

Northern Gateway Pipelines Limited Partnership ("Northern Gateway")  
 Section 52 of the *National Energy Board Act*  
 Application for Enbridge Northern Gateway Project  
 NEB File No.: OF-Fac-Oil-N304-2010-01 01

Northern Gateway Information Request No. 1  
 To: Haisla Nation

<b>Position Regarding Project</b>		
<b>1.1</b>	<b>Reference:</b>	(i) Written Evidence of the Haisla Nation, filed December 20, 21, 23, January 4, 12 and March 16.  (ii) Oral Evidence of the Haisla Nation, Transcript, Volume 8, January 10, 2012 (A2K8X2).
	<b>Preamble:</b>	Northern Gateway would like to confirm the Haisla Nation's position in respect of the Northern Gateway Project ("Project").
	<b>Request:</b>	(a) Please confirm that the Haisla Nation opposes the approval of Northern Gateway's Application for the Project.  (b) If the Haisla Nation opposes the approval of the Application, please advise as to whether there are conditions of approval that would nonetheless address, in whole or in part, the Nation's concerns.  (c) If so, please elaborate on the nature of any conditions that the Haisla Nation would suggest be imposed on the Project, should it be approved.  (d) Please summarize the effects that the Haisla Nation considers would be created by the Project, should it be approved and constructed. Include both positive and negative effects.  (e) Please describe the mitigation measures proposed by the Haisla Nation (if any) to reduce potentially adverse Project effects on the Haisla Nation's rights and interests.

<b>Position Regarding Programs Proposed by Northern Gateway</b>		
1.2	<b>Reference:</b>	<p>(i) Application, Volume 6B, Section 13 (A1T0G5); Application, Volume 8B, Section 13.8.4.1 (A1T0I6 and A1T0I5); Northern Gateway's response to Coastal FN IR 1.35 (A2E4Q5); Northern Gateway's response to JRP IR 8.11 (A2I9I8).</p> <p>(ii) Application, Volume 8B, Section 13.8.4.2 (A1T0I6).</p> <p>(iii) Northern Gateway's response to Federal Government IR 1.79 (A2E8J0); Northern Gateway's response to Federal Government IR 2.66 (A2I9D0); Attachment 1 to Federal Government IR 2.66: Framework for the Marine Environmental Effects Monitoring Program (November 2011) (A2I9G6); Northern Gateway's response to Haisla Nation IR 1.59(e) and 1.70(a) (A2E8Y0).</p> <p>(iv) Northern Gateway Response to Coastal FN IR No. 1.23 (A2E4Q5).</p> <p>(v) Application, Volume 8C, Section 9.3.4 (A1T0J1).</p> <p>(vi) Northern Gateway Response to JRP IR 6.1(d) (A2E7Q4).</p> <p>(vii) Application, Volume 7C, Section 8.5.3 (A1T0H2)</p>
	<b>Preamble:</b>	<p>Reference (i) describes the Fisheries Liaison Committee ("FLC") proposed by Northern Gateway.</p> <p>Reference (ii) addresses food, social and ceremonial ("FSC") fishing and states that "Northern Gateway will explore opportunities with coastal Aboriginal communities potentially affected by project-related marine transportation to document existing use (i.e., important species, locations and seasons of harvesting)."</p> <p>Reference (iii) describes Northern Gateway's commitment to develop and implement a Marine Environmental Effects Monitoring Program ("EEMP") for the marine terminal and marine transportation and provides a draft Framework for the Marine EEMP.</p> <p>Reference (iv) states: "Northern Gateway recognizes the importance in augmenting sensitivity maps with site-specific and general traditional and ecological knowledge ("TEK"). Subject to Project approval and prior to the Project operations, information available to Northern Gateway relating to Traditional Land Use ("TLU"), native food fishery, resource harvesting activity and heritage sites would be included in sensitivity maps and be subject to ground-truthing where appropriate."</p> <p>Reference (v) describes mitigation measures to be used in the unlikely event of a hydrocarbon release and states: "For traditional marine uses in particular, Northern Gateway would work to ensure that the protection of culturally and environmentally sensitive sites was given high priority. Pre-identification of such sites through Geographic Response Plans prepared in conjunction with participating Aboriginal</p>

		<p>groups would be important for achieving that objective."</p> <p>Reference (vi) states: "Northern Gateway has discussed with Environment Canada the concept of third party scientific research being led through a new Marine Research Chair that would be established through an academic institution in British Columbia. The focus of the Marine Research Chair would be to establish baseline information and conduct research into the potential cumulative effects of the multiple projects that are being proposed in the Port of Kitimat."</p> <p>Reference (vii) states: "Northern Gateway has offered opportunities for coastal Aboriginal communities and organizations to become directly involved in the RO [Response Organizations] for the Project."</p>
	<p><b>Request:</b></p>	<p>(a) Is the Haisla Nation prepared to participate in the FLC, should the Project be approved?</p> <p>(b) Is the Haisla Nation prepared to participate in a program designed to collect and record FSC fishing and other harvesting data, as proposed by Northern Gateway, should the Project be approved?</p> <p>(c) Is the Haisla Nation prepared to participate in the design and implementation of a Marine EEMP, as proposed by Northern Gateway, should the Project be approved?</p> <p>(d) Is the Haisla Nation prepared to participate in the ground-truthing of coastal sensitivity atlases, as proposed by Northern Gateway, should the Project be approved?</p> <p>(e) Is the Haisla Nation prepared to participate in the preparation of Geographic Response Plans, as proposed by Northern Gateway, should the Project be approved?</p> <p>(f) Is the Haisla Nation prepared to participate in discussions regarding the creation of a Marine Research chair in environmental planning, as proposed by Northern Gateway, should the Project be approved?</p> <p>(g) Is the Haisla Nation prepared to participate in marine oil spill training exercises to be conducted prior to commencement of operations, as proposed by Northern Gateway, should the Project be approved?</p> <p>(h) Is the Haisla Nation prepared to engage in good faith discussions regarding procurement and employment opportunities associated with the Project (including marine services such as whale spotting vessels operation, tugboat operations etc.) should the Project be approved?</p> <p>(i) Is the Haisla Nation prepared to participate in the development of a framework for responding to social and cultural disruption, as part of marine emergency response planning?</p>

<b>Position Regarding Marine Shipping</b>		
<b>1.3</b>	<b>Reference:</b>	<ul style="list-style-type: none"> <li>(i) Volume 5A Update, Section 5, pages 5-312 - 5-313 (A1Z6R1).</li> <li>(ii) Transcript, Volume 8, January 10, 2012 at paragraphs 4178 - 4180 (Chief Henry Amos) (A38290).</li> </ul>
	<b>Preamble:</b>	The Haisla Nation has expressed concern about tanker traffic and potential effects on the environment.
	<b>Request:</b>	<ul style="list-style-type: none"> <li>(a) Is it the position of the Haisla Nation that it has the right to decide whether vessel traffic can take place within its Traditional Territory?</li> <li>(b) If so, please provide examples of how the Haisla Nation currently regulates, or purports to regulate, vessel movements within its Traditional Territory.</li> <li>(c) Please confirm that the Haisla Nation is aware of existing and proposed marine vessel activity within its Traditional Territory, including: <ul style="list-style-type: none"> <li>(i) fuel barges</li> <li>(ii) cargo/container ships</li> <li>(iii) commercial fishing vessels</li> <li>(iv) condensate tankers</li> <li>(v) liquefied natural gas tankers</li> </ul> </li> </ul>

<b>Capacity to Participate in Review</b>		
<b>1.4</b>	<b>Reference:</b>	<p>(i) Transcript, Volume 4, August 31, 2010 at paragraphs 617 - 624 (Chief Councillor Pollard) (A26075).</p> <p>(ii) Volume 5A Update, Section 5, Page 5-314 to 5-315 (A1Z6R1).</p>
	<b>Preamble:</b>	The Haisla Nation has expressed the view that inadequate funding has been provided to participate in this proceeding.
	<b>Request:</b>	<p>(a) Please confirm that the Haisla Nation has received participant funding from the Canadian Environmental Assessment Agency to participate in this proceeding.</p> <p>(b) Please advise as to the amount of participant funding received to date from the Canadian Environmental Assessment Agency.</p> <p>(c) Please confirm that the Haisla Nation has received significant funding from the Northern Gateway Project for the purpose of preparing traditional use studies in relation to this Project.</p> <p>(d) Please advise as to the amount of funding received by the Haisla Nation from any other external sources to participate in this proceeding, or otherwise oppose the Northern Gateway Project.</p> <p>(e) Is the Haisla Nation a member of the Turning Point/Great Bear Initiative?</p> <p>(f) Has the Haisla Nation received funding, directly or indirectly, from the Turning Point/Great Bear Initiative for the purpose of participating in this proceeding, or otherwise opposing the Northern Gateway Project? If so, how much funding was received?</p> <p>(g) Has the Haisla Nation received funding from Tides Canada or any similar organization for the purpose of participating in this proceeding or otherwise opposing the Northern Gateway Project? If so, how much funding was received and from whom?</p> <p>(h) Have any members of the Kitimaat Village Council received funding from Tides Canada or similar organizations to participate in this proceeding or to otherwise oppose the Northern Gateway Project, either directly or indirectly? If so, how much funding was received and by whom? Please include funding received by the Headwaters Initiative in this response.</p> <p>(i) Are there agreements or understandings in place as between coastal First Nations whereby no coastal First Nation will oppose LNG development supported by the Haisla First Nation, and no coastal First Nation, including the Haisla First Nation, will support the Northern Gateway Project?</p>

<b>Position Regarding LNG Projects</b>		
<b>1.5</b>	<b>Reference:</b>	<p>(i) Kitimat LNG, News Release, "Canada, BC, Join Haisla Nation and Kitimat LNG Partners in Marking Project Go-Ahead; 'A Very Big Day for Our People' Says Chief Councillor Pollard" (9 March 2011) online: Kitimat LNG &lt;<a href="http://mediacenter.kitimatlngfacility.com/Mediacenter/view_press_release.aspx?PressRelease.ItemID=2807">http://mediacenter.kitimatlngfacility.com/Mediacenter/view_press_release.aspx?PressRelease.ItemID=2807</a>&gt;.</p> <p>(ii) Dina O'Meara, "National regulator approves BC LNG export licence Co-operative a partnership with Haisla First Nation", The Calgary Herald (3 February 2012) online The Calgary Herald &lt;<a href="http://www.calgaryherald.com/business/National+regulator+approves+export+licence/6093310/story.html">http://www.calgaryherald.com/business/National+regulator+approves+export+licence/6093310/story.html</a>&gt;.</p>
	<b>Preamble:</b>	Northern Gateway would like to confirm the Haisla Nation's position with respect to certain liquefied natural gas ("LNG") projects.
	<b>Request:</b>	<p>(a) Please confirm that the Haisla Nation supports construction and operation of the Kitimat LNG Project (also known as the KM LNG Project).</p> <p>(b) Please confirm that Kitimat LNG holds an export licence to ship 200 million tonnes of LNG over 20 years from the Kitimat LNG Terminal, to be located at Bish Cove, near the Port of Kitimat, BC, to Pacific Rim markets by marine vessel.</p> <p>(c) Please provide copies of all environmental assessment studies, risk assessments, TERMPOL review studies and Aboriginal Traditional Knowledge ("ATK") studies pertaining to the Kitimat LNG Project. If such studies do not currently exist, please advise when they will be completed and provided. If confidentiality concerns exist in respect of the ATK study, please indicate whether the Haisla Nation is prepared to provide it to the Panel in confidence.</p> <p>(d) Please provide copies of all agreements that the Haisla Nation has entered into with Kitimat LNG including, impact benefit agreements and lease agreements.</p> <p>(e) Please confirm that the Haisla Nation supports construction and operation of the BC LNG Export Cooperative Project.</p> <p>(f) Please confirm that the Haisla Nation is a joint venturer or partner with LNG Partners of Houston, in the BC LNG Export Cooperative.</p> <p>(g) Please confirm that the BC LNG Export Cooperative holds an export licence to ship 36 million tonnes of supercooled natural gas over 20 years from floating terminal off Kitimat, BC to Pacific Rim markets by marine vessel.</p> <p>(h) Please provide copies of all environmental assessment studies, risk assessments, TERMPOL review studies and ATK studies pertaining to the BC LNG Export Cooperative Project. If such studies do not currently exist, please advise when</p>

		<p>they will be completed and provided. If confidentiality concerns exist in respect of the ATK study, please indicate whether the Haisla Nation is prepared to provide it to the Panel in confidence.</p>
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<b>Position Regarding Kitimat – Summit Lake Pipeline Looping Project</b>		
<b>1.6</b>	<b>Reference:</b>	<p>(i) BC Environmental Assessment Office, "Kitimat – Summit Lake Pipeline Looping Project Assessment Report With Respect to Review of the Application for an Environmental Assessment Certificate Pursuant to the Environmental Assessment Act, S.B.C. 2002, c. 43" (12 May 2008) at page 7, online: BC Environmental Assessment Office &lt;<a href="http://a100.gov.bc.ca/appsdata/epic/documents/p270/1214599791218_8e248a8d30d995f6590f6f694d7789f6e20e141ef52b.pdf">http://a100.gov.bc.ca/appsdata/epic/documents/p270/1214599791218_8e248a8d30d995f6590f6f694d7789f6e20e141ef52b.pdf</a>&gt;.</p> <p>(ii) <i>ibid</i> at pages 122-133 (provided as <b>Attachment to Haisla Nation IR 1.6</b>).</p>
	<b>Preamble:</b>	<p>Reference (i) states: "The Haisla Nation wrote to the EAO indicating that they support the Project receiving a Provincial EA Certificate, subject to certain conditions (which are being met)."</p> <p>Reference (ii) provides a First Nations Consultation Report in respect of the Haisla Nation.</p>
	<b>Request:</b>	<p>(a) Please confirm that the Haisla First Nation supports the construction and operation of the Pacific Trails Pipeline Project (also known as the Kitimat-Summit Lake Looping Project).</p> <p>(b) Please confirm that Reference (ii) accurately describes the nature and strength of claim by the Haisla First Nation in respect of those portions of the Kitimat-Summit Lake Looping Project that will traverse Haisla traditional territory.</p> <p>(c) Please confirm that Reference (ii) lists the mitigation measures proposed by the Kitimat-Summit Lake Looping Project to address construction-related impacts on Haisla First Nation traditional territory, and that such measures are acceptable to the Haisla First Nation. If any such measures are not acceptable, please identify them and advise as to modifications considered appropriate by the Haisla First Nation.</p> <p>(d) Please advise as to whether similar measures would be requested by the Haisla First Nation to deal with construction-related impacts of the Northern Gateway Project.</p> <p>(e) Please file a copy of the report entitled <i>Haisla Traditional Use and Occupancy of the Proposed PNG Pipeline Corridor through the lower Kitimat River Valley</i> cited on page 124 of Reference (ii).] If confidentiality concerns exist in respect of the study, please indicate whether the Haisla are prepared to provide it to the Panel in confidence.</p>



<b>Scientific and Technical Evidence</b>		
<b>1.7</b>	<b>Reference:</b>	<ul style="list-style-type: none"> <li>(i) Written Evidence of the Haisla Nation, <i>Overview of Haisla Nation Scientific and Technical Evidence</i> (December 21, 2011) at paragraph 5 (A2K3D4).</li> <li>(ii) Resume of Gillian Bakker (A2K3D6).</li> <li>(iii) Curriculum Vitae of Tracy K. Collier, page 5, item 125(A2K3D9).</li> <li>(iv) Technical Data Report – Toxicity of Oil to Fish – Potential Effects of an Oil Spill into the Kitimat River from a Northern Gateway Pipeline Rupture, by Peter V. Hodson, PhD et al December 19, 2011, adobe page 80 ("Hodson Study") (A2K3D7).</li> </ul>
	<b>Preamble:</b>	Reference (i) states that: "The evidence provided by the Haisla Nation's independent experts indicates that despite all the material submitted by Enbridge Northern Gateway to the Joint Review Panel, there are significant information gaps that suggest a lack of understanding about what is involved in developing the kind of project being proposed; a lack of understanding about the extent and degree of impacts and effects from the project as proposed; and serious questions about the overall approach to structural design of the proposed project."
	<b>Request:</b>	<ul style="list-style-type: none"> <li>(a) Please explain how Ms. Gillian Bakker's experience qualifies her to comment on corrosion and metallurgy issues as they relate to pipelines and storage facilities.</li> <li>(b) Please provide a copy of the paper authored by Pennart et al entitled "<i>The use of an ecological risk assessment for regional management of aquatic impacts</i>" Pine River Report (page 80 of Hodson study).</li> <li>(c) Please provide a copy of the technical memo prepared for the US Department of Commerce by Johnson et al entitled "Polycyclic aromatic hydrocarbons and fish health indicators in the marine ecosystem in Kitimat British Columbia" listed in Reference (iii).</li> </ul>

<b>Pipeline Corrosion, Transportation of Diluted Bitumen and Crude Oil</b>		
<b>1.8</b>	<b>Reference:</b>	<i>The Corrosive Nature of Diluted Bitumen and Crude Oil Literature Review</i> Prepared by Gillian Bakker, M.A.Sc., M.R. Gordon and Associates Ltd. December, 2011, at page 7, section 4, first paragraph, third sentence (A2K3D5)
	<b>Preamble:</b>	In the Reference, the author states: "The Alberta report lists 81,917 km of hazardous liquid pipeline as having a total of 5,333 incidents over a time span of sixteen years."
	<b>Request:</b>	<p>(a) Please provide the reference, including the page number, in the Alberta report where the 5,333 incidents are listed.</p> <p>(b) Please provide a breakdown of the total of 5,333 incidents into the applicable pipeline categories, and list the number of incidents associated with each pipeline category.</p> <p>(c) Please provide the reference, including the page number, in the Alberta report where the 81,917 km of hazardous pipelines is listed.</p> <p>(d) Please provide a breakdown of the total of 81,917 km into the applicable pipeline categories, include the total mileage of each category, as well, please provide each of the pipe sizes (diameter) and the corresponding length for each pipe size in each pipeline category.</p>

<b>Spill Response</b>		
<b>1.9</b>	<b>Reference:</b>	<p>(i) <i>Preliminary Analysis and Observations regarding Enbridge Northern Gateway Project Proposal Documents – Oil Spill Contingency Planning</i>, prepared by Nuka Research and Planning Group, LLC on behalf of the Haisla Nation at page 17 (A2K3E1).</p> <p>(ii) General Oil Spill Response Plan (March 2011) (A1Y318).</p>
	<b>Preamble:</b>	In Reference (i), Nuka Research and Planning Group, LLC ("Nuka") states: "This Report was developed to inform the following question, based on a review of publicly submitted document: Does the proposed Northern Gateway Project have the potential to cause significant adverse impacts that cannot be mitigated?" Nuka then concludes that "Enbridge has not fully examined relevant information and has not provided the level of planning and analysis needed to answer that question definitively".
	<b>Request:</b>	<p>(a) Is it Nuka's opinion that if Northern Gateway was to prepare detailed operational response plans, the question posed by Nuka could be definitively answered?</p> <p>(b) If so, what would the answer be?</p> <p>(c) Is it the understanding of Nuka that Northern Gateway intends to rely only on the General Oil Spill Response Plan filed in this proceeding when it commences pipeline operation?</p> <p>(d) Is it the understanding of Nuka that operational response plans for the Project will not include measures such as tactics for dealing with submerged oil; spill response training exercises, additional response scenarios and tactics sheets; and additional measures to enhance containment and response in sensitive areas, such as the Kitimat River Valley?</p> <p>(e) Please explain why the Nuka report is considered to be a "Preliminary" analysis.</p> <p>(f) Please describe Nuka's prior experience is dealing with diluted bitumen at:</p> <p>(i) the emergency response planning stage of a project</p> <p>(ii) the environmental assessment stage of a project, or</p> <p>(iii) in a actual emergency response.</p> <p>(g) Please provide a list of the environmental assessments for proposed liquids transportation projects in respect of which Nuka has provided advice.</p> <p>(h) Please advise as to when the Prince William Sound Regional Citizens Advisory Committee (Reference (i) at page 63 of 142) was formed, and for what purpose.</p>

		<ul style="list-style-type: none"><li>(i) Please provide recommendations as to how an Advisory Panel should be formed to incorporate local stakeholder input.</li><li>(j) Is it the expectation of Nuka that First Nations such as the Haisla Nation would be part of such a panel?</li><li>(k) Is Nuka aware of the Marine Community Advisory Board established for the Project, and if so, would that be an appropriate forum for discussion of a Citizens Advisory Committee?</li></ul>
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<b>Spill Response</b>		
<b>1.10</b>	<b>Reference:</b>	<i>Preliminary Analysis and Observations regarding Enbridge Northern Gateway Project Proposal Documents – Oil Spill Contingency Planning</i> , prepared by Nuka Research and Planning Group, LLC on behalf of the Haisla Nation at pages 81 – 85 of 142, Table 5.1 (A2K3E1).
	<b>Preamble:</b>	In the Reference, Nuka lists over 50 incidents, dating back to 1967, when heavy oil sank or submerged.
	<b>Request:</b>	<p>(a) Please confirm that the development of methods and technologies suitable for dealing with heavy (sinking) oils is a challenge faced by industry and governments around the world.</p> <p>(b) Of the incidents listed by Nuka, at least 9 involved the release of bunker fuel oil. Has Nuka reviewed, or been requested to review, the bunker oil spill contingency planning being done in respect of the recovery of heavy oil from commercial vessel traffic (existing or proposed) aside from Northern Gateway in:</p> <ul style="list-style-type: none"> <li>(i) The Kitimat area</li> <li>(ii) The Prince Rupert area</li> <li>(iii) The Vancouver area</li> <li>(iv) Any other Canadian port</li> </ul> <p>(c) Nuka states on numerous occasions that the pipeline oil spill response planning undertaken to date is inadequate due to its assumption that all spills will consist solely of floating oil (for example, see page 96 of Reference (i)).</p> <ul style="list-style-type: none"> <li>(i) Please provide Nuka's understanding as to the percentage of oil spilled in the Marshall event that was the subject of sinking.</li> <li>(ii) Please confirm that Nuka is not recommending that booms not be included in operational response plans, but rather that consideration must also be given to dealing with submerged oil.</li> </ul> <p>(d) Please list the liquids pipeline projects in respect of which Nuka has prepared operational spill response plans, if any.</p> <p>(e) Provide examples of oil spill response plans prepared by Nuka for liquids pipelines in North America or elsewhere.</p>

<b>Potential Socio-Cultural Impacts</b>		
<b>1.11</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> prepared by Matthias Ruth, PhD and Rebecca Gasper, MS dated December 2011, page 18, last paragraph (A2K3F0).
	<b>Preamble:</b>	In the Reference, the authors state that they "cannot predict the extent to which the project will have sociocultural impacts for the Haisla and other First Nations or whether Enbridge's proposed actions to mitigate these impacts will be effective."
	<b>Request:</b>	(a) Please explain why the authors were unable to make these predictions.  (b) To the extent that the authors lacked information to make these predictions, please indicate the information that would have been required and how such information could be obtained.

<b>Potential Socio-Cultural Impacts</b>		
<b>1.12</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> prepared by Matthias Ruth, PhD and Rebecca Gasper, MS dated December 2011, page 24 (A2K3F0).
	<b>Preamble:</b>	In the Reference, the authors state that "every oil spill will have a unique impact on the environment depending on a variety of factors including the type of oil spilled, the location of the spill, the type of ecosystem and resident wildlife affected, and weather at the time of the spill". The authors state that they estimated the ecological cost of the seven hypothetical spill scenarios developed in the Northern Gateway Pipeline application.
	<b>Request:</b>	Please confirm that when estimating the ecological cost of each spill scenario, the authors did not take into account the probability of the scenario occurring nor did they discount ecological costs based on the probability of any particular spill occurring.

<b>Potential Socio-Cultural Impacts</b>		
<b>1.13</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> prepared by Matthias Ruth, PhD and Rebecca Gasper, MS dated December 2011, pages 42 and 46 (A2K3F0).
	<b>Preamble:</b>	At page 42 of the Reference, the authors provide an estimate of the costs associated with carbon emissions from tankers ranging from \$85 million to \$55 billion and averaging between \$3 billion and \$8 billion. At page 46, the authors indicate that Enbridge only considered emissions from tankers when berthed and loading or unloading and did not consider emissions from tankers on their entire routes.
	<b>Request:</b>	For the data provided in Table 18, please provide a breakdown of the total emissions assumed, the cost of the emissions and the point of their generation distinguishing between emissions that occur within Canadian territory and the remainder of the tanker emissions outside of Canadian waters.



<b>Potential Socio-Cultural Impacts</b>		
<b>1.14</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> prepared by Matthias Ruth, PhD and Rebecca Gasper, MS dated December 2011, page 42 (A2K3F0).
	<b>Preamble:</b>	In Table 19 of the Reference, the authors provide an estimate of the costs due to upstream impacts from oil sands extraction, which range from \$716 million to \$106 billion, averaging between \$5 billion and \$13 billion.
	<b>Request:</b>	What, if any, benefits did the authors include regarding the oil sands extraction activities that would be associated with these estimated costs?

<b>Economics</b>		
<b>1.15</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> prepared by Matthias Ruth, PhD and Rebecca Gasper, MS (December 2011), Section 4.8 at page 33, and Section 5.2 at page 43-44 (A2K3F0).
	<b>Preamble:</b>	<p>In Section 5.2, Table 22 provides "Social and ecological [costs] of hypothetical oil spill examples off the coast of British Columbia resulting from tanker activities" in millions of dollars. Example 3 in the table pertains to a tanker spill of 36,000 m<sup>3</sup> of diluted bitumen in Wright Sound. The NPV of the cost of this spill ranges from \$3 billion (for a spill with impacts lasting 2 years, discounted at 7%) to \$13 billion (for a spill with impacts lasting 10 years, discounted at 0%).</p> <p>Section 4.8 provides the "Oil Scenario analysis methods". It explains: "For spills that occur in the open ocean and estuarine environments, we use ecological and social costs estimated by the Environmental Protection Agency (EPA) using oil fate analysis and modeling." A footnote provides the source: EPA (2004) Basic Oil Spill Cost Estimation Model, and Table 14 provides the per gallon base socioeconomic and environmental costs of a heavy oil spill, according to spill volume, as reported by in the EPA (2004) document.</p> <p>For three different recovery period scenarios, the authors calculate the NPV of the socioeconomic and ecological costs associated with a spill: (1) impacts last for 2 years; (2) impacts last for 5 years; and (3) impacts last for 10 years. The authors note "To account for attenuation of impacts over time, we use methodology by Liu and Wirtz (2006). They assume that damages to ecosystem services lessen over time by 10% each year. Therefore, in the first year of the spill, we estimate 100% of ecosystem costs, in year two we estimate 90% of total costs and so forth."</p>
	<b>Request:</b>	Please provide the stream of annual socioeconomic and ecological costs behind the NPV results for a hypothetical spill in Wright Sound, for the three recovery period scenarios. Please also show specifically how the EPA (2004) assumptions enter the calculations.

<b>Economics</b>		
<b>1.16</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> by Matthias Ruth, PhD and Rebecca Gasper, MS (December 2011), Section 4.3 at page 29, Section 5.1 at page 41, and Section 5.3 at pages 43-44 (A2K3F0).
	<b>Preamble:</b>	<p>Section 4.3 treats "Impacts specific to Haisla Territory". Table 11 shows the "Ecosystems affected by the proposed project within the Coastal and Kitimat regions", noting that "Impacts within these regions are expected to be particularly relevant to the Haisla people." Table 11 shows that a total of 10,459 ha of forest, and 562 ha of wetlands are project areas that are relevant to the Haisla. Given the total project area of these ecosystems (forests: 61,908 ha from Table 8; wetlands: 10,500 ha from Table 10), the Haisla territory accounts for 17% of total forestland and 5% of total wetland area.</p> <p>Section 5.3 presents the estimated costs of the project impacts in Haisla territory. It is noted that the costs of impacts depend "... on choice of discount rate, social cost of carbon and ecosystem service values." Table 23 contains the "Costs (US\$ million) due to ecological and social impacts of construction within the Haisla territory over a 30-year project lifetime." The cost categories include: wetland services, forest services, tourism impacts, and salmon impacts.</p> <p>At different discount rates (7%-0%), the NPV of impact costs show: wetland services (average value) at US\$340-638 million; forest services (average value) at US\$1305-3050 million; tourism impacts at US\$0.349-0.844 million; and salmon impacts are US\$0.009-0.021 million. All of these are in Haisla territory.</p> <p>For comparison, Table 17 in Section 5.1 presents the "Average costs due to the construction of the project" in US\$ million. These construction impact costs are calculated for the whole of the project area "over a 30 year assumed project lifetime." At different discount rates (7%-0%), the NPV of impact costs show: wetland services at US\$341-641 million; forest services (average value) at US\$1379-3121 million; tourism impacts at US\$0.01-0.02 million; and salmon impacts are US\$0.0008-0.002 million.</p>
	<b>Request:</b>	<p>(a) Out of the entire project area only 17% of forests, and 5% of wetlands fall into Haisla territory, yet the magnitudes of the impact costs to forests and wetlands on Haisla territory are essentially the same as they are for the whole Project. Please clarify how this outcome is possible.</p> <p>(b) Please explain why the calculated NPV for salmon impacts are higher in Haisla territory than they are for the entire project area including the Haisla territory.</p> <p>(c) Please explain why the calculated NPV for tourism impacts are higher in Haisla territory than they are for the entire project area including the Haisla territory.</p>

<b>Economics</b>		
<b>1.17</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> by Matthias Ruth, PhD and Rebecca Gasper, MS (December 2011), Section 4.1 at page 27, Section 4.2 at page 29, and Appendix B (A2K3F0).
	<b>Preamble:</b>	<p>In Section 4.1, Table 7 presents the data sources for the ecosystem service values used in the study's NPV calculations. For wetlands, per hectare US\$ values are drawn from Woodward and Wui (2001) and Costanza <i>et al.</i> (1997, 2008).</p> <p>In the "range" of coastal wetland values, the low end (\$164) seems to be the value for wetland storm protection estimated by Woodward and Wui (2001). In the "range" of inland wetland values, the low end (\$893 – <i>eight hundred ninety three</i>) also seems to be taken from Woodward and Wui (2001). It represents "all other services" and is a sum of service values. Referring to Appendix B, it seems to be the sum of the Woodward &amp; Wui average values for: inland flood protection (\$273), water quality (\$290), water supply (\$88), and habitat (\$212). But the sum of these numbers is \$863 (<i>eight hundred sixty three</i>).</p> <p>In the source document, Woodward and Wui (2001), the US\$ wetland ecosystem service values corresponding to those in Ruth and Gasper (2011) are: storm protection (\$237), inland food protection (\$393), water quality (\$417), water supply (\$127), and habitat (\$306). These values are all 44-45% greater than those used and reported in Ruth and Gasper (2011).</p> <p>"Average" ecosystem service values for coastal and inland wetlands are in Appendix B. However, the basis for the choice of the average values actually used for calculations (\$4082 for coastal wetlands and \$2952 for inland wetlands), as shown in Table 7 (section 4.1) and Table 10 (section 4.2), is not stated.</p>
	<b>Request:</b>	<p>(a) Please confirm that \$893 represents a typographical error in Table 7 that should read \$863.</p> <p>(b) Please explain why the Woodward and Wui values were seemingly deflated, instead of inflated to year 2011.</p>

<b>Economics</b>		
<b>1.18</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> by Matthias Ruth, PhD and Rebecca Gasper, MS (December 2011), Section 4.2 at page 29, and Section 5.1 at page 41 (A2K3F0).
	<b>Preamble:</b>	<p>Table 10 at page 29 provides the per hectare values for wetland ecosystem services. "Average" values are as follows: climate regulation (\$17/ton with 0.4 ton/ha); coastal flood protection (\$4082/ha); and "all other services, (\$2942/ha). The corresponding impact areas for these services are: climate regulation (10,500 ha); coastal flood protection (562 ha); and "all other services" (10,500 ha).</p> <p>These value and area assumptions are used to generate the NPV for wetland ecosystem services over a 30-year period, and at differing discount rates.</p> <p>The results of the wetland NPV calculations are presented in Table 17 page 41: "Average costs due to construction of the project (US\$2011)."</p>
	<b>Request:</b>	Please provide the annual construction impact costs to wetlands ecosystem services used for the NPV calculations shown in Table 17 (i.e., the vector [641; 474; 398; 341]). Please confirm that these are based only on the assumptions shown in Table 10. If there are other assumptions, please indicate what they are.

<b>Project Effects on Ecosystem Goods and Services – Estimates of Effects from Construction</b>		
<b>1.19</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> by Matthias Ruth, PhD and Rebecca Gasper, MS (December 2011), Table 8, page 28 (A2K3F0).
	<b>Preamble:</b>	The assessment of the potential loss of ecological services associated with loss of forests includes an estimate of \$1,484 per hectare for ecosystem services other than climate regulation. According to Appendix B, this value is based on the work of Costanza et. al. (1997),
	<b>Request:</b>	<p>(a) Please provide an explanation of how the \$1,484 per hectare was derived, given that Costanza et. al. estimate the average global ecosystem value of temperate/boreal forests to be \$302 per hectare, of which \$88 comes from climate regulation and the remaining \$214 per hectare is for other ecosystem services.</p> <p>(b) Please identify the information sources used by Costanza et. al. to determine the value of specific ecosystem service values for temperate/boreal forests for the specific services, such as waste treatment, food production, recreation and raw materials, and provide an explanation as to why these values are relevant to the forested lands along the proposed pipeline route.</p> <p>(c) Since one of the mitigation measures for project effects on merchantable timber includes paying stumpage to affected forestry stakeholders (Section 5.4.4.3 of Volume 6C), would not the inclusion of a value for loss of ecological services associated with loss of raw materials (stumpage) already be included in project costs?</p> <p>(d) Specifically, regarding the derivation of the \$1,484 per hectare, please also describe why this may be relevant given that the meta-analyses on which Costanza <i>et al.</i> are based include global services provided by tropical rainforests. If the values of tropical rainforests are excluded, how would this affect the final value per hectare?</p>

<b>Project Effects on Ecosystem Goods and Services – Oil Spill Analysis Methods</b>		
<b>1.20</b>	<b>Reference:</b>	<i>Ecological Costs Associated with the Proposed Northern Gateway Pipeline</i> by Matthias Ruth, PhD and Rebecca Gasper, MS (December 2011), page 27 (A37893).
	<b>Preamble:</b>	Table 7 in the report provides an estimate of the value of tourism in Kitimat on a US dollar per hectare basis that may be at risk. The figure shows '3' and then '143' on the second line.
	<b>Request:</b>	What is the correct value estimate for tourism impacts?

<b>Seismic Design</b>		
<b>1.21</b>	<b>Reference:</b>	Limitations of Code-Based Seismic Design, Report Number SMI-35-2011, December 15, 2011, Prepared by Praveen K. Malhotra (A2K3E6).
	<b>Preamble:</b>	The Reference discusses that code based seismic design of tanks and pipelines does not eliminate the risk; it only reduces the risk to a certain unknown level.
	<b>Request:</b>	(a) Please identify and provide details of the specific projects that have been constructed using risk based design for a tank system on which this reference is based.  (b) For the projects identified in question (a) above, please describe if and how secondary containment has been included in the design to reduce the risk.



<b>Seismic Design</b>		
<b>1.22</b>	<b>Reference:</b>	Limitations of Code-Based Seismic Design, Report Number SMI-35-2011, December 15, 2011, Prepared by Praveen K. Malhotra (A2K3E6).
	<b>Preamble:</b>	The Reference states: "The minimum code requirements may have to be significantly exceeded in order to reduce the risk to the environment to a 'tolerable level'."
	<b>Request:</b>	Please define what Malhotra means by "significantly exceeded" and by "tolerable level" in the above statement.

<b>Seismic Design</b>		
<b>1.23</b>	<b>Reference:</b>	Limitations of Code-Based Seismic Design, Report Number SMI-35-2011, December 15, 2011, Prepared by Praveen K. Malhotra, page 2, item 2, second line (A2K3E6).
	<b>Preamble:</b>	The Reference states: "The probability of exceeding design accelerations at the Kitimat terminal is about 2% during the 30-year life of the project."
	<b>Request:</b>	<p>(a) Please clarify why the Malhotra feels 2% in 30 years is not an acceptable risk, specifically with respect to what the implications of exceeding the design accelerations at the Kitimat terminal have on the failure of a tank, including clarification on what constitutes a "tank failure". Include in your clarification a description of the basis and the associated rationale.</p> <p>(b) Please provide a basis for the statement that "design accelerations for pipelines could have 10 times greater chance of being exceeded in 30 years ....." (page 9, last paragraph).</p>

<b>Seismic Design</b>		
<b>1.24</b>	<b>Reference:</b>	Limitations of Code-Based Seismic Design, Report Number SMI-35-2011, December 15, 2011, Prepared by Praveen K. Malhotra, page 5, Paragraph 1, line 10 (A2K3E6).
	<b>Preamble:</b>	The Reference states: "Earthquakes of magnitude up to M 7.5 can occur anywhere on these area sources according to Atkinson [4]."
	<b>Request:</b>	Please provide evidence of seismic events and their likelihood within 25 km along the pipeline route and the terminal site.

<b>Current Socio-Economic Information for Haisla First Nation</b>		
<b>1.25</b>	<b>Reference:</b>	Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, Section 9.3.1.1 (A25249).
	<b>Preamble:</b>	<p>Section 9.3.1.1 describes the number of registered members of the Kitimat Village Council as of 2009.</p> <p>According to the 2011 census, there are 415 people living on the Kitamaat 1 reserve and the most recent information (April 2012) from Aboriginal Affairs and Northern Development indicates there are 1,392 registered members of the Haisla First Nation of whom 649 live on their own reserves.</p>
	<b>Request:</b>	<p>(a) Please provide information on the population of the Haisla First Nation and for the Kitamaat 1 reserve for individual years from 1996 to 2012.</p> <p>(b) Please provide estimates of the number of people living in the Kitamaat 1 reserve currently employed in:</p> <ul style="list-style-type: none"> <li>(i) commercial marine resource harvesting</li> <li>(ii) forestry</li> <li>(iii) tourism</li> <li>(iv) public administration</li> <li>(v) other</li> </ul>