provide statistical validity for each measure, accounting for ecological conditions;

c) frequency, timing, locations and the rationale for each monitoring;

d) protocols for how restoration and offset measures will be adapted, as required, based on the monitoring results from either this Program or other NGTL Caribou Habitat Restoration and Offset Measures Monitoring Plans or Programs;

e) a quantitative assessment that demonstrates how the previously calculated residual effects have been offset by the measures implemented, to be updated in each report based on monitoring results; and

f) a schedule for filing reports of monitoring results and the adaptive management responses, to the Board, Environment and Climate Change Canada and provincial authorities to be contained in the CHROMMP as well as at the beginning of each report filed.

33. Caribou Monitoring Reports

NGTL must file with the Board for approval, based on the schedule referred to in the Caribou Habitat Restoration and Offset Measures Monitoring Program (CHROMMP), a report(s) outlining the results of the CHROMMP. NGTL must also notify Aboriginal groups who have expressed to NGTL an interest in this filing when the filings are available.

34. Caribou Habitat Offset Measures Implementation Report

NGTL must file with the Board for approval, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, a Caribou Habitat Offset Measures Implementation Report demonstrating how all Project related residual effects from directly and indirectly disturbed caribou habitat have been offset. This implementation report must be filed **on or before 31 March after the implementation of offset measures** and must include:

a) an inventory of what measures were implemented, at what map locations, for what distance or spatial area, and on what type of previous disturbance (e.g., type, width, age, condition);

b) a description of factors considered when determining the location for offset measures, including consideration of both site-specific factors, landscape-level factors and how the selected locations optimized landscape restoration or preservation;

c) how the measures at those locations met the Offset Measures Plan criteria for offsets;

d) a quantitative assessment of the final offset value (FOV) calculations, based on the revised CHR&OMP and inventory of measures implemented from (a), and demonstrating how the offset measures have offset the previously calculated residual effects; and

e) evidence of how consultation feedback was integrated into the implementation of offsets, including:

    i) any feedback from provincial authorities and

    ii) any potentially affected Aboriginal groups where the offset measures may be implemented.

NGTL must provide a copy of the filing to Environment and Climate Change Canada and also the appropriate provincial authorities.

35. Condition Compliance by the Accountable Officer

Within 30 days of the date that the approved Section 52 Facilities of the Project are placed in service, NGTL must file with the Board a confirmation 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, NGTL must file with the Board details as to why compliance cannot be confirmed. The filing required by this condition must include a statement confirming that the signatory to the filing is the accountable officer of NGTL, appointed as Accountable Officer pursuant to section 6.2 of the OPR.

36. Post-Construction Monitoring Reports

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

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

b) identifies any modifications for the criteria established for evaluating reclamation success described in its EPP, as approved by the Board, and the rationale for any modifications;

c) identifies the issues to be monitored, including but not limited to unexpected issues that arose during construction, and their locations (e.g., on a map or diagram, in a table);

d) describes the current status of the issues (resolved or unresolved), any deviations from plans and corrective actions undertaken;

e) assesses the effectiveness of the mitigation (planned and corrective) measures applied against the criteria for success;

f) includes details of consultation undertaken with the appropriate provincial and federal authorities;

g) provides proposed measures and the schedule that NGTL would implement to address ongoing issues or concerns; and

h) includes confirmation that NGTL has notified Aboriginal groups who have expressed to NGTL an interest in this filing.

The report must include, but is not limited to, information specific to the effectiveness of mitigation applied to minimize effects to: soils, weeds, watercourse crossings, wetlands, rare plants, wildlife and wildlife habitat, wildlife species at risk and of special concern, including western toad habitat and caribou habitat, fish and fish habitat, Key Wildlife and Biodiversity Zones, trumpeter swan waterbodies, Grizzly Bear Secondary Area, Special Access Zones, and any activities associated with the hydrostatic testing plan.

NGTL must also include an evaluation of the effectiveness of the access control measures.

Appendix IV – Section 58 Order Conditions

In these conditions, the expression "commencing construction" includes the clearing of vegetation, ground-breaking and other forms of right-of-way preparation that may have an impact on the environment (activities associated with normal surveying do not constitute commencing construction).

In these conditions, where any condition requires a filing with the National Energy Board (Board) "for approval" prior to taking an action, NGTL must not commence the indicated action or activity until the Board issues its approval of that filing.

In this document, the terms and expressions below (in bold) have the following meaning:

Project: NGTL's proposed 2017 NGTL System Expansion Project, and all its applied-for facilities and components.

Section 58 Components: NGTL's proposed temporary infrastructure required for the construction and operation of the Project and right-of-way preparation activities in areas along the proposed route. These components of the Project include stockpile sites, contractor yards, access roads and travel lanes, helicopter landing pads, borrow pits/dugouts, laydown yards and construction camps.

Order: Order applied for by NGTL, under section 58 of Part III of the NEB Act, exempting NGTL from the requirements of subsections 31(c) and 31(d), and section 33 of the NEB Act in relation to the Section 58 Components of the Project.

Conditions for the Section 58 Order

General / Overarching

1. Condition Compliance

NGTL must comply with all of the Order conditions, unless the Board otherwise directs.

2. Engineering

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

3. Implementation of Environmental Protection

NGTL must implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations, procedures and its commitments for the protection of the environment included in or referred to in its Project Application or in its related submissions.

4. Sunset Clause (Order Expiration)

Unless the Board otherwise directs prior to *two years from the date this Order takes effect,* the Order shall expire *two years from its effective date*, unless construction in respect of the Section 58 Components of the Project has commenced by that date.

Prior to Commencing Construction

5. Manuals

NGTL must file with the Board, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, Construction Safety Manual(s) pursuant to section 20 of the *National Energy Board Onshore Pipeline Regulations* (OPR), **at least 14 days prior to commencing construction of the Section 58 Components**.

6. Commitments Tracking Table

NGTL must:

a) file with the Board and post on its Project website, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, **at least 30 days prior to commencing construction**, a CTT listing all commitments made by NGTL in its Project Application or in its related submissions regarding the Section 58 Components, including reference to:

   i) the documentation in which the commitment appears (for example, the Project Application, responses to information requests, hearing transcripts, permit requirements, condition filings, or other);

   ii) the accountable lead for implementing each commitment; and

   iii) the estimated timelines associated with the fulfillment of each commitment.

b) maintain at its construction office(s):

   i) the CTT listing all regulatory commitments and their completion status, including, but not limited to, those commitments resulting from NGTL's Project Application and subsequent filings and conditions from permits, authorizations and approvals;

   ii) copies of any permits, approvals or authorization for the Section 58 Components issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and

   iii) any subsequent variances to any permits, approvals or authorizations in b) ii).

7. Environmental Protection Plan (EPP)

NGTL must file with the Board for approval, **at least 45 days prior to commencing construction**, an updated EPP (including Environmental Alignment Sheets) specific to the Section 58 Components of the Project. The EPP must be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's Project Application, subsequent filings, or as otherwise agreed to through the hearing process. The EPP must describe the criteria for the implementation of all procedures and measures, and must use clear and unambiguous language that confirms NGTL's intention to implement all of its commitments. Construction must not commence until NGTL has received approval of its EPP from the Board.

8. Heritage Resources

NGTL must file with the Board, **at least 30 days prior to commencing construction**:

a) for each of the Section 58 Components of the Project, confirmation, signed by an officer of the company, that it has obtained all of the required archaeological and heritage resource permits and clearances from the relevant provincial authorities;

b) a description of how NGTL will meet any conditions and respond to any comments and recommendations contained in the permits and clearances referred to in a) above; and

c) a description of how NGTL has incorporated any additional mitigation measures into its Environmental Protection Plans as a result of any conditions or recommendations referred to in b).

9. Emergency Response Plan for Construction

NGTL must file with the Board, **at least 45 days prior to commencing construction of the Section 58 Components,** the Project-specific Emergency Response Plan. The plan must include spill contingency measures that NGTL will employ in response to accidental spills attributable to construction activities, 24-hour medical evacuation, fire response, and security.

10. Construction Schedule

NGTL must file with the Board, **at least 14 days prior to commencing construction**, a detailed construction schedule(s) for the Section 58 Components identifying major construction activities, and must notify the Board of any modifications to the schedule(s) as they occur.

<u>During Construction</u>

11. Construction Progress Reports

NGTL must file with the Board, and notify Aboriginal groups who have expressed to NGTL an interest in this filing, **by the end of each month during construction of the Section 58 Components of the Project**, construction progress reports. The reports must include information on the activities carried out during the reporting period; any environmental, socio-economic,

safety and security issues and issues of non-compliance; and the measures undertaken for the resolution of each issue and non-compliance.

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

12. Condition Compliance by the Accountable Officer

Within 30 days of the date that the Section 58 Components of the Project are completed, NGTL must file with the Board confirmation that the Section 58 Components were completed in compliance with all applicable conditions in this Order.

If compliance with any of these conditions cannot be confirmed, NGTL must file with the Board details as to why compliance cannot be confirmed. The filing required by this condition must include a statement confirming that the signatory to the filing is the accountable officer of NGTL, appointed as Accountable Officer pursuant to section 6.2 of the OPR.