

Environmental Assessment Certificate Application

LNG Canada Export Terminal

Section 16 – Other Matters of Concern to Aboriginal Groups

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16 OTHER MATTERS OF CONCERN TO ABORIGINAL GROUPS

16.1 Introduction

Section 16 identifies potential social, economic, heritage, and health matters of concern raised by Aboriginal Groups during LNG Canada's Aboriginal engagement program that are distinct from Aboriginal Interests discussed in Section 14, those matters discussed in Section 15, and those addressed in Part B of the Application.

To meet these objectives, Section 16 identifies and describes the potential matters of concern and presents the potential Project effects; the proposed measures to mitigate these potential effects; the characterization of residual effects; the views of Aboriginal Groups on mitigation measures (where available); and a concluding statement on matters of concern raised by Aboriginal Groups throughout the consultation process that are not discussed elsewhere in the Application. Concerns expressed to LNG Canada through consultation activities are detailed in Section 13.2, Tables 13.2-3 through Table 13.2-9, and were used to identify those concerns raised by Aboriginal Groups that were not assessed elsewhere in the Application.

16.2 Scope of Assessment

16.2.1 Regulatory and Policy Setting

The AIR requirements for Section 16, and the sections in the Application in which they are addressed, are identified below:

- identify and describe the potential matters of concern that are not addressed in Part B and or Sections 14 or 15 of the Application (Sections 16.6.2, 16.7.2, 16.8.2, 16.9.2, 16.10.2)
- describe or summarize (if described elsewhere in the Application) any measures proposed to avoid, mitigate, or otherwise manage the potential adverse effects on those matters of concern (Sections 16.6.3, 16.7.3, 16.8.3, 16.9.3, 16.10.3)
- characterize any residual effects on those matters (Sections 16.6.4, 16.7.4, 16.8.4, 16.9.4, 16.10.4)
- summarize views expressed by each Aboriginal Group on the proposed mitigation measures where available (Section 16.11), and
- provide a conclusion from the perspective of LNG Canada on the adequacy of the proposed mitigation measures to address such potential matters of concern (Sections 16.6.5, 16.7.5, 16.8.5, 16.9.5, 16.10.5).

16.3 Consultations' Influence on the Identification of Issues and the Assessment Process

Pursuant to the section 11 Order and consistent with LNG Canada's Aboriginal Consultation Plan (approved by the EAO), LNG Canada has consulted with, and will continue to consult with, identified Aboriginal Groups to seek to understand potential adverse effects of the Project on Aboriginal Interests and other matters of concern, as well as to develop measures to avoid, reduce, mitigate, or otherwise address these potential Project effects. LNG Canada has sought feedback from Aboriginal Groups on the draft Aboriginal Consultation Plan, the dAIR, and draft Aboriginal Consultation Reports (both the First and Second Report) and continues to have ongoing consultation with each potentially affected Aboriginal Group. Through LNG Canada's consultation program, Aboriginal Groups raised a number of issues and concerns related to the potential effects of the Project. Issues or concerns related to asserted Aboriginal Interests are discussed in Section 14. Those issues and concerns that could be linked to specific VCs have been assessed in Part B of the Application.

The remaining issues not addressed in Part B or Section 14 are consolidated into five key themes identified in this section:

- availability of emergency services in Aboriginal communities
- effects of Project-related shipping activities on Aboriginal archaeological and heritage resources
- effects of Project-related displacement of Aboriginal harvesters
- effects on Aboriginal people's perception of Project-induced changes in safety and environmental risk, and
- availability of workers, volunteers, and traditional practitioners in Aboriginal communities.

16.4 Incorporation of TK/TU into Section 16

In addition to the consultation activities described in Section 16.3, Project-specific traditional knowledge (TK) and traditional use (TU) reports informed the Section 16 assessment.

These studies include:

- *Haisla Nation TUS and Socio-economic Profile* (Powell 2013)
- *Gitxaala Nation Valued Components Report* (Calliou Group 2014a)
- *Gitxaala Nation Use Study* (Calliou Group 2014b, 2014c)
- *Gitxaala Nation Socio-economic Study* (Firelight 2014)
- *Metlakatla First Nation Interim Traditional Use Study* (DMCS 2014)

- *Gitga'at First Nation Preliminary Summary of Findings of Social Impact Assessment* (Richie and Gill 2014), and
- *Kitsumkalum First Nation Interim Traditional Use Study* (Crossroads Cultural Resource Management 2014).

In addition, Lax Kw'alaams First Nation provided LNG Canada with their *Interim Land and Marine Resources Plan* (Lax Kw'alaams First Nation 2004), and Metlakatla First Nation provided an executive summary of their *Marine Management Plan* (Metlakatla First Nation 2004).

Publicly available TK/TU information was also used, particularly in those cases where the Project-specific studies lacked information for Section 16.

16.5 Other Matters of Concern

As discussed in Section 16.3, Sections 16.6 to 16.10 provide an assessment of those issues identified by Aboriginal Groups through LNG Canada's engagement and consultation activities (Section 13.2) and through the Working Group process that are not specifically addressed in Part B, or in Section 14 or Section 15 of the Application.

The assessment for each of the remaining five themes of concerns identified in Section 16.3 is structured as follows:

- introduction
- potential effects
- mitigation measures to address potential effects
- characterization of residual effects, and
- conclusion.

Views of Aboriginal Groups are presented in Section 16.11.

16.6 Availability of Emergency Services in Aboriginal Communities

16.6.1 Introduction

Aboriginal Group representatives expressed concerns that Project shipping activities could result in accidents that may divert Canadian Coast Guard services that Aboriginal communities rely on, services that some Aboriginal Groups noted as being currently under-resourced. Aboriginal Groups also expressed concerns that Project-related shipping and vessel traffic might physically interfere with the navigation of emergency service vessels (e.g., delaying the transit of Canadian Coast Guard emergency vessels to Aboriginal communities). Several of the potentially affected Aboriginal Groups have communities located along the marine access route. Primary access is by boat, and those communities

depend on the Canadian Coast Guard for emergency response and assistance. The Canadian Coast Guard station nearest to the marine access route is located in Prince Rupert at the Seal Cove Seaplane Base and offers the following services to assist maritime safety:

- information on marine weather conditions
- first response to distress calls
- monitoring and regulation of vessel traffic movement in Canadian waters
- coordination of pollution preparedness planning
- aerial surveillance
- environmental education
- pollution prevention, monitoring, and response, and
- search and rescue.

This section of the Application addresses concerns identified by Aboriginal Groups regarding potential Project effects on the availability of emergency services in Aboriginal communities along the Project marine access route. Section 7.2 (Infrastructure and Services) provides an assessment of facility-related effects on emergency services (including services in Aboriginal communities) but not potential effects along the marine access route nor potential effects on Canadian Coast Guard emergency services. For these assessments, information from Section 7.4 (Marine Transportation and Use) is used.

Here, the term “emergency services” means ambulance, fire protection, police, and Canadian Coast Guard services.

16.6.2 Potential Effects

Project shipping activities could potentially result in accidents that would divert Canadian Coast Guard services that isolated Aboriginal communities rely on.

Project-related shipping and vessel traffic could potentially interfere with the navigation of emergency service vessels (e.g., delaying the transit of Canadian Coast Guard emergency vessels to Aboriginal communities).

16.6.3 Mitigation Measures to Address Potential Effects

To manage potential effects on marine navigation of Project construction activities, a *Marine Construction Safety Plan* will be developed and implemented based on government requirements, best management practices, and past experience. It is anticipated that mitigation measures included in the *Marine Construction Safety Plan* will become effective immediately upon implementation. For details, see Section 7.4.5.2.

To address potential effects of shipping activities on marine navigation, and to reduce the risks and consequences associated with grounding or collisions of an LNG carrier, LNG Canada proposes the implementation of marine traffic management practices. A Safe Shipping Plan will be developed and implemented, in which LNG Canada will specify the emergency response plans required by LNG carriers accessing the facility. LNG Canada is also proposing to include the following mitigation measures aimed at reducing potential shipping incidents that could exceed the capacity of Canadian Coast Guard services and affect their ability to provide emergency assistance to Aboriginal communities:

- Regular communication on Project activities will occur with marine users, including recreationalists, commercial tourism operators, CRA fishers, Transport Canada, DFO, and relevant stakeholders (Mitigation 6.2-7).
- No planned anchoring for the LNG carriers along the marine access route (unless directed to do so by BC Coast Pilots due to weather or other unplanned conditions); LNG carriers will only be permitted to enter the marine access route if a berth at the terminal will be available (Mitigation 7.3-4).
- Use escorts tugs between Triple Island and Kitimat during all LNG carrier transits (Mitigation 7.4-6).
- LNG carriers will travel at speeds up to 14 knots. Speeds will vary depending on navigational safety, weather conditions, location, and marine mammal presence, and will be determined based on the judgment of the ship's master who receives advice from the BC Coast Pilots on board. Subject to navigational safety needs, in areas of high whale density between the northern end of Campania Island and the southern end of Hawkesbury Island, LNG carriers will travel at speeds of 8 or 10 knots from July through October (recognizing predicted periods of high use by marine mammals) (Mitigation 5.8-12).
- Strict adherence to the prescribed route and passing restrictions so that LNG Canada carriers may only pass other large commercial vessels in straight sections of the route (Mitigation 7.4-7).
- LNG carriers will maintain safe operating distances from other marine craft (Mitigation 7.4-8).

A summary of LNG Canada's mitigation measures is provided in Section. In addition to these mitigation measures, LNG Canada shipping will comply with all maritime regulations, including the *Canada Shipping Act, 2001*; International Regulations for Preventing Collisions at Sea, 1972 with Canadian Modifications; and the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978. These regulations prescribe protocols to limit the potential loss of life at sea and to prevent pollution.

As per relevant legal requirements, LNG Canada will comply with Canadian Coast Guard requirements for the Marine Communications and Traffic Services (MCTS) systems and deploy automatic information systems (AIS) on all Project-related LNG carriers to relay vessel tracking and monitoring information to Canadian Coast Guard authorities and other ships. In addition, the Pacific Pilotage Authority will be engaged on an ongoing basis to assess and improve safety procedures and requirements for shipping.

16.6.4 Characterization of Residual Effects

It is highly unlikely that Project-related shipping and vessel traffic will be involved in a serious accident or malfunction that would monopolize available Canadian Coast Guard vessels and personnel and interfere with emergency support services provided to Aboriginal coastal communities. As described in Section 10 (Accidents or Malfunctions), marine transport of LNG by large vessels has a long record of safe operation. In the past 35 years, only two serious groundings have occurred, both without any loss of cargo (Stantec 2014). Similarly, LNG carriers have experienced a low number of minor collisions and strikes in comparison with other ocean-going vessels worldwide (GIIGNL 2009). The risk of an LNG carrier grounding or collision will be low due to proven marine traffic management practices. In the highly unlikely event of an accident, any adverse effects on emergency services provided to Aboriginal communities would be very temporary.

As detailed in Section 7.4, Project-related shipping and vessel traffic is not expected to have a measurable effect on marine navigation (including navigation by Canadian Coast Guard vessels). Project shipping and vessel traffic is not anticipated to result in changes in Canadian Coast Guard response time to emergencies in Aboriginal communities.

For these reasons, it is anticipated that Project shipping will have a negligible effect on emergency services currently provided to Aboriginal communities along the marine access route.

16.6.5 Conclusion

The mitigation measures are considered adequate to address potential effects of Project-related shipping activities on the provision of emergency services to Aboriginal communities.

16.7 Effects of Project-Related Shipping Activities on Aboriginal Archaeological and Heritage Resources

16.7.1 Introduction

Potential effects of shipping on archaeological and heritage resources were concerns raised during LNG Canada's engagement and consultation program with Aboriginal Groups. The potential effects on archaeological and heritage resources for the Project footprint are described in detail in Section 8, and the potential effects on the use of sacred and culturally important sites and landscape features, which includes archaeological and heritage sites, is described in Sections 14.16, 14.17, and 14.18. The potential effects on intertidal archaeological and heritage features from wakes produced by Project LNG carriers are considered in Section 8.2.4.1. Section 10 details potential accidents and malfunctions scenarios on archaeological and heritage resources.

The concern assessed in this section focuses specifically on the potential effects of shipping on heritage and archaeological resources. Although not defined in the *Heritage Conservation Act*, archaeological resources in BC are generally considered to be places containing physical evidence of past human activity in the form of material objects or features. Heritage sites are any places that have heritage value to an Aboriginal community. These can include, but are not limited to, burial places, Aboriginal rock paintings or carvings of historical or archaeological value, heritage ship wrecks, and airplane crash sites.

16.7.2 Potential Effects

One potential shipping effect of concern expressed by Aboriginal Groups is the alteration or removal of intertidal archaeological or heritage sites attributable to increased erosion from ship wakes. The AIA fieldwork found no intertidal archaeological and heritage sites in the Heritage and Archaeology LSA. Although the Heritage and Archaeology LSA did not extend to areas along the marine access route, LNG Canada is aware of a number of important heritage and archaeological areas along the marine access route (see Section 14.18 for details).

The effect of accidents on archaeological and heritage sites is another potential effect of concern expressed by Aboriginal Groups. Potential effects from a vessel grounding or from a collision with the marine terminal or another vessel would primarily be due to resulting fuel or LNG spills. No control studies have been conducted to examine the effects of petroleum hydrocarbons on archaeological deposits. However, the relationship between the physicochemical properties of sediments and the degradation or preservation of different archaeological materials is known (Davidson and Wilson 2006) and potential effects of hydrocarbon contamination can be predicted.

Known or potential effects may include:

- introduction of hydrocarbons contaminating organic materials, effectively rendering the most common approach to dating archaeological sites (radiocarbon dating) ineffective
- changes to plant biomass that may result in increased erosion of archaeological sites. This effect is because petroleum hydrocarbons are phytotoxic to plants at relatively low concentrations (Adam and Duncan 1999).
- changes in biological and chemical properties of sediments that may affect the preservation of archaeological materials, which preserve or degrade under varying conditions.

16.7.3 Mitigation Measures to Address Potential Effects

It is not anticipated that Project shipping will introduce noticeably different wave effects on archaeological and heritage sites. Wake from LNG carriers is expected to be lower than normal weather induced waves. Section 7.4.6.2 presents mitigation measures related to marine transportation which include:

- LNG carriers will travel at speeds up to 14 knots. Speeds will vary depending on navigational safety, weather conditions, location, and marine mammal presence, and will be determined based on the judgment of the ship's master who receives advice from the BC Coast Pilots on board. Subject to navigational safety needs, in areas of high whale density between the northern end of Campania Island and the southern end of Hawkesbury Island, LNG carriers will travel at speeds of 8 or 10 knots from July through October (recognizing predicted periods of high use by marine mammals) (Mitigation 5.8-12).
- Strict adherence to the prescribed route and passing restrictions so that LNG Canada carriers may only pass other large commercial vessels in straight sections of the route (Mitigation 7.4-7).

As detailed in Section 10.7.2, numerous design measures of the LNG carriers will reduce the risk and consequences of vessel grounding or collisions. These include:

- Establish and implement a Spill Response Plan as part of a broader Emergency Response Plan with input from relevant agencies (Mitigation 7.2-8).
- Support federal government in installation of any navigational aids determined to be necessary for safety on the new marine terminal where required (Mitigation 7.4-3).

Marine and auxiliary equipment spill response will be supported by a Transport Canada certified Response Organization such as Western Canada Marine Response Corporation (WCMRC). The WCMRC North Coast operations are located in Kitimat and Prince Rupert, allowing for a regional response on short notice. All clean-up and restoration activities would be approved by the appropriate regulatory agencies. A summary of LNG Canada's mitigation measures is provided in Section 20.

16.7.4 Characterization of Residual Effects

LNG Canada has determined that there is a low likelihood of adverse residual effects on intertidal heritage or archaeological sites from shipping activities. Any residual effects to heritage and archaeological sites are anticipated to be negligible. Coastal archaeological and heritage sites are eroded by natural tidal action and storm surges. Related wave action from Project-related shipping traffic will not introduce any new wave effects on such sites; therefore, related wake effects on these sites are not expected. See Section 8 and Section 10 for more details.

Previously conducted wake effect studies (regionally and internally) indicate that wake generated by LNG carrier traffic will be less severe than waves created naturally by storm surges. Speed limits along the marine access route will also help reduce LNG carrier wake, with waves expected to be less than 10 cm in height when they reach the coastline. Even at the narrowest sections of the marine access route (e.g., Dixon Island Narrows, Otter Channel, Emelia Island Narrows), waves from LNG carriers are expected to be within the size range of the naturally occurring wind waves (see Section 7.4 for more details). To verify this existing information, LNG Canada is undertaking its own wake study to model expected wake from various vessel types, including existing vessel traffic along the marine access route.

The effect of petroleum hydrocarbon contamination on archaeological resources is expected to vary based on the local properties of the sediments and the type of archaeological materials present within the site or sites in question. If a vessel grounding were to occur directly into an intertidal or coastal archaeological or heritage site with sufficient energy, the resource would likely be damaged, although such an event is highly unlikely. There is a low likelihood of a Project-related diesel fuel or bunker oil spill affecting an archaeological and heritage resource. If this low likelihood event were to occur, the effects on the site are predicted to be high.

16.7.5 Conclusion

Based on currently available information, wake from LNG carriers or other Project support vessels is not expected to interfere with archaeological or heritage sites along the marine access route. LNG Canada will continue to consult with Aboriginal Groups on this issue.

Adverse effects on archaeological or heritage resources from accidents associated with a vessel grounding or collision are highly unlikely, and the severity of potential effects would vary significantly depending on the location of the accident and the types of archaeological materials present. Although a vessel grounding, collision, or hydrocarbon contamination as a result of vessel traffic is unlikely, the effects of any one of these would be serious if it occurred in proximity to an archaeological or heritage site.

16.8 Effects of Project-Related Displacement of Aboriginal Harvesters

16.8.1 Introduction

Through LNG Canada's engagement and consultation activities, Aboriginal Groups have raised the issue of whether the Project could potentially increase the use of their traditional territories by non-community members, resulting in increased competition for harvested species and valued harvesting areas, and an increased amount of time and resources spent monitoring activities of outsiders within their territories.

Section 14 provides a detailed assessment of how the Project may directly affect harvesting activities of the potentially affected Aboriginal Groups.

16.8.2 Potential Effects

The construction, operation, and decommissioning of the LNG facility and Project-related shipping are expected to introduce a temporary workforce into the region. Some of those workers may choose to hunt and fish in their time off. This could result in increased competition between Aboriginal and non-Aboriginal harvesters for species and harvesting locations. In addition, some Aboriginal harvesters who currently hunt, fish, trap, and harvest vegetation in the Kitimat area or along the marine access route may choose to relocate their harvesting activity to other areas where competition from the Project's workforce and activities is lower. That migration of Aboriginal harvesters could result in increased competition between Aboriginal Groups for valued and productive harvesting areas and harvested species.

16.8.3 Mitigation Measures to Address Potential Effects

Key mitigation measures to reduce effects from the LNG facility and Project-related LNG shipping on Aboriginal consumptive harvesting are listed in Section 14. Mitigation measures to reduce the potential for adverse effects on marine fisheries and shoreline harvesting activities include:

- Regular communication on Project activities will occur with marine users, including recreationalists, commercial tourism operators, CRA fishers, Transport Canada, DFO, and relevant stakeholders (Mitigation 6.2-7).
- No planned anchoring for the LNG carriers along the marine access route (unless directed to do so by BC Coast Pilots due to weather or other unplanned conditions); LNG carriers will only be permitted to enter the marine access route if a berth at the terminal will be available (Mitigation 7.3-4).
- Use escorts tugs between Triple Island and Kitimat during all LNG carrier transits (Mitigation 7.4-6).

- LNG carriers will travel at speeds up to 14 knots. Speeds will vary depending on navigational safety, weather conditions, location, and marine mammal presence, and will be determined based on the judgment of the ship's master who receives advice from the BC Coast Pilots on board. Subject to navigational safety needs, in areas of high whale density between the northern end of Campania Island and the southern end of Hawkesbury Island, LNG carriers will travel at speeds of 8 or 10 knots from July through October (recognizing predicted periods of high use by marine mammals) (Mitigation 5.8-12).
- Strict adherence to the prescribed route and passing restrictions so that LNG Canada carriers may only pass other large commercial vessels in straight sections of the route (Mitigation 7.4-7).
- LNG carriers will maintain safe operating distances from other marine craft (Mitigation 7.4-8).

See Sections 5.5, 5.6, 5.7, 5.8, and 7.4 for a complete list of mitigation measures related to potential Project effects on harvesters, and see Section 20 for a summary of LNG Canada's mitigation measures.

16.8.4 Characterization of Residual Effects

16.8.4.1 Competition Resulting from Project Workforce

The construction workforce accommodation centre(s) will provide a variety of localized indoor and outdoor recreation opportunities for the Project temporary workforce, which may alleviate demand on outdoor recreation resources (including hunting and fishing areas) in the Kitimat region. Participation in hunting and fishing by Project workers will depend on Project shifts, availability of time for outdoor recreation activities, and preference for onsite outdoor recreation facilities or activities. As described in Section 7.2.4.2 of the Application, projected demand on outdoor recreation areas in the Kitimat region was estimated by combining the number of participants assumed to engage in outdoor recreation from the communities of Kitimat and Terrace with the assumed number of Project workers and other in-migrants who might participate in outdoor recreation. A variety of highly accessible outdoor recreation areas occur in and near the Infrastructure and Services LSA, which provide ample recreation opportunities and alternatives close to the Project site. In addition, municipal and provincial agencies have identified plans to manage capacity and improve or expand outdoor recreation areas and facilities in the LSA (Terrace 2011; BC Parks 2013b; Kitimat 2013, 2014a). While, in general, the capacity of outdoor recreation areas is expected to meet increased demand associated with the Project, it is possible that increased competition for harvested species and hunting and trapping areas may result, especially in areas easily accessible from Kitimat and Terrace. The level of increased competition for harvested species and productive locations between Aboriginal harvesters and the Project workforce is uncertain.

16.8.4.2 Competition Due to Residual Effects from the LNG Facility

As described in Sections 14.13, 14.14, and 14.15, LNG Canada has determined that, with appropriate mitigation measures, the construction, operation, and decommissioning of the LNG facility will have a low to moderate residual effect on Aboriginal traditional harvesting activities. It follows that some Aboriginal traditional harvesters who experience those effects may choose to relocate their hunting, fishing, trapping, and intertidal harvesting to other, less-affected, areas. This change may result in added competition for harvested species and productive harvesting locations between Aboriginal Group members. LNG Canada understands that any decision to use alternative harvesting areas will depend on a number of factors, including, but not limited to, the accessibility and desirability of easily accessed alternative harvesting sites near to currently used areas, travel time, and whether added costs (e.g., for fuel) are prohibitive. Based on consultation activities to date, it is not clear how many Aboriginal harvesters would actually choose to relocate their harvesting activities as a result of Project activities. However, given the anticipated effect of the Project facility on traditional harvesting, the number would likely be small. LNG Canada is committed to ongoing engagement with Aboriginal Groups and will continue to explore this concern.

16.8.4.3 Competition Due to Residual Effects of Project Shipping

As described in Section 14.15.5, with planned mitigation measures, the residual effects of Project shipping on Aboriginal traditional harvesting activities are predicted to be low in magnitude (meaning that the predicted level of interference with those activities will be minor, but still detectable). Given this conclusion, it is possible that a small number of Aboriginal marine users who experience that interference may decide to relocate to new marine locations, resulting in added competition for harvested species and fishing or intertidal harvesting locations. LNG Canada understands that any decision to use alternative harvesting areas will depend on a number of factors, including those listed in Section 16.8.4.2.

Based on consultation activities to date, it is not clear how many Aboriginal harvesters would choose to relocate their harvesting activities as a result of Project activities. However, LNG Canada is committed to ongoing engagement with Aboriginal Groups and will continue to explore this concern.

Given the level of information available, it is not possible to determine with confidence the number of Aboriginal harvesters who may choose to relocate their harvesting activities as a result of Project shipping activities or the level of increased competition between Aboriginal Groups that may result.

See Section 7.4 for a detailed assessment of:

- Project shipping-related interference with, or displacement of, boat-based marine fishing due to the direct physical presence of LNG carriers (including consideration of disrupted access to fishing grounds and potential damage to fishing gear), and
- interference with marine fisheries and shoreline harvesting due to wake waves generated by LNG carriers and their escort tugs.

16.8.5 Conclusion

The number of Aboriginal harvesters who may relocate their harvesting activities as a result of population increases in the Kitimat area, Project residual effects on Aboriginal traditional harvesting, and increased competition for harvested species and harvesting locations between Aboriginal and Project workers is uncertain. However, given the predicted low to moderate magnitude of residual effects on traditional harvesting in Aboriginal Interests LSA #1 and LSA #2, the predicted low magnitude of residual effects on traditional harvesting along the marine access route (LSA #3), and the wide variety of available outdoor recreation opportunities in the Kitimat and Terrace areas for Project workers, it is likely that the number of displaced Aboriginal harvesters could be small. Some added competition between Aboriginal Groups for harvested species and productive harvesting locations could result from Project-related migration of those affected Aboriginal harvesters into new or less-used areas, but an estimate of the actual amount of increased competition between Aboriginal Groups that would result would be speculative.

16.9 Effects on Aboriginal People's Perception of Project-Induced Changes in Safety and Environmental Risk

16.9.1 Introduction

Aboriginal Groups have concerns that their members' traditional harvesting activities could be adversely affected by perceived changes in the safety of traditional foods and the level of risk associated with marine travel, shoreline, use, and marine harvesting. They note that an increased perception of risk could lead to a reduction in traditional harvesting activity, adversely affecting:

- health of Aboriginal people (due to reduced consumption of healthier traditional foods), and
- intergenerational transmission of TK and cultural practices associated with the harvesting, preparation, sharing, and eating of traditional foods (Calliou Group 2014, Satterfield et al. 2012).

Aboriginal Group representatives have stressed the need to address perceived changes in environmental risk "from a First Nations perspective" (LNG Canada 2014).

Section 7.5 (Community Health and Wellbeing) provides an analysis of potential changes in Aboriginal diet and nutrition as a result of the Project, including changes in consumption of country foods. As part of that analysis, potential changes in the perception of safety of traditional foods are considered. See Section 7.5 for more information and conclusions.

See Section 14 (Aboriginal Interests) for a detailed assessment of effects on Aboriginal consumptive harvesting. In addition, see Section 10 (Accidents or Malfunctions) for the assessment of the effects of potential Project-related accidents or malfunctions.

16.9.2 Potential Effects

Aboriginal traditional users may perceive increased safety risks due to Project activities and LNG carrier traffic (e.g., risk posed to intertidal harvesters by LNG carrier wake). These perceived changes in risk could lead to a measurable reduction in traditional harvesting activities and a reduction in the consumption of traditional foods. For example, in an interim report provided to LNG Canada, Gitga'at First Nation community members listed a variety of anticipated concerns regarding the health of the lands and waters, a decline in the quality of food harvested, a decline in the quality of food fish, and a loss of trust in the safety of consuming traditional resources (Gill and Ritchie 2014).

LNG Canada recognizes that Project effects and risks may be perceived differently by Aboriginal Groups. Aboriginal perception of environmental risk may be heavily influenced by TK/TU information, personal experience, and local knowledge. These perceptions may also emphasize how effects on a single element of the environment can potentially affect the broader interconnected ecosystem. The presence of the LNG facility and associated shipping activities could be perceived by Aboriginal people as adversely affecting, or increasing risk to, the environment as a whole. These changes in perception could result in increased avoidance of certain locations, a reduction in participation in traditional use activities, and related cultural changes.

16.9.3 Mitigation Measures to Address Potential Effects

A relevant mitigation measure is:

- Provide Project information to the local community and Aboriginal Groups and hold information sessions to facilitate ongoing discussion to resolve concerns (Mitigation 7.5-9).

A summary of LNG Canada's mitigation measures is provided in Section 20. LNG Canada will continue to communicate with Aboriginal Groups to build confidence in the findings of the Application, and demonstrate how TK/TU information was incorporated into LNG Canada's assessment wherever possible.

16.9.4 Characterization of Residual Effects

LNG Canada is aware that the perception of potential effects on the environment is a concern for Aboriginal Groups. For example, Gitga'at First Nation's preliminary findings for the SIA conducted for LNG Canada reports that 76.4% of respondents believe there is a high likelihood of environmental contamination from the Project (Gill and Ritchie 2014).

Taking into account these numbers as an example of perception issues, LNG Canada anticipates that its information sessions will provide Aboriginal Groups with accurate and detailed information regarding the Project's predicted residual effects on the environment, human health, safety, and traditional harvesting activities.

16.9.5 Conclusion

Mitigation measures will help reduce adverse effects associated with changes in perception of safety and environmental risk among Aboriginal Groups, but there is still a high degree of uncertainty in the success of these programs. Through ongoing consultation and dialogue, LNG Canada hopes to alleviate some concerns held by potentially affected Aboriginal Groups related to their perceptions of Project-related environmental and safety risk.

16.10 Availability of Workers, Volunteers, and Traditional Practitioners in Aboriginal Communities

16.10.1 Introduction

During LNG Canada's engagement and consultation activities, Aboriginal Group representatives commented that Project-related employment and related migration of their members could result in a reduction of available workers and volunteers in their home communities. The additional demand for labour was also a concern in regards to decreased time and availability of community members to participate in traditional practices. This section provides a discussion of that issue.

A full assessment of the potential social effects of the Project's LNG facility (including effects on Aboriginal communities) is provided in Section 7 (Assessment of Potential Social Effects). Section 6 (Assessment of Potential Economic Effects) provides a full assessment of how the Project could potentially affect the regional labour force (both Aboriginal and non-Aboriginal). This section summarizes conclusions from these sections as they relate to the concerns over labour, volunteerism, and practitioners of traditional activities.

16.10.2 Potential Effects

Aboriginal Group representatives commented that Project-related employment (both direct and indirect) of community members could result in a reduction of available workers and volunteers in their home communities, and decreased availability of community members to participate in traditional practices. In assessing these potential effects, information from consultations and TK/TU studies was supplemented by relevant information found in Section 7 and Section 6, which included an assessment of potential Project effects on the regional labour force, both Aboriginal and non-Aboriginal.

Project-related employment of Aboriginal community members during construction, operation, and decommissioning could adversely affect local businesses in Aboriginal communities through:

- a loss of skilled workers currently employed at local businesses, and
- a reduction in the number of unemployed (but employable) workers available to be hired.

Project-related employment of Aboriginal community members during construction, operation, and decommissioning could also reduce the number of available volunteers in affected Aboriginal communities, adversely affecting organizations and events that depend on the work of local volunteers.

16.10.3 Mitigation Measures to Address Potential Effects

Section 6.2 details mitigation measures for potential economic effects of the Project, including:

- Regular communication on Project activities will occur with marine users, including recreationalists, commercial tourism operators, CRA fishers, Transport Canada, DFO, and relevant stakeholders (Mitigation 6.2-7).
- Require all Project workers to undertake worker orientation, including cross-cultural awareness, to help build awareness and respect of local issues of importance, including local facilities, recreational opportunities, and other community considerations, with expectation of reducing adverse interactions with the community (Mitigation 7.2-3).

A summary of LNG Canada's mitigation measures is provided in Section 20.

16.10.4 Characterization of Residual Effects

16.10.4.1 Effects on Worker Availability in Aboriginal Communities

During Project construction, the Project is expected to have adverse residual effects on the general (Aboriginal and non-Aboriginal) labour supply in the Economics LSA (an area that includes Kitamaat Village, Kulsapai Indian Reserve 6, Kitselas, Kitsumkalum, Kitkatla, Hartley Bay, Metlakatla, and Lax Kw'alaams), and those residual effects are predicted to be high in magnitude. Project construction will last for approximately five or six years and will employ a peak workforce of approximately 7,500 workers.

Project operation will last for a minimum of 25 years and will employ a maximum workforce of approximately 700 people.

As described in Section 6.2.5.2, the available supply of skilled workers in Kitimat will not be sufficient to meet Project demand during construction. While LNG Canada will work to enhance local employment in the immediate Kitimat area, hiring from outside the local area (including hiring from Aboriginal communities such as Metlakatla Village, Kitkatla, Lax Kw'alaams, Hartley Bay, Kitselas, and Kitsumkalum) is expected. LNG Canada will encourage recruitment of Aboriginal workers by improving the availability of applicable training and education opportunities and limiting potential barriers to employment. See Sections 6.2.5.2 and 7.5.5.2 for more information on the estimated labour force required for the Project.

Industrial development can affect existing labour markets (KTIDS Northwest 2012) resulting in a shortage of skilled workers and higher levels of competition among employers. Local businesses in Aboriginal communities located in the Economics LSA may be unable to match the wages and other benefits provided by Project employment and may lose skilled employees. In addition, currently unemployed Aboriginal community members may find employment with the Project, reducing the number of available unemployed workers that could be hired and trained by local businesses. It is expected that these effects would be felt most acutely during the construction period and would taper off after construction is complete.

The Project may recruit both unemployed Aboriginal individuals and individuals who are currently employed in local businesses in Aboriginal communities, and this may have a noticeable adverse effect on some local businesses. However, the number of unemployed individuals in the Aboriginal communities within the Economic Conditions LSA is relatively high. The total Aboriginal labour force in the Economic Conditions LSA is 4,330 individuals (Statistics Canada 2013), of which 23.9% are currently unemployed. This means that at least 1,000 Aboriginal individuals are theoretically available to work in local businesses now. This large pool of available workers may cushion the effect of the Project on labour markets in the affected Aboriginal communities.

16.10.4.2 Effects on Volunteerism in Aboriginal Communities

During Project construction, operation, and decommissioning, Aboriginal workers from communities that are not within a reasonable commuting distance may choose to live in the provided worker accommodations or, later, in the Kitimat area. Project demand for both skilled and unskilled labour may result in a reduction in the number of available volunteers in some Aboriginal communities, especially during the construction period. This may have adverse effects on volunteer organizations and certain

cultural traditions (e.g., feasting) in Aboriginal communities that currently depend on a volunteer labour pool.

Levels of volunteerism in non-Aboriginal communities tend to be linked to levels of employment, but there are also counter indications that employed people actually spend more time volunteering compared with the unemployed (Thoits and Hewitt 2001). Given the economic, demographic, and cultural differences between Aboriginal and non-Aboriginal communities, based on the available information, it is not possible to conclude whether higher levels of employment as a result of the Project will either increase or decrease levels of volunteerism in the potentially affected Aboriginal communities. It is expected that any effects would be felt most acutely during the construction period and would taper off after construction is complete.

16.10.4.3 Effect on Traditional Practitioners

During Project construction, operation, and decommissioning, demand for both skilled and unskilled labour may result in a reduction in the number of available traditional practitioners in some Aboriginal communities. The expected negative effects on demands on labour supply in the Economics LSA during construction would likely result in the largest effect on traditional practitioners given the increased demands on time. However, given the economic, demographic, and cultural differences between Aboriginal and non-Aboriginal communities, based on the available information, it is not possible to conclude whether higher levels of employment as a result of the Project will either increase or decrease levels of traditional practitioners available in Aboriginal communities. It is expected that any effects would be more noticeable during the construction period and would taper off after construction is complete.

16.10.5 Conclusion

The Project may result in noticeable changes in labour supply and demand in the Aboriginal communities located in the Economics LSA. Effects on the available labour pool and the number of volunteers in Aboriginal communities may adversely affect local businesses, volunteer organizations, and traditional practitioners, but the magnitude of that effect is uncertain. LNG Canada will continue to work with potentially affected Aboriginal Groups to determine whether there are ways to reduce these potential adverse effects.

16.11 Views of Aboriginal Groups

As described in Section 13.2, LNG Canada sought the view of Aboriginal Groups on this section of the Application, specifically views on the proposed mitigation measures. LNG Canada met with individual groups and then provided electronic copies of the draft of Part C of the Application to each Aboriginal Group. LNG Canada received comments during the meetings and directly from four First Nations following their review of Part C. Many of these comments have been addressed and incorporated into this Application, those that need further consideration and discussion have been included in this section to capture the views of Aboriginal Groups as requested in the AIR. LNG Canada is committed to ongoing consultation with Aboriginal Groups to further discuss these points during the Application review stage.

The views expressed to LNG Canada by Aboriginal Groups, through meetings and by written comments regarding the avoidance, mitigation, or other management measures proposed to address potential adverse effects on other matters of concern to Aboriginal Groups are listed in Table 16.11-1.

Table 16.11-1: Views of Aboriginal Groups on Proposed Mitigation Measures

Other Matter of Concern	First Nation	Summary of Views on Proposed Measures to Avoid, Mitigate or Otherwise Manage Potential Adverse Effects
Availability of Emergency Services in Aboriginal Communities	Lax Kw'alaams First Nation	The Coast Guard has not made adequate use of small communities for weather watch, coastal defense, or coastal response. It is possible to equip and train these communities to be able to respond to these issues, which would create jobs and have a reliable network of basic services along the North Coast.
	Metlakatla First Nation	LNG Canada should prepare people in communities to be able to respond to an emergency as people living on the coast with boats will respond to any accident. LNG Canada should provide training to those in the communities, etc., as well as have strong communication with communities and boaters about emergency preparedness.
Effects of Project-Related Shipping Activities on Aboriginal Archaeological and Heritage Resources		No views specific to mitigation proposed for this issue were received.
Effects of Project-Related Displacement of Aboriginal Harvesters	Lax Kw'alaams First Nation	LNG Canada could work with fishing lodge operators to manage the Project's labour force and their recreational fishing activities.
	Haisla Nation	LNG Canada should hold education sessions with boaters (local, sports fishing, and fishing) because little boats do not always carry radios so there is not always communication with boaters to know when vessels are coming. There are also low spots for radio service. Haisla also have boats without radios, so education sessions with the community around this and safety is important as well. LNG Canada also needs to consider how to reach out to individuals who do not attend meetings.

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Section 16: Other Matters of Concern to Aboriginal Groups

Other Matter of Concern	First Nation	Summary of Views on Proposed Measures to Avoid, Mitigate or Otherwise Manage Potential Adverse Effects
Effects on Aboriginal People's Perception of Project-Induced Changes in Safety and Environmental Risk	Lax Kw'alaams First Nation	LNG Canada should conduct scientific studies of perception issues to determine whether the perceived effects are real or not.
	Metlakatla First Nation	The federal government has a program by Oceans Network to create an opportunities to establish installations to monitor marine species. There is an opportunity to create a network across the Pacific to better understand marine species. It would be great to do it together, rather than doing things separately.
	Metlakatla First Nation	In an effort to assess the adverse effects on First Nations of perceived effects of the Project on the environment, Metlakatla recommends that the Proponent create a feedback mechanism in order to gauge changes in perceptions. For instance, LNG Canada could hold information sessions and then follow up with a survey to gauge perception of risk among First Nations.
Availability of Workers, Volunteers, and Traditional Practitioners in Aboriginal Communities		No views specific to mitigation proposed for this issue were received.