

## Proposed Woodfibre LNG Project – Myseatosky.org suggested comments

The following table includes Woodfibre LNG Limited's responses to public comments suggested by myseatosky.org submitted to the BC Environmental Assessment Office (EAO) as part of the 45-day public comment periods held between June 11 and July 27, 2014. Where multiple comments were received in one submission, they have been separated to allow for specific responses.

EAO has reviewed the public's comments and Woodfibre LNG Limited's responses and is satisfied that Woodfibre LNG Limited has addressed the public's comments for the purpose of the Pre-Application stage of the Environmental Assessment for the proposed Woodfibre LNG Project. The time and effort taken by those who submitted comments to EAO during the public comment period is appreciated and all of the comments received will be considered in the Environmental Assessment of the proposed Woodfibre LNG Project.

Comment #	Comment	Issue/Theme	Proponent's Response	EAO's Response
	<i>Environment</i>			
1	<p>Woodfibre LNG is planning to use water cooling to remove heat from facility equipment. I am very concerned about the cumulative effect of dumping 17,000 cubic meters of warm (+10 degrees warmer than intake temperature), chlorinated water back into Howe Sound every hour, every day, and the adverse impacts this will have on marine life.</p> <ul style="list-style-type: none"> <li>I request the proponent undertake a comprehensive cumulative impacts study of the effects of dumping 17,000 cubic metres of warm chlorinated water into Howe Sound, and how it will affect wildlife. The studies must include the impacts on ecosystem structure and function and detail how key species such as herring, salmon, and marine mammals may be impacted. It should also research the implications of possible anoxic zones, potential loss of key species, increase in undesirable warm-water species, bleaching of anemones (temperature is a key stressor for anemones and can result in bleaching), impacts to commercial and recreational fish stocks, and other undesirable effects on marine fauna and flora.</li> </ul> <p>The marine portion of the project area needs to be better defined and should include a large buffer zone. The Regional Study area should include the entire tanker route.</p>	Effects of the Project on Marine Water Quality	<p>The Application for an Environmental Assessment Certificate will discuss Project-related changes in marine water quality. The section will also include the mitigation measures that will be implemented to avoid or reduce these changes.</p> <p>All discharges to the marine environment will comply with applicable legislation and guidelines, including the BC Water Quality Criteria (marine and estuarine life), the Canadian Environmental Quality Guidelines (water quality guidelines for the protection of aquatic life – marine), and the <i>Fisheries Act</i>.</p> <p>Potential Project-related changes to marine water quality from the seawater cooling system will be modelled using near-field and far-field numerical dispersion models. The model results will be evaluated against marine water quality criteria guidelines. If the results of the dispersion modelling show that the changes to marine water quality may result in effects to marine flora and fauna, the results of the seawater cooling system dispersion model will be considered in the following sections: Marine Benthic Habitat VC, Forage Fish and Other Fish (Marine) VC, and Marine Mammals VC. The details of the numerical dispersion models for the seawater cooling system, including methodology and results, will be presented in a technical report and appended to the Application.</p> <p>Section 5.10.3 of the draft Application Information Requirements has been updated to include cross-references to each of the sections references above.</p> <p>The Local Assessment Area for marine water quality is the marine control zone. It includes both the seawater cooling system intake and outlet diffusers, and is anticipated to include the area affected by the seawater cooling system.</p> <p>The Regional Assessment Area includes all of Howe Sound. The scope of the reviewable Project as defined by the section 11 order is limited to the route of the LNG carriers in Howe Sound.</p>	

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II	<p>Acid rain is caused by emissions of sulfur dioxide and nitrogen oxide, which react with water molecules in the atmosphere. Ocean acidification is the ongoing decrease in the pH of the Earth's oceans, caused by the uptake of carbon dioxide from the atmosphere.</p> <ul style="list-style-type: none"> <li>I request studies to identify the effects of acid rain and ocean acidification in Howe Sound and effects on various species of commercial, recreational, and forage fish stocks, including species resident in and migrating through the Howe Sound. The study should also include the effects of acid rain and ocean acidification on shellfish and other marine flora and fauna.</li> </ul>	Acid Rain	<p>The Application for an Environmental Assessment Certificate (EAC) will include an assessment of the effects of the Project on air quality as well as freshwater and marine water quality. It will also include the mitigation measures that will be implemented to avoid or minimize effects to air quality, surface water and marine water quality.</p> <p>Baseline data is available for existing air quality in the Project area, and dispersion modelling will be undertaken based on provincial Ministry of Environment guidance to predict the Project-related effects to air quality. Potential Project-related effects to air quality will be evaluated against the Canadian ambient air quality criteria. These criteria consider acid rain and other potential environmental effects.</p> <p>If residual effects to air quality are shown to be sufficient to affect intermediate components (ICs) (surface water quality and marine water quality) and other valued components (VCs) (e.g., human health), these residual effects will be carried forward for consideration in the assessment of effects to those VCs.</p> <p>The Application for an EAC will discuss the Project's potential effects to greenhouse gas (GHG) management and mitigation measures that will be implemented to reduce these effects within the scope of the assessment set by the EAO. The annual GHG emissions from the Project will be estimated for the Project operation phase, and will be compared to the provincial and national emissions to assess the relative contribution of the Project on a Canadian basis.</p> <p>The Application for an EAC will provide information regarding predicted climate change effects during the Project lifecycle on sea level, precipitation, and temperature. Where applicable and possible, the implications of climate-induced changes to extreme weather events will also be assessed.</p>	
III	<p>I am concerned about the effect of shoreline erosion in communities along the LNG tanker route.</p> <ul style="list-style-type: none"> <li>Studies need to be done on knot speed and the size of vessel wakes and what potential damage to wharves, marina infrastructure, and destructions of coastal shorelines will occur.</li> </ul> <p><a href="http://www.researchgate.net/publication/228930679_Shoreline_effects_of_vessel_wakes_Marlborough_Sounds_New_Zealand">http://www.researchgate.net/publication/228930679_Shoreline_effects_of_vessel_wakes_Marlborough_Sounds_New_Zealand</a></p> <ul style="list-style-type: none"> <li>How will the speed of LNG tankers be controlled?</li> <li>How will the presence of LNG tanker traffic (aesthetics and safety) and shoreline erosion impact real estate values of coastal lots?</li> <li>What are the safety impacts of large wakes/waves in Howe Sound? Estimation of at-shore wave heights from LNG tankers and escort tugs travelling at high speed through the Sound (on both exit and entry legs).</li> <li>What are the environmental impacts of large wakes/waves on intertidal habitat and species that live there?</li> </ul>	Effects of Shipping on the Shoreline	<p>LNG carriers will be maneuvering at approximately 8 to 10 knots in Howe Sound. A vessel wake assessment is being completed by Moffatt &amp; Nichol Engineers Corporation. The results of this assessment and potential impacts associated with vessel wake will be considered in the Marine Transport VC and Geotechnical and Natural Hazards IC sections of the Application for an Environmental Assessment Certificate.</p> <p>BC Coast Pilots are responsible for piloting all large commercial ships in transit in BC waters. Both the BC Coast Pilots and tug boats will ensure appropriate communications, safe practices, traffic routing, and that safety procedures are followed.</p> <p>Woodfibre LNG Limited will complete a voluntary Transport Canada Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL) for the Project. The review includes a comprehensive risk assessment to ensure safety of vessel transits from terminal to open ocean; the development of recommendations to improve safety and minimize risk; and, the development of detailed safety procedures and emergency response plans.</p>	
IV	<p>I value peace and quiet in a wild, non-industrialized setting. How much noise will an LNG facility generate?</p> <ul style="list-style-type: none"> <li>I request studies to determine increase in atmospheric noise from the LNG facility, plant operations, storage tankers, flare stack, transiting LNG tankers, tugboats, water taxis, helicopters, and other machinery associated with the project.</li> <li>I request studies to determine impact of atmospheric noise on ocean-based recreation such as sailing, kiteboarding, windsurfing, sea kayaking, and paddleboarding.</li> </ul>	Effects of the Project on Noise	<p>Noise generated by the Project will comply with Oil and Gas Commission guidelines and the Liquefied Natural Gas Facility Regulation.</p> <p>The Application for an Environmental Assessment Certificate will address the potential Project effects to atmospheric sound (Atmospheric Sound IC). This assessment will include the atmospheric sound generated by the Project, including the LNG facility, floating storage and offloading units, and supporting infrastructure (e.g., administration and storage buildings), and shipping.</p> <p>Helicopters will only be used to access the Project area in emergency circumstances and will therefore not be assessed.</p> <p>Based on the results of the atmospheric sound modelling, the results of this assessment will be carried forward to other valued components, including Public Health, Avifauna (birds), and At-risk Bat Species.</p>	

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V	<p>Tourism is an emerging area of economic support for Squamish. I am very concerned about visual pollution and the effect it will have on our tourism industry, film industry, and outdoor recreation industries. Smoke stacks, pollution, gas flaring, large LNG tankers, is not what I would consider as Supernatural BC. What will this do to the Sea to Sky Gondola revenue?</p> <ul style="list-style-type: none"> <li>I request studies to determine economic impacts to tourism, film, and outdoor recreation industries as a result of visual pollution.</li> </ul>	Visual Quality	<p>The Project's potential effects to tourism and the mitigation measures that will be implemented to avoid or minimize these effects will be discussed in the Application for an Environmental Assessment Certificate (EAC) in the Sustainable Economy VC section.</p> <p>The Application for an EAC will address the Project's potential effects to visual quality in the Visual Quality VC section. The Sea to Sky Gondola is included as one of the viewpoints in the visual quality assessment; however, the Application for an EAC will not speculate regarding how the Project may affect specific businesses (either positively or negatively).</p> <p>The Application for an EAC will assess the Project's potential effects to land and resource use in the Land and Resource Use VC section, including outdoor recreation, and the mitigation measures that will be implemented to avoid or minimize these effects.</p>	
VI	<p>I value dark skies at night, and am very concerned about light pollution from the facility and the flare stack and the potential effect on the communities of Squamish, Britannia Beach, and Furry Creek.</p> <ul style="list-style-type: none"> <li>I request studies to determine impacts of light pollution from the facility and the flare stack in Squamish, Britannia Beach, and Furry Creek, as well as wildlife.</li> <li>I request studies to determine health impacts of light pollution on citizens in Squamish, Britannia Beach, and Furry Creek.</li> </ul>	Light	<p>The Project's potential effects to night time light and the mitigation measures to avoid or minimize effects will be discussed in the Application for an Environmental Assessment Certificate in the Light IC section. During regular operation of the facility, the flare is not operating.</p> <p>The potential for the residual effects of changes in light to affect health will be considered in the Public Health section of the Application.</p> <p>Light has been included in the list of VCs and ICs with the potential to affect public health in Section 9.2.1 of the dAIR.</p>	
VII	<ul style="list-style-type: none"> <li>I request studies to determine the impacts of underwater noise from the land-based LNG facility, the floating LNG storage and offloading unit, and LNG tankers and tugs on herring, rockfish, salmon, and marine mammals.</li> </ul>	Underwater Noise	<p>The potential effects of Project-related underwater sound on marine life will be considered in the Application for an Environmental Assessment Certificate, in the Marine Mammals VC and Forage Fish and Other Fish (Marine) VC sections.</p>	
VIII	<p>Herring form the basis of the foodweb, and several local community organizations are focused on helping herring stocks to recover in Howe Sound.</p> <ul style="list-style-type: none"> <li>I request studies to determine the impacts of underwater noise on herring. How will noise from the land-based LNG facility, the floating storage and offloading unit, and LNG tankers and tugs impact herring: their habitat, their behaviour, and in particular herring spawning?</li> <li>I request multi-year studies to determine current populations of herring in Howe Sound, and to identify key herring habitat and behaviour in Howe Sound</li> </ul>	Effects of the Project on Herring	<p>The potential effects of Project-related underwater sound on herring will be considered in the Forage Fish and Other Fish (Marine) VC section of the Application for an Environmental Assessment Certificate.</p> <p>Based on the results of the assessment, a follow-up and monitoring program will be proposed as needed to confirm the predicted effects of the Project on herring.</p> <p>Woodfibre LNG has met with the Squamish Streamkeepers and looks forward to working with them to explore the potential for enhancing herring spawning areas in the vicinity of the Project.</p>	
IX	<ul style="list-style-type: none"> <li>I request multi-season studies to determine current populations of Rockfish in Howe Sound, and to identify key rockfish habitat and behaviour in Howe Sound.</li> <li>I request multi-year studies to determine the impacts of underwater noise, warmer water temperatures, and chlorine on endangered Rockfish stocks.</li> </ul>	Effects of the Project on Rockfish	<p>The potential Project-related effects on rockfish will be included in the Forage Fish and Other Fish (Marine) VC section of the Application for an Environmental Assessment Certificate.</p> <p>As noted in the response to Comment I, the potential Project-related changes to marine water quality from the seawater cooling system will be modelled using near-field and far-field numerical dispersion models. The model results will be evaluated against marine water quality criteria guidelines. If the results of the dispersion modelling show that the changes to marine water quality may result in effects to marine flora and fauna, the results of the seawater cooling system dispersion model will be considered in the Forage Fish and Other Fish (Marine) VC section.</p> <p>All discharges to the marine environment will comply with applicable legislation and guidelines, including the BC Water Quality Criteria (marine and estuarine life), the Canadian Environmental Quality Guidelines (water quality guidelines for the protection of aquatic life – marine), and the <i>Fisheries Act</i></p> <p>Based on the results of the assessment, a follow-up and monitoring program will be proposed as needed to confirm the predicted effects of the Project.</p>	

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X	<ul style="list-style-type: none"> <li>I request multi-season studies to determine current populations of salmon species in Howe Sound, and to identify key salmon habitat and behaviour throughout their life cycle.</li> <li>I request studies to determine the importance of the Woodfibre beach and Mill Creek to juvenile and adult salmon and other fish.</li> </ul>	Effects of the Project on Salmon	<p>The potential Project-related effects on salmon will be included in the Forage Fish and Other Fish (Marine) VC section of the Application for an Environmental Assessment Certificate.</p> <p>Baseline data collection encompasses a range of techniques to gather the most complete record of the existing conditions, and includes a comprehensive literature review. Sources of information include government reports, relevant consultant's reports, and online databases (Fisheries Information Summary System, Habitat Wizard, Ecocat, Fisheries and Oceans Canada Salmon Escapement Data System).</p> <p>The Application will describe the current or baseline conditions that will include existing disturbances and land uses. Where publically available, baseline information on the VCs will include data collected over a long enough period of time to establish annual norms, trends and extremes. The EA will describe the quality and reliability of this data and its applicability for the purpose used.</p> <p>Based on the results of the assessment, a follow-up and monitoring program will be proposed as needed to confirm the predicted effects of the Project on salmon.</p>	
XI	<ul style="list-style-type: none"> <li>I request multi-season studies to determine current populations of migratory and resident orcas, dolphins, grey whales, humpback whales, seals, and sea lions in Howe Sound. Include recent trends showing increased visitations and increasing populations. Baseline to be set using estimates of pre-industrialization populations.</li> <li>I request studies to determine the amount of underwater noise generated from the land-based LNG facility, the floating storage and offloading unit, and LNG tankers and tugs. How will this underwater noise impact marine mammals?</li> </ul>	Effects of the Project on Marine Mammals	<p>In accordance with guidance provided by the BC EAO and the British Columbia <i>Environmental Assessment Act</i>, the scope of the assessment will assess potential project impacts against existing environmental conditions.</p> <p>The potential effects on marine mammals will be considered in the Application for an Environmental Assessment Certificate, in the Marine Mammals VC section. The Marine Mammal VC considers marine mammals that are expected to occur within the Project area.</p> <p>Based on the results of the assessment, a follow-up and monitoring program will be proposed as needed to confirm the predicted effects of the Project on marine mammals.</p>	
XII	<p>I understand that the plant will flare gas in order to release pressure in the lines and am concerned about the impact on migration of birds in this area. In the fall of 2013, 7500 songbirds were killed while they flew over a flare stack at Canaport LNG in Saint John.</p> <ul style="list-style-type: none"> <li>I request studies on migration patterns and frequencies of all avifauna species known to use the Howe Sound as a migratory route, gathering baseline data over multiple seasons.</li> <li>I request studies on the Bald Eagle, to determine migration patterns and ensure they are protected. The Bald Eagle is an iconic species that overwinters in the Brackendale area.</li> <li>I request that the proponent creates a plan specifying flaring times, to avoid key months when Bald Eagles and other migratory birds will be transiting through Howe Sound.</li> </ul>	Effects of the Project on Migratory Birds	<p>The potential effects of the Project on birds will be included in the Application for an Environmental Assessment Certificate in the following sections: Avifauna VC and Marine Birds VC. These sections will also include mitigation measures to reduce the potential effects on birds. Woodfibre LNG Limited confirms that bald eagles are included in the Avifauna VC.</p> <p>Woodfibre LNG Limited is required to prepare a Venting and Flaring Plan as part of the application for a facility permit submitted to the BC Oil and Gas Commission. Neither venting nor flaring of natural gas will occur during normal operations. Flaring will occur only as an emergency procedure, and as such the schedule is not predictable.</p>	
XIII	<p>There are several accounts of elk and elk calves eating roe from kelp near the Woodfibre site.</p> <ul style="list-style-type: none"> <li>I request annual studies to determine the number of Roosevelt Elk in the vicinity of the Woodfibre site, their preferred habitats, and their behavior and diet throughout the year.</li> <li>I request studies to determine how loss of herring roe at the Woodfibre site as a result of underwater noise, increased water temperatures, and other impacts will impact elk populations.</li> </ul>	Effects of the Project on Elk	<p>Woodfibre LNG Limited is aware that elk have been introduced and occur in nearby drainages. However, the potential for elk to experience long-term Project-related effects to the population is considered negligible, due to the Project siting (i.e., brownfield site) and potential impacts to available suitable habitat within the Project area. Mitigation measures such as perimeter fencing will further reduce the potential for ungulate populations to be adversely affected by the Project.</p>	

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	<b>Social &amp; Economic</b>			
XIV	<p>Costs/benefits of the Woodfibre LNG project for the District of Squamish</p> <ul style="list-style-type: none"> <li>I request a comprehensive cost-benefit analysis, including details of: <ul style="list-style-type: none"> <li>direct, indirect, and induced local employment</li> <li>municipal tax benefits</li> <li>loss of municipal taxes from businesses, industries that are directly or indirectly impacted by locating an LNG facility in Howe Sound</li> <li>future loss of possible municipal tax revenue from businesses and industries that would have located in Howe Sound but don't because of the presence of an LNG facility (e.g., high tech companies, knowledge-based industry, recreation technology companies, film industry etc.)</li> <li>impacts of "capping" Woodfibre LNG's municipal taxes at \$2 million, with an annual increase of 2.5% to a maximum of \$3 million. This effectively limits the potential benefits to the District of Squamish, and transfers the tax burden to other DoS taxpayers and property owners.</li> <li>infrastructure and other socio-economic benefits</li> <li>quality of life</li> <li>costs of air pollution, noise pollution, light pollution, and water pollution</li> <li>services and infrastructure costs</li> <li>health and other disbenefits</li> <li>impacts on residential, recreational, and commercial real estate values</li> <li>loss of revenue for existing businesses and industries (e.g., tourism industry, film industry, outdoor recreation industry, high tech industry, knowledge-based industry, fisheries industry)</li> <li>loss of revenue through offshore infrastructure</li> <li>loss of revenue through foreign temporary workers</li> <li>loss of revenue due to poor air quality, visual impacts, and environmental impacts</li> </ul> </li> </ul>	Economy	<p>Section 6 Assessment of Potential Economic Effects of the Application for an Environmental Assessment Certificate (EAC) will consider the potential positive and negative economic effects of the Project on the labour market and a sustainable economy. It will consider regional economic development and local government finances.</p> <p>The potential Project effects to infrastructure will be considered in the Infrastructure and Community Services VC section of the Application for an EAC.</p> <p>The potential effects of the Project to health will be assessed through a Human Health Risk Assessment and assessment of community health and well-being in the Public Health VC, and measures to avoid and mitigate potential effects.</p> <p>If residual effects of changes to the physical environment (e.g., air quality, water quality, noise) are anticipated to be sufficient to affect valued components (e.g., visual quality, public health), these residual effects will be carried forward into those assessments.</p>	
XV	<ul style="list-style-type: none"> <li>I request a study on the impacts of "capping" Woodfibre LNG's municipal taxes at \$2 million, with an annual increase of 2.5% to a maximum of \$3 million as proposed by Woodfibre LNG in a letter to the District of Squamish dated July 14, 2014. This effectively limits the potential municipal tax benefits to the District of Squamish, and transfers the tax burden to other DoS taxpayers and property owners.</li> </ul>	Municipal Taxes	<p>Woodfibre LNG Limited is proposing to pay \$2 million a year in property tax to the District of Squamish when the facility begins operations, and increase that amount 2.5% a year, up to \$3 million a year, in property tax. More work needs to be done on property tax, but we felt it was important to make a proposal given the level of community interest in potential property tax revenue from Woodfibre LNG Limited.</p>	
XVI	<ul style="list-style-type: none"> <li>How will Real Estate values in the many communities of Howe Sound (Britannia Beach, Furry Creek, Squamish Oceanfront Development and the Future Porteau land development) be affected long term, due to the re-introduction of polluting heavy industry?</li> <li>How will real estate values along LNG tankers routes be affected by real and perceived threats this hazardous cargo poses to health and safety?</li> <li>Will the visual impacts, light pollution, and noise pollution from Woodfibre LNG impede the development of the SODC land?</li> <li>I request studies on the immediate impact of the LNG facility on real estate values and projected over the next 25 years.</li> <li>Study of the likely impact of the Woodfibre plant and LNG tanker traffic on residential, recreational, and commercial real estate values (e.g. CRED report <a href="http://credbc.ca/cred-releases-new-report/">http://credbc.ca/cred-releases-new-report/</a>). The study should include the impact on the municipal tax base and property taxation rates for each of the affected municipalities.</li> </ul>	Effects of the Project on Real Estate	<p>Woodfibre LNG Limited respectfully disagrees that the proposed Project will be a heavy polluter.</p> <p>The effect of the Project to visual quality, light and atmospheric sound will be included in the Application for an Environmental Assessment Certificate. If residual effects of changes to the physical environment (e.g., air quality, water quality, noise) are anticipated to be sufficient to affect valued components (e.g., sustainable economy), these residual effects will be carried forward into those assessments.</p> <p>The Project site is accessible by water only, and there are no permanent residences or private property adjacent to or within several kilometres of the Project site. Real Estate Value was not selected as a valued component as the Project site is zoned for industrial use and a change of land use designation and zoning is not required. Supply and demand of housing in communities (including cost) is included under the Infrastructure and Community Services VC and potential effects due to changes in visual resources are addressed with the Visual Quality VC.</p>	

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XVII	<p>Since the pulp mill shut down, Squamish's population has increased from ~15 thousand to ~19 thousand residents. Our demographic has changed dramatically, with a large number of young, educated, and sustainably-minded people moving here to enjoy the lifestyle and start families. How will the LNG plant affect this demographic?</p> <p>Will it change the perception people have of Squamish? Will it impact the desirability of Squamish as a place to live? Will increased emissions and associated health impacts mean that people move away? How will that impact the value of real estate? What about our ability to attract new businesses and tech start-ups? Are we limiting ourselves to heavy industry development and scaring away more sustainable businesses?</p>	Effects of the Project on Social Demographics	<p>The Application for an Environmental Assessment Certificate will include an assessment of the potential effects of the Project on social demographics, including on the Infrastructure and Community Services VC, Marine Transport VC, Land and Resource Use VC and the Visual Quality VC.</p> <p>The Application will include an assessment of the potential economic effects of the Project, including on the Labour Market (VC) and Sustainable Economy VC.</p>	
XVIII	<p>Squamish has been attracting outdoor recreation enthusiasts for decades, however our ability to capture tourist dollars is still evolving. The Sea to Sky Gondola is our first significant investment in tourism infrastructure, which will in turn generate additional tourist dollars within the community as Squamish becomes a destination.</p> <p>How will the proposed LNG facility impact the Sea to Sky Gondola? Will tourists want to pay for tickets to look out at a highly industrialized view? What are the potential revenue losses for emerging tourism like the Sea to Sky Gondola? Water vapour emissions from Woodfibre LNG may create cloud layers in the sound, so how will that affect viewscapes? What about noise pollution? Will the view of the LNG plant from the highway discourage potential tourists from stopping in Squamish?</p> <ul style="list-style-type: none"> <li>I request studies to estimate the economic impacts on current and projected tourism industry in Vancouver, Squamish, Whistler, Howe Sound, and the Sunshine Coast.</li> </ul>	Effects of the Project on Tourism	<p>The Project's potential effects to tourism and the mitigation measures that will be implemented to avoid or minimize these effects will be discussed in the Sustainable Economy VC section of the Application for an Environmental Assessment Certificate (EAC).</p> <p>The Application for an EAC will address the Project's potential effects to visual quality in the Visual Quality VC section. The Sea to Sky Gondola is included as one of the viewpoints in the visual quality assessment; however, the Application for an EAC will not speculate regarding how the Project may affect specific businesses (either positively or negatively).</p> <p>The local assessment area for the Sustainable Economy VC includes the District of Squamish, the Regional Municipality of Whistler, Electoral Area D of the Squamish Lillooet Regional District, Squamish Nation communities and Metro Vancouver.</p>	
XIX	<p>Woodfibre LNG is estimating 500 construction jobs for 2 years. These will be a mix of highly skilled and specialized jobs that the proponent admits will most likely be filled by workers from outside the community, depending on the expertise available in Squamish. Where will these temporary construction workers be housed? Squamish currently has a near-zero vacancy rate for rental properties.</p> <ul style="list-style-type: none"> <li>I request studies to determine impacts on the cost of housing and rental accommodation, and how this will impact low-income families living in Squamish.</li> <li>Will there be displacement of local residents from rental housing?</li> <li>I request a study of short and long-term housing availability for both the Woodfibre LNG and Fortis Eagle Mountain pipeline project labour. The study needs to detail remediation and mitigation measures.</li> </ul>	Effects of the Project on Housing and Rental Accommodation	<p>Woodfibre LNG Limited will use local contractors during construction of the facility. By local we mean Whistler and Squamish, through to Metro Vancouver. As it is the nature of the construction business, local contractors have an ongoing workload, and secure new contracts as they are put on the market. There will be no housing accommodations at the Woodfibre site. Workers will be transported to the Woodfibre site from Squamish by private ferry.</p> <p>The Application for an Environmental Assessment Certificate will include an assessment of the demand for housing due to Project-related workforce requirements as part of the Community Infrastructure and Services VC. The assessment will include the construction phase.</p> <p>Information on the pipeline can be found on the EAO website under the Eagle Mountain- Woodfibre Gas Pipeline Project.</p>	<p>Please see the EAO website for more information on the proposed Eagle Mountain – Woodfibre Gas Pipeline Project at:  <a href="http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_406.html">http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_406.html</a></p>
XX	<p>An influx of young, male, temporary workers is typically associated with an increase in crime, drug use and misabuse, and demand for sex workers.</p> <ul style="list-style-type: none"> <li>I request studies to determine the social impacts of increased crime, drug use and misabuse, and demand for prostitutes, and how this will affect safety of Squamish residents.</li> <li>I request studies to determine the social impacts of increased crime, drug use and misabuse, and demand for sex workers, and how this will affect the social fabric of the community. How will this impact the desirability of Squamish as a destination for tourists and outdoor recreation enthusiasts?</li> </ul>	Effects of the Project on Social Values	<p>Woodfibre LNG Limited will use local contractors during construction of the facility. By local we mean Whistler and Squamish, through to Metro Vancouver. As it is the nature of the construction business, local contractors have an ongoing workload, and secure new contracts as they are put on the market. There will be no housing accommodations at the Woodfibre site. Workers will be transported to the Woodfibre site from Squamish by private ferry.</p> <p>The Public Health VC section of the Application for an Environmental Assessment Certificate includes a community health and well-being sub-component. This assessment will include effects to social determinants of health, including potential effects on in-migration, income levels, local medical and social services and access to affordable housing.</p>	

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XXI	<ul style="list-style-type: none"> <li>Determine if insurance coverage carried by Woodfibre LNG and the LNG tankers owners is sufficient to compensate for economic and social impacts of a major spill or catastrophic event.</li> </ul>	Insurance	Woodfibre LNG Limited and its contractors will comply with all regulatory requirements. The <i>Canada Shipping Act 2001</i> regulates pollution prevention and marine spill response. The International Maritime Organization (IMO) sets standards and operating procedures as well as audits performance in meeting obligations and responsibilities as flag, port and coastal States under the relevant IMO treaties. Both Woodfibre LNG Limited and the LNG carriers will carry insurance, including coverage for any potential spills or discharge of pollutants, both marine and on-land.	
XXII	<p>The current rate of unemployment in Squamish is approximately 7% (<a href="https://slrd.civicweb.net/Documents/DocumentDisplay.aspx?Id=37261">https://slrd.civicweb.net/Documents/DocumentDisplay.aspx?Id=37261</a>), however the capacity of these unemployed residents to fulfill local job opportunities at Woodfibre LNG is unknown, and it is unlikely that current unemployed residents will have the technical skills and experience required for employment at Woodfibre LNG.</p> <ul style="list-style-type: none"> <li>I request studies to determine the capacity of local Squamish residents to fulfill local job opportunities at Woodfibre LNG, during both the construction and operation of the LNG facility.</li> <li>I request studies to determine the capacity of regional (Vancouver-Whistler) residents to fulfill local job opportunities at Woodfibre LNG, during both the construction and operation of the LNG facility.</li> <li>I request Woodfibre LNG to be more specific in the kinds of construction and operations jobs available and the numbers of these jobs, which they have been reluctant to do, stating that they didn't have specific details on how many jobs will be required. This is at odds with the projections and announcements they have made of 500 jobs during construction and 100 jobs during operations. How can they project these numbers if they don't know the specifics of what jobs are required and how many?</li> </ul>	Workforce	<p>Woodfibre LNG Limited now expects to employ approximately 500 people per year during construction, and at least 100 full time staff in three to four shifts at the facility during operations.</p> <p>Woodfibre LNG Limited will use local contractors during construction of the facility. By local we mean Whistler and Squamish, through to Metro Vancouver. As it is the nature of the construction business, local contractors have an ongoing workload, and secure new contracts as they are put on the market.</p> <p>Operations jobs may include:</p> <ul style="list-style-type: none"> <li>Document Management</li> <li>Electrician</li> <li>Environmental Engineer</li> <li>Fire Team</li> <li>Laboratory Technician</li> <li>Logistics Manager</li> <li>Marine Engineer</li> <li>Marine Officer</li> <li>Marine Supervisor</li> <li>Mechanic</li> <li>Project Engineer</li> <li>Safety Officer</li> <li>Security Supervisor</li> <li>Site Administrator</li> <li>Training Administrator</li> <li>Transport Coordinator</li> <li>Transport Supervisor</li> <li>Warehouse Helper</li> <li>Warehouse Supervisor</li> </ul> <p>There will also be additional management, office support and engineering positions in Squamish and Vancouver.</p> <p>Woodfibre LNG Limited is committed to ensuring Squamish residents are aware of potential job opportunities, as it is our intention to fill positions locally where possible. Woodfibre LNG Limited will be conducting Business Information Sessions, and will be advertising career opportunities locally as the project moves forward.</p>	
XXIII	<p>Large industrial customers, such as Woodfibre LNG, receive a lower rate for electricity than do residential and commercial customers. As that rate is lower than BC Hydro's current cost to produce that energy, rates for residential customers may have to rise to cover the shortfall.</p> <ul style="list-style-type: none"> <li>I request a study to estimate the economic effects on the current and projected residential and light commercial electricity rates for BC Hydro's customers in the event that (i) the Woodfibre LNG project proceeds, and is powered by electricity and (ii) the Province's proposed 82 MTPA of LNG proposals proceed and are powered by renewables</li> </ul>	Electrical Subsidies	<ol style="list-style-type: none"> <li>Woodfibre LNG will bear the cost of tying into the BC Hydro transmission system. The electricity rates paid by Woodfibre LNG Limited will be as set by BC Hydro. BC Hydro has told Woodfibre LNG Limited that their existing generation capacity is sufficient to meet Woodfibre LNG's needs.</li> <li>The energy requirements of other proposed projects are outside the scope of the environmental assessment for the Woodfibre LNG Project.</li> </ol>	

Comment #	Comment	Issue/Theme	Proponent's Response	EAO's Response
XXIV	<ul style="list-style-type: none"> <li>I request a multi-season study of the current ferry traffic in Howe Sound, looking at the impact on ferry scheduling, and the potential economic impacts of conflict with LNG tanker traffic.</li> </ul>	Marine Transport	<p>The Project's potential effects to marine traffic and the mitigation measures that will be implemented to avoid or minimize these effects will be discussed in the Marine Transport VC section of the Application for an Environmental Assessment Certificate.</p> <p>Woodfibre LNG Limited has met with BC Ferries and looks forward to continuing discussions.</p>	
	<b>Climate Change</b>			
XXV	<ul style="list-style-type: none"> <li>I request the proponent to complete a full evaluation of greenhouse gas emissions, including emissions of leaking methane from fracking wells and pipelines, the energy required to liquefy the gas, carbon emissions involved to ship the LNG halfway around the world, plus the energy required to regasify it at the other end, and finally from burning the natural gas itself. Is the amount of greenhouse gas emissions higher than the total emissions from burning coal? If yes, this project doesn't make sense.</li> </ul>	GHG Emissions	<p>The scope of the assessment is set by the section 11 order, which was issued by the Environmental Assessment Office (EAO) on March 21, 2014. The Project is not an oil and gas extraction project and therefore does not include the emissions associated with natural gas extraction.</p> <p>Information on the FortisBC pipeline can be found on the EAO website under the Eagle Mountain- Woodfibre Gas Pipeline Project. Shipping of LNG is considered within Howe Sound</p> <p>The Application for an Environmental Assessment Certificate will discuss the Project's potential effects to greenhouse gas (GHG) management and mitigation measures that will be implemented to reduce these effects within the scope of the assessment set by the EAO. The annual GHG emissions from the Project will be estimated for the Project operation phase, and will be compared to the provincial and national emissions to assess the relative contribution of the Project on a Canadian basis.</p>	For more information related to comments on the Environmental Assessment process please see "EAO Response to Public Comments - Pre-Application Public Comment Period for Woodfibre LNG, June 11 - July 27, 2014", under the Pre-Application EAO Generated Documents <a href="#">Link</a> .
XXVI	<ul style="list-style-type: none"> <li>I request studies to determine impacts of climate change on the health of Squamish residents.</li> </ul>	Climate Change	<p>The Application for an Environmental Assessment Certificate will discuss the Project's potential effects to greenhouse gas (GHG) management and mitigation measures that will be implemented to reduce these effects within the scope of the assessment set by the EAO (Greenhouse Gas Management VC). The annual GHG emissions from the Project will be estimated for the Project operation phase, and will be compared to the provincial and national emissions to assess the relative contribution of the Project on a Canadian basis.</p>	
XXVII	<p>The Woodfibre LNG project will significantly increase our community's greenhouse gas emissions, contributing to climate change, yet Woodfibre LNG will not bear the costs of damage in our community from extreme weather events, or the cost to raise dikes in Squamish as sea levels continue to rise.</p> <ul style="list-style-type: none"> <li>I request the proponent state how they will help mitigate these social and economic costs so the burden is not left to the future generations of Squamish citizens.</li> </ul>	Mitigation of Climate Change Effects	<p>Woodfibre LNG Limited's decision to use electric power for the Project is anticipated to result in an 80% decrease in greenhouse gas emissions and 90% reduction in other air pollutants (such as nitrogen oxides – smog) compared to gas turbines. With this design decision, the Project is anticipated to produce 80,000 tonnes of carbon dioxide annually.</p> <p>As noted under Response XXV, the Application for an Environmental Assessment Certificate will discuss the Project's potential effects to greenhouse gas management.</p> <p>Woodfibre LNG Limited will report emissions in accordance with the Reporting Regulation under the <i>Greenhouse Gas Reduction (Cap and Trade) Act</i>.</p>	



Comment #	Comment	Issue/Theme	Proponent's Response	EAO's Response
	<b>Heritage</b>			
XXVIII	<p>As a citizen of Howe Sound, I value access to the ocean for recreation. I regularly sea kayak/paddleboard/sail, and I am concerned that the exclusion zones around the proposed LNG facility and the LNG tankers will impact recreational access within the Howe Sound.</p> <ul style="list-style-type: none"> <li>I request studies to determine impact of exclusion zones on ocean-based recreation such as sailing, kiteboarding, windsurfing, sea kayaking, and paddleboarding.</li> <li>I request studies to determine impact of noise pollution, light pollution, and air pollution, as well as impacts to visual aesthetics on the user experience while participating in ocean-based recreation such as sailing, kiteboarding, windsurfing, sea kayaking, and paddleboarding. How will this financially impact existing outdoor recreation businesses in Howe Sound?</li> <li>I request studies to determine the impact of large wakes from LNG tankers and tugs transiting the Howe Sound on outdoor recreation opportunities.</li> <li>I request multi-season studies of the current recreational boating use of the Sound, and the impact, including economic impacts, of LNG traffic (in and out) on recreational boating</li> </ul>	Effect of the Project on Recreation	<p>There will be a control zone around the immediate vicinity of the LNG facility and the floating storage and offloading unit (FSO). The preliminary control zone was used to delineate the Project area shown in the Valued Component Selection document and the draft Application Information Requirements. The extents of the control zone will be finalized during the Oil and Gas Commission permitting process based on detailed safety studies. It is currently anticipated that activities will be restricted within 300 m of the LNG facility and FSO.</p> <p>There is currently no regulation which stipulates an exclusion zone; however, Woodfibre LNG Limited is voluntarily undergoing the Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL) process with Transport Canada. TERMPOL is a thorough assessment of safety and risk management in the joint use of the waterway.</p> <p>The potential effects of the Project to atmospheric sound, light, the atmospheric environment (air quality), and visual resources will all be considered in the Application for an Environmental Assessment Certificate (EAC). The Application will also consider the mitigation measures that will be implemented to avoid or minimize these effects.</p> <p>LNG carriers will be maneuvering at approximately 8 to 10 knots in Howe Sound. A vessel wake assessment will be completed by Moffatt &amp; Nichol Engineers Corporation, and the results of this study will be considered under the Marine Transport VC and Geotechnical and Natural Hazards IC sections of the Application.</p> <p>The Application for an EAC will include an assessment of the potential effects of the Project on recreation in the Land and Resource Use VC section. This section will include recreational boating in the assessment.</p>	
XXIX	<p>There is anecdotal evidence that cutthroat trout, coho salmon, and numerous other salmon species and herring used to spawn at Woodfibre beach and Mill Creek.</p> <ul style="list-style-type: none"> <li>I request studies to determine the cost and feasibility to restore these river deltas into functioning fish habitat.</li> </ul>	Fish Habitat	<p>Both anadromous and resident salmonid species are present in Woodfibre and Mill Creek watersheds.</p> <p>As part of the sales agreement to purchase the land from Western Forest Products, 7.5 million dollars of remediation work is underway to clean up the site to industrial standards and evidenced with a Certificate of Compliance from the Ministry of Environment. Discussions are already underway with the Streamkeepers about what else may be done to help the foreshore of the site recover.</p>	
XXX	<ul style="list-style-type: none"> <li>I request that the proponent specifies total emissions of greenhouse gases (e.g., methane, SO<sub>x</sub>, NO<sub>x</sub>, CO<sub>2</sub>) and particulates resulting from construction and operation of the LNG export facility, as well as emissions from LNG tankers and accompanying tugboats as they transit Howe Sound.</li> <li>I request studies to quantify the health implications, and burden on our healthcare system as a result of reduced air quality in Squamish and the Howe Sound airshed due to emissions of NO<sub>x</sub> and SO<sub>x</sub> and other pollutants from Woodfibre LNG, and the cumulative impacts of these emissions in addition to existing and future air pollution in Howe Sound. How will reduced air quality affect human health and well-being? The study area should encompass the entire Howe Sound airshed.</li> <li>I request studies to establish baseline air quality over the different seasons and different years (as there is inter-annual and inter-seasonal variation) to better understand the impact of adding 80,000 tonnes of extra CO<sub>2</sub> + 20 tonnes of Nitrogen Oxides (NO<sub>x</sub>) + 17 tonnes of Sulphur Oxides (SO<sub>x</sub>) and how that will impact the health and well being of humans and wildlife.</li> <li>I request studies estimating increases in respiratory and allergenic ailments in nearby (Howe Sound) populations directly or indirectly attributable to airborne emissions from the Woodfibre LNG plant and storage tankers and from related marine traffic. Include cumulative effects.</li> </ul>	GHG Emissions Effects of the Project on Air Quality and Health	<p>The Application for an Environmental Assessment Certificate (EAC) will discuss the Project's potential effects to greenhouse gas management (GHG) and mitigation measures that will be implemented to reduce these effects within the scope of the assessment set by the EAO (Greenhouse Gas Management VC). The annual GHG emissions from the Project will be estimated for the Project operation phase, and will be compared to the provincial and national emissions to assess the relative contribution of the Project on a Canadian basis.</p> <p>The Application for an EAC will include an assessment of the effects of the Project on air quality in the Atmospheric Environment (Air Quality) VC section. It will also include the mitigation measures that will be implemented to avoid or minimize effects to air quality.</p> <p>The Public Health VC section of the Application for an EAC will discuss the potential health effects from the Project, which will potentially include changes to air quality, sound, and infrastructure and community services.</p>	

Comment #	Comment	Issue/Theme	Proponent's Response	EAO's Response
XXXI	<p>Woodfibre LNG is estimating 500 construction jobs for 2 years. These will be a mix of highly skilled and specialized jobs that the proponent admits will most likely be filled by workers from outside the community, depending on the expertise available in Squamish.</p> <p>Studies during construction of similar industrial projects show that:</p> <ul style="list-style-type: none"> <li>the number of workplace accidents increase.</li> <li>crime and substance abuse and misuse increase which leads to an increase in traffic accidents and collisions, as well as increased domestic violence.</li> <li>the additional demands on hospitals, counselling, police, and ambulance services results in reduced service capacity for residents.</li> </ul> <p>I request studies to quantify the impacts of temporary construction workers on emergency and health services, and how that will impact service capacity for residents in Squamish and Howe Sound.</p> <ul style="list-style-type: none"> <li>What are the social and health impacts of increased crime and substance abuse and misuse within our community?</li> <li>What are the social and health impacts of increased domestic violence within our community?</li> <li>What are the social and health impacts of increased demand for sex trade workers within our community?</li> <li>What are the cumulative social and health impacts of temporary construction workers from Woodfibre LNG, Fortis' Eagle Mountain pipeline, and all other industrial activities currently proposed in Howe Sound? Include projections of likely future industrial projects.</li> </ul>	Workforce	<p>Woodfibre LNG Limited will use local contractors during construction of the facility. By local we mean Whistler and Squamish, through to Metro Vancouver. As is the nature of the construction business, local contractors have an ongoing workload, and secure new contracts as they are put on the market. There will be no housing accommodations at the Woodfibre site. Workers will be transported to the Woodfibre site from Squamish by private ferry.</p> <p>The Application for an Environmental Assessment Certificate will include an assessment of the potential effects of the Project on the Social and Public Health Pillars. The following VCs will be included in the assessment:</p> <ul style="list-style-type: none"> <li>Infrastructure and Community Services VC – includes three subcomponents: Housing and Accommodation; Community Infrastructure and Services; and Emergency Services.</li> <li>Public Health VC – includes two subcomponents: Human Health Risk; and Community Health and Well-Being.</li> </ul> <p>The assessment will include the potential effects of the Project on important determinants and parameters of community health and well-being, including income, alcohol and drug abuse, crime, community connectedness, and stress.</p> <p>The Application for an EAC will include a cumulative effects assessment for each of the valued components, as well as related effects of other activities and past, present, and reasonably foreseeable projects. Future projects and activities considered in the cumulative effects assessment will be those that are reasonably foreseeable, including those that:</p> <ul style="list-style-type: none"> <li>Have been publicly announced with a defined Project schedule and with sufficient detail that they can be included in the assessment</li> <li>Are currently undergoing an environmental assessment</li> <li>Are in a permitting process</li> </ul> <p>The Eagle Mountain-Woodfibre Gas Pipeline Project will be a Project that is included in the cumulative effects assessment.</p>	
<b>Safety</b>				
XXXII	<p>Canada has no regulatory framework to define where LNG plants can be safely located. How do we know if Woodfibre is an appropriate site when we have no standards?</p> <ul style="list-style-type: none"> <li>I request Woodfibre LNG to comply with accepted international standards for the siting of LNG plants. <a href="http://www.lngtss.org/standards.html">http://www.lngtss.org/standards.html</a></li> </ul>	LNG Facility Location	<p>Siting of LNG facilities in Canada must be conducted in accordance with CSA Z276 unless siting is completed using a Quantitative Risk Assessment under Subsection 4(4) of the Liquefied Natural Gas Facility Regulation.</p> <p>Woodfibre LNG Limited will also follow the Society of International Gas Tanker and Terminal Operators (SIGTTO) guidance.</p> <p>BC Coast Pilots tell Woodfibre LNG Limited that because Howe Sound is generally a mile or more wide with a minimal channel width of 0.8 nautical miles and few outlined navigational hazards, they would not characterize Howe Sound as a narrow waterway (BC Coast Pilots, pers. comm).</p>	
XXXIII	<p>Fjords are frequently subject to landslides and debris flows, and the Woodfibre site has a history of slope failure. In 1955 a wharf and three warehouses collapsed into Howe Sound, causing \$500,000 – \$750,000 in damages (Bornhold, B.D., 1983, Fjords, GEOS, no. 1, p 1-4). The Woodfibre site is not a safe location for a hazardous LNG facility.</p> <ul style="list-style-type: none"> <li>What kind of seismic studies have been undertaken and why would a hazardous facility be considered in such an unstable area close to residents?</li> <li>I request a study of the geomorphology of the area, including the major hazards and their consequences for the safety of the plant and storage / in-transit tankers.</li> <li>Include studies on the length of time the plant and LNG storage tankers could sustain safety and integrity in the event of a power failure. Confining seismic events to those occurring in the immediate area of the plant is an unrealistic assumption</li> </ul>	Seismic Activity	<p>With respect, Woodfibre LNG Limited believes this location is an appropriate location for the Project and that sufficient studies were done prior to the location selection. Woodfibre LNG is assembling a team of local and international professional engineers with proven experience in LNG. Project decisions will be made based on what is reliable and safe.</p> <p>The Application for an Environmental Assessment Certificate will present the results of terrain mapping and terrain hazard assessments in the Geotechnical and Natural Hazards IC section to identify areas susceptible to natural hazards and geomorphic processes (i.e., landslides, snow avalanches, and debris flows).</p> <p>The Application will assess the effects of the environment on the Project and resultant potential accidents and malfunctions that could result from potential environmental events such seismic events.</p>	

Comment #	Comment	Issue/Theme	Proponent's Response	EAO's Response
XXXIV	<p>Marine Traffic Safety is an important issue due to the amount of commercial and recreational traffic in Howe Sound. Squamish is known for its high winds, big tides, and fast currents. What is the marine safety plan for the 1000' LNG tankers carrying Class A Hazardous material?</p> <ul style="list-style-type: none"> <li>I request studies to determine exactly what kind of emergencies could occur and what type of emergency response would be required. Worse case scenario should be projected with the burden of any costs paid for by the proponent.</li> </ul>	Marine Transport Emergency Response	The Application for an Environmental Assessment Certificate will address the potential effects associated with accidents and malfunctions during construction and operation of the Project.	
XXXV	<p>Squamish has a volunteer fire department. What kind of resources will be required of the proponent to ensure they have the necessary experienced emergency personnel, considering the proposed plant is backed by green space on 3 sides?</p> <ul style="list-style-type: none"> <li>I request the proponent provide a detailed plan that is approved by the different emergency services within Squamish (fire, police, ambulance, hospital) and reviewed and approved by an independent consultant specializing in disaster management.</li> <li>I request the proponent to specify how the volunteer fire department will be compensated for loss of capacity if existing volunteers become part of Woodfibre LNG's emergency response team?</li> </ul>	Squamish Fire Department	<p>Woodfibre LNG Limited has met with the Squamish Fire Rescue to discuss their concerns, and will continue ongoing dialogue as required.</p> <p>The Project will be self-sufficient in terms of emergency response during operations. All fire, safety, emergency response, and protection systems will be designed to meet or exceed Canadian standards. All risks to the Project will be assessed in accordance with Oil and Gas Commission regulations.</p> <p>Prior to operation of the Project, the Liquefied Natural Gas Facility Regulation requires that WLNG prepare a Safety Loss and Management Program that complies with CSA Z276. This program includes a detailed Emergency Response Plan that includes documented emergency response plans, required equipment, training requirements, identification of trained personnel and plans for emergency drills and exercises.</p>	
XXXVI	<p>Loss of safety in Howe Sound due to accidental or deliberate rupture of in-transit LNG carrier and/or storage tankers, and a resulting plume-fire extending outward from the tanker.</p> <ul style="list-style-type: none"> <li>I request a plume-fire analysis (a la the Sandia and ioMosaic studies in the U.S.), detailing the effects on humans, recreational boaters, ferry traffic, wildlife, and property nearby. Include SIGTTO best practices and ISO standards. The study geography would include all of Howe Sound, especially the population centres of West Vancouver, Lions Bay, Bowen Island, and (for the alternate route) the town of Gibsons. The study should detail how, and at what cost, these municipalities can prepare their emergency services to cope with such an event. The study should also detail the local and regional response preparations and arrangements for such an event, and the response coordination required between various agencies (Woodfibre LNG, local municipalities, Coast Guard etc.) The study should also take into account the frequent windy days in Howe Sound, looking at both low-wind and high-wind scenarios. Average summer afternoon wind speed is often above 25 knots, and at times can gust over 40 knots. How would a combined high-wind, high wave-action day expand the boundaries of a plume fire? How would low-wind and low wave-action expand the boundaries of a plume fire? Studies should identify impacts during both inflow and outflow winds.</li> </ul>	Accidents and Malfunctions	<p>LNG carriers will abide by the International Maritime Organization (IMO) which is the specialized agency responsible for safety and security of shipping (SOLAS) and prevention of marine pollution (MARPOL), as well as the International Gas Code (IGC) for Ships Carrying Liquefied Gases in Bulk, Classification Society rules (Lloyd's Register), and Society of International Gas Tanker and Terminal Operators (SIGTTO).</p> <p>Woodfibre LNG Limited will complete a voluntary Transport Canada Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL) for the Project. The review includes a comprehensive risk assessment to ensure safety of vessel transits from terminal to open ocean; the development of recommendations to improve safety and minimize risk; and, the development of detailed safety procedures and emergency response plans.</p> <p>In addition, a quantitative risk analysis is being undertaken. The results of this analysis will be included in the accidents and malfunctions section of the Application for an Environmental Assessment Certificate.</p>	

Comment #	Comment	Issue/Theme	Proponent's Response	EAO's Response
XXXVII	<p>Loss of safety in Howe Sound due to accidental or deliberate rupture of at-berth LNG carrier and/or storage tankers, and a resulting plume-fire extending outward from the plant.</p> <ul style="list-style-type: none"> <li>I request a plume-fire analysis (a la the Sandia and ioMosaic studies in the U.S.), with effects on humans, wildlife, and property nearby. Include SIGTTO best practices and ISO standards, and the effects on plant workers, recreational boaters, ferry traffic, and local woodlands. The study should detail how, and at what cost, the town of Squamish can prepare its emergency services to cope with such an event. The study should detail the at-plant, local and regional response preparations and arrangements for such an event, and the response coordination required between various agencies (Woodfibre LNG, local municipalities, Coast Guard etc.) The study should also take into account the frequent windy days in Howe Sound, looking at both low-wind and high-wind scenarios. Average summer afternoon wind speed is often above 25 knots, and at times can gust over 40 knots. How would a combined high-wind, high wave-action day expand the boundaries of a plume fire? How would low-wind and low wave-action expand the boundaries of a plume fire? Studies should identify impacts during both inflow and outflow winds.</li> </ul>	Accidents and Malfunctions	<p>LNG carriers will abide by the International Maritime Organization (IMO) which is the specialized agency responsible for safety and security of shipping (SOLAS) and prevention of marine pollution (MARPOL), as well as the International Gas Code (IGC) for Ships Carrying Liquefied Gases in Bulk, Classification Society rules (Lloyd's Register), and Society of International Gas Tanker and Terminal Operators (SIGTTO).</p> <p>Woodfibre LNG Limited will complete a voluntary Transport Canada Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL) for the Project. The review includes a comprehensive risk assessment to ensure safety of vessel transits from terminal to open ocean; the development of recommendations to improve safety and minimize risk; and, the development of detailed safety procedures and emergency response plans.</p> <p>In addition, a quantitative risk analysis is being undertaken. The results of this analysis will be included in the accidents and malfunctions section of the Application.</p>	
XXXVIII	<p>Ship-to-ship transfers of LNG are especially dangerous in high winds due to inflexibility of piping at -162 degrees Celsius. SIGTTO and most ports prohibit these transfers in wind speeds/gusts over 25 knots, which is the average afternoon summer wind speed in Squamish. Given that the proponent plans to increase the amount of tanker traffic and export of LNG in the summer months, and that it will take 16-24 hours to fill an LNG tanker, how will the proponent manage LNG transfer during high wind speeds, which happen pretty much every sunny day when the temperature is cooler in Vancouver and hotter in Lillooet?</p>	Accidents and Malfunctions	<p>Woodfibre LNG Limited will follow the Society of International Gas Tanker and Terminal Operators (SIGTTO) guidance.</p> <p>There will be between 3 and 4 carriers per month. At this time, Woodfibre LNG anticipates three carriers per month with a fourth carrier possible during summer months.</p> <p>A quantitative risk analysis is being undertaken. The results of this analysis will be included in the accidents and malfunctions section of the Application. Woodfibre LNG Limited confirms that wind speed is one of the factors included in the modelling.</p>	
XXXIX	<p>Squamish Fire Department is neither equipped nor trained to cope with a major fire event at or near the plant. Neither is any other municipality in Howe Sound.</p> <ul style="list-style-type: none"> <li>I request a comprehensive study of the proponent's disaster prevention and response capabilities. Note: SIGTTO and ISO standards require on-facility fire suppression technologies, onsite tugs (to haul tankers away from danger), and regular fire/safety drills.</li> </ul>	Local Fire / Disaster Response	<p>Prior to operation of the Project, the <i>Liquefied Natural Gas Facility Regulation</i> requires that WLNG prepare a Safety Loss and Management Program that complies with CSA Z276. This program includes a detailed Emergency Response Plan that includes documented emergency response plans, required equipment, training requirements, identification of trained personnel and plans for emergency drills and exercises. The Project will be self-sufficient in terms of emergency response during operations.</p>	
XL	<p>What is the worst-case scenario? A rupturing LNG tanker? Explosions? Diesel or LNG spills from the LNG tanker? Who is responsible if there is a spill or leak of any kind? What is the emergency response? Squamish Fire Department has questioned how they could possibly fight an LNG fire in an across-the-water plant housing 100,000 tonnes of flammable methane? Will the ships be escorted by the Coast Guard or military escorts, similar to LNG ships in the USA that view them as a terrorist threat? Who is responsible for ensuring compliance and monitoring?</p>	Accidents and Malfunctions Worst Case Scenario	<p>A quantitative risk analysis is being undertaken. The results of this analysis will be included in the accidents and malfunctions section of the Application for an Environmental Assessment Certificate.</p> <p>The Project will be self-sufficient in terms of emergency response during operations. All fire, safety, emergency response, and protection systems will be designed to meet or exceed Canadian standards. All risks to the Project will be assessed in accordance with Oil and Gas Commission regulations.</p> <p>Prior to operation of the Project, the <i>Liquefied Natural Gas Facility Regulation</i> requires that WLNG prepare a Safety Loss and Management Program that complies with CSA Z276. This program includes a detailed Emergency Response Plan that includes documented emergency response plans, required equipment, training requirements, identification of trained personnel and plans for emergency drills and exercises.</p>	