

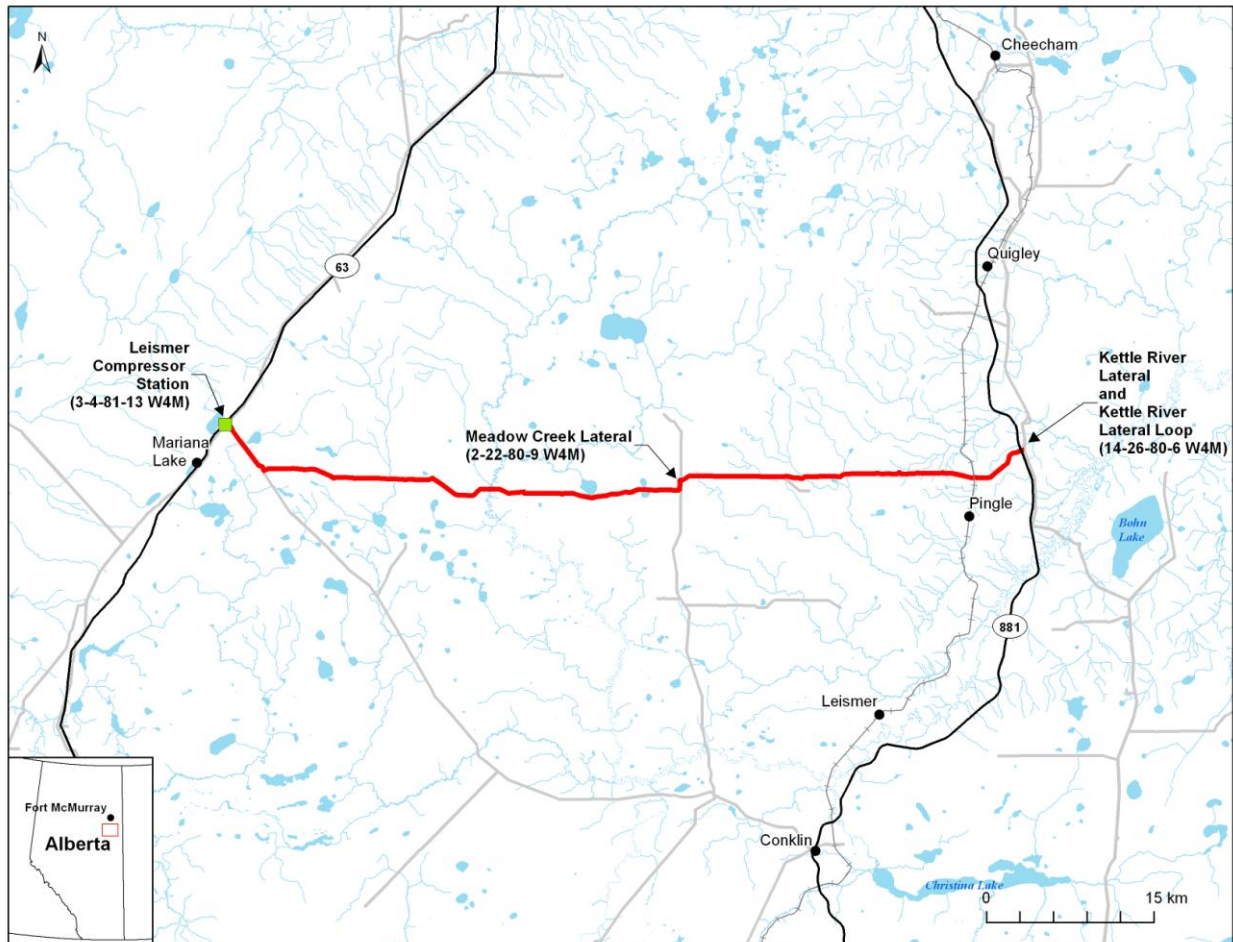


ENVIRONMENTAL SCREENING REPORT

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

Leismer to Kettle River Crossover Project

Applicant Name:	NOVA Gas Transmission Ltd.		
Application Date:	15 July 2011	CEA Act Registration Date:	13 December 2010
National Energy Board File Number:	OF-Fac-Gas-N081-2010-15 02	Canadian Environmental Assessment Registry Number:	10-01-59629
CEA Act Law List Trigger:	Section 52 of the <i>National Energy Board Act</i>	CEA Act Determination Date:	19 June 2012



SUMMARY

NOVA Gas Transmission Ltd. (NGTL) applied to the National Energy Board (Board or NEB), pursuant to section 52 of the *National Energy Board Act*, to construct and operate a 77 kilometre (km) long buried sweet natural gas pipeline, which is referred to as the Leismer to Kettle River Crossover Project (the Project). The Project is located 90 km south of Fort McMurray, Alberta.

Both the NEB and Transport Canada are Responsible Authorities (RAs) pursuant to the *Canadian Environmental Assessment Act*, while Environment Canada, Fisheries and Oceans Canada, Natural Resources Canada and Health Canada have identified themselves as Federal Authorities (FAs) in possession of specialist expert information or knowledge.

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

Numerous potential adverse effects of the Project, both bio-physical and socio-economic, have been identified. Key issues of concern relate to species at risk identified in the *Species at Risk Act* and by the Committee on the Status of Endangered Wildlife in Canada (including caribou), cumulative effects and Aboriginal traditional land and resource use.

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

LIST OF ACRONYMS AND ABBREVIATIONS

ACCS	Alberta Culture and Community Services
ASRD	Alberta Sustainable Resource Development
BLCN	Beaver Lake Cree Nation
Board or NEB	National Energy Board
CEA	cumulative effects assessment
CEA Act	<i>Canadian Environmental Assessment Act</i>
CEARIS	Canadian Environmental Assessment Registry Internet site
ChardML	Chard Métis Local #214
CRDNC	Christina River Dene Nation Council
CHRP	Caribou Habitat Restoration Plan
CNR	Canadian National Railway
ConklinML	Conklin Métis Local #193
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPDFN	Chipewyan Prairie Dene First Nation
CP	cathodic protection
CPP	Caribou Protection Plan
DFO	Fisheries and Oceans Canada
EA	environmental assessment
EC	Environment Canada
EPP	Environmental Protection Plan
ESA	Environmental and Socio-Economic Assessment prepared by NGTL
ESAR	East Side of Athabasca River
ESR	Environmental Screening Report prepared pursuant to the CEA Act
FA	Federal Authority
FMFN	Fort McMurray #468 First Nation
FMML	Fort McMurray Métis Local #1935
GHG	greenhouse gas
ha	Hectare
HADD	harmful alteration, disruption or destruction
HDD	horizontal directional drilling
HLFN	Heart Lake First Nation
HRIA	Historical Resources Impact Assessment
IR	Indian Reserve
km	kilometre
LARP	Lower Athabasca Regional Plan (Draft)
LSA	local study area
LSD	legal subdivision

m	metre
mm	millimetre
MSD	minimal surface disturbance
NEB Act	<i>National Energy Board Act</i>
NGTL	NOVA Gas Transmission Ltd.
OD	outside diameter
PCMP	post-construction monitoring program
Pipeline	77 km pipeline for the proposed Leismer to Kettle River Crossover Project
Project	NOVA Gas Transmission Ltd. proposed Leismer to Kettle River Crossover Project
RA	Responsible Authority
RAP	restricted activity period
RoW	right-of-way
RMWB	Regional Municipality of Wood Buffalo
RSA	regional study area
SARA	<i>Species at Risk Act</i>
TC	Transport Canada
TCPL	TransCanada PipeLines Limited
TLU	traditional land use
TWS	temporary workspace
VEC	valued environmental components
WLML	Willow Lake Métis Local #780
WMU	Wildlife Management Unit

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1.0 INTRODUCTION

1.1 Project Overview

NOVA Gas Transmission Ltd. (NGTL), a wholly owned subsidiary of TransCanada PipeLines Limited (TCPL), has applied to construct and operate a new 77 kilometre (km) long, buried sweet natural gas pipeline, which is referred to as the Leismer to Kettle River Crossover Project (Project). The Project is located 90 km south of Fort McMurray, Alberta.

The 77 km 762 mm (30-inch) outside diameter (OD) pipeline (Pipeline) would extend from the existing Leismer Compressor Station to an existing 273.1 mm (10-inch) OD Kettle River Lateral and 406.4 mm (16-inch) OD Kettle River Lateral Loop at legal subdivision (LSD) 14-26-80-6 W4M.

The Pipeline right-of-way (RoW) would parallel existing linear disturbances for approximately 55 km, of which, approximately 29 km is considered contiguous and approximately 26 km is considered non-contiguous. The remaining 22 km of RoW for the Project does not parallel existing linear disturbances.

Approximately 264 hectares (ha) would be required to construct the Pipeline. Section 4.0 of this report provides a detailed description of the works and activities associated with the Project.

NGTL is proposing to begin construction in the fourth quarter of 2012 and the proposed in-service date is in the second quarter of 2013. The estimated cost of the Project is \$157 million.

1.2 Rationale for the Project

The Project is part of a multi-year planned expansion of NGTL's existing Kirby Regional natural gas system in order to provide additional capacity to supply sweet natural gas in northeastern Alberta. Collectively, this Project and other future projects involve transporting gas from other parts of NGTL's Alberta System¹ to supplement the declining local supply and increasing demand in the Kirby area.

1.3 Baseline Information and Sources

The analysis for this Environmental Screening Report (ESR) is based on information from various sources including:

- NGTL's Project application package, including its Environmental and Socio-Economic Assessment (ESA);

¹ NGTL's Alberta System consists of approximately 24,000 km of natural gas pipeline within Alberta and British Columbia.

- NGTL's supplemental filings to the Project application;
- responses to information requests;
- submissions from Aboriginal groups, including letters of comment; and
- evidence submitted before and during the oral public hearing.

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

2.0 ENVIRONMENTAL ASSESSMENT (EA) PROCESS

On 3 December 2010, NGTL filed a Project Description with the National Energy Board (Board or NEB) regarding the proposed Project. This action initiated the *Canadian Environmental Assessment Act* (CEA Act) EA process. On 15 July 2011, NGTL filed its application for the Project pursuant to section 52 of the *National Energy Board Act* (NEB Act), which triggers the CEA Act *Law List Regulations*, thereby requiring the preparation of this ESR.

2.1 Government Participation in the EA Coordination Process

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

Table 1: Role of Federal Authorities in the CEA Act Process

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

The Canadian Transportation Agency and Aboriginal Affairs and Northern Development Canada were contacted and both departments stated that they would have no involvement in the Project EA.

The Federal Coordination Notification letter was also sent to the Province of Alberta, through Alberta Environment, which responded by stating that it did not wish to participate in the federal review process.

2.2 Opportunities for Public Input into the EA

On 1 November 2011, the NEB released Hearing Order GH-004-2011 describing the process and requirements of the public hearing for the Project. The NEB process allowed for a number of opportunities for the public and Aboriginal groups to participate and provide input into the EA. This included providing comments on the draft Scope of the EA and List of Issues, filing a letter of comment, or participating as an Intervenor. The Government Participant option was provided to government authorities.

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

2.2.1 Draft Scope of the EA

The NEB posted a preliminary draft Scope of the EA on the Canadian Environmental Assessment Registry Internet site (CEARIS) on 25 January 2011. That version was later modified based on NGTL's changes to the Project and updated information regarding federal agency roles in the EA. The revised version, titled as the draft Scope of the EA, was attached to the GH-004-2011 Hearing Order. All interested parties were encouraged to review the document and provide any suggested amendments or additions by 8 December 2011. As noted in Section 6.3.1, no comments were received on the draft Scope of the EA.

2.2.2 Public Hearing

As detailed in Hearing Order GH-004-2011, the NEB held a public hearing process to consider the application for the Project. The oral portion of the hearing was held in Fort McMurray, Alberta on 8 May 2012.

2.2.3 Draft ESR

On 1 June 2012, the NEB released a draft copy of the ESR to all interested parties for comment and posted a notice for public participation on the CEARIS. All parties were encouraged to review the draft ESR and provide any suggested amendments or additions by 13 June 2012. NGTL was given until 15 June 2012 to provide comments. TC, EC, Conklin Métis Local #193 (ConklinML) and NGTL filed comments with the Board.

See Section 6.3.2 for a summary of the comments received.

3.0 SCOPE OF THE EA

The Scope of the EA is composed of three components:

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

The Scope of the EA is attached as Appendix 1 to this ESR and provides detailed information on each of these three components. The Board notes that since the draft was released, it has made minor wording changes to improve clarity and readability. In addition, two changes were made in response to NGTL's revisions to the Project. Based on NGTL's 15 December 2011 submission, the draft scope of the EA was modified to reflect NGTL's Pipeline route length reduction from 79 to 77 km and the phrase "new power facilities to supply or augment existing power to cathodic protection facilities" was deleted from the draft scope in response to NGTL's statement at the Hearing that the Project would not include a thermal electrical generator.

Section 4.0 of this ESR expands upon the Scope of the Project component.

4.0 DESCRIPTION OF THE PROJECT

Table 2 provides information on each Project component throughout the three phases of the Project: construction, operations and abandonment.

Table 2: Description of the Project

Physical Work and/or Activity
<i>Construction Phase – Timeframe: Beginning Quarter 4, 2012</i>
<ul style="list-style-type: none"> • Construction of a 77 km sweet natural gas buried Pipeline. <ul style="list-style-type: none"> ○ The western end of the proposed 762 mm (30-inch) OD Pipeline would tie in to the existing Leismer Compressor Station located at LSD 3-4-81-13W4M and then extend easterly for 44 km to a tie-in point at the existing Meadow Creek Lateral (LSD 2-22-80-9W4M). The Pipeline would then continue from that point easterly for another 33 km and tie into the existing 273.1 mm (10-inch) OD Kettle River Lateral and existing 406.4 mm (16-inch) OD Kettle River Lateral Loop at LSD 14-26-80-6W4M. ○ Approximately 264 ha (226 ha of new permanent RoW and 38 ha of temporary workspace [TWS]) would be required to construct the Pipeline. ○ The cleared RoW would be 32 m wide, with reduced new clearing where the RoW is adjacent to existing disturbed RoW. • Associated infrastructure to be installed: <ul style="list-style-type: none"> ○ block valves and side valves (spacing is typically between 30 km and 35 km apart); a crossover valve is proposed at the tie-in with the Meadow Creek Lateral; ○ valve and blind flange to accommodate the potential future installation of a launcher/ receiver for in-line inspection; ○ cathodic protection (CP) for the facilities; and ○ communications and controls equipment.

Physical Work and/or Activity
<ul style="list-style-type: none"> • Construction activities include: clearing (including merchantable timber), stripping salvage, grading (where required), excavation, backfilling, clean-up and reclamation. • Access: No new access is proposed to support construction and operation of the Project. • Temporary vehicle/equipment crossings would be required at watercourses. • Hydrostatic test water would be withdrawn from natural sources. • The Pipeline would cross 17 watercourses. The horizontal directional drilling (HDD) method would be used at the Christina River crossing. An isolated (dam and pump or flume) or frozen/dry open cut method would be used for the remaining crossings. • TWS is planned at specific locations, including watercourse crossings, roads and railways, at alignment bends, areas of steep terrain, log decks, storage areas and equipment and fuel storage areas. The amount of TWS will be limited to the extent practical, and existing clearings would be used to the extent possible. • NGTL stated that it will use an existing campsite and that no temporary or permanent access requirements are anticipated for that site.
<i>Operation Phase – Timeframe: Service life of the Project is 30+ years. The estimated in-service date is April 2013.</i>
<ul style="list-style-type: none"> • Ongoing transmission of sweet natural gas within the Pipeline. • Aerial patrols. • In-service inspections. • Vegetation management. • Maintenance and Repairs.
<i>Abandonment Phase – Timeframe: At the end of the service life of the Project.</i>
<ul style="list-style-type: none"> • Pursuant to section 74(1)(d) of the NEB Act, an application would be required to abandon the Project, at which time the NEB would assess the environmental effects.

5.0 DESCRIPTION OF THE ENVIRONMENT

The Project crosses provincial Crown land for all but approximately 40 metres (m) of its length, where it crosses a Canadian National Railway (CNR) RoW. NGTL stated that NGTL and the CNR have a Master Utility Agreement and a RoW agreement will be negotiated.

The following description is based largely on NGTL's desktop/literature review, field surveys conducted in 2011, as well as NGTL's review of applications prepared for other projects and its communication with Aboriginal groups, local land users, representatives from local and regional governments, and provincial and federal regulators. Information provided by NGTL focuses primarily on the proposed Project footprint; however, some information may apply to the local study area (LSA) or regional study area (RSA). Below are definitions for the various study areas.

- The Project footprint, approximately 264 ha in size, represents the physical area required for all Project components, including the permanent Pipeline RoW required during operations and TWS requirements during construction.

- The LSA for:
 - terrestrial environmental components (vegetation and wetlands, soil and terrain, wildlife, historic resources, traditional land use) extends one km on each side of the Pipeline's centre line. It is approximately 160 km² (16,025 ha) in size.
 - aquatic elements (fish and fish habitat, surface hydrology, surface water), extends 200 m upstream and 2 km downstream of each crossing.
 - the groundwater assessment included wells within one km of the Project.
 - air quality extends 5 km on either side of the Pipeline's centre line.
- The RSA for terrestrial environmental components is approximately 2,877 km² (287,749 ha). It fully encompasses the LSA and was established to assess the contributions of the Project within the broader regional context. The RSA for aquatic environmental components is approximately 16,100 km² (1,610,000 ha). It fully encompasses the LSA, and the entire drainage basins of the House River and the Christina River, within which all watercourse crossings are located.

Human Occupancy and Geographic Setting

- The Project is located within the Regional Municipality of Wood Buffalo (RMWB) and Lac la Biche County. The nearest communities/Indian Reserves (IRs) to the Project are Janvier (community and IR 194) - 9 km to the east of the Project, Conklin - 35 km to the south of the Project; and Anzac and Gregoire Lake IR 176 to the north of the Project.
- No IRs are crossed by the Project, although the Project is within traditional and asserted territories of various Aboriginal groups.
- No active residences occur adjacent to the Project. Two cabins are within the RSA, one of which is unoccupied and the other is used seasonally. Neither is within one km of the Project.

Land and Resource Use

- The Government of Alberta has established a Land Use Framework in which the Province is divided into seven geographic regions for planning purposes. The Project is within the Lower Athabasca Region. The Draft Lower Athabasca Regional Plan (LARP) was released on 29 August 2011.
- The Project is subject to RMWB Land Use Bylaw 99/059 and Lac la Biche County Land Use Bylaw 09/037 and conforms to land use designations in the area.
- The portion of the Project within RMWB is zoned as "rural district" and the surrounding zones include highway commercial, urban expansion district, and hamlet residential. This portion of the project would fall within the RMWB's Highway 63/881 Corridor Area Structure Plan that seeks to further develop industrial, commercial, residential, recreational and tourism activities.
- Land use in the Project area includes oil and gas activity and forestry.

- The Project overlaps Wildlife Management Units (WMUs) 512, 517, 519 and 529, which include general and archery big game hunting seasons for white-tailed deer, mule deer, moose and black bear. Hunting seasons range from April to the end of November.
- Twenty outfitters hold allocations in these WMUs for various hunted game.
- The Project crosses eight Registered Fur Management Areas.

Terrain/Soils

- Terrain within the LSA is comprised of undulating and rolling moraine and veneers of glaciofluvial material over moraine; however, on the eastern half of the Pipeline, there is undulating and hummocky moraine and undulating glaciofluvial deposits and at the eastern end of the Pipeline the landforms are an undulating and hummocky moraine and/or fluvial or lacustrine veneers over moraine.
- The general landscape is dominated by organic and morainal (till) deposits with smaller areas of organic, alluvial and glaciofluvial material.
- Soils within the LSA include brunisols, gray luvisols, gleysols and organics.
- The Project does not encounter any areas of permafrost or ground instability (i.e., low earthquake hazard).
- No major flooding was reported for the period from 1902 to 2005.
- The Project crosses areas of low fire danger rating along its eastern portion and moderate fire danger rating along its western portion.
- The Project does not encounter any sites listed on the Federal Contaminated Sites Inventory.
- As the Pipeline would parallel existing RoWs and pass close to several oil and gas surface facilities, there is a possibility of encountering undocumented contamination from previous industrial construction and operations. However, NGTL stated that it does not anticipate the occurrence of contaminated soils along the RoW.

Vegetation (including species of special conservation status)

- The Project is located within the Lower Boreal Highlands Subregion (81% of the proposed route) and Central Mixedwood Subregion (19% of the proposed route) of the Boreal Forest Natural Region.

Within the Lower Boreal Highlands Subregion, which is cooler and moister than the Central Mixedwood Subregion, large portions of the central area in the Subregion were burned 15 to 30 years ago, and now primarily consist of pure or mixed stands of regenerating pine and aspen on upland sites. Peatland dominates within the Stony Mountain Plateau. Within the Central Mixedwood Subregion, pure stands of aspen and aspen–white spruce mixedwoods are more common.

- Ecological Land Classification for the LSA: 48% terrestrial, 48% wetlands and open water, and 4% anthropogenic disturbance areas.

- There are five Environmentally Significant Areas within the RSA; however, only one of them, Area 548, intersects the proposed route (for a distance of approximately 10 km).
- There are no vegetation species of concern identified in the *Species at Risk Act* (SARA) or by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in the Project LSA and RSA.
- Two provincially-listed sensitive species (northern quillwort and small butterwort) have been documented within the RSA but were not observed during the 2011 rare plant survey along the RoW. Rare plant surveys are also scheduled to take place in mid-summer 2012.
- Fourteen provincially-listed ecological communities are within the Central Mixedwood and Lower Boreal Highlands subregions. None have been noted along the Pipeline route; however, one was found in the LSA, approximately 65 m east of the proposed Project footprint.
- No prohibited noxious or noxious weeds, as identified by the *Alberta Weed Act*, were observed along the Project footprint. Common dandelion, wild oat and alsike clover, all of which are non-native invasive plant (weed) species, were observed along the proposed RoW. Weed surveys are scheduled to take place in mid-summer 2012.

Water and Wetlands

- The Pipeline crosses 17 watercourses: Christina River, House River, Pony Creek and 14 unnamed watercourses. Only one watercourse, the Christina River is deemed navigable by TC.
- Forty-six groundwater wells (29 industrial, 15 domestic, one observation, one other) are located within one km of the Project.
- Nine wetland communities were identified in the LSA, including five peatland communities, two mineral wetlands and two non-vegetated open water types.
- Traditional plant species (e.g., Labrador tea, cloudberry and Sphagnum mosses), some of which have important medical uses or are harvested occasionally for food, were noted in bogs during a field survey.
- There are no Ramsar Wetlands of International Importance in the Project area.

Fish and Fish Habitat (including species of special conservation status)

- Species captured during field surveys conducted in 2010 and 2011 include Arctic grayling, brook stickleback, fathead minnow, lake chub, northern redbelly dace, pearl dace, and white sucker.
- Christina River provides high quality habitat for all fish species potentially present in the system. Ten watercourses were rated as poor quality habitat for sportfish such as Arctic grayling. Six watercourses do not provide fish habitat because of their small size and the lack of well-defined channels.
- Christina River and unnamed watercourse 12-WC-02 have sufficient depth to provide overwintering habitat for fish.

- Eight of the 17 watercourse crossings have a restricted activity period (RAP) from 16 April to 15 July. The remaining crossings do not have a RAP.
- No fish species listed on Schedule 1 of the SARA are known to occur in the Project area.
- Arctic grayling is listed as a Species of Special Concern by Alberta's Endangered Species Conservation Committee. The General Status of Alberta Wild Species 2010 lists Arctic grayling and northern redbelly dace as "Sensitive," and spoonhead sculpin as "May be at Risk." The status of pearl dace and finescale dace is currently listed as "Undetermined."

Wildlife and Wildlife Habitat

- Species that are expected to occur in the Boreal Highlands and Central Mixedwood subregions include ungulates, carnivores, rodents, birds including migratory birds, and amphibians, some of which are listed species. There is a migratory bird RAP from 1 May to 15 August (nesting period). The beaver is an important inhabitant as most of the productive ponds and swamp habitats in the Project area are a result of its activities.
- 2010 field survey observations (visual, tracks, scat) in the LSA included black bear, moose, grey wolf, coyote and woodland caribou boreal population (caribou). Field survey observations in 2011 did not identify any species within 200 m on each side of the proposed Pipeline route, although caribou, grey wolf, Canada lynx and porcupine tracks were observed further out.

Wildlife Species of Special Conservation Status

- Based on species ranges and available habitat, 13 federally-listed species (COSEWIC, SARA Schedules 1 and 3) have the potential to occur in the LSA: wolverine, caribou, western (boreal) toad, yellow rail, common nighthawk, Canada warbler, olive-sided flycatcher, rusty blackbird, northern leopard frog, peregrine falcon, whooping crane, wood bison and short-eared owl.
- Based on extensive experience in the area, NGTL anticipates that, of those species listed above, only the first eight are confirmed, or could potentially occur, in the Project area. Further assessment (field surveys and analysis of trapper reports) will be carried out in the summer of 2012, prior to the commencement of construction, to determine the presence of these species and/or their habitat.
- Approximately 50 provincially-listed species have the potential to occur in the LSA.
- Approximately 82% (63 km) of the Project passes through the Egg-Pony Caribou Area, which is within the East Side of Athabasca River (ESAR) caribou range. In Alberta, caribou ranges have a RAP from 15 February to 15 July (critical calving period). During this period, it is prohibited to initiate new site preparation or construction.

Heritage Resources

- A Historical Resources Impact Assessment (HRIA) was completed and filed with Alberta Culture and Community Services (ACCS). No new historic resource sites were recorded and NGTL recommended that *Historical Resources Act* clearance be granted by ACCS.

Traditional Land and Resource Use by Aboriginal People

- With the exception of a small parcel owned by the CNR, the Project is located entirely on Crown land in the area encompassed by Treaty 8. It traverses traditional and asserted territory claimed by a number of Aboriginal groups.
- NGTL's ESA was based on interviews conducted with Elders of Chard Métis Local #214 (ChardML) and Fort McMurray #468 First Nation (FMFN) together with FMFN's 2006 TLU report. It was also based on regional information obtained from other industry studies and NGTL's experience with other projects.
- Members of ChardML, FMFN and Willow Lake Métis Local #780 (WLML) participated in biophysical field studies or route over-flights.
- Four Aboriginal groups expressed concerns with the potential Project and cumulative effects of the Project on the environment and traditional land and resource use.
- NGTL is continuing to engage and update Aboriginal groups including finalizing TLU work and discussing appropriate mitigation. NGTL stated that the information collected during the TLU studies will be used during continued Project planning and development and will be incorporated into the EPP and environmental alignment sheets for the Project.

6.0 COMMENTS FROM THE PUBLIC

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

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

Several Project-related issues were brought to the Board's attention by government agencies and Aboriginal groups through their filings. These submissions outlined a number of potential environmental and socio-economic effects that are relevant to this CEA Act EA. Table 3 lists the topics of interest in these filings. To view the submitted documents, please refer to the Project folder in the 'Regulatory Documents' area of the NEB website (www.neb-one.gc.ca) or click on the Filing Identification (ID) numbers provided in the table. If computer access is not available, you may obtain copies through the Secretary of the Board via the contact information provided in Section 10.0.

Table 3: Submissions to the NEB

Submitter	Topics of interest	Submission Date(s)	Filing ID(s)
EC	<ul style="list-style-type: none"> • Caribou and caribou habitat • Species at risk field surveys • Avoiding RAPs • Migratory birds 	20 December 2011 15 February 2012 10 April 2012	A2K6E4 A2Q2S4 A2S1H2
TC	<ul style="list-style-type: none"> • Contingency plans for navigable waters where the HDD method is to be used. 	22 December 2011 7 May 2012	A2K4Q3 A2S9H7

Submitter	Topics of interest	Submission Date(s)	Filing ID(s)
Chipewyan Prairie Dene First Nation (CPDFN)	<ul style="list-style-type: none"> • Traditional land use • Protection of cultural/sacred and ecological landscape of importance • Impacts on water, wildlife and fish • Cumulative effects • Accidents and malfunctions 	8 June 2011	A2A0Q2
ConklinML	<ul style="list-style-type: none"> • Traditional land and resource use • Cumulative effects • Impacts on caribou and caribou habitat • Impact of accidents and malfunctions on muskeg and below ground waters • Socio-economic and cultural impacts • Protection of water quality and quantity • Pathways and routing of the pipeline 	4 July 2011 29 November 2011 9 April 2012	A2A2G5 A2J0X8 A2S0R1
ChardML	<ul style="list-style-type: none"> • Engagement and consultation • Cumulative effects • Water quality and quantity in Christina River • Project impacts on traditional land and resource use 	26 March 2012	A2R6J4
CRDNC	<ul style="list-style-type: none"> • Cumulative effects 	23 April 2012	A2S5R6

6.2 Submissions during the Oral Portion of the Hearing

Chard ML expressed concerns about cumulative effects, physical barriers to wildlife movement, oil sands use of water, increased travel to harvest plants and animals, and the loss of land for traditional use. ConklinML declined to present direct oral evidence and confirmed that its TLU study had been completed. CRDNC expressed concerns about potential Project and cumulative impacts on caribou and other wildlife species and upon the supply of water.

6.3 Comments Received by the NEB on its EA Documentation

6.3.1 Comments on the Draft Scope of the EA

The Board did not receive any suggested amendments or additions to the draft Scope of the EA.

6.3.2 Comments on the Draft ESR

Comments were received from: TC, EC, ConklinML and NGTL.

Within its submission TC stated:

“TC’s requirement for regulatory approvals prior to construction should be mentioned in Section 8.6, [Recommendation] D. It should be noted that TC requires that NGTL obtain leave from the Minister of Transport under the NEB Act for both HDD [horizontal directional drilling] and the Contingency Plan prior to the commencement of the construction on the work.”

TC requested that additional wording be added to the recommendation to address this issue.

The Board notes that within its application NGTL has committed to obtain approvals from a number of agencies including TC. NGTL has stated that it intends to fully meet its obligations pursuant to the NEB Act and *Navigable Waters Protection Act*. The Board has decided that Recommendation D as presented in Section 8.6 is sufficient.

EC stated that it does not have any concerns and looks forward to reviewing reports as required in the Recommendations presented in Section 8.6.

ConklinML re-iterated its previously expressed interest in participating in Project monitoring and stated that it has taken steps to enhance its monitoring capacity. ConklinML asked that the Board state its support for ConklinML’s involvement in environmental impact mitigation and monitoring in the ESR. The Board has expressed its expectation that NGTL will fulfill its commitment to discuss the issues and concerns of Aboriginal groups with them and to consider additional mitigation where warranted. Accordingly, the Board has decided that no change to the ESR is required.

NGTL responded to ConklinML’s comments, noting that it had committed to discuss the issues and concerns of Aboriginal groups with them and to consider additional mitigation where warranted, including potential Aboriginal monitors.

NGTL also provided comments to clarify the field survey methodology to be used for common nighthawk. Further, NGTL identified a few minor clarifications and subsequently the Board made revisions to: the map on the cover page, Section 1.1, Section 5.0, Section 8.3.2.1 and Recommendation G based on the comments received.

In addition, NGTL provided a response to TC’s comment. However, as no changes were made to Recommendation D (as explained above), no updates to the ESR were required.

7.0 THE NEB’S EA METHODOLOGY

In assessing the environmental effects of the Project, the NEB first analyzed NGTL’s route selection (Subsection 8.1) and then used an issue-based approach to evaluate the Project.

In Subsection 8.2, the NEB identified interactions expected to occur between the proposed project activities and the surrounding environmental elements, and potential adverse environmental effects that may result. Also included were the consideration of potential accidents and malfunctions that may occur due to the Project and any change to the Project that may be caused by the environment. In circumstances where the potential effect was unknown, it

was categorized as a potential adverse environmental effect.

The last column of the table in Subsection 8.2 denotes the categories of the analysis of potential adverse environmental effects, which is included as Subsection 8.3. There are two categories: “Analysis of Potential Adverse Environmental Effects to be Mitigated through Standard Measures” (Subsection 8.3.1) and “Analysis of Potential Adverse Environmental Effects to be Mitigated through Non-Standard Design and Mitigation Measures” (Subsection 8.3.2).

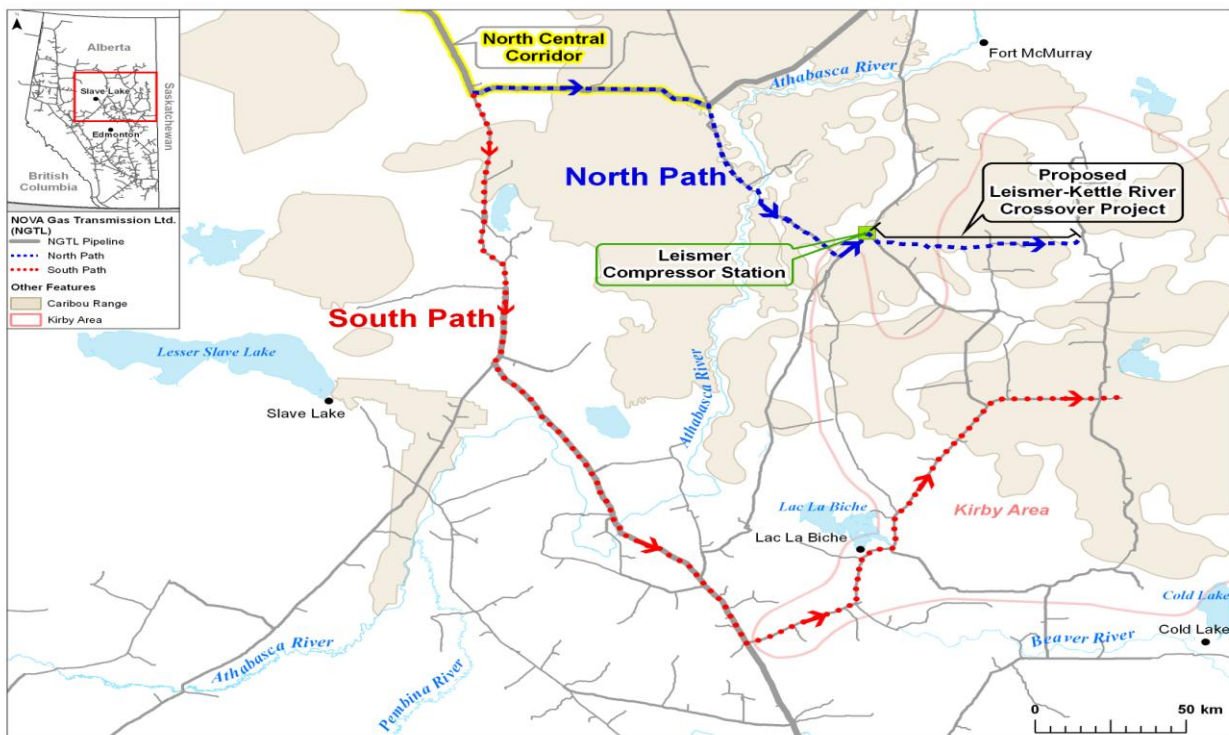
Subsection 8.4 addresses cumulative effects, Subsection 8.5 addresses follow-up programs under the CEA Act and Subsection 8.6 lists all proposed recommendations for any regulatory approval for the Project, should it be approved.

8.0 ENVIRONMENTAL EFFECTS ANALYSIS

8.1 Pathways and Routing of the Pipeline

8.1.1 Pathway Alternatives: North and South

NGTL's long-term demand forecast indicates that existing facilities transporting gas into northeastern Alberta are insufficient and additional facilities will be required. In order to meet design flow requirements to 2026, NGTL evaluated two flow path alternatives to move the gas from the North Central Corridor pipeline to the Kirby area: a North Path and a South Path.



The North Path alternative is the more direct path. It would consist of the applied-for Project, plus a long term potential of approximately 100 km of additional pipeline following existing pipeline routes and four compressor upgrades.

The South Path alternative would be longer, and would consist of six additional compressor facilities plus a long term potential of approximately 250 km of additional pipeline, some of which follows existing pipeline routes.

NGTL indicated that the South Path alternative requires approximately 30% more pipeline construction than the North Path alternative, and concluded that significantly more environmental disturbance would be required. NGTL concluded that the South Path would cost approximately a further \$110 million over the North Path, over the anticipated life of the Project and thereby selected the North Path alternative.

Upon selecting the North Path, NGTL evaluated two alternative OD pipe sizes: 24-inch and 30-inch. While the 24-inch OD alternative has a first-year cost that is \$25.1 million less than the 30-inch alternative, NGTL selected the latter as it states that it would be capable of meeting the long term Kirby area design flow requirements without the need for future looping of the Project. The Project, as assessed and applied for, is based on the North Path.

8.1.2 Routing of the Pipeline

Within the North Path, NGTL identified two alternative routes for the Pipeline: a North Route and a South Route. The North Route is approximately 10 km north of the South Route. Both routes were similar in length; however, the length adjacent to existing linear disturbances was less on the South Route. The South Route had about 50% fewer watercourse crossings than the North Route.

NGTL used numerous evaluation criteria in selecting the route. These included: tie-in locations, terrain, land use, potential environmental effects, RoW corridors, crossings, historic resources, intermediate valve sites, access, construction time frame, future system expansion, economic feasibility and stakeholder participation.

NGTL's discussions with Aboriginal communities and regulatory agencies were a major influence in determining the preferred route. ASRD provincial wildlife biologists indicated significant concerns with the North Route with respect to caribou. Although NGTL stated that FMFN had initially expressed concerns with the South Route, it, along with NGTL and ASRD, reached consensus that the South Route was the preferred route with regard to potential effects to caribou. Therefore, NGTL selected the South Route for the Project.

8.2 Project - Environment Interactions

	Environmental Element	Description of Interaction (How, When, Where, or Why)	Potential Adverse Environmental Effect	Discussed in Subsection
Bio-Physical	Physical Environment – Terrain	<ul style="list-style-type: none"> Vegetation clearing Stripping, salvage and grading Trench excavation and backfilling Soil exposure to the elements 	<ul style="list-style-type: none"> Alteration of terrain profile Loss of soil due to erosion Trench instability leading to subsidence 	8.3.1
	Soil and Soil Productivity	<ul style="list-style-type: none"> Vegetation clearing Stripping, salvage, and grading Trench excavation and backfilling Soil handling activities Vehicle and equipment traffic Encountering historical contamination during excavations 	<ul style="list-style-type: none"> Reduction of soil productivity and quality which may decrease vegetation diversity and productivity through: <ul style="list-style-type: none"> strippings and subsoil admixing compaction and rutting loss of soil due to erosion spread of historical contamination to unaffected soils 	8.3.1
	Vegetation	<ul style="list-style-type: none"> Vegetation clearing (timber harvesting, slashing, brushing of understory vegetation) Ground disturbance Grading of areas involving stripping of the organic layer Soil handling activities Re-vegetation efforts Vehicle and equipment traffic 	<ul style="list-style-type: none"> Loss or alteration of native vegetation, including vegetation resources important to wildlife or humans Introduction and spread of invasive species (i.e., weeds) Loss or alteration of listed plant species or ecological communities 	8.3.1
	Water Quality and Quantity	<ul style="list-style-type: none"> Excavation and backfilling for trenched crossings Trench subsidence or excessive roach Drilling mud release if HDD method fails Installation, use and removal of temporary vehicle crossing structures Hydrostatic test water withdrawal and release Encountering historical contamination during excavations 	<ul style="list-style-type: none"> Siltation of watercourses Reduced water quality Localized alteration of flow Change of water quantity Spread of historical contamination to unaffected water sources 	8.3.1
	Fish and Fish Habitat	<ul style="list-style-type: none"> Clearing and disturbance of riparian habitat Excavation and backfilling of trenches Temporary installation of vehicle crossings of watercourses Release of drilling mud if HDD method fails 	<ul style="list-style-type: none"> Fish stress, injury or mortality Harmful alteration, disruption or destruction of fish habitat (HADD) [including riparian areas] Sedimentation of watercourses from instream activities 	8.3.1
	Wetlands	<ul style="list-style-type: none"> Construction activities in wetlands (general equipment use, vegetation removal, excavation, backfilling and 	<ul style="list-style-type: none"> In relation to peatland and non-peaty (mineral) wetlands: 	8.3.1

	Environmental Element	Description of Interaction (How, When, Where, or Why)	Potential Adverse Environmental Effect	Discussed in Subsection
		reclamation)	<ul style="list-style-type: none"> Loss or alteration of wetland habitat important to wildlife, vegetation and humans (i.e., traditional use plants) Alteration of wetland hydrological and water quality functions 	
	Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> Clearing of vegetation Noise generated from construction activities Vehicle traffic to, from and along the Project Worker interactions with wildlife Creation of barriers (e.g., subsoil and strippings windrows, strung pipe) Potential for increased access during operations Creation/widening of permanent RoW Fragmentation of landscape 	<ul style="list-style-type: none"> Habitat alteration/loss through clearing and fragmentation Sensory disturbance to wildlife Changes to wildlife movement patterns Changes to wildlife abundance due to increased predation/hunting/trapping and/or vehicle-wildlife collisions 	8.3.1
	Species at Risk or Species of Special Status and Related Habitat	<ul style="list-style-type: none"> See the “Wildlife and Wildlife Habitat”, “Fish and Fish Habitat” and “Vegetation” elements 	<ul style="list-style-type: none"> Potential effects noted in the “Wildlife and Wildlife Habitat”, “Fish and Fish Habitat” and “Vegetation” elements as they relate to wildlife, fish and plant species at risk or of special status 	8.3.1
			<ul style="list-style-type: none"> Potential effects to eight species at risk identified in the SARA and/or by the COSEWIC 	8.3.2.1
			<ul style="list-style-type: none"> Specific effects on caribou Stress, injury, reduced reproductive success and mortality of caribou Loss or alteration of habitat for caribou 	8.3.2.2
	Air Emissions	<ul style="list-style-type: none"> Release of criteria air contaminants (e.g., sulphur dioxide, nitrogen dioxide, carbon monoxide, particulate matter) Use of construction vehicles and equipment Construction and vehicle traffic during dry conditions Burning during land clearing 	<ul style="list-style-type: none"> Temporary decrease in local air quality due to increased emissions and elevated dust and smoke levels 	8.3.1
	Greenhouse Gas (GHG) Emissions	<ul style="list-style-type: none"> GHG emissions from the use of construction vehicles and equipment Fugitive or process GHG emissions from the pipeline during transportation of gas, inspections, maintenance or repairs 	<ul style="list-style-type: none"> Minor contributions to global GHG levels 	8.3.1

	Environmental Element	Description of Interaction (How, When, Where, or Why)	Potential Adverse Environmental Effect	Discussed in Subsection
Socio-Economic	Human Occupancy/ Resource Use	<ul style="list-style-type: none"> Construction, including RoW clearing and clean-up 	<ul style="list-style-type: none"> Disruption of hunting, fishing, trapping, and outfitting activities due to human activities and changes to animal movements Disruption of normal activities of land users 	8.3.1
	Heritage Resources	<ul style="list-style-type: none"> Clearing, grading and excavating activities along RoW 	<ul style="list-style-type: none"> Damage to, or loss of previously undiscovered heritage resources 	8.3.1
	Current Traditional Land and Resource Use	<ul style="list-style-type: none"> Clearing, grading, excavation, backfilling, reclamation and hydrostatic testing activities during construction Construction of watercourse crossings 	<ul style="list-style-type: none"> Disruption of Aboriginal traditional hunting, fishing, trapping and plant harvesting activities Loss or alteration of traditional use sites 	8.3.2.3
	Human Health and Aesthetics	<ul style="list-style-type: none"> No interaction demonstrated 		
Other	Accidents and Malfunctions	<ul style="list-style-type: none"> Spills during construction (hazardous materials, drilling mud during HDD) and/or operations Traffic accidents Pipeline rupture (NGTL's or third party - if damaged during crossings) 	<ul style="list-style-type: none"> Soil, groundwater, surface water and/or wetland contamination Loss or alteration of vegetation Injury or mortality to wildlife and/or people Wildfires Affects to health of land users in the event of an accident or malfunction 	8.3.1
	Effects of the Environment on the Project	<ul style="list-style-type: none"> Changes in area climate and terrain Environmental stressors (e.g., weather, hydrology, storms, terrain) 	<ul style="list-style-type: none"> Increased construction activities during RAP due to delays in Project schedule 	8.3.1

8.3 Analysis of Potential Adverse Environmental Effects

NGTL proposed several mitigation measures to avoid or minimize the potential adverse environmental effects of the Project. These measures included route selection, implementing minimal surface disturbance (MSD) techniques to decrease stripping within the RoW, and minimizing the overlap of construction activities with RAPs.

NGTL committed to several mitigation measures in its application, subsequent updates and responses to information requests. The reader is referred to NGTL's application and supporting documentation for details on all the proposed mitigation.

As noted in Section 7.0 of this ESR, the analysis of potential adverse effects has been divided into Subsection 8.3.1 and 8.3.2. Note that specific 'Views of the Board' are provided for each of the environmental effects discussed in Subsection 8.3.2, whereas the Views presented in Subsection 8.3.1 encompass the remaining effects identified in Subsection 8.2. Both 8.3.1 and 8.3.2 identify recommendations in the event that the NEB grants regulatory approval for the Project.

The preparation of an Environmental Commitments Tracking Table, an Environmental Protection Plan (EPP) and a Post-Construction Monitoring Program (PCMP) are applicable to mitigating any environmental effects as they contribute to ensuring that mitigation measures and monitoring are effectively carried out for the construction and operation phases of the Project. These are discussed below.

Environmental Commitments Tracking Table

The NEB examined NGTL's mitigation measures, and notes the large number of both detailed and broad commitments made on various issues, in multiple documents. Throughout the various stages of the NEB's assessment process, NGTL provided a number of additional commitments in order to address specific concerns brought to its attention. To ensure that no commitments are overlooked, the Board recommends that, in any Certificate that it may grant, a condition be included requiring NGTL to maintain a Environmental Commitments Tracking Table for reporting on the status of commitments to be fulfilled during construction and operations. See **Recommendation A** in Section 8.6 for detailed wording.

Environmental Protection Plan

NGTL has submitted a draft EPP, including alignment sheets. The EPP includes all the mitigative measures that NGTL commits to implement during construction. The Board recommends that, in any Certificate that it may grant, a condition be included requiring NGTL to file an updated comprehensive EPP and alignment sheets, including updated information from surveys, commitments and conditions. The updated EPP and alignment sheets should also provide evidence that there is a management system in place that ensures the updates of the environmental protection procedures and mitigation measures are effectively communicated to employees, contractors and regulators and that consultation took place with relevant government authorities and Aboriginal groups where applicable. See **Recommendation B** in Section 8.6 for detailed wording.

Post-Construction Monitoring Program

NGTL submitted an initial PCMP within its ESA which was inconsistent with the PCMP contained within its EPP. A robust PCMP (including monitoring methodology, issues to be monitored and consultation with appropriate authorities), is key to ensuring that potential adverse effects have been effectively mitigated, including those which may arise from unforeseen events. In order to ensure that post-construction environmental monitoring is thorough and effective, and that reports are developed and submitted, the Board recommends that, in any Certificate that it may grant, a condition to be included setting out the requirements of NGTL's PCMP to be filed prior to commencing construction, and to identify those to be included in the mandatory reports. See **Recommendation C** in Section 8.6 for detailed wording.

8.3.1 Analysis of Potential Adverse Environmental Effects to be Mitigated through Standard Measures

Subsection 8.2 lists several potential adverse environmental effects that NGTL proposes to address through the use of standard design or mitigation measures as identified in its application, EPP and subsequent filings.

The following table provides additional discussion on certain effects that generated comments or discussion during the assessment.

Potential Adverse Environmental Effect	Details
Harmful alteration, disruption or destruction of fish habitat (including riparian areas)	In the event that the proposed HDD crossing of the Christina River cannot be constructed, and to aid in ensuring that no HADD of fish habitat takes place, the Board recommends that, in any Certificate that it may grant, a condition be included requiring NGTL to notify the Board prior to using a contingency trenched crossing of the river, to provide a copy of any authorization from relevant government agencies (DFO and TC), and to prepare a site-specific reclamation plan for the crossing. See Recommendation D in Section 8.6 for detailed wording.
Reduced water quality and quantity	Project mitigation and monitoring commitments, including measures related to water quality and quantity, are captured in the Project's EPP and form part of the Project's mitigation plans. The primary water withdrawal associated with the Project is for water to be used for hydrostatic testing purposes, which involves only temporary and limited withdrawals and discharges. NGTL has provided specific mitigation measures related to this water use, including reference to the appropriate provincial codes of practice.
Alteration of wetland hydrological and water quality functions	Although NGTL has identified mitigation measures for wetlands and committed to post-construction monitoring within its application, the commitment to monitor wetlands has not been explicitly included within the PCMP description of its draft EPP. The Board recommends that, in any Certificate that it may grant, NGTL be required to include wetland monitoring within its PCMP. See Recommendation C in Section 8.6.
Introduction and spread of invasive species (i.e. weeds)	NGTL submitted a draft Weed Management Plan and stated that, upon completing the 2012 weed survey, an updated plan would be filed with the Board. The Board notes that the draft plan had some omissions, such as accountability in the post-construction phase and objectives to be met. The Board recommends that, in any Certificate that it may grant, a condition be included setting out the information requirements for the final

Potential Adverse Environmental Effect	Details
	Weed Management Plan. See Recommendation E in Section 8.6 for detailed wording.
Habitat alteration/loss through clearing and fragmentation	<p>In its analysis, to represent all the wildlife species in the Project area, NGTL selected five indicator species:</p> <ul style="list-style-type: none"> • Caribou; • Moose; • fur bearers/carnivores (including Canada lynx and fisher); • old growth forest birds; and • olive-sided flycatcher. <p>The indicator species are considered applicable to other species with similar life history and habitat requirements. Mitigation measures include temporal avoidance (including restricted activity periods (RAPs) and abiding to set-backs, where applicable. With regard to federally-listed Species at Risk, see subsection 8.3.2.1.</p> <p>Regarding migratory birds, NGTL has committed to conduct clearing outside the migratory bird RAP or take other precautions/measures to avoid disturbing or destroying an active migratory bird nest.</p> <p>NGTL indicated within its draft EPP that the PCMP would involve an assessment of numerous issues including those related to access control within caribou range and predator/ prey dynamics. The Board is of the view that all wildlife and wildlife habitat issues should be included within the PCMP. The Board recommends that, in any Certificate that it may grant, NGTL be required to include these issues within its PCMP. See Recommendation C in Subsection 8.6 for detailed wording.</p>
Loss or alteration of native vegetation, including vegetation resources important to wildlife	In its ESA and responses to information requests, NGTL committed to using the minimum surface disturbance (MSD) construction technique. NGTL described the MSD technique as involving normal clearing of the RoW, but not stripping of the full RoW width unless grading is required. Where stripping does not occur, the RoW is surface mulched to prepare it for construction. In winter conditions, the mulched surface is then frozen and provides a stable working surface. The MSD technique allows the original surface material containing vegetative propagules (seed, rhizomes, shallow roots of grasses) to be retained in place and as a result, promotes accelerated natural regeneration of vegetation following construction. This technique is appropriate for winter construction in forested areas, and the Board encourages the development of techniques designed to minimize disturbance.
Damage to, or loss of previously undiscovered heritage resources	<p>The Board notes that NGTL has submitted its HRIA to ACCS, and NGTL recommended that <i>Historical Resources Act</i> clearance be granted.</p> <p>The Board recommends that, in any Certificate that it may grant, a condition be included requiring NGTL to file confirmation that it has obtained all archeological and heritage resource permits and clearances for the Project from ACCS. See Recommendation F in Subsection 8.6 for detailed wording.</p>
Disruption of community life and cultural well-being	ConklinML, located near the east end of the Project near Highway 881, expressed concern that the Project may disrupt community life due to the influx of workers. NGTL stated that it would use an existing construction camp located on Highway 63 near the Project's western end to house construction workers. This should reduce the potential disruption of community life.

Potential Adverse Environmental Effect	Details
Accidents and Malfunctions	Within its EPP and Contingency Plans, NGTL has measures in place to address potential soil, groundwater, surface water and/or wetland contamination resulting from accidents and/or malfunctions.

The Board is of the view that based on the nature of this Project, the potential adverse environmental effects of the Project as outlined above can be mitigated through the use of standard design or routine measures, as committed to by NGTL in its Project-related documentation. These potential adverse environmental effects are not likely to be significant.

8.3.2 Analysis of Potential Adverse Environmental Effects to be Mitigated through Non-Standard Design and Mitigation Measures

This subsection provides a detailed analysis of certain effects that involve the use of non-standard design or mitigation measures, were the subject of public concern, or for which the Board has identified a relative importance. Each analysis in this subsection specifies mitigation measures, significance criteria ratings (defined in Appendix 2), monitoring commitments, and the Board's corresponding views, including any proposed issue-specific recommendations.

8.3.2.1 Potential Effects on Species at Risk Identified in the SARA and/or by the COSEWIC

Background/Issues	<p>NGTL stated that its wildlife and wildlife habitat assessment was based on the assessment of wildlife indicators, which were selected based on ecological significance, socio-economic significance, national and provincial status, and the availability of recent baseline wildlife data (published and unpublished) within the LSA and RSA from between 2001 and 2010.</p> <p>The five wildlife indicators selected by NGTL for this Project are caribou, moose, furbearers/carnivores, old growth forest birds and olive-sided flycatcher. NGTL stated that the predicted effects of the Project for the selected indicator species were considered applicable to other species, including species listed under the SARA with similar life history and habitat requirements.</p> <p>NGTL stated that ungulate (including caribou) surveys were undertaken; however, it did not plan to conduct additional SARA/ COSEWIC species-specific field surveys for this Project.</p> <p>Regarding species at risk (other than caribou which is addressed in Subsection 8.3.2.2 below) which may be present in the Project footprint and that are on Schedule 1 of the SARA and/or identified by the COSEWIC, NGTL stated the following:</p> <ul style="list-style-type: none"> • Western (boreal) toad: optimal habitat is not readily available along the Project RoW, but, if this species is present, the effects of sensory disturbance are predicted to be minimal because toads would be hibernating during winter construction. • Wolverine: not likely to be present as this species avoids disturbed areas. • Yellow rail, common nighthawk, Canada warbler, olive-sided flycatcher and rusty blackbird: would not be affected as no construction or clean-up activities are planned to occur during the migratory bird RAP. • EC filed two letters of comment with the Board (identified in Subsection 6.1), addressing NGTL's lack of planned 2012 field surveys. EC noted that, since NGTL did not use surveys on or adjacent to the RoW, the information obtained from surveys from other projects in the surrounding region is of limited value in conducting an EA for this Project.
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	<p>EC stated that it had outstanding concerns with respect to the lack of properly timed confirmatory summer wildlife surveys and was therefore, unable to assess the effects of the Project on species at risk.</p> <p>Subsequent to the Board directing NGTL to undertake additional field surveys (29 February 2012), NGTL proposed a methodology for surveying western (boreal) toad, yellow rail, Canada warbler, olive-sided flycatcher, and rusty blackbird, while relying on trapper reports for wolverine and recording incidental observations for common nighthawk. EC agreed with NGTL’s methodology regarding common nighthawk.</p>																				
Mitigation Measures	<p>NGTL has provided a number of routine mitigation measures for wildlife in general, which are also applicable to species at risk, including:</p> <ul style="list-style-type: none">• no new activities commencing within the migratory bird RAP;• a Wildlife Encounter Contingency Plan; and• a Wildlife Species of Concern Discovery Contingency Plan.																				
Monitoring	<p>NGTL indicated within its draft EPP that the PCMP would involve an assessment of issues related to weed control, vegetation re-establishment, general RoW conditions, water crossing stability, reclamation success and caribou.</p>																				
Views of the Board	<p>The Board is of the view that while some effects of the Project on indicator species may be similar for some listed species, to rely exclusively on indicator species is too broad a generalization, and species at risk populations are often more vulnerable and require greater protection. The Board further notes that the concern with species at risk is not only the occurrence of individuals and the potential impacts on them, but also on the loss of habitat. The Board is of the view that sufficient and complete mitigation measures and monitoring plans cannot be identified and finalized unless more is known about the species and/or species habitat in the Project area.</p> <p>To ensure adequate mitigation and monitoring measures are put in place to respond to the additional surveys, the Board is of the view that, in any Certificate that it may grant, a condition be included requiring NGTL to submit for approval prior to construction a summary of its surveys, an outline of mitigation measures, evidence and summary of consultation with EC and the province and a commitment to undertaking those agencies’ recommendation(s) or an explanation of why the recommendation(s) should not be undertaken. See Recommendation G in Subsection 8.6 for detailed wording.</p> <p>The Board is of the view that wildlife and wildlife habitat issues, particularly for species at risk, should also be included within the PCMP. The Board recommends that, in any Certificate that it may grant, NGTL be required to include these issues within its PCMP. See Recommendation C in Subsection 8.6 for detailed wording.</p>																				
Evaluation of Significance	<table><tr><th>Frequency</th><th>Duration</th><th>Reversibility</th><th>Geographical Extent</th><th>Magnitude</th></tr><tr><td>Multiple</td><td>Short to long-term</td><td>Possible</td><td>Footprint to LSA</td><td>Low to Moderate</td></tr><tr><td colspan="5">Adverse Effect</td></tr><tr><td colspan="5">The Board is of the view that, with the NEB’s recommendations and the implementation of NGTL’s measures, the Project is not likely to result in significant adverse effects on species at risk listed in the SARA and by the COSEWIC.</td></tr></table>	Frequency	Duration	Reversibility	Geographical Extent	Magnitude	Multiple	Short to long-term	Possible	Footprint to LSA	Low to Moderate	Adverse Effect					The Board is of the view that, with the NEB’s recommendations and the implementation of NGTL’s measures, the Project is not likely to result in significant adverse effects on species at risk listed in the SARA and by the COSEWIC.				
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8.3.2.2 Specific Effects on Caribou

Potential adverse environmental effect	<ul style="list-style-type: none"> • Stress, injury, reduced reproductive success and mortality of caribou • Loss or alteration of habitat for caribou
Background/ Issues	<p>Caribou is listed as Threatened on Schedule 1 of the SARA.</p> <p>Approximately 63 km of the Project passes through the Egg-Pony Caribou Area, which is within the East Side of Athabasca River (ESAR) caribou range in northeastern Alberta. Caribou populations in this area are currently in decline. NGTL stated the Project would likely result in approximately 95 ha of high quality caribou habitat being cleared within the RoW.</p> <p>EC stated that it is currently developing a recovery strategy for the Woodland Caribou, Boreal population (Recovery Strategy) which identifies proposed critical habitat for the ESAR population, and notes that “the total disturbed area that is avoided by boreal caribou includes the anthropogenic footprint plus a 500 m buffer” (on each side of the disturbance).</p> <p>EC requested that NGTL identify how it would comply with the Recovery Strategy and how it would limit or avoid impacts to critical habitat located in the Project area.</p> <p>EC recommended that all clearing activities be completed by February 15, that construction activities be completed by March 1, and that these be firm dates for activities to cease during the restricted activity period for caribou.</p> <p>ConklinML questioned NGTL’s view that the magnitude of change to caribou abundance due to the Project would not be high, particularly due to increased predation, increased linear disturbance and increased access. ConklinML further stated that increased predation would be a long-term effect and wanted to know the status of the Provincial Caribou Policy entitled <i>A Woodland Caribou Policy for Alberta</i>. ConklinML also expressed concerns about how NGTL would monitor the movement of caribou during the construction of the Pipeline and how it would adjust its construction practices to accommodate caribou herds.</p> <p>NGTL stated that the proposed Recovery Strategy provides broad strategies and general approaches which would inform the development and implementation of actions that would occur at the provincial level and vary by individual local population range. NGTL noted that although the Provincial Caribou Policy was released in June 2011, the implementation plan is under development by ASRD. The specific elements of the Provincial Caribou Policy include maintaining caribou habitat, restoring disturbed habitat, and effective management of wildlife populations (including predators and other prey species).</p> <p>NGTL prepared a Caribou Protection Plan (CPP) for the Project that specifies mitigation measures and monitoring activities specific to caribou and caribou habitat, and outlines the proposed actions including minimal disturbance and a reclamation plan for the RoW. Measures in the CPP are included within the EPP. NGTL submitted the CPP to EC and the NEB. The CPP would also be submitted to ASRD for provincial approval by October 2012.</p>
Mitigation Measures	<p>NGTL stated that the route chosen for the proposed Pipeline was partly to minimize effects on caribou. NGTL planned activities with the greatest potential for disturbance to caribou (e.g. clearing and grading) to be completed by the start of the caribou RAP. NGTL stated it may not be able to complete other activities (e.g., ditching and backfilling) before the start of the caribou RAP, but that it is preferable, from a disturbance perspective, to complete construction in one season, rather than returning for a second season.</p> <p>NGTL’s proposed mitigation measures also include creating line-of-sight breaks and access barriers, and prompt reclamation of disturbed areas intended to accelerate the recovery of disturbed habitat.</p> <p>NGTL stated that it would implement a number of mitigations to reduce the effect of construction activities to caribou, such as leaving gaps in windrows and minimizing the amount of open trench at any given time, so as to reduce blocking caribou passage.</p>

Monitoring	NGTL has identified monitoring activities that it would conduct during construction and post-construction. The monitoring program would include a caribou sighting program where all staff and contractors are required to report caribou sightings.				
Views of the NEB	<p>The Board notes that even with NGTL’s proposed mitigative measures and the provincially required CPP, there would still be disturbance to caribou and loss, degradation and fragmentation of habitat beginning with construction and continuing throughout the lifecycle of the Project. Given the listing of caribou as a threatened species, the Project’s traversing of designated range, and the potential overlap with the caribou RAP, the Board is of the view that great care needs to be taken over the extent of and details of mitigation.</p> <p>With regard to disturbance from construction, the Board is of the view that, within the Egg-Pony Caribou Area, all clearing and grading activities should be completed by February 15 and NGTL should aim to complete all other construction activities by March 1, while ensuring that construction is still completed within one season. Therefore the Board recommends that NGTL be required to:</p> <ul style="list-style-type: none">• ensure those aims are reflected in its construction schedule;• file a contingency plan to accelerate construction in the event of delays; and• include progress towards meeting those dates in its construction progress reports. <p>Together, the objective of these three requirements is to minimize construction activities disturbing caribou during the RAP. For detailed wording see Recommendations L, M and N.</p> <p>With regard to habitat, the Board is of the view that project proponents have a responsibility to not only reduce effects on caribou habitat, but to also restore affected habitat as soon as possible and as much as possible. The Board is of the view that, in any Certificate that it may grant, a condition be included requiring NGTL to prepare a Caribou Habitat Restoration Plan (CHRP), as set out in Recommendation H. Separate conditions should be included to require that NGTL develop a program to monitor the effectiveness of those restoration measures, as detailed in Recommendation J, and to report on that monitoring, as detailed in Recommendation K.</p> <p>The Board discusses further habitat mitigation with respect to cumulative effects on caribou in Subsection 8.4.</p>				
Evaluation of Significance	Frequency	Duration	Reversibility	Geographical Extent	Magnitude
	Multiple	Long-term	Possible	RSA	Moderate
	Adverse Effect				
	The Board is of the view that, with the implementation of NGTL’s commitments as well as the NEB’s recommendations, the Project is not likely to result in significant adverse effects on caribou.				

8.3.2.3 Aboriginal Traditional Land and Resource Use

Potential adverse environmental effect	<ul style="list-style-type: none"> • Disruption of Aboriginal traditional hunting, fishing, trapping and plant harvesting activities • Loss or alteration of traditional use sites
Background/Issues	<p>A total of 13 Aboriginal groups were identified by NGTL, the Board and the MPMO as being potentially affected by the Project.</p> <p>NGTL based its ESR on interviews conducted with Elders of ChardML and FMFN. It incorporated FMFN's information from its existing 2006 TLU report and regional information obtained from other industry studies and its experience with other projects.</p> <p>Members of ChardML, FMFN and Willow Lake Métis Local #780 (WLML) participated in biophysical field studies or route over-flights.</p>

	<p>Four Aboriginal groups expressed concerns about impacts on traditional land and resource use. CPDFN outlined its concerns in a letter of comment. CPDFN's overarching concern was for the protection of the integrity of the White Muskeg, a unique landscape of cultural and ecological significance. It was concerned about potential impacts to water quality, quantity, and connectivity, and protecting the quality and quantity of fish. Impacts on woodland caribou and lynx and habitat of these two species were also a concern.</p> <p>Chard ML provided the Board with information on the resource harvesting activities of its members in and near Project lands. It identified its traditional land and resource use such as:</p> <ul style="list-style-type: none"> • hunting of a number of wildlife species within or near Project lands; • fishing of a number of fish species in named water bodies and specific areas; • the use of resources such as various types of plants and berries in identified areas; and • cultural sites including trails, waterways and cabins. <p>Chard ML indicated that the following effects could result from the Project:</p> <ul style="list-style-type: none"> • impacts on water; and • impacts on the habitat of named species of wildlife that are hunted or fished and on berries and other plants or materials that are harvested. <p>It stated that the traditional activities of the Chard Métis will be adversely affected by the proposed Project, notwithstanding proposed mitigation measures.</p> <p>ConklinML identified its traditional land and resource use as including:</p> <ul style="list-style-type: none"> • hunting of a number of wildlife species in geographically described areas in and around the Project; • fishing in the Christina and Kettle Rivers (ConklinML reported the presence of Arctic grayling in several rivers and creeks); and • harvesting of medicinal and food plants in described locations. <p>ConklinML stated that the Project would impact cultural sites. It described the impacts of the Project as including:</p> <ul style="list-style-type: none"> • Conlkin ML members will have to travel a further distance to harvest; • impacts on water bodies including muskeg; and • impacts on the habitat, health and abundance of woodland caribou. <p>Christina River Dene Nation Council (CRDNC) expressed concerns about potential impacts on caribou and other species within its traditional territory. It was also concerned about the potential impact on water supply and the livelihood and way of life of the people.</p> <p>NGTL considers that it has a thorough understanding of the current traditional use of lands by Aboriginal people within the Project area. It will continue to engage Aboriginal groups with respect to the Project and will discuss the findings of TLU studies that have been or are being completed. NGTL stated that the information collected during the TLU studies will be used during continued Project planning and development and will be incorporated into the EPP and environmental alignment sheets for the Project.</p>
Mitigation Measures	<p>NGTL has proposed a variety of mitigation measures in its EPP, including minimal surface disturbance construction techniques to return the RoW to pre-construction condition as soon as possible and minimize or avoid potential adverse effects of the Project on each environmental component.</p> <p>Section 8.3.1 outlines the standard mitigation proposed by NGTL to address potential adverse impacts on matters of concern to Aboriginal groups such as fish habitat, water quality and quantity, alteration of wetlands, habitat alteration/loss through clearing and fragmentation, and loss or alteration of native vegetation. Recommendations C and D are proposed with respect to this mitigation.</p>

	<p>Section 8.3.2.2 addresses Aboriginal concerns about caribou and caribou habitat and includes additional mitigation proposed by NGTL. Recommendations H through N are proposed with respect to this mitigation.</p> <p>NGTL has developed standard mitigation measures for potential TLU sites that may be encountered during construction. It will implement its Traditional Land Use Sites Discovery Contingency Plan including suspending work immediately should any previously unidentified sites be encountered.</p> <p>NGTL indicated that it will continue to engage and update a number of Aboriginal groups on the Project including finalizing the TLU work and discussing appropriate mitigation.</p> <p>NGTL concludes that while the Project may have short-term impacts on traditional land and resource use within the LSA, the project will not affect the ability of Aboriginal people to exercise their traditional practices across their traditional territories.</p>																				
Views of the NEB	<p>The Board is of the view that impacts on traditional land and resource use would be minimal given the short duration of construction and the employment of NGTL’s proposed mitigation measures. The Board expects NGTL to fulfill its commitment to discuss the issues and concerns to Aboriginal groups with them and to consider additional mitigation where warranted.</p>																				
Evaluation of Significance	<table><tr><th>Frequency</th><th>Duration</th><th>Reversibility</th><th>Geographical Extent</th><th>Magnitude</th></tr><tr><td>Single to Multiple</td><td>Short to Long-term</td><td>Possible</td><td>Footprint to RSA</td><td>Low to Moderate</td></tr><tr><td colspan="5">Adverse Effect</td></tr><tr><td colspan="5"><p>The Board is of the view that, with the implementation of NGTL’s commitments the Project is not likely to result in significant adverse effects on the current traditional land and resource use of Aboriginal people.</p></td></tr></table>	Frequency	Duration	Reversibility	Geographical Extent	Magnitude	Single to Multiple	Short to Long-term	Possible	Footprint to RSA	Low to Moderate	Adverse Effect					<p>The Board is of the view that, with the implementation of NGTL’s commitments the Project is not likely to result in significant adverse effects on the current traditional land and resource use of Aboriginal people.</p>				
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<p>The Board is of the view that, with the implementation of NGTL’s commitments the Project is not likely to result in significant adverse effects on the current traditional land and resource use of Aboriginal people.</p>																					

8.4 Cumulative Effects Assessment (CEA)

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

Considerable industrial development has occurred and is occurring in the Project area, including forestry, energy development (e.g., pipelines, seismic clearing, wells, mines), transportation corridors and transmission lines. NGTL considered existing, approved and planned projects in the RSA that might contribute to cumulative effects in combination with the Project, following Canadian Environmental Assessment Agency guidance. NGTL calculated that collectively, existing and approved development footprints cover 36,929 ha (approximately 13%) of the RSA (287,749 ha).

NGTL identified adverse residual effects from the Project on the following valued environmental components (VECs): soil and soil productivity, vegetation, surface water flow, fish and fish habitat, wetlands, wildlife and wildlife habitat, species at risk, and air quality. As well, NGTL stated that residual effects on the above-mentioned VECs could have indirect effects on such valued socio-economic components as human occupancy and resource use, Aboriginal traditional land and resource use, and social and cultural well-being.

NGTL determined that there would be interactions between the residual effects from the Project and residual effects from other projects in the RSA for each of these valued components except for fish and fish habitat. Based on factors such as magnitude, geographic extent, duration and reversibility, NGTL estimated the importance of each interaction as follows:

- Incremental reduction in caribou abundance – high importance
- Incremental loss or alteration of habitat for caribou, moose, lynx, fisher, olive-sided flycatcher and old growth forest birds – moderate importance
- Incremental loss or alteration of wetland vegetation, as well as changes in the availability of fish and wildlife for Aboriginal traditional hunting, trapping and fishing – low to moderate importance
- Interactions related to all other VECs – low or negligible

CPDFN, ConklinML, ChardML and CRDNC raised concerns over the cumulative effects of industrial development in the area, and the resulting impacts on their traditional harvesting activities. EC raised numerous questions and concerns about effects on caribou and its habitat.

Given the conservation status of caribou, its importance, and the Project effects due to both direct and indirect habitat disturbance, caribou is discussed separately below.

With respect to the incremental loss of habitat to other species (e.g. moose, lynx, fisher, olive-sided flycatcher, old growth forest birds), as well as wetland vegetation, there is currently measurable, existing cumulative disturbance in the RSA. The Board finds that the level of habitat disturbance caused by the Project to each VEC is relatively minor, and that other proposed projects in the area will undergo review by the appropriate agencies. Further, the mitigation detailed below for caribou and caribou habitat will also benefit other species that rely upon contiguous forest, and will help to address the Project's contribution to landscape-level cumulative environmental effects.

8.4.1 Caribou and Caribou Habitat

The Board is concerned about caribou and caribou habitat in the Project area because the caribou is listed as a threatened species, the ESAR caribou population is declining, and the Project would further disturb ESAR caribou habitat.

NGTL concluded there is a “long-term cumulative effect of high magnitude” on caribou but that “this cumulative effect is realized prior to construction and operation of the proposed Project”.

EC's proposed Recovery Strategy notes that caribou “will avoid anthropogenic footprints such as seismic lines, roads, cut blocks, etc., as well as the adjacent habitat for a distance up to 500 m.” It also notes that 77% of the entire ESAR range² has already been disturbed when these 500 m

² Much of the RSA (287,749 ha) overlaps the Egg-Pony caribou habitat range, which in turn forms part of the ESAR range (1,315,980 ha).

indirect (buffer) disturbances surrounding direct anthropogenic disturbances are taken into account.

NGTL's map³ illustrating existing and approved projects within the RSA also shows a high level of fragmentation from linear disturbances.⁴

Although NGTL has lessened Project effects by paralleling existing linear disturbance for 55 km of the 77 km pipeline, the level of restoration of existing disturbances and the additional time required for restoration due to the Project are unclear. EC's proposed Recovery Strategy notes "Boreal caribou exist in mature boreal forest ecosystems that are established over many decades, and in turn take many years to recover from disturbance. The loss of habitat and the increase in predators and alternate prey populations in caribou ranges require time frames in excess of 50 to 100 years to reverse".

The Board is of the view that, even with the mitigation proposed in the EPP and CHRP, there would remain residual effects from the Project that would contribute to cumulative effects on caribou and their habitat. These residual effects result not only from direct and indirect disturbance where the RoW passes through a new area, but also where the RoW parallels an existing disturbance (in the latter case it will often both widen and increase the duration of the existing disturbance). The Board notes that it has previously commented on the nature of cumulative effects on species at risk and the need to fully address residual effects, in OH-1-2009, in its May 2011 update to the NEB Filing Manual, and most recently in GH-2-2011. Given the already substantial ongoing cumulative effects on caribou in the region, the Board is therefore of the view that any residual effects on caribou habitat should be fully compensated for.

Given the ESAR caribou population is currently declining and the considerable length of time it can take to restore disturbed caribou habitat, the need to avoid further contributions to cumulative effects is also time sensitive. Therefore, in addition to the mitigation measures and recommendations in Subsection 8.3.2.2, the Board recommends that, in any Certificate that it may grant, a condition be included requiring NGTL to offset all residual effects to caribou and caribou habitat, as set out in **Recommendation I** in Subsection 8.6. Further, separate conditions should be included to require NGTL to develop a program to monitor the effectiveness of those offset measures, as detailed in **Recommendation J**, and to report on that monitoring, as detailed in **Recommendation K**.

³ ESA Part 2 [A2A6Q4](#) PDF page 165 of 243.

⁴ NGTL report there are 3159 km of pipelines, 278 km of roads, and 3743 km of seismic cut lines/recreational trails within the RSA from existing and approved developments. [[A2A6Q4](#) PDF page 166 of 243]

8.5 Follow-Up Program

Under the CEA Act, a follow-up program is used to verify the accuracy of the environmental assessment of a project and to determine the effectiveness of any measures taken to mitigate the adverse environmental effects of the project. Follow-up programs can also be used to provide information on environmental effects and mitigation to improve and/or support future cumulative environmental effects assessments.

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

Given that caribou habitat restoration and offset measures are non-standard approaches in this context, that there are many stakeholders working towards caribou habitat conservation and management, and that the approach taken could extend beyond the boundaries of the assessed area, the Board is of the view that a CEA Act follow-up program on this matter is appropriate. Taking these elements into consideration, the Board recommends that in any Certificate it may grant, the Caribou Habitat Restoration and Offset Measures Monitoring Program (detailed in **Recommendations J and K**) be implemented as a follow-up program under the CEA Act.

8.6 Recommendations

It is recommended that, in any Certificate that the Board may grant, a condition be included requiring NGTL to carry out all of the environmental protection and mitigation measures outlined in its application and subsequent submissions.

In these recommendations, the expression “commencing construction” means the clearing of vegetation, ground-breaking and other forms of RoW preparation that may have an impact upon the environment, but does not include activities associated with normal surveying activities.

Further, it is also recommended that the following be included as conditions in any Certificate that the Board may grant:

A. Commitments Tracking Table

NGTL shall:

- a) file an updated Commitments Tracking Table with the Board 14 days prior to commencement of construction;
- b) update the status of the commitments in paragraph (a) on a monthly basis until the commencement of operation and on an annual basis thereafter, until all commitments have been achieved;
- c) maintain at its construction office(s):
 - i) the relevant environmental portion of the Commitments Tracking Table listing all regulatory commitments, including but not limited to, those commitments

resulting from NGTL's application and subsequent filings, and conditions from permits, authorizations and approvals;

- ii) copies of any permits, approvals or authorizations for the Project issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and
- iii) any subsequent variances to any permits, approvals or authorizations in ii).

B. Environmental Protection Plan (EPP) and Environmental Alignment Sheets

NGTL shall file with the Board for approval, at least 60 days prior to commencing construction:

- a) an updated EPP, including environmental alignment sheets, for the construction and operation of the Project facilities.

The EPP shall be a comprehensive compilation of all environmental protection procedures, mitigation measures, and monitoring commitments, as set out in NGTL's application for the Project, subsequent filings, evidence collected during the hearing process, or as otherwise agreed to during questioning or in its related submissions. The EPP shall describe the criteria for the implementation of all procedures and measures. The EPP shall include, but not be limited to, the following:

- i) environmental procedures including site-specific plans, criteria for implementation of these procedures, mitigation measures and monitoring applicable to all Project phases and activities; and
 - ii) a reclamation plan which includes a description of the condition to which NGTL intends to reclaim and maintain the RoW once construction has been completed, and a description of measurable goals for reclamation.
- b) all mitigation related to caribou and caribou habitat is placed in one chapter of the EPP which includes;
 - i) NGTL's commitments to adhering to specific provincial and federal best practices, requirements and timing restrictions;
 - ii) a list of all measures to minimize disturbance to caribou habitat, and measures to be taken before and during construction to help accelerate the restoration of caribou habitat; and
 - iii) the locations where those measures will be taken.
 - c) evidence demonstrating that:
 - i) there is a management system in place which ensures the updates of the environmental protection procedures, mitigation measures and monitoring are effectively communicated to employees, contractors and regulators; and
 - ii) consultation took place with relevant government authorities, where applicable.

C. Post-Construction Monitoring Program

- a) NGTL shall file with the Board for approval, at least 60 days prior to commencing construction, a preliminary detailed post-construction monitoring program (PCMP) which:
 - i) describes the methodology to be used for monitoring and the criteria established for evaluating success;
 - ii) identifies the issues to be monitored, including all valued ecosystem components contained in the PCMP section of the draft EPP together with wetland habitat quality and function, wildlife, wildlife habitat, and species at risk; and
 - iii) includes details of consultation undertaken with appropriate provincial and federal authorities.
- b) On or before 31 January after each of the first, third, and fifth complete growing seasons following the commencement of operation of the Project, NGTL shall file with the Board a post-construction environmental monitoring report that:
 - i) describes the methodology used for monitoring, the criteria established for evaluating success and the results found;
 - ii) 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);
 - iii) describes the current status of the issues (resolved or unresolved), any deviations from plans and corrective actions undertaken;
 - iv) assesses the effectiveness of mitigation (planned and corrective) measures applied against the criteria for success;
 - v) includes details of consultation undertaken with appropriate provincial and federal authorities;
 - vi) provides proposed measures and the schedule that NGTL would implement to address ongoing issues or concerns; and
 - vii) includes an assessment of wetland habitat and wildlife and wildlife habitat, including species at risk.

The first monitoring report shall include a final PCMP, incorporating any changes or refinements to the preliminary PCMP.

D. Horizontal Directional Drilling (HDD) of Christina River

NGTL shall:

- a) notify the Board in writing of any change from the proposed horizontal directional drilling watercourse crossing method, at least seven days prior to implementing a contingency crossing of Christina River, and provide the reasons for that change;

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

E. Weed Management Plan

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

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

F. Heritage Resources

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

- a) a copy of correspondence from Alberta Culture and Community Services confirming that NGTL has obtained all archaeological and heritage resource permits and clearances; and
- b) a statement on how NGTL intends to implement any recommendations contained in a) above.

G. Species at Risk Surveys

NGTL shall submit for approval 60 days prior to the commencement of construction:

- a) a summary of its findings based on field surveys for western (boreal) toad, yellow rail, Canada warbler, olive-sided flycatcher, and rusty blackbird, trapper data for wolverine and incidental observations for common nighthawk;

- b) specific mitigation measures that will be implemented;
- c) an outline of how NGTL will conduct post-construction monitoring for these species and performance measures that will be used; and
- d) evidence of consultation with Environment Canada (EC) and the province that includes a summary of all concerns raised by EC and the province and a commitment to undertaking those agencies' recommendations. In those cases where NGTL does not commit to those recommendations, NGTL shall provide a detailed explanation.

H. Caribou Habitat Restoration Plan (CHRP)

NGTL shall file with the Board for approval, as per the timelines below, preliminary and final versions of a Caribou Habitat Restoration Plan (CHRP).

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

- vii) a quantitative and qualitative assessment of the area of caribou habitat that is directly and indirectly disturbed and the duration of spatial disturbance.

I. Offset Measures Plan for Residual Impacts to Caribou Habitat

NGTL shall file with the Board for approval a plan to offset all residual Project-related effects resulting from directly and indirectly disturbed caribou habitat, after taking into account the implementation of the EPP and CHRP measures. The Offset Measures Plan shall include:

- a) a preliminary version, to be filed for approval at least 60 days prior to requesting Leave to Open, with the criteria and the measurable objectives of the plan, including, but not limited to, a discussion of:
 - i) an initial quantification of the area directly and indirectly disturbed;
 - ii) a list of the potential offset measures available;
 - iii) the appropriate offset ratio for each potential measure;
 - iv) the expected effectiveness of each measure;
 - v) the relative value of each measure towards achieving the offset; and
 - vi) the decision-making criteria for selecting which specific offset measures and accompanying offset ratios would be used under what circumstances;
- b) a final version, to be filed for approval on or before 1 February after the first complete growing season following the commencement of operation of the Project, with:
 - i) the contents of the preliminary version, with any updates highlighted in a revision log;
 - ii) a complete list of the offset measures and appropriate offset ratios to be implemented or already underway, including a description of site-specific details and maps showing the locations;
 - iii) a schedule indicating when measures will be initiated and completed; and,
 - iv) either an assessment of the effectiveness of the measures and their value in offsetting the residual effects or a detailed plan for completing an assessment of the effectiveness and value of the offset;

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

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

J. Caribou Habitat Restoration and Offset Measures Monitoring Program (Program)

NGTL shall file with the Board for approval, on or before 1 February after the first complete growing season following the commencement of operation of the Project, a program for monitoring and verifying the effectiveness of the caribou habitat restoration and offset measures implemented as part of the CHRP and Offset Measures Plan. This program shall include, but not be limited to:

- a) the scientific methodology or protocol for short-term and long-term monitoring of the restoration and offset measures, and the effectiveness of the measures;
- b) frequency, timing and locations of monitoring and the rationale for each;
- c) protocols for how restoration and offset measures will be adapted, as required, based on the monitoring results from the implementation of either the Project or other NGTL CHRPs and Offset Measures Plans; and
- d) a schedule for filing reports of monitoring results and the adaptive management responses, to the NEB, EC and ASRD, to be contained in the Program as well as at the beginning of each report filed.

K. Monitoring Reports

NGTL shall file with the Board, based on the schedule referred to in the Caribou Habitat Restoration and Offset Measures Monitoring Program, a report(s) outlining the results of the monitoring program.

L. Construction Schedule Regarding Caribou

[Append the following text to the Board's standard condition requiring a detailed construction schedule:]

All clearing and grading within the Egg-Pony Caribou Area shall be completed by 15 February 2013. The schedule shall reflect NGTL's commitment of minimizing overlap with the Caribou restrictive activity period (RAP). The schedule shall also demonstrate the aim of completing all other construction activities within the Egg-Pony Caribou Area by 1 March 2013.

M. Caribou Restricted Activity Period (RAP) Contingency Plan

NGTL shall file with the Board, by 15 December 2012, a contingency plan specifying additional measures NGTL will implement, to accelerate construction activities in the event that any potential delays risk increasing the overlap of construction activities with the Caribou RAP.

N. Construction Progress Reports Regarding Caribou

[Append the following text to the Board's standard condition requiring construction progress reports:]

Each progress report after 15 December 2012 shall also include an update on the extent to which potential delays risk increasing the overlap of construction activities with the Caribou RAP, and an explanation of whether the measures in the Caribou RAP Contingency Plan need to be implemented.

9.0 THE NEB'S CONCLUSION

Pursuant to the CEA Act, the NEB has determined that if the Project is approved, and taking into account the implementation of the NGTL's proposed environmental protection procedures and mitigation measures, compliance with the Board's regulatory requirements and the NEB's Proposed Conditions included in this ESR, the Project is not likely to cause significant adverse environmental effects.

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

10.0 NEB CONTACT

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APPENDIX 1 – SCOPE OF THE EA

**NOVA Gas Transmission Ltd.
Leismer – Kettle River Crossover Pipeline Project
Scope of the Environmental Assessment Pursuant to the
*Canadian Environmental Assessment Act***

1.0 INTRODUCTION

NOVA Gas Transmission Ltd. (NGTL), a wholly owned subsidiary of TransCanada PipeLines Limited, is proposing to construct and operate the Leismer – Kettle River Crossover Pipeline (the Project). This would require a Certificate of Public Convenience and Necessity pursuant to section 52 of the *National Energy Board Act* (NEB Act). The Project would also be subject to an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (CEA Act).

On 3 December 2010, NGTL filed a Project Description with the National Energy Board (NEB) regarding the proposed Project. One function of the Project Description is to begin initiating coordination of the EA process pursuant to the CEA Act.

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

- NEB – RA
- Transport Canada – RA
- Fisheries and Oceans Canada – FA
- Environment Canada – FA
- Health Canada – FA
- Natural Resources Canada – FA

The Province of Alberta was also notified.

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

2.0 SCOPE OF THE ASSESSMENT

2.1 Scope of the Project

The scope of the Project for the purposes of the EA includes the various components of the Project, as described by NGTL in its 15 July 2011 Project application submitted to the NEB. The physical activities include construction, operation, maintenance and foreseeable changes, and reclamation, relating to the entire Project, including the physical works described in greater detail in the Project application.

The proposed Project would provide additional capacity to transport sweet natural gas in northeastern Alberta. The Project would consist of approximately 77 km of 762 mm (30-inch) outside diameter pipe, located approximately 90 km south of Fort McMurray, Alberta. The Pipeline right-of-way (RoW) would parallel existing linear disturbances for approximately 55 km, of which, approximately 29 km is considered contiguous and approximately 26 km is considered non-contiguous. The remaining 22 km of RoW for the Project does not parallel existing linear disturbances.

Additional facilities would include pipeline valves, launching/receiving facilities for in-line inspection tools, cathodic protection, and control systems. Some temporary infrastructure would be required for construction including access, pipe storage sites, and contractor yards. The Project would require the crossing of the Christina River, House River and Pony Creek, as well as numerous unnamed watercourses.

NGTL is proposing to begin construction of the Project in the fourth quarter of 2012 and the proposed in-service date is in the second quarter of 2013.

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

2.2 Factors to be considered

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

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

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

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

2.3 Scope of the Factors to be Considered

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

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

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

APPENDIX 2 – DEFINITIONS OF EVALUATION OF SIGNIFICANCE CRITERIA

Criteria	Rating	Definition
All criteria	Uncertain	When no other criteria rating descriptor is applicable due to either lack of information or inability to predict
Frequency (how often would the event that caused the effect occur)	Accidental	Rare and unplanned occurrence over the Project lifecycle
	Single	One time event within any phase of the Project lifecycle
	Multiple	Multiple occurrences during any phase of the Project lifecycle
	Continuous	Continuous through any phase of the Project lifecycle
Duration	Short-term	Adverse environmental effect duration is limited to the proposed construction in the order of weeks to months
	Medium-term	Adverse environmental effect duration is in the order of months to a few years
	Long-term	Adverse environmental effect duration is in the order of many years to decades
Reversibility	Reversible	Adverse environmental effect expected to return to baseline conditions within the life of the Project
	Possible	Adverse environmental effect may return to baseline conditions during or after the life of the Project
	Irreversible	Adverse environmental effect would likely be permanent
Geographic Extent	Footprint	Effect would be limited to the area physically disturbed by the Project development, including the width of the RoW and TWS
	LSA	Effect would be limited to where direct interaction with the biophysical and human environment could occur as a result of construction or reclamation activities. This area varies relative to the receptor being considered.
	RSA	Effect would be recognized in the area beyond the LSA. This area also varies relative to the receptor being considered.
Magnitude	Low	Effect is negligible, if any; restricted to a few individuals/species or only slightly affects the resource or parties involved; and would impact quality of life for some, but individuals commonly adapt or become habituated, and the effect is widely accepted by society.
	Moderate	Effect would impact many individuals/species or noticeably affect the resource or parties involved; is detectable but below environmental, regulatory or social standards or tolerance; and would impact quality of life but the effect is normally accepted by society.
	High	Effect would affect numerous individuals or affect the resource or parties involved in a substantial manner; is beyond environmental, regulatory or social standards or tolerance; and would impact quality of life, result in lasting stress and is generally not accepted by society except under extenuating circumstance.
Evaluation of Significance	Likely to be significant	Effects that are of high frequency or long-term duration, irreversible, of regional extent and of high magnitude.
	Not likely to be significant	Any adverse effect that does not meet the above criteria for “significant”