

2. General Conditions

Condition 2.3

The Agency has proposed the following draft condition

2 General Conditions

2.3. The Proponent shall, where consultation with Aboriginal groups is a requirement of a condition set out in this document, and prior to initiating the consultation, communicate with each Aboriginal group to determine the manner by which to satisfy the consultation requirements referred to in condition 2.2, including the methods of notification, the type of information and the period of time to be provided when seeking views, the process for full and impartial consideration of any views presented and the means by which each Aboriginal group will be informed of how the views and information received have been considered by the Proponent.

PNW's understanding of the objective

The objective is to ensure that PNW engagements with Aboriginal groups are governed by some sound and mutually agreeable engagement parameters.

PNW's Comments and Concerns

PNW has been engaging with Aboriginal groups for several years. There are existing lines of communication.

PNW also anticipates that it will be difficult to come to an agreement with respect to the exchange of information without at least some discussion of the subject matter. Consequently, it appears to be impractical to require either PNW or an Aboriginal group to determine the appropriate means of communication prior to commencing consultation.

PNW proposes a revision to Condition 2.3 to incorporate an express requirement that manner in which information is to be exchanged form part of the consultation.

Note that the requirement for consultation provided for in other conditions, including Conditions 2.9 and 10.3 should be reviewed to confirm that they are consistent with this provision (as revised).

PNW's Suggested Revision

2.3. The Proponent shall, where consultation with Aboriginal groups is a requirement of a condition set out in this document, ~~and prior to initiating that consultation, communicate~~ with each Aboriginal group **with respect** to ~~determine~~ the manner by which to satisfy the consultation requirements referred to in condition 2.2, including the methods of notification, the type of information and the period of time to be provided when seeking views, the process for full and impartial consideration of any views presented and the means by which each Aboriginal group will be informed of how the views and information received have been considered by the Proponent.

Condition 2.9

The Agency has proposed the following draft condition

2.9. The Proponent shall consult with Aboriginal groups prior to initiating any change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s).

PNW's understanding of the objective

The objectives are:

- (i) to ensure that Aboriginal groups have been engaged in discussions with PNW prior to initiating any changes to the Designated Project that may result in adverse environmental effects.
- (ii) to ensure that the Agency is notified no later than 60 days prior to initiating any changes.

PNW's Comments and Concerns

PNW understands that in order to meet the requirement for consultation with Aboriginal groups in this Condition; consultation must be undertaken as provided for in Condition in Condition 2.3.

A requirement to consult with all of the Aboriginal groups with respect to every change which may result in an adverse environmental effect is very broad. The primary threshold provided for under CEAA 2012 is "significant adverse effect." Accordingly, PNW suggests incorporating a requirement for consultation when a proposed change may result in crossing that same threshold.

PNW's Suggested Revision

2.9. The Proponent shall consult with Aboriginal groups prior to initiating any change(s) to the Designated Project that may result in **significant** adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s).

Condition 2.10

The Agency has proposed the following draft condition

2.10. In notifying the Agency pursuant to condition 2.9, the Proponent shall provide the Agency with an analysis of the adverse environmental effects of the change(s) to the Designated Project, as well as the results of the consultation with Aboriginal groups.

PNW's understanding of the objective

Changes in a Designated Project may result in a significant adverse effect. Notifications to the Agency should be accompanied by an analysis of the potential for the change(s) to result in adverse environmental effects.

Further, the condition would require the Proponent to provide the Agency with the results of any Aboriginal group consultation on the proposed change(s).

PNW's Comments and Concerns

PNW proposes revisions to ensure that it is consistent with Condition 2.9, where the phrase "may result in [**significant**] adverse environmental effects" is used.

PNW also proposes to add wording which clarifies the reports and analysis required.

PNW's Suggested Revision

In notifying the Agency pursuant to condition 2.9, the Proponent shall provide the Agency with an analysis of the **potential for significant** adverse environmental effects of the change(s) to the Designated Project.

A written record of consultation with each Aboriginal group on proposed change(s) to the Designated Project that may result in a significant adverse environmental effect, including an analysis of how the comments of each Aboriginal group have been taken into account, shall accompany the notification to the Agency.

3. Air quality

Condition 3.1

The Agency has proposed the following draft condition

3. Air Quality

3.1. The Proponent shall implement best available technology and best management practices to reduce and control air emissions during all phases of the Designated Project to mitigate adverse environmental effects on freshwater fish and fish habitat and human health.

PNW's understanding of the objective

The objective is to ensure that the Proponent incorporate *best available technology* and best management practices to reduce and control air emissions during all phases of the Designated Project to mitigate adverse environmental effects on freshwater fish and fish habitat and human health.

PNW's Comments and Concerns

The phrase "best available technology" is not defined in the Conditions. This will result in uncertainty about the standard that is being imposed by this Condition.

There is also a concern that the "best available technology" may not be technically or economically feasible.

In its publication entitled Fact Sheet, Air Emissions, Best Achievable Technology, dated January 2012. (attached to this submission) the BC Ministry of Environment, provides this definition:

Best Achievable Technology means the technology which can achieve the best waste discharge standards, and that has been shown to be economically feasible through commercial application.

PNW proposes that the definition for "best achievable technology" which has been adopted by a government agency, the Ministry of Environment of BC, be used, with appropriate revisions.

Please note the terms "best available technology" and best achievable technology are used interchangeably in the Agency's draft assessment report. Please refer to pages: Page 33

(6.1.3), 38 (6.2.3), 39, 182, 193.

PNW's Suggested Revision

Incorporate the following definition in Condition 1:

Best available technology means the technology which can achieve the best waste discharge standards, and that has been shown to be economically feasible through commercial application.

5. Wetlands
Condition 5.3.5
<p>The Agency has proposed the following draft condition</p> <p>5. Wetlands</p> <p>5.3.5 identifying sites to compensate for the loss of wetland functions related to habitat for listed species at risk, including little brown myotis (<i>Myotis lucifugus</i>).</p>
<p>PNW's understanding of the objective</p> <p>Objective is to have PNW compensate for the loss of wetland functions to habitat used for listed species at risk (SAR), including little brown myotis (<i>Myotis lucifugus</i>).</p>
<p>PNW's Comments and Concerns</p> <p>PNW believes the condition could be clarified with a direct reference to the species at risk habitat that would be altered by the Project's development footprint.</p> <p>In addition, mitigation conditions for effects on little brown myotis are addressed in Conditions 8.1 through 8.3. Uncertainty may result if a further reference to that species is included in this Condition.</p>
<p>PNW's Suggested Revision</p> <p>Identifying sites to compensate for the loss of wetland functions <i>of the habitat for listed species at risk which is present within the Project footprint.</i></p>

6. Marine fish (including marine mammals) and fish habitat

Condition 6.1

The Agency has proposed the following draft condition

6. Marine fish (including marine mammals) and fish habitat

6.1. The Proponent shall identify, prior to the start of in-water construction activities, to the satisfaction of Fisheries and Oceans Canada and following consultation with Aboriginal groups and other relevant federal authorities, timing windows of least risk for in-water construction activities to protect marine fish, including marine mammals, during sensitive life stages, and notify the Agency and Aboriginal groups of the timing windows of least risk identified and the results of the pre-construction surveys supporting the identification of these timing windows once Fisheries and Ocean Canada has indicated it is satisfied and before in-water construction activities start. In doing so, the Proponent shall:

PNW's understanding of the objective

Objectives of the preamble for 6.1:

The Agency is requiring that timing windows of least risk be identified to the satisfaction of DFO and developed in consultation with Aboriginal groups and other relevant federal authorities to protect marine fish, including marine mammals, during sensitive life stages.

Further the Agency is requiring that PNW notify the Agency and Aboriginal groups before in-water construction starts of the least risk timing windows and the results of the pre-construction fish and marine mammal surveys after DFO has indicated it is satisfied.

PNW's Comments and Concerns

PNW has engaged with DFO with respect to a suite of mitigation measures which can be applied year round and allow for in-water construction to proceed year round (the exception is sub-tidal blasting, which will not be conducted year-round).

PNW understands that DFO has or may find that activity can proceed year round if acceptable mitigation measures can be implemented.

As drafted, the Condition may imply that timing windows must be employed for all in-water construction activities regardless of the other mitigation efforts. This would constrain PNW (to the extent whereby marine construction would become unfeasible) where other measures are available, and the DFO in approving the use of those other measures where it

would otherwise be prepared to do so.

PNW proposes a revision which gives PNW the ability to propose other measures and provide ability for the DFO to approve their use.

PNW's Suggested Revision

The Proponent shall *i)* identify, prior to the start of in-water construction activities, to the satisfaction of Fisheries and Oceans Canada and following consultation with Aboriginal groups and other relevant federal authorities, ***the mitigation measures, which may include timing windows of least risk for in-water construction activities to protect marine fish, including marine mammals, during sensitive life stages, that will be implemented during in water construction*** and *ii)* notify the Agency and Aboriginal groups of the ***identified mitigation measures that meet specified thresholds*** ~~timing windows of least risk identified and the results of the pre construction surveys supporting the identification of these mitigation techniques and timing windows~~ once Fisheries and Ocean Canada has indicated it is satisfied and before in-water construction activities start. In doing so, the Proponent shall:

Condition 6.6

The Agency has proposed the following draft condition

6.6. The Proponent shall use coffer dams to isolate the south-west tower block and anchor block work areas during in-water construction activities and shall place scour protection around the coffer dams. The coffer dams shall be shaped in a manner that minimizes scour and turbulence around the south-west tower block and anchor block of the suspension bridge.

PNW's understanding of the objective

The objective is to require that PNW use coffer dams to isolate the south-west tower block and anchor block marine work areas during in-water construction activities.

Further, PNW is required to place scour protection around the coffer dams to minimize potential scour.

PNW's Comments and Concerns

Temporary coffer dams may not require scour protection. The installation and use of scour protection (rip rap being the conventional measure) may itself result in unnecessary and avoidable environmental impacts.

The coffer dam structures are temporary. The application of scour protection may only be necessary for a short period of time. Monitoring can be used to determine if it is required. It can then be applied as necessary.

PNW's Suggested Revision

The Proponent shall use coffer dams to isolate the south-west tower block and anchor block work areas during in-water construction activities and ***scour protection around the coffer dams may be incorporated as required when monitoring reveals the potential for unacceptable scour.*** The coffer dams shall be shaped in a manner that minimizes scour and turbulence around the south-west tower block and anchor block of the suspension bridge.

Condition 6.8

The Agency has proposed the following draft condition

6.8. The Proponent shall use impact installation methods only when seating piles into bedrock and impact hammers shall be constructed of sound absorbent material.

PNW's understanding of the objective

The objective is to avoid impact pile driving except where necessary and, if necessary, mitigate the potential impact of noise from pile driving.

PNW's Comments and Concerns

The Condition acknowledges that impact pile driving is necessary when seating piles in bedrock. However, there are other circumstances where the use of vibratory hammers may not be technically feasible. Consequently, impact pile driving may also be necessary in other circumstances.

Proponent is not aware of any impact hammer that is constructed of sound absorbent material.

PNW's Suggested Revision

The Proponent shall use impact installation methods only when seating piles into bedrock **or when the use of vibratory hammers is not otherwise technically and economically feasible.** ~~and~~ Impact hammers shall be ~~constructed of~~ **shrouded in** sound absorbent material.

Condition 6.9

The Agency has proposed the following draft condition

6.9. The Proponent shall use bubble curtains and isolation casings when conducting impact pile driving activities and blasting.

PNW's understanding of the objective

Objective is to require specific mitigations when impact pile driving activities and sub-tidal blasting is underway.

PNW's Comments and Concerns

Bubble curtains are not feasible or effective in some circumstances. Similarly, isolation casings are not feasible in some circumstances. For example, the piles required for the Project will generally be too large for isolation casings.

PNW is concerned that specifying mitigation measures will limit the opportunity for other innovative mitigation options for impact pile driving and blasting.

PNW's Suggested Revision

The Proponent shall, ***where technically and economically feasible***, use bubble curtains and isolation casings when conducting impact pile driving activities and sub-tidal blasting ***where underwater pressure levels have the potential to exceed 30 kilopascals during impact pile driving or 100 kilopascals during sub-tidal blasting.***

Condition 6.12.4

The Agency has proposed the following draft condition

6.12.4. conducting in-water construction activities identified in 6.12.1 only during daylight hours so marine mammal observers are able to conduct the observations referred to in 6.12.3;

PNW's understanding of the objective

The objective is to incorporate into the marine mammal observation program a restriction to marine in-water construction to only daylight hours to minimize potential adverse acoustic effects to cetaceans (porpoises, whales).

The premise is that observers would need to be able to visually see the cetaceans in daylight hours.

PNW's Comments and Concerns

Compliance with this Condition, as drafted, would significantly extend the period of construction, perhaps doubling it. This would, in turn, result in a material increase in the cost of the Project and threaten its economic viability. As a practical matter, construction must generally be able to proceed on a continuous basis.

Further, the condition does not need to be so restrictive in order to protect marine mammals as once the safety zone is clear, the construction will begin with a ramp-up. There is no expectation that marine mammals will enter the safety zone once the work begins and for as long as construction noise continues.

If work stops, it can only commence again in accordance with 6.12.4 or 6.12.5 (the safety zone is clear).

PNW's Suggested Revision

6.12.4. ~~conducting~~ **commencing** in-water construction activities identified in 6.12.1 only after marine mammal observers are able to conduct the observations referred to in 6.12.3.

Condition 6.12.5

The Agency has proposed the following draft condition

6.12.5. stopping or not starting the in-water construction activities identified in condition 6.12.1 if a marine mammal is sighted in the safety radius by the marine mammal observers referred to in condition 6.12.3 and not re-starting the in-water construction activities identified in condition 6.12.1 until the marine mammal has moved out of the safety radius and no marine mammals have been sighted in the safety radius for a period of at least 30 minutes; and

PNW's understanding of the objective

Objective is to prevent adverse acoustic environmental effects to cetaceans by stopping marine in-water works when they are within the safety radius.

PNW's Comments and Concerns

PNW proposes changing "marine mammals" to "cetacean (of any species or status) or other marine mammal species (if listed under SARA)". The reason is that the term "marine mammal" captures a broad range of species, many of which are abundant or less sensitive to construction related noise.

Further, it may not be possible to confirm that a particular individual mammal, once sighted, has in fact left the area. For this reason, PNW suggests changing the "and" to an "or" near the end of the draft Condition.

PNW's Suggested Revision

Stopping or not starting the in-water construction activities identified in condition 6.12.1 **if a cetacean (of any species or status) or a member of another species of marine mammal (if listed under SARA)** is observed in the safety radius by the marine mammal observers referred to in condition 6.12.3 and not re-starting the in-water construction activities identified in condition 6.12.1 until the animal has moved out of the safety radius ~~and~~ **or no cetacean (of any species or status) or other marine mammal species (if listed under SARA)** have been observed in the safety radius for a period of at least 30 minutes; and

Condition 6.12.6

The Agency has proposed the following draft condition

6.12.6. implementing mitigation measures, including sound dampening technology and soft-start procedures, to reduce underwater noise levels in the safety radius referred to in condition 6.12.2.

PNW's understanding of the objective

The objective is to require specific mitigations to protect cetaceans.

PNW's Comments and Concerns

Ramp-up or soft-start procedures are not possible for some activities.

PNW's Suggested Revision

Implementing mitigation measures, including **but not limited to** sound dampening technology and soft-start procedures to reduce underwater noise levels in the safety radius referred to in condition 6.12.2.

Condition 6.16

The Agency has proposed the following draft condition

6.16. The Proponent shall use tugs that produce the least possible scour volumes from propeller action.

PNW's understanding of the objective

The objective is to require PNW to employ special tugs that lessen risk of propeller scour.

PNW's Comments and Concerns

Tugs that meet this condition require the use of a Voith-Schneider propulsion system.

The Voith-Schneider propulsion system is installed vertically. Consequently, the draft required for this type of propulsion system is relatively deep.

Construction of the Project will require the use of tugs in water which is too shallow for the tugs with this propulsion system.

PNW proposes a revision to the draft Condition to clarify that it applies during operations- for which purpose built tugs, for use in deep water/berthing, will be available.

PNW's Suggested Revision

The Proponent shall use tugs that produce the least possible scour volumes from propeller action **during operations**.

8. Listed terrestrial species at risk

Condition 8.1

The Agency has proposed the following draft condition

8. Listed terrestrial species at risk

8.1. The Proponent shall carry out site clearing between mid-September and mid-October to avoid or minimize adverse effects on little brown myotis (*Myotis lucifugus*).

PNW's understanding of the objective

The objective is to avoid impacts to individual little brown myotis and their residences.

PNW's Comments and Concerns

As drafted, the Condition constrains PNW to a point where the Project may become unviable. PNW proposes a revision which gives PNW the ability to propose other measures and provides Environment and Climate Change Canada the ability to approve alternative measures. As a practical matter, tree clearing must generally be carried out through the fall and winter months.

Lelu Island is not totally forest covered. Approximately 76 ha of shrub dominated peat bog will be cleared and readied for construction. Least risk site clearing windows should not apply to these habitat types.

Lelu Island has a detailed archaeological inventory in place that concludes there are over 500+ culturally modified trees (CMTs) on the island. PNW has engaged in depth with Aboriginal groups with respect to a tree clearing protocol for the identification, confirmation, removal and sampling of culturally modified trees. Under that protocol, it will be necessary to limit the rate of clearing to accommodate archaeological practices. The ability to implement the CMT removal protocol will be imperilled if all clearing must be completed in a one-month window.

Data with respect to the movement of little brown myotis (*Myotis lucifugus*) on Lelu Island has been collected and is under analysis. To date, the Proponent has not located any little brown myotis (*Myotis lucifugus*) hibernacula (critical habitat) on Lelu Island. The Proponent believes a least risk tree clearing window can be developed and implemented in consultation with ECCC and Aboriginal groups.

Lelu Island forest will not be cleared completely. A no-disturbance 30 metre-wide buffer of forest paralleling the shoreline will be left intact except where intersected by project

infrastructure. As a result, about 30 ha of habitat suitable for roosting will be retained on Lelu Island.

PNW's Suggested Revision

The Proponent shall, *in consultation with Environment and Climate Change Canada and Aboriginal groups, analyse the existing data with respect to the use of Lelu Island by the species of bat known as little brown myotis (Myotis lucifugus), with a view to determining the extent to which a least-risk tree clearing window should be established to mitigate the potential effects of tree clearing on that species.*

Condition 8.2

The Agency has proposed the following draft condition

8.2. The Proponent shall, prior to construction and throughout all phases of the Designated Project, install, maintain, and monitor roosting structures within a radius of five kilometres of the centre of Lelu Island to mitigate the loss of little brown myotis (*Myotis lucifugus*) roosting habitat.

PNW's understanding of the objective

Objective is to have PNW provide for alternate habitats for the little brown myotis.

PNW's Comments and Concerns

PNW believes that effective compensation measures should consider the biological attributes required to support roosting activities.

Sufficient sites with similar ecological attributes required for roosting may not be available within 5 kilometers.

There may be an opportunity to make use of sites identified for the purpose of wetland compensation.

PNW's Suggested Revision

The Proponent shall, prior to construction and throughout all phases of the Designated Project, install, maintain, and monitor roosting structures ~~within a radius of five kilometres of the centre of Lelu Island~~ **at suitable sites at or nearby Lelu Island or otherwise located within the Kaien and Tuck landscape units to mitigate the loss of any potential impact to** little brown myotis (*Myotis lucifugus*) roosting habitat. **The Proponent will consider sites used in implementing the Wetland Compensation Plan (as per condition 5.3.5).**

9. Human health
Condition 9.1.1
<p>The Agency has proposed the following draft condition</p> <p>9. Human health</p> <p>9.1.1 applying best management practices and guidance for construction noise from the British Columbia Oil and Gas Commission’s Noise Control Best Practices Guideline; and</p>
<p>PNW’s understanding of the objective</p> <p>The objective is to ensure that measures are in place to mitigate against the potential impact of excessive noise on people who reside near the Project.</p>
<p>PNW’s Comments and Concerns</p> <p>The British Columbia Oil and Gas Commission’s Noise Control Best Practices Guideline states that construction should not take place at night. The BC OGC has confirmed that it will not be feasible to meet this guideline in order to construct the Project. PNW understands that rather than rely on its Guideline, the OGC will address construction noise directly in the LNG Export Facility permit, specifically in the conditions that will apply to construction.</p>
<p>PNW’s Suggested Revision</p> <p>9.1.1 applying taking into account best management practices and guidance for construction noise from the British Columbia Oil and Gas Commission’s Noise Control Best Practices Guideline in developing and implementing measures to meet the construction noise thresholds in the permit to construct the Project issued by the British Columbia Oil and Gas Commission’s Noise Control Best Practices Guideline; and</p>

Condition 9.3

The Agency has proposed the following draft condition

9.3 The Proponent shall design and manage exterior lighting from all Designated Project components during all phases of the Designated Project to prevent excessive emanation of light, taking into account the International Commission on Illumination’s CIE 150:2003 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations, while meeting marine transportation and aviation safety requirements

PNW’s understanding of the objective

The objective is ensure that measures to mitigate against the potential impact of excessive light on people who reside near the Project and while ensuring that marine and aviation safety are not compromised.

PNW’s Comments and Concerns

The use of lighting during construction activities is dynamic and dependent upon numerous variables (including the area, activities to be accomplished, safe movement of personnel & vehicles, and weather conditions).

Construction lighting is typically much brighter than permanent plant lighting needs due to the greater number of work fronts and the associated safety risks.

Construction lighting must emulate the intensity of daytime conditions, where required, and there is a need to provide lighting from various angles to eliminate shadows or dark areas which would contribute to safety risks.

PNW’s Suggested Revision

9.3 The Proponent shall design and manage exterior lighting ~~from all Designated Project components during all phases~~ **in the operations phase** of the Designated Project to prevent excessive emanation of light, taking into account the International Commission on Illumination’s CIE 150:2003 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations, while meeting marine transportation and aviation safety requirements.

Condition 9.4.1

The Agency has proposed the following draft condition

9.4.1. collecting legal-sized Dungeness crabs (*Metacarcinus magister*) and at least two other commonly-consumed species (including one prawn species and one groundfish species) in Porpoise Channel in three different sampling periods.

PNW's understanding of the objective

Objective is to require that PNW sample specific species consumed by Aboriginal groups and other members of the public.

PNW's Comments and Concerns

PNW is concerned about the utility of the obligation to collect prawn species. The investigations that were conducted for the environmental assessment, prawns were collected in deep waters. The deep water investigation was carried out because, at the time, the project included a plan to dredge approximately 7 million m³ further offshore on Agnew Bank. The plans have changed, and the revised dredge area only includes the Materials Offloading Facility, which is too shallow for prawn habitat. The work will not impact prawns, and PNW does not expect to be able to collect any prawns in the MOF dredge footprint or the surrounding area of the sediment plume.

PNW suggests a revision to the condition accordingly.

PNW's Suggested Revision

Collecting legal-sized Dungeness crabs (*Metacarcinus magister*) and at least **one other** commonly-consumed species (e.g., one groundfish species) in Porpoise Channel in three different sampling periods.