EAGLE MOUNTAIN - WOODFIBRE GAS PIPELINE PROJECT

ASSESSMENT REPORT

With Respect to

the Application by FortisBC Energy Inc. for an Environmental Assessment Certificate pursuant to the Environmental Assessment Act, S.B.C. 2002, c.43

Prepared by:

Environmental Assessment Office July 22, 2016



1 Introduction

This assessment report provides an overview of the environmental assessment (EA) of the proposed Eagle Mountain-Woodfibre Gas Pipeline Project (Eagle Mountain Project) conducted by the Environmental Assessment Office (EAO). This assessment report cross-references relevant sections of EAO's technical report, where more in-depth analysis and discussion can be found.

2 **Project Description**

FortisBC Energy Inc. (FortisBC) is proposing to develop the Eagle Mountain Project to deliver sweet natural gas to the Woodfibre LNG facility southwest of Squamish, British Columbia (BC) (Figure 1), which received an EA Certificate on October 26, 2015, and a federal environmental assessment approval on March 17, 2016. The Eagle Mountain Project would operate for a minimum of 50 years and have a transmission capacity of approximately 228 million standard cubic feet per day.

The purpose of the Eagle Mountain Project would be to provide a natural gas transportation service to a new LNG facility being proposed by Woodfibre LNG Limited, southwest of Squamish, BC. FortisBC's proposed new pipeline is planned to generally parallel (i.e., loop) the existing FortisBC pipeline that is part of the natural gas transmission system that services Squamish, the Resort Municipality of Whistler, the Sunshine Coast and Vancouver Island. The proposed pipeline would be operated in parallel with the existing FortisBC pipeline to increase the overall natural gas transmission capacity of the FortisBC transmission system in order to deliver natural gas to Woodfibre LNG. The expanded system will meet the requirements of the new LNG facility and enable FortisBC to continue to provide reliable service to other existing and future customers.

The Eagle Mountain Project would include:

- Construction and operation of an approximately 47 km long, 24-inch diameter sweet natural gas pipeline from an area north of the Coquitlam Watershed in Metro Vancouver to the Woodfibre LNG facility;
- Construction and operation of 10-inch lateral pipelines from the existing right of way to the Mt. Mulligan compressor station;
- Abandonment and relocation of a short section of the existing 10-inch pipeline located near the Stawamus River;
- Installation of electric-drive compression adjacent to the existing compressor station located at Eagle Mountain in Coquitlam, and of a new gas turbine-powered compressor station outside the District of Squamish, near Mt. Mulligan;
- Development of supporting infrastructure, such as mainline block valves, a supervisory control and data acquisition system, in-line inspection facilities, cathodic protection measures, new electrical substations and transmission lines, new access roads and workspace, and a temporary worker construction camp that may be built west of the Squamish River; and
- Use of two existing barge landing sites, one at Indian Arm to access portions of the proposed route in the Indian River Valley and the other at Woodfibre near the terminus of the proposed pipeline.

The proposed pipeline route would use existing disturbed areas where feasible. Approximately 51 % of the route would parallel an existing FortisBC pipeline or other existing linear disturbance.

The EA included the evaluation of various alternative pipeline routes and compressor station locations. Section 2.0 of EAO's technical report includes a more detailed description of the Eagle Mountain Project, including the alternatives evaluated. During the EA, FortisBC submitted several addenda to the Application in response to concerns raised by the public, working group and Aboriginal Groups.

The addenda included the following key project changes:

- Expansion of the Application Corridor through the Skwelwil'em Squamish Estuary Wildlife Management Area (WMA) to accommodate an extended trenchless crossing technique to further reduce disturbance in the WMA;
- Two expansions to the Application Corridor in the Indian River Valley to potentially enable routing to avoid areas identified by Tsleil-Waututh Nation as areas of importance;
- A potential temporary worker camp west of the Squamish River to reduce marine traffic and worker accommodation requirements in Squamish; and
- Changes to the design for compression of the transported gas, by proposing a natural gas-fired compressor station at the base of Mt. Mulligan to replace the Squamish compressor station originally proposed in the Application. Details of these changes can be found in section 2.2.1 Project Description and Location of the technical report.

The Eagle Mountain Project would be located in the asserted traditional territories of Kwikwetlem First Nation, Squamish Nation, Tsleil-Waututh Nation, and Musqueam Nation.

3 Environmental Assessment Process

Pre-Application Stage

On August 1, 2013, EAO determined that the Eagle Mountain Project was reviewable pursuant the Reviewable Projects Regulation, as it would include a new transmission pipeline facility with a diameter greater than 323.9 mm and a length greater than 40 km, and issued an order under Section 10 of the *Environmental Assessment Act* (the Act).

On November 5, 2013, EAO issued an order under Section 11 of the Act (Section 11 Order), which set out the scope, procedures and methods for the EA. EAO conducted the EA in consultation with an advisory working group of federal, provincial and local government representatives, with the mandates and skill sets relevant to the review of the Eagle Mountain Project, as well as representatives of potentially affected Aboriginal Groups listed on Schedule B of the Section 11 Order. EAO consulted the Aboriginal Groups listed on Schedules B and C of the Section 11 Order.

Following a review and comment on the draft Application Information Requirements (AIR) by the working group and the public, EAO issued the final AIR for the Eagle Mountain Project on February 13, 2014. The AIR established the information that had to be collected, analysed and presented in FortisBC's Application for an EA Certificate.

At the request of Squamish Nation, FortisBC and Squamish Nation entered into an agreement early in the EA that set out a process between the parties to discuss the Squamish Nation assessment of the Eagle Mountain Project. This included an assessment of the potential effects of the Eagle Mountain Project on Squamish Nation's asserted Aboriginal rights and title. At the request of FortisBC, and in



Figure 1: Location of the Proposed Eagle Mountain – Woodfibre Gas Pipeline Project

consultation with Squamish Nation, on November 10, 2014, EAO issued a Section 13 Order, amending the procedural requirements for FortisBC related to consultation with Squamish Nation to enable to agreement between Squamish Nation and FortisBC.

Application Review Stage

The Application Review stage of the EA started on January 12, 2015, following a 30-day evaluation of the Application against the AIR by EAO, in consultation with the working group. Comments were provided to EAO on the Application and supplemental material during the Application Review stage by the working group, including Aboriginal Groups, and the public.

During Application Review, project changes were proposed by FortisBC in Addendum 1, in which FortisBC proposed an expansion to the Application Corridor in Squamish, and Addenda 2 and 3 to address concerns of the public, the working group and Aboriginal Groups related to the crossing of the Squamish River Estuary WMA and the location of a proposed compressor station in Squamish. Addendum 4 was also proposed during the EA to include expansions to the Application Corridor in the Indian River Valley to potentially enable routing to avoid areas identified by Tsleil-Waututh Nation as areas of significance.

EAO undertook public consultation activities during the course of the EA, including holding three public comment periods and five open houses. During the Application Review stage, in consideration of the public interest and at the request of the FortisBC, EAO extended the public comment period from 45 to 60 days in order to provide more time for the public to review the Application. An additional 21-day public comment period was held during the Application Review stage to provide the public with an opportunity to comment on the Addenda 2 and 3 changes to the Eagle Mountain Project. All public comments, and FortisBC's responses to these comments, were considered in completing the EA.

On June 30, 2015, at the request of FortisBC, EAO's Executive Director suspended the 180-day Application Review time limit for the Eagle Mountain Project, in order to allow FortisBC additional time to complete a review of Squamish Nation Council's conditions and to submit a report to EAO to fulfill the Section 13 requirements with respect to Squamish Nation's Aboriginal rights and title (Aboriginal Interests).

On May 3, 2016, a supplemental report was submitted by FortisBC to EAO to fulfil the Section 13 requirements with respect to Squamish Nation's Aboriginal Interests. EAO consulted with Squamish Nation on the report and was satisfied that the information fulfilled the Section 24(2) requirements, pursuant to the suspension order issued on June 30, 2015.

On May 3, 2016, FortisBC submitted a letter to EAO requesting that the Mt. Mulligan site be the sole site considered in the EA as the location for its proposed compressor station in the Squamish area, and removing the Squamish Sabre compressor station from the project.

On May 27, 2016, FortisBC requested that EAO maintain the suspension of the 180-day time limit for up to 30 additional days to allow EAO to complete consultation with the working group on the revised draft referral materials. On May 31, 2016, EAO's Executive Director granted the request to suspend the review time limit for up to 30 days.

On June 30, 2016, EAO lifted the suspension of the 180-day time limit for the Application review of the Eagle Mountain Project.

On July 22, 2016 EAO's Executive Director issued an order under section 24(4) of the Act to provide a timeline extension of 11 days to the 180-day Application review timeline.

EAO completed the EA of the Eagle Mountain Project and, on July 22, 2016, referred to Ministers for decision.

Other Required Authorizations

The Eagle Mountain Project would require various permits from federal, provincial and local government agencies. The majority of provincial permits would be provided by the BC Oil and Gas Commission (OGC), the primary operational regulator of oil and gas activities in BC. In particular, OGC is responsible for permitting proposed pipelines under the *Oil and Gas Activities Act*.

A potential federal authorization may be required from Fisheries and Oceans Canada (DFO), to carry on a proposed work, undertaking, or activity that could cause serious harm to fish, under the subsection 35(2) of the *Fisheries Act*.

A list of key permits and authorizations is provided in Table 2-6 of the technical report.

4 Key Conclusions of the Environmental Assessment

In conducting this EA, EAO considered the potential adverse environmental, economic, social, heritage and health effects, including cumulative effects, of the Eagle Mountain Project. EAs in BC use valued components as an organizing framework for the assessment of the potential effects for proposed projects. Valued components are components of the natural and human environment that are considered by the proponent, Aboriginal Groups, public, scientists and other technical specialists, and government agencies involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical or other importance. EAO's technical report for the Eagle Mountain Project is organized around the following valued components assessed in the Application.

Environmental Effects	Economic Effects
 Acoustic environment (section 5.1) 	Economy (6.1)
• Air quality (5.2)	 Employment and labour force (6.1)
 Greenhouse gas emissions (5.3) 	Social Effects
• Surface water (5.4)	 Community utilities and services (7.1)
• Groundwater (5.4)	 Transportation infrastructure (7.2)
 Acid rock drainage (5.4) 	Community (7.3)
 Fish and fish habitat (5.5) 	 Land and resource use (7.4)
• Soils capability and terrain integrity (5.6)	Heritage Effects
 Wetland function (5.7) 	 Heritage resources (8.1)
 Vegetation (5.8) 	Health Effects
 Wildlife and wildlife habitat (5.9) 	Human health (9.1)

EAO assessed the potential for the Eagle Mountain Project to have significant adverse effects on these valued components. The assessment also considered how accidents and malfunctions (section 10.2) and effects of the environment on the project (section 10.3) could affect these valued components. These assessments were based on the Application provided by FortisBC, supplemental materials and addenda, and consultation with the working group, Aboriginal Groups, and the public.

EAO's technical report assesses the impacts of the Eagle Mountain Project on all valued components, and identifies key mitigation measures for each and reaches conclusions on their residual effects, none of which are determined to be significant. To ensure the effects of the Eagle Mountain Project are sufficiently mitigated, EAO proposes 30 conditions to be included in the EA Certificate, if issued, along with a Certified Project Description. Conditions 1-9, 20, 24-25, 27 would apply to all valued components and would require FortisBC to provide a plan, program or other document, consult, report, and retain an environmental monitor as referenced in such conditions.

The remainder of this section provides a summary of some of the key issues and concerns that were the focus of the EA. A detailed discussion of the assessment of each valued component and topic can be found in the technical report.

Squamish Compressor Station

In the Application, FortisBC proposed a new electrical-powered compressor station in an industrial park in Squamish, BC and electric-drive compression adjacent to the existing compressor station located at Eagle Mountain in Coquitlam. In response to concerns related to the Squamish compressor station, raised by the public and Aboriginal Groups during the EA, FortisBC submitted Addendum 3 that proposed an alternate natural gas compressor station located at Mt. Mulligan, outside of Squamish.

Residents of the Valleycliffe neighbourhood, near Mt. Mulligan, and other members of the public expressed concern about the potential noise effects, greenhouse gas emissions, and air emissions related to the proposed Mt. Mulligan compressor station. The closest residence is located 1740 m from the proposed compressor station site, and Addendum 3 assessed that the noise levels generated by the proposed Mt. Mulligan compressor station would be 29 dB at the nearest residence, which would be well below the Permissible Sound Levels recommended by OGC, and is not expected to be audible.

The Application and Addendum 3 provided estimates of Criteria Air Contaminant (CAC) emissions during construction and operations, and air dispersion modelling was conducted for CACs associated with the operation of each proposed compressor station. Ambient concentrations of CACs from the Mt. Mulligan compressor station would result in local increases, but would be well below the BC Ambient Air Quality guidelines. The Mt. Mulligan compressor station would require a waste discharge permit under the *Environmental Management Act* to authorize emissions of CACs. Provincial and federal Ambient Air Quality Objectives would guide permit development and provide the framework for evaluating observed or predicted air contaminant concentrations.

The proposed Mt. Mulligan compressor station would be natural gas-powered. Due to system optimization design described in Addendum 3, the total greenhouse gas emissions associated with operations are expected to decrease by 7.42 kt CO₂e/year, compared to the emissions predicted in the Application. Due to the redesign and optimization of compression requirements, including the capacity of the combustion turbines and anticipated load demands, FortisBC determined in Addendum 3 that additional compression initially proposed at the Port Mellon compressor station was no longer

required. Overall, the Eagle Mountain Project would result in an increase of 114.4 kt Co2e/year during operations, which would be a 0.02% increase to national emissions and a 0.2% increase to provincial emissions from 2012 levels.

FortisBC conducted visual studies to determine potential visual effects of the proposed Mt. Mulligan compressor station. The visual studies indicated that the compressor station would not be visible from Valleycliffe neighbourhood and that the area is naturally screened by topography and existing trees, which would act a visual barrier.

In response to concerns raised by the public, during Application Review, FortisBC conducted further engagement with local residents of the Valleycliffe neighbourhood. To date, FortisBC has produced an expanded acoustic map, conducted balloon visual testing at the location of the compressor station, and organized a field visit for the public of FortisBC's existing compressor station in Coquitlam.

Considering the analysis summarized above and discussed in sections 5.1 (acoustic), 5.2 (air quality), 7.4 (land and resources use), 5.3 (greenhouse gas emissions) of EAO's technical report, and having regard to the proposed conditions and associated mitigation measures, EAO is satisfied that the Eagle Mountain Project would not have significant adverse residual effects on acoustic environment, air quality, greenhouse gas emissions, or visual quality.

Business Disruptions in the District of Squamish

Business disruption would be most likely to occur in the District of Squamish (DOS) where the Eagle Mountain Project would transect the DOS along Robin Drive and Industrial Way, a light industrial area located adjacent to a number of businesses. Project-related access restrictions and increased noise, dust and traffic may influence public behaviour. The duration of construction at any one spread of the pipeline would likely be no longer than six months. However, work within or near streets in the DOS could take up to three years, depending on the Squamish River estuary crossing method selected.

The DOS hosts a series of annual festivals and events which bring visitors to the area throughout the year. Most of these events occur in the summer months and would overlap with the construction phase of the Eagle Mountain Project. Construction activities may inconvenience these events and local businesses that cater to these events.

Key mitigations proposed to reduce potential adverse effects resulting from business disruption include working with businesses directly affected by construction to reduce effects as a result of noise, dust and limited access, following acceptable heavy truck routes and approved access routes, scheduling heavy construction traffic to periods of less traffic, and communicating with municipal authorities and other local stakeholders about construction timing and location.

EAO proposes a condition requiring FortisBC to develop a traffic control management plan that must identify measures to mitigate impacts of project-related transportation during construction on the safety of other users and the safety of the transportation network, and include measures for traffic control and public communications. EAO also proposes a condition requiring FortisBC to continue to engage the public for the life of the Eagle Mountain Project, including information sharing and opportunities to discuss site-specific mitigation measures. During permitting, FortisBC would also be

required to conduct public and stakeholder consultation pursuant to the OGC's Consultation and Notification Regulation.

Considering the analysis summarized above and discussed in sections 6.1 (economic) and 7.2 (transportation infrastructure) of EAO's technical report, and having regard to the proposed conditions and associated mitigation measures, EAO is satisfied that the Eagle Mountain Project would not have significant adverse residual effects on traffic infrastructure or economy.

Grizzly Bear

The Eagle Mountain Project would overlap two Grizzly Bear Population Units (GBPUs) that are provincially considered threatened: the Squamish-Lillooet GBPU (59 bears) and the Garibaldi-Pitt GBPU (2 bears). The existing average motorized access density within the area that would be intersected by the Eagle Mountain Project currently exceeds the minimum threshold for high risk of mortality and displacement for both GBPUs. The core grizzly bear habitat remaining for both GBPUs are also currently well below the recommended minimum target levels, although the habitat loss that would be attributed to the Eagle Mountain Project is negligible.

The presence of construction workers, facilities and increased human access has the potential to increase the risk of human-wildlife conflict, resulting in increased mortality risk for bears. Furthermore, disturbance from noise created by roads and linear corridors have been found to adversely affect grizzly bear habitat effectiveness, fragment habitat (e.g., create barriers/filters to movement, alienate bears from suitable habitat) and increase mortality risk.

During Application Review, the working group raised concerns about the impacts to grizzly bears, given that linear corridor density already exceeded thresholds. The Ministry of Forests, Lands and Natural Resource Operations (FLNRO) identified that any impacts to the reproductive potential of breeding females could significantly affect the ability for recovery of grizzly bears in the two GBPUs and that any mitigation and monitoring program should be adaptive and based on monitoring results.

EAO worked closely with the working group, including FLNRO, to determine the appropriate mitigation, particularly in consideration of the existing impacts to the area and the cumulative effects on the populations of the two GPBUs. To ensure the effects of the Eagle Mountain Project are mitigated to the extent possible, EAO proposes a condition requiring the development of a Grizzly Bear Mitigation and Monitoring Plan. This plan would contain more detail regarding the implementation of mitigation measures, such as setback distances, to be implemented to prevent disturbance to active bear dens, and would include offsets if required. EAO also proposes an access management plan to address the indirect impacts of access on mortality risk. To support the further mitigation of cumulative effects in the two GBPUs, EAO proposes a condition that would require FortisBC to contribute one-time funds to FLNRO to support the monitoring and study of grizzly bears.

Considering the analysis summarized above and discussed in sections 5.9 (wildlife and wildlife habitat) of the technical report, and having regard to the proposed conditions and associated mitigation measures, EAO is satisfied that the Eagle Mountain Project would not have significant adverse residual effects on wildlife and wildlife habitat. While Eagle Mountain does not have a significant adverse effect to grizzly bears, EAO concludes that there is an existing significant adverse cumulative effect to grizzly bear as a result of current disturbance.

Impacts to the Skwelwil'em Squamish Estuary Wildlife Management Area

During the EA, concerns were raised by the working group, Aboriginal Groups and the public about the potential for adverse effects from construction of pipeline crossings within the Skwelwil'em Squamish Estuary WMA.

As a result of the concerns raised, FortisBC committed to construct underneath or around the WMA using a trenchless crossing technique and that there would be no disturbance to the WMA during construction. EAO also proposes a condition requiring that a trenchless crossing technique be used if FortisBC constructs within the WMA.

5 Aboriginal Consultation

EAO examined potential impacts of the Eagle Mountain Project on Aboriginal Interests. Throughout the EA, EAO consulted with:

- Kwikwetlem First Nation;
- Musqueam Nation;
- Squamish Nation; and
- Tsleil-Waututh Nation.

Squamish Nation, Tsleil-Waututh Nation and Kwikwetlem First Nation were consulted at the higher end of the *Haida* spectrum. Musqueam Nation was consulted at the lower to middle end of the *Haida* spectrum.

EAO provided Squamish Nation, Tsleil-Waututh Nation and Kwikwetlem First Nation with capacity funding, to support their participation in the EA. These Aboriginal Groups were also invited to participate as members of the working group, comment on EA documents, and meet directly with EAO to discuss issues and concerns. EAO also shared information with Musqueam Nation, provided opportunity to comment on key EA documents, and offered to meet directly. EAO delegated procedural aspects of Aboriginal consultation to FortisBC. A more detailed description of the specific consultation activities and conclusions are discussed in section 17 of the technical report.

Squamish Nation

Squamish Nation has 26 Indian Reserves, mostly located around Howe Sound and along the southern portions of the Squamish River. The proposed pipeline, the proposed Mt. Mulligan compressor station, a potential 150-250-person construction camp west of the Squamish River, a portion of the existing Eagle Mountain compressor station, and the existing Woodfibre barge landing site would be located in the asserted traditional territory of Squamish Nation.

EAO is of the view that Squamish Nation has a strong *prima facie* claim to Aboriginal rights to engage in traditional harvesting activities (e.g., fishing, hunting, trapping and gathering) within the vicinity of the Eagle Mountain Project. EAO is of the view that Squamish Nation has a strong *prima facie* claim to Aboriginal title in the section of the proposed pipeline that runs around the Squamish River Estuary to the Woodfibre LNG facility. EAO's assessment indicates that the Aboriginal title claim weakens as the pipeline runs southeast towards the Indian River. Given the nature and location of the Eagle Mountain

Project, and EAO's initial assessment of the potential impacts on Squamish Nation's Aboriginal Interests, EAO's view was that the duty to consult Squamish Nation was at the deeper end of the *Haida* spectrum.

FortisBC and Squamish Nation entered into an agreement early in the EA that set out a process between the parties to discuss the Squamish Nation assessment of the Eagle Mountain Project, which included an assessment of the potential effects of the Eagle Mountain Project on Squamish Nation's asserted Aboriginal rights and title (Squamish Process). FortisBC actively consulted with Squamish Nation throughout the EA to seek to better identify, understand, and resolve concerns. EAO continued to share information and offered to meet with Squamish Nation during the EA, although Squamish Nation chose not to share detailed or site-specific information with EAO regarding Squamish Nation's Aboriginal Interests. Squamish Nation's consultants participated in some aspects of the EA and provided technical comments early in Application Review. Some of the key concerns identified by Squamish Nation's technical representatives during the EA included: assessment methodology; potential effects on fish and fish habitat; potential effects on the Squamish River and the Skwelwil'em WMA; potential effects on vegetation, including invasive species; potential cumulative effects on grizzly bear; potential effects on wildlife species, including mountain goats and marbled murrelet; and accidents and malfunctions.

As a result of the Squamish Process, Squamish Nation identified a number of environmental issues of concern that may potentially affect their Aboriginal Interests. Late in the EA, Squamish Nation outlined nine conditions that apply to the Eagle Mountain Project that must be met before the Project could be approved by Squamish Nation. Key conditions included: avoiding impacts to the Skwelwil'em Squamish Estuary WMA, no barges to be located in the WMA, relocating the proposed Squamish compressor station, no future expansion of the pipeline without Squamish Nation approval, and ensuring mitigation measures proposed in the EA Application legally binding. On June 24, 2016, Squamish Nation announced council's decision to approve their Environmental Agreement with FortisBC in support of the Eagle Mountain Project, subject to the nine conditions.

Although Squamish Nation did not tie the conditions to specific Aboriginal Interests or valued components, in every instance, FortisBC has considered both potential adverse effects to such Aboriginal Interests, and measures to address concerns of Squamish Nation or to avoid or mitigate potential adverse effects on those Aboriginal Interests.

EAO concludes that the Eagle Mountain Project would have minor impacts to Squamish Nation's asserted Aboriginal title and would have minimal impacts to Squamish Nation's asserted Aboriginal rights. In consideration of the mitigations and conditions proposed by EAO, as well as FortisBC's demonstration of consultation through the Squamish Process and its commitment to meet Squamish Nation's conditions as agreed in Squamish Nation's Environmental Agreement, EAO is of the view that Squamish Nation's concerns with the Eagle Mountain Project have been adequately addressed. EAO has ensured that Squamish Nation has been meaningfully consulted and accommodated on the potential effects of the Eagle Mountain Project.

Tsleil-Waututh Nation

Eagle Mountain would pass approximately 3.9 km and 4.1 km north of the Inlailawatash Indian Reserves, located near the mouth of the Indian River, and would be located approximately 25 km from the main Tsleil-Waututh Nation community (Burrard Inlet IR3) in North Vancouver. The Tsleil-Waututh Nation Consultation Area included in Tsleil-Waututh Nation's 2009 Stewardship Policy encompasses

approximately 40 km of the proposed pipeline, the proposed Mt. Mulligan compressor station, the existing Eagle Mountain compressor station, and an existing barge landing at Indian Arm.

EAO is of the view that Tsleil-Waututh Nation has a strong *prima facie* claim to Aboriginal rights (fishing, hunting, trapping and gathering) within the vicinity of the proposed pipeline along the Indian River and Indian River valley and at the existing Eagle Mountain compressor station. As the proposed pipeline approaches Squamish, the strength of the claim weakens. EAO is of the view that Tsleil-Waututh Nation has a strong *prima facie* claim to Aboriginal title along the southern portion of the proposed pipeline and that the Aboriginal claim weakens at some point before the proposed pipeline approaches Squamish. Information available to EAO also suggests that Tsleil-Waututh Nation has a moderate *prima facie* claim to Aboriginal title in the vicinity of the existing Eagle Mountain compressor station. Given the nature and location of the Eagle Mountain Project, and EAO's initial assessment of the potential impacts on Tsleil-Waututh Nation's Aboriginal Interests, EAO is of the view that the duty to consult Tsleil-Waututh Nation lies at the middle to high end of the *Haida* consultation spectrum.

EAO and FortisBC actively consulted with Tsleil-Waututh Nation throughout the EA to seek to better identify, understand, and resolve concerns. Some of the key concerns identified by Tsleil-Waututh Nation included: whether to assess the existing Indian Arm barge landing site, effects on water quality and fish and fish habitat in the Indian River watershed, scope of the baseline assessment of water quality in the Indian River watershed, concerns about terrain stability, visual quality in the Indian River watershed, impacts to areas of cultural importance, and socio-economic assessment of the Eagle Mountain Project on Tsleil-Waututh Nation members.

As a result of concerns raised by Tsleil-Waututh Nation during the EA, FortisBC conducted further detailed investigations in the Indian River watershed and submitted Addendum 4 to expand the Application Corridor in the Indian River Valley to support the development of further pipeline routing options to avoid high value areas. FortisBC prepared feasibility study reports on the proposed route through the Indian River Watershed, which were provided by Tsleil-Waututh Nation to EAO in June 2016. The studies include analysis of micro-routing options and potential construction methodologies for further investigation in respect of Tsleil-Waututh Nation Work Avoidance Zones along the pipeline route. EAO understands that FortisBC and Tsleil-Waututh Nation are still in discussions regarding detailed pipeline routing and that FortisBC has committed to incorporating Tsleil-Waututh Nation's continued routing concerns around identified Work Avoidance Zones, given FortisBC has not yet finalized routing through these areas.

In consideration of these issues, and this ongoing work between Tsleil-Waututh Nation and FortisBC, the Certified Pipeline Corridor has been expanded through the Indian River Watershed to allow for greater flexibility in routing options based on the assessment conducted and EAO proposes a condition that requires FortisBC to develop, in consultation with Tsleil-Waututh Nation, an Indian River Watershed Plan that would include further detail on terrain stability, site-specific routing feasibility assessments for locations for which Tsleil-Waututh Nation has expressed concern, and visual quality assessment within the Indian River Watershed.

EAO concludes that the Eagle Mountain Project would have a minor impact on Tsleil-Waututh Nation's Aboriginal title, would have negligible to minor impacts to Tsleil-Waututh Nation's asserted Aboriginal rights generally, and would have minor impacts to Tsleil-Waututh Nation's asserted Aboriginal right to fish over most of the project area. In identified Work Avoidance Zones with high value for fishing, the

potential impacts may be minor to moderate in the event that these areas are not avoided, however these impacts would be lessened with successful implementation of EAO's proposed conditions. In consideration of the mitigations and conditions proposed by EAO, including EAO's proposed condition requiring the development of an Indian River Watershed Plan, as well as FortisBC's demonstration of consultation with Tsleil-Waututh Nation and its commitment to ongoing engagement to follow up on FortisBC's commitments to satisfy Tsleil-Waututh Nation, EAO is of the view that Tsleil-Waututh Nation's concerns with the Eagle Mountain Project have been adequately addressed. EAO has ensured that Tsleil-Waututh Nation has been meaningfully consulted, and where appropriate, accommodated on the potential effects of the Eagle Mountain Project.

Kwikwetlem First Nation

Kwikwetlem First Nation has two Indian Reserves located on the banks of the Coquitlam River that are located approximately 29 km and 27 km south of the pipeline and 9 km and 7 km from the Eagle Mountain compressor station, respectively. Approximately 5 km of the proposed pipeline and the existing Eagle Mountain compressor station would be located in the asserted traditional territory of Kwikwetlem First Nation.

EAO is of the view that Kwikwetlem First Nation has a strong *prima facie* claim to Aboriginal rights to engage in traditional harvesting activities (e.g., fishing, hunting, trapping and gathering) in proximity to the Eagle Mountain compressor station and has a moderate *prima facie* claim to Aboriginal rights to engage in traditional harvesting activities the portion of the proposed pipeline route that could cross Kwikwetlem First Nation's asserted traditional territory. EAO is of the view that Kwikwetlem First Nation has a moderate-to-strong *prima facie* claim to Aboriginal title in the vicinity of the Eagle Mountain compressor station in Coquitlam and has a weak-to-moderate *prima facie* claim to Aboriginal title in proximity to the proposed pipeline. Given the nature and location of the Eagle Mountain Project, and EAO's initial assessment of the potential impacts on Kwikwetlem First Nation's Aboriginal Interests, EAO is of the view that the duty to consult Kwikwetlem First Nation lies at the middle to high end of the *Haida* consultation spectrum.

EAO and FortisBC consulted with Kwikwetlem First Nation throughout the EA to seek to better identify, understand, and resolve concerns. Kwikwetlem First Nation members participated in field studies to collect baseline data. Some of the key concerns identified by Kwikwetlem First Nation included: potential effects on Kwikwetlem First Nation's Aboriginal right to hunt and fish, the collection of traditional land use information and impacts to sites of archaeological and cultural importance, potential effects on water quality and fish and fish habitat, and potential effects on birds. Kwikwetlem First Nation expressed support for FortisBC's proposed use of electrical power at the Eagle Mountain compressor station. Kwikwetlem First Nation did not provide site-specific information related to the potential effects on Aboriginal Interests from the Eagle Mountain Project.

EAO concludes that the Eagle Mountain Project would have minor impacts to Kwikwetlem First Nation's Aboriginal title and would have negligible impacts to Kwikwetlem First Nation's Aboriginal rights. In consideration of the mitigations and conditions proposed by EAO, as well as FortisBC's demonstration of consultation with Kwikwetlem First Nation, EAO is of the view that Kwikwetlem First Nation's concerns with the Eagle Mountain Project have been adequately addressed. EAO has ensured that Kwikwetlem First Nation has been meaningfully consulted and where appropriate accommodated on the potential effects of the Eagle Mountain Project.

Musqueam Nation

The Eagle Mountain Project would be located 40 km to 50 km north of Musqueam Nation's Indian Reserves. Approximately 23 km of the proposed pipeline and the existing Eagle Mountain compressor station would be located in Musqueam Nation's asserted traditional territory.

EAO is of the view that Musqueam Nation has a moderate *prima facie* claim to Aboriginal rights to harvest resources along the section of the pipeline closest to the head of Indian Arm, and the claim may weaken as the pipeline stretches north and east within Musqueam Nation's asserted territory. EAO understands that Inlailawatash IR No. 4 was established as a joint fishery for Musqueam Nation and Squamish Nation (including Tsleil-Waututh Nation at that time) in 1876 at the head of Indian Arm. However, it is not clear based on the information available whether Musqueam Nation fished the Indian River in an area north of this fishery overlapping the south portion of the proposed pipeline north of the junction of Hixon Creek, which is about 5.5 km away from the head of Indian Arm. The location of the Eagle Mountain compressor station in Coquitlam is outside the area considered to be Musqueam Nation's core traditional territory. EAO is of the view that Musqueam Nation has a weak-to-moderate *prima facie* claim to Aboriginal rights to harvest resources in the area of the Eagle Mountain compressor station. EAO's assessment is that Musqueam Nation has a weak *prima facie* Aboriginal title claim in the vicinity of the pipeline and the Eagle Mountain compressor station.

The Province acknowledges that Musqueam Nation has a proven Aboriginal right to fish as established by the Supreme Court of Canada decision in *R. v. Sparrow*. Given the nature and location of the Eagle Mountain Project, and EAO's initial assessment of the potential for minimal impacts on Musqueam Nation's Aboriginal Interests, EAO is of the view that the duty to consult Musqueam Nation lies at the lower to middle end of the *Haida* consultation spectrum.

Musqueam Nation was provided notification of key milestones, invited to review and comment on the draft Section 11 Order, the draft AIR during the public comment period, invited to comment on FortisBC's addenda submission, invited to review and comment on EAO's draft technical and assessment reports and draft table of conditions in May 2015 and May 2016, and was provided with opportunities to meet with EAO staff directly. Concerns raised by Musqueam Nation included: EA process and methodology; depth of consultation and a request to participate on the working group; assessment of the Indian Arm barge landing site and barge traffic; assessment of fish and fish habitat; a request to review a draft Conceptual Fish Offsetting Plan; cumulative effects on Musqueam traditional territory; effects on vegetation and berry picking sites; and Musqueam Nation traditional land use information. Although Musqueam Nation provided information to EAO about Musqueam Nation traditional use in Howe Sound, Musqueam Nation did not provide site-specific information related to the potential effects on Musqueam Nation's Aboriginal Interests from the Eagle Mountain Project. In response to Musqueam Nation's concerns and a request to be consulted on EAO's proposed conditions, EAO has added Musqueam Nation to be consulted in the development of management and monitoring plans required in conditions. Musqueam Nation states that their concerns are ongoing and have not been adequately resolved during the course of the EA.

EAO concludes that the Eagle Mountain Project would have negligible impacts to Musqueam Nation's asserted Aboriginal rights generally, and would have negligible to minor impacts to Musqueam Nation's asserted Aboriginal right to fish. EAO acknowledges Musqueam Nation's outstanding concerns regarding the depth of EAO's consultation; however, in consideration of the mitigations and conditions proposed by EAO, as well as FortisBC's demonstration of consultation with Musqueam Nation, EAO is of the view

that Musqueam Nation's concerns with the Eagle Mountain Project have been adequately addressed. EAO has ensured that Musqueam Nation has been meaningfully consulted and where appropriate accommodated on the potential effects of the Eagle Mountain Project.

Weighing of Impacts to Aboriginal Interests with Other Interests

In weighing the impacts of the Eagle Mountain Project on Aboriginal Interests as set out in EAO's technical report and summarized above, EAO recommends that Ministers consider the following facts in the context of potential impacts on Aboriginal Interests:

- The nature of the Eagle Mountain Project and its importance to the local, regional, and provincial economy;
- Resources or values that may no longer be available for future generations; and
- Benefits of the Eagle Mountain Project to affected Aboriginal communities.

Importance to provincial and regional economy

According to FortisBC, the Eagle Mountain Project's capital expenditures would be expected to be approximately \$520 million, of which \$424 million (82%) would be spent in Canada and \$260.6 million (50%) would be spent in BC. The Eagle Mountain Project would generate economic impacts through direct expenditures on goods and services, creation of employment opportunities and generation of tax revenues for local, provincial and federal governments. The construction would directly contribute \$67 million to BC's gross domestic product and would provide \$18 million in provincial tax revenue.

FortisBC estimates that over the project's life span, direct project expenditures in BC (excluding labour costs) would be \$152.2 million, or an average of \$3.7 million per year during operations. Operating expenditures would generate up to \$0.52 million per year in provincial tax revenue to BC and \$0.35 million in federal tax revenue.

Annual municipal tax revenue in BC is estimated to be \$0.043 million during operations. The Eagle Mountain Project is expected to create procurement opportunities for businesses. Approximately \$13 million of the capital expenditure would be spent in the region for goods, services and contracts.

FortisBC estimates that in BC, construction would create approximately 832 person years (PYs) of direct employment and 1,997 PYs of total direct, indirect and induced employment. Total direct spending on labour in Canada from construction is estimated to be \$76.2 million, with \$52.8 million spent in BC. During operations, the Eagle Mountain Project would create 10 new direct full-time equivalent jobs, each spanning the life of the project. The Eagle Mountain Project would also generate other indirect and induced employment.

Social and economic benefits are expected for local and Aboriginal communities, including training and education and employment opportunities for unemployed and underemployed individuals, and increased availability of funds for government programs.

The Eagle Mountain Project is proposed to provide natural gas to the Woodfibre LNG facility, which received an EA Certificate from provincial Ministers on October 26, 2015 and a federal environmental assessment approval on March 17, 2016.

Resources or values available for future generations

As described above and in the technical report, traditional subsistence activities, such as hunting, fishing, gathering and trapping may be altered as a result of construction and operation of the Eagle Mountain Project, which could manifest itself through changes to local harvesting locations, behavioural alteration or sensory disturbance of environmental resources.

Although EAO believes there could be potential impacts to resources or values of importance to Aboriginal Groups, the majority of this disturbance and impact would be expected to be low-tomoderate in magnitude. EAO is of the view that FortisBC has made efforts to demonstrably understand and avoid high value areas for Aboriginal Groups, by building on or adjacent to existing disturbed lands, minimizing clearing wherever possible, proposing an alternate compressor station location, selecting stream crossing methods to minimize potential adverse effects to fish and fish habitat, and proposing micro-routing to avoid key culturally sensitive areas.

Further consultation and analysis to support micro-routing would take place prior to construction with the objective of avoiding as many identified areas of high cultural values as possible. Where identified areas may not be avoided, key mitigations would be implemented to ensure that any impacts are minimized and that areas are restored post-construction, as required by EAO's proposed EA Certificate conditions.

Benefits to affected Aboriginal communities

FortisBC has indicated that the Eagle Mountain Project would support employment, contracting and business development for Aboriginal Groups including as follows:

- Offering capacity funding to support consultation activities;
- Identifying training and capacity building partnerships or other arrangements to increase opportunities for Aboriginal participation;
- Encouraging and supporting the use of Aboriginal and local businesses by encouraging suppliers and subcontractors to adopt local procurement; and
- Ongoing active engagement with Aboriginal Groups to ensure that local Aboriginal communities benefit directly from the Eagle Mountain Project, including opportunities related to employment, training and contracting.

FortisBC is either actively engaged in, or will be pursuing, on-going long-term benefit agreement negotiations with the Aboriginal Groups discussed above. These benefits would include opportunities related to employment, training and contracting.

In addition to benefits from FortisBC, the Province is also making available financial opportunities to the Aboriginal Groups discussed above in relation to the Eagle Mountain Project and Woodfibre LNG.

6 **Public Consultation**

Public consultation during the EA is intended to provide multiple opportunities for the public to understand the proposed project and provide input to inform the EA. FortisBC was required to prepare a public consultation plan early in the EA that set out FortisBC's consultation objectives and activities.

Through the course of the EA, FortisBC submitted multiple public consultation reports to EAO describing the progress in implementing its public consultation plan.

EAO hosted the following three public comment periods and five open houses during the EA:

- The 30-day public comment period on the draft AIR was held from November 15 to December 16, 2013 and 37 submissions were made. Open houses were held in Squamish and Coquitlam and approximately 125 people attended.
- The public comment period on the Application was extended from 45 to 60 days, at the request of FortisBC in consideration of the high level of public interest. It was held from January 26 to March 27, 2015 and 479 submissions were made. Public open houses were held in Squamish and in Coquitlam and approximately 119 people attended.
- A 21-day public comment period on Addenda 2 and 3 was held from September 24 to October 15, 2015 and 470 public submissions were received. A public open house was held in Squamish and approximately 100 people attended.

Many issues were raised by the public through the submitted public comments during the pre-Application and Application Review stages. These comments and FortisBC's responses were considered by EAO and are discussed further in the relevant sections of the technical report. Key issues raised by the public helped inform EAO's assessment of the Eagle Mountain Project, including requests for supplemental information during the EA, the completion of EAO's technical and assessment reports, and the development of EAO's proposed EA Certificate conditions. The following table provides a summary of key issues, EAO conclusions and proposed conditions.

Key Issue	Section in EAO's Technical Report	EAO's Conclusion and Proposed Environmental Assessment Certificate Condition
malfunctions occurring with the pipeline or compressorand Malfu Pipeline Li Stations, and safety of nearbystations, and safety of nearbyFailure, and safety of nearby	Section 10.2 (Accidents and Malfunctions - Pipeline Leaks or Failure, and Fires or Explosions)	FortisBC requested that solely the Mt. Mulligan site be considered in the EA as the location for its proposed compressor station in the Squamish area and the proposed compressor station site in the Squamish Industrial Park has been formally withdrawn from the Application. FortisBC would be required to file an emergency response plan (ERP) with OGC. The ERP would provide information on designating emergency procedures, evacuation zones, first responders and response times as well as guidance on conducting annual exercises.
		Based on the combination of project design measures, implementation of the emergency response plans and associated plans, EAO is satisfied that potential accidents and malfunctions of the Eagle Mountain Project are not likely to pose significant risk to the public, or to the environmental, social, economic, health or heritage VCs associated with the Eagle Mountain Project.
Location of the proposed compressor stations and	Section 5.1 (Acoustics), Section 5.2 (Air	To address concerns and questions raised by the public during the public comment period on

Key Issue	Section in EAO's Technical Report	EAO's Conclusion and Proposed Environmental Assessment Certificate Condition
potential effects on the acoustic environment, air quality, visual aesthetics and recreation	Quality), and Section 7.4 (Land and Resource Use)	Addenda 2 and 3, FortisBC undertook several initiatives to provide additional information to Squamish residents, as described in section 4 above.
		EAO assessed the potential of the Eagle Mountain Project to cause adverse effects to the acoustic environment, air and visual quality, and recreation. EAO is satisfied that the EA Certificate conditions would adequately address public concerns and that the Eagle Mountain Project would not cause significant adverse effects on the acoustic environment, air quality, visual aesthetics and recreation.
		 Key conditions of the EA Certificate include: Develop an access management plan that would include the means by which existing recreational trails and access to public use areas will be restored; and FortisBC must continue to engage the public for the life of the Eagle Mountain Project, which will include information sharing and opportunities to discuss site-specific mitigation measures, and the development and implementation of plans and the conditions of the Certificate.
Potential disruptions to labour supply, local businesses, impacts on tourism and traffic, and potential shortage of accommodation in Squamish	Section 6.1 (Economic Effects)	FortisBC committed to mitigate disruption to local business by communicating the construction schedule and providing compensation where required. FortisBC has also proposed a potential worker construction camp west of Squamish to mitigate accommodation pressure during construction.
		EAO assessed the potential social and economic effects of the Eagle Mountain Project in sections 6 and 7 of the technical report, respectively. EAO is satisfied that the potential residual effects of the Eagle Mountain Project on the labour market and sustainable economy would be negligible and that there would not be significant adverse effects to the community, community utilities and services, or the economy.
		 Key conditions of the EA Certificate include: Develop a traffic control management plan that must identify measures to mitigate the impacts of project-related transportation during construction and includes measures

	Section in EAO's	EAO's Conclusion and Proposed Environmental
Key Issue	Technical Report	Assessment Certificate Condition
		 for traffic control and public communications; and Develop a plan to adaptively manage potential socio-economic effects on services and infrastructure delivered by provincial agencies and local governments. The plan would include monitoring and reporting on the effectiveness of mitigation measures and adaptive management.
Concerns regarding hydraulic fracturing and the contribution of Eagle Mountain to climate change by facilitating the burning of fossil fuels	Section 5.2 (Greenhouse Gas Management)	EAO assessed potential effects of the Eagle Mountain Project on greenhouse gas management in section 5.3 of the technical report. EAO concluded that Eagle Mountain would not have significant adverse effects related to greenhouse gas emissions. No specific conditions related to greenhouse gas emissions are proposed by EAO.
Potential impacts on the Skwelwil'em Squamish Estuary Wildlife Management Area	Section 5.3 (Fish and Fish Habitat), Section 5.7 (Wetland Function) and Section 7.4 (Land and Resource Use)	 During the EA, as a result of feedback from the public, working group and Aboriginal Groups, FortisBC committed to avoiding impacts to the WMA during construction. A condition of the EA Certificate includes: FortisBC must utilize a trenchless construction method under the Skwelwil'em Squamish Estuary WMA during construction, if constructing within the WMA. EAO is satisfied that potential impacts to the WMA during construction would be avoided.

7 Local Government Consultation

The following local and regional governments were invited to participate on the EAO working group: Squamish Lillooet Regional District, DOS, City of Coquitlam, and Sunshine Coast Regional District.

The DOS expressed several areas of concern, which included:

- Local impacts (e.g., social and economic impacts to Squamish, potential harm to the Squamish River Estuary, risk to public safety due to accidents related to the increased traffic on local roadways during construction, accidents and malfunctions associated with the proposed compressor station in Squamish, and negative effects to local tourism and recreational values);
- Regulatory concerns (e.g., coordination of monitoring and enforcement);
- Climate change (e.g., unconventional natural gas extraction methods, greenhouse gas emissions and climate change); and

• EA process concerns (e.g., EA scoping and public consultation).

The City of Coquitlam raised concerns about potential noise and other construction and operational effects from the proposed upgrades to the existing Eagle Mountain compressor station on recreational values. In particular, concerns related to the potential impacts on vegetation, the Scott Creek watercourse, and on the City's planned extension to a recreational trail. FortisBC had a number of meetings with the City of Coquitlam and also engaged in developing a Memorandum of Understanding that laid out the framework for compensation related to land acquisition and potential project effects. FortisBC has also offered financial compensation to help offset project effects and fund the extension of the trail.

EAO has considered the concerns of and potential effects to local governments and the public during the EA and these concerns are discussed further in the relevant sections of the technical report. Key issues raised by local governments helped inform EAO's assessment of the Eagle Mountain Project, including requests for supplemental technical information during the EA, the completion of EAO's technical and assessment reports, and the development of EAO's proposed EA Certificate conditions.

8 Federal Government Participation

The following federal departments with specialist information or expert knowledge relevant to the Eagle Mountain Project participated in the evaluation and the review of the Eagle Mountain Project Application:

- Environment and Climate Change Canada provided comments and information related to their regulatory and statutory responsibilities for migratory birds, species at risk, wetlands, and disposal at sea; and
- Transport Canada provided comments and information related to their regulatory and statutory responsibilities related to marine transportation and use, navigable waters, and accidents and malfunctions.

This knowledge and input helped informed EAO's assessment of the Eagle Mountain Project, including requests for supplemental technical information during the EA, the completion of EAO's technical and assessment reports, and the development of EAO's proposed EA Certificate conditions.

9 Conclusion

Based on:

- Information contained in FortisBC's Application and the supplemental information provided during Application Review;
- FortisBC's and EAO's efforts at consultation with Aboriginal groups, federal, provincial and local government agencies, and the public, and FortisBC's commitment to ongoing consultation;
- Comments on the Eagle Mountain Project made by Aboriginal groups, federal, provincial and local government agencies, as members of EAO's working group, and FortisBC's and EAO's responses to these comments;
- Comments on the Eagle Mountain Project received during the public comment period, and FortisBC's responses to these comments;

- Issues raised by Aboriginal groups, including through the Squamish Process, regarding potential impacts of the Eagle Mountain Project and FortisBC's responses and best efforts to address these issues;
- The design of the Eagle Mountain Project as specified in the proposed Schedule A (Certified Project Description) of the EA Certificate to be implemented by FortisBC during all phases of the Eagle Mountain Project; and
- Mitigation measures identified as proposed conditions in Schedule B (Table of Conditions) of the EA Certificate to be undertaken by FortisBC during all phases of the Eagle Mountain Project.

EAO is satisfied that:

- The EA process has adequately identified and assessed the potential adverse environmental, economic, social, heritage and health effects of the Eagle Mountain Project, having regard to the proposed conditions set out in Schedule B (Table of Conditions) to the EA Certificate;
- Consultation with Aboriginal groups, federal, provincial and local government agencies, and the public have been adequately carried out and that efforts to consult with Aboriginal groups will continue on an ongoing basis;
- Issues identified by Aboriginal groups, federal, provincial and local government agencies, and the public, which were within the scope of the EA, were adequately and reasonably addressed during the review of the Application;
- Practical means have been identified to prevent or reduce any potential adverse environmental, social, economic, heritage or health effects of the Eagle Mountain Project such that no direct or indirect significant adverse effect is predicted or expected;
- The potential for adverse effects on the Aboriginal rights and title of Aboriginal groups has been avoided, minimized or otherwise accommodated to an acceptable level; and
- The provincial Crown has fulfilled its obligations for consultation and accommodation to Aboriginal groups relating to the issuance of an EA Certificate for the Eagle Mountain Project.