

IN THE MATTER OF
ENBRIDGE NORTHERN GATEWAY PROJECT JOINT REVIEW PANEL

**FINAL WRITTEN ARGUMENT OF FORESTETHICS ADVOCACY, LIVING OCEANS
SOCIETY AND RAINCOAST CONSERVATION FOUNDATION**

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Date Submitted

Signature

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A. INTRODUCTION

1. This is the final written argument of ForestEthics Advocacy, Living Oceans Society and Raincoast Conservation Foundation (the “Coalition”) with respect to the Northern Gateway Project (the “Project”) as proposed by Northern Gateway Pipelines Limited Partnership (“Northern Gateway”).

2. The Coalition submits that Northern Gateway has failed to provide a complete environmental assessment as required by the *National Energy Board Act* (“NEB Act”) and the *Canadian Environmental Assessment Act, 2012* (“CEA Act, 2012”). The Coalition submits that Northern Gateway has deferred research and studies necessary to complete the environmental assessment to the post approval stage. The Joint Review Panel cannot recommend approval of the Project in the absence of a complete environmental assessment.

National Energy Board Act, RSC 1985, c N-7, s 52(3) [*NEB Act*].

Canadian Environmental Assessment Act, SC 2012, c 19, s 52 at s 19 [*CEA Act, 2012*].

3. Further, the Coalition submits that the Project is not in the public interest. The Coalition submits that Northern Gateway has failed to demonstrate binding commercial support for the Project, that the risks associated with the Project exceed the potential benefits of the Project and that the Project is contrary to the principles of sustainable development. Given that the Joint Review Panel must consider the public interest in making its recommendation, the Panel must recommend against the approval of the Project.

NEB Act, s 52(2)(e).

4. The Coalition also submits that the Project is likely to cause significant adverse environmental effects that cannot be justified in the circumstances. Northern Gateway has unreasonably relied on mitigation measures that are unproven or ineffective. Since the Governor in Council cannot approve a project that is likely to cause such effects, the Panel must recommend against approval.

CEA Act, 2012, 52(4).

5. The Coalition submits that the Joint Review Panel must recommend against approval of the Project.

Conditions

6. As stated in paragraphs 2 to 5 above, the Coalition submits that the Project is not in the public interest and submits that the Joint Review Panel should recommend against the approval of the Project. However, the Coalition recognizes that, regardless of the recommendation of the Joint Review Panel, the Panel is required, pursuant to section 52(1)(b) of the *NEB Act*, to submit to the Minister all terms and conditions that the Panel considers necessary or desirable in the public interest that should be applied to a certificate of public convenience and necessity for the Project. Therefore, the Coalition has provided comments in Part E of this submission on the Collection of Potential Conditions and on additional recommended conditions.

NEB Act, s 52(1)(b).

Collection of Potential Conditions (12 April 2013), Exhibit A346-5.

B. SUBMISSIONS OF THE COALITION – THE ENVIRONMENTAL ASSESSMENT IS DEFICIENT UNDER THE CANADIAN ENVIRONMENTAL ASSESSMENT ACT

1. **The Joint Review Panel cannot recommend approval of the Project because the environmental assessment is incomplete.**
7. The Coalition submits that the Joint Review Panel cannot recommend approval of the Project because the environmental assessment of the Project is incomplete within the meaning of the *CEA Act, 2012*. Further, these deficiencies cannot be corrected by future studies, mitigation measures or conditions.

8. The members of the Joint Review Panel are members of the National Energy Board (the “Board”) and are required to assess and review the Project under both the *NEB Act* and *CEA Act, 2012*.

Hearing Order OH-4-2011 for the Northern Gateway Pipelines Inc. Enbridge Northern Gateway Project (5 May 2011), Exhibit A31-1 at 2 [Hearing Order].

Memorandum, Amendment to the Agreement concerning the Joint Review of the Northern Gateway Project between the Minister of the Environment Canada and the National Energy Board (3 August 2012), Exhibit A213-1 at 1-2 [Amended Agreement].

9. Pursuant to section 52(3) of the *NEB Act*, the Joint Review Panel’s report under the *NEB Act* must also set out the Panel’s environmental assessment of the Project under the *CEA Act, 2012*.

NEB Act, s 52(3).

10. The Coalition submits that the Joint Review Panel cannot recommend approval of the Project under the *CEA Act, 2012* because Northern Gateway has not complied with the provisions of the *CEA Act, 2012* in filing a complete environmental assessment within the meaning of the *CEA Act, 2012*.

11. In particular, the Coalition submits that:

- (a) the environmental assessment fails to adequately define the environmental effects of the Project and the significance of these effects;
- (b) the environmental assessment fails to adequately outline mitigation measures for the environmental effects of the Project;
- (c) these deficiencies in the environmental assessment cannot be cured through the provision of future studies;

- (d) these deficiencies in the environmental assessment cannot be cured through the conditions proposed by the Joint Review Panel;
- (e) the absence of a complete assessment of the environmental effects of the Project and their significance cannot be cured by mitigation; and
- (f) the Panel cannot recommend approval of the Project given these deficiencies.

12. The environmental assessment is comprised of:

- (a) the Environmental and Socio-economic Assessment (“ESA”) provided by Northern Gateway as part of its Project Application;
- (b) Technical Data Reports that were also filed as written evidence and which described the methodology and in some cases the field work that led to the conclusions in the ESA; and
- (c) responses to Information Requests.

Project Application, Vol. 6A (27 May 2010), Exhibits B3-1 through B3-11.
Project Application, Vol. 6B (27 May 2010), Exhibits B3-12 through B3-15.
Project Application, Vol. 6C (27 May 2010), Exhibits B3-16 through B3-18.
Project Application, Vol. 8B (27 May 2010), Exhibits B3-26 through B3-36.

(a) **The environmental assessment fails to adequately identify the environmental effects of the Project and their significance.**

13. Northern Gateway’s environmental assessment does not adequately identify the environmental effects of the Project, nor their significance, and is thus incomplete. The

Coalition submits that the environmental assessment does not comply with the statutory requirements of section 19(1)(a) and (b) of the *CEA Act, 2012*. Section 19 stipulates:

- 19 (1) The environmental assessment of a designated project must take into account the following factors:
 - (a) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;
 - (b) the significance of the effects referred to in paragraph (a);
 - (c) comments from the public — or, with respect to a designated project that requires that a certificate be issued in accordance with an order made under section 54 of the *National Energy Board Act*, any interested party — that are received in accordance with this Act;
 - (d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
 - (e) the requirements of the follow-up program in respect of the designated project;
 - (f) the purpose of the designated project;
 - (g) alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;
 - (h) any change to the designated project that may be caused by the environment;
 - (i) the results of any relevant study conducted by a committee established under section 73 or 74; and
 - (j) any other matter relevant to the environmental assessment that the responsible authority, or — if the environmental assessment is referred to a review panel — the Minister, requires to be taken into account.

CEA Act, 2012, s 19(1).

14. The environmental effects of a project are defined in the *CEA Act, 2012* as follows:

- 2(1) “environmental effects” means the environmental effects described in section 5...
- 5(1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are
 - (a) a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:
 - (i) fish as defined in section 2 of the *Fisheries Act* and fish habitat as defined in subsection 34(1) of that Act,
 - (ii) aquatic species as defined in subsection 2(1) of the *Species at Risk Act*,
 - (iii) migratory birds as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*, and
 - (iv) any other component of the environment that is set out in Schedule 2;
 - (b) a change that may be caused to the environment that would occur
 - (i) on federal lands,
 - (ii) in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or
 - (iii) outside Canada; and
 - (c) with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on
 - (i) health and socio-economic conditions,
 - (ii) physical and cultural heritage,

- (iii) the current use of lands and resources for traditional purposes, or
 - (iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.
- (2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:
- (a) a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment and that is directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and
 - (b) an effect, other than those referred to in paragraph (1)(c), of any change referred to in paragraph (a) on
 - (i) health and socio-economic conditions,
 - (ii) physical and cultural heritage, or
 - (iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

CEA Act, 2012, s. 2(1), 5.

15. The Coalition submits that at the end of the hearing process, Northern Gateway failed to answer the single most important question facing this Project from an environmental assessment perspective: What exactly would be harmed if this Project were to proceed? As a consequence, this Project is premature and deficient within the meaning of the *CEA Act, 2012*.
16. While environmental assessments are often initially incomplete and refined through the hearing process, the Joint Review Panel was left with too many questions at the end of these hearings to properly assess the Project. Since the environmental assessment fails to

adequately identify which elements of the environment may be adversely affected and to what degree, the Panel can never fully answer whether there are significant adverse environmental effects let alone being in a position to evaluate the effectiveness of mitigation measures.

17. In particular, the methodology used in assessing the environmental effects of the Project renders the environmental assessment deficient within the meaning of the *CEA Act, 2012*, in:

- (a) assessing the effects of accidents or malfunctions including oil spills;
- (b) taking into account the cumulative effects that are likely to result from the Project; and
- (c) in failing to consider the overall significance of these effects.

18. Evidence filed on behalf of the Raincoast Conservation Foundation has pointed out these deficiencies in detail.

Written Evidence of Raincoast Conservation Foundation, Part 1 (21 December 2012),
Exhibit 170-2-02 at paras 82, 83, 156, 201.

19. Moreover, that evidence, through its main authors, Dr. Paul Paquet and Dr. Chris Darimont, was subjected to questioning by Northern Gateway. The Coalition submits that the evidence submitted held up well under cross examination by Northern Gateway.

Hearing Transcript, Vol. 107 (23 November 2012), at Line 1375-1643.

20. Northern Gateway confirmed some of the inadequacies of the environmental assessment throughout the questioning process. For example, Northern Gateway acknowledged that the effects of the Project on marine mammals are uncertain. Northern Gateway also acknowledged that no studies had been conducted to determine the habitat of northern resident killer whales or transient killer whales.

Hearing Transcript, Vol. 101 (5 November 2012) at Lines 26309-26311,
26323-26324, 26351, 26378- 26379, 26401-26402, 26415.

Hearing Transcript, Vol. 102 (6 November 2012) at Lines 26561-26581, 26485-26487.

Hearing Transcript, Vol. 112 (11 December 2012) at Lines 9138-9152, 9220-9235, 9258-9259,
9354, 9395-9400, 9467-9488, 9509-9531.

21. The Federal Government was also questioned with regard to the remaining uncertainties concerning the potential adverse influence of the Project upon populations of wildlife including species that are listed under the provisions of the *Species at Risk Act* (“*SAR Act*”). Questioning confirmed that risks the Project poses to wildlife are still poorly understood. For example, the Federal Government confirmed that it had “not been able to [...] accurately predict what ship strike risk may exist for humpback whales, fin whales and so on because of a lack of high resolution spatial information for that area”.

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 16276, 16304-16306,
16461-16486, 16493.

22. The deficiencies of the environmental assessment can be summarized into these discrete points:

- (a) the baseline data for many of the species relied upon as key indicators for the purposes of the assessment was incomplete. Many of the studies done relied upon literature research as opposed to field studies. When field studies were done, they often lacked a complete picture of the species from either a seasonal or geographic standpoint;

Hearing Transcript, Vol. 112 (11 December 2012) at Lines 9507-9512.

- (b) the reference data failed to take into consideration a shifting environmental baseline caused by other projects that effectively degraded the environment. Consequently, the true cumulative effects of the Project are unknown;

Hearing Transcript, Vol. 112 (11 December 2012) at Lines 9139-9142.

- (c) the environmental assessment relied upon Habitat Index Suitability models to draw conclusions about the potential consequences of the Project upon the Key Indicator species. The models were not confirmed or verified and the wrong models were selected;

Written Evidence of Raincoast Conservation Foundation, Part I
(21 December 2012), Exhibit 170-2-02 at para 42.

- (d) the Key Indicator Species chosen were selected using subjective criteria and not derived from the entire assemblage of species for any specific geographic region;

Written Evidence of Raincoast Conservation Foundation, Part I (21 December 2012), Exhibit 170-2-02 at para 55.

- (e) for the terrestrial component, Northern Gateway used Terrestrial Ecosystem Mapping models that were derived for use to assess potential environmental harm caused by removal of timber from geospatial polygons during activities within the forest industry. These specialized models cannot be simply transferred and reliably used for determining the environmental consequences brought about by a lengthy 1,172 kilometre linear disturbance feature;

Hearing Transcript, Vol. 101 (5 November 2012) at Lines 26399-26408.

- (f) the cumulative assessment portion of the environmental assessment is flawed in its methodology and approach. It fails to follow established Environment Canada process and fails to use an integrated approach to cumulative effects assessment; and

Written Evidence of Raincoast Conservation Foundation, Part I (21 December 2012), Exhibit 170-2-02 at paras 82-87.

- (g) the application failed to consider the environmental effects of a low probability accidental event with a high environmental consequence (a catastrophic event).

23. In summary, the environmental assessment for the Project fails to meet the statutory requirements set out in sections 19(1)(a) and (b) of *CEA Act, 2012*. Thus the Joint Review Panel cannot recommend approval of the Project.

CEA Act, 2012, s 19(1).

(b) The environmental assessment fails to adequately outline mitigation measures for the environmental effects of the Project.

24. The environmental assessment does not adequately identify mitigation measures and is thus incomplete. The Coalition submits that the environmental assessment does not comply with the statutory requirements of section 19(1)(d) of the *CEA Act, 2012*. This section stipulates:

19 (1) The environmental assessment of a designated project must take into account the following factors:...

- (d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;...

CEA Act, 2012, s 19(1)(d)

25. Where the feasibility and effectiveness of mitigation measures are admitted by Northern Gateway to be unknown or uncertain, Northern Gateway has left the derivation of such measures in some cases (for example, the activities proposed by Northern Gateway within the marine environment and its impacts upon marine mammals) for later research and study.

26. Where the feasibility and effectiveness of mitigation measures are admitted to be unknown or uncertain, such as is the case with caribou, grizzly bear and wolverine,

Northern Gateway has relied upon recovery and compensation plans that have not been proven and which are very much theoretical in nature.

27. Given that many of Northern Gateway's mitigation measures have been left to later research and study, the environmental assessment is incomplete. It is impossible to determine the technical and economic feasibility and the effectiveness of mitigation measures that have been deferred until further study is complete.

(c) These deficiencies in the environmental assessment cannot be cured through the provision of future studies.

28. Northern Gateway's commitments to do future studies do not rectify its incomplete environmental assessment. The decision of the Federal Court in *West Vancouver (District) v. British Columbia (Ministry of Transportation)* 2005 FC 593 is of some assistance in determining the proper context within which future reports and obligations may be conducted.

West Vancouver (District) v. British Columbia (Ministry of Transportation) 2005 FC 593 <<http://www.canlii.org/en/ca/fct/doc/2005/2005fc593/2005fc593.html>> [*West Vancouver*].

29. In *West Vancouver*, the petitioner challenged the screening process performed by the federal responsible authorities ("RAs") with regard to the environmental assessment of the Sea to Sky Highway Improvement Project, which was initiated in part by the 2010 Olympic Winter Games. The petitioner claimed that the federal assessment and screening process did not comply with the *CEA Act, 1992* because "The RAs in their environmental assessment failed to conduct a risk analysis of a material environmental effect, namely, the impact of blowdown or windthrow of trees likely to be caused by the construction of a new four-lane highway over the area adjacent to Eagleridge Bluffs and the Larsen Creek Wetlands".

West Vancouver at para 4.

30. The case in *West Vancouver* came down to determining whether deferring further studies on site assessments on forestry issues to predict the effect of windthrown trees that may be caused by the Project was improper and wrong at law.

West Vancouver at para 32-33.

31. In the final result Lemieux J. concluded:

102 I agree with counsel for Canada and B.C. there was ample evidence before the RAs to enable them to assess the environmental impact of windthrow in the affected area and to consider its significance measured against known mitigation techniques which cannot be implemented at the preliminary design stage but rather must be implemented when the design of the highway has taken shape.

West Vancouver at para 102.

32. It should be noted that the *West Vancouver* decision was rendered in respect of an earlier iteration of the *Canadian Environmental Assessment Act* that was in place in 2005. It should also be noted that, unlike the current matter, the *West Vancouver* case dealt with the screening decision of the RAs.

33. The definition of mitigation measures is basically the same in the present statute as it was in the previous one ("mitigation measures" being substituted for "mitigation" in the present statute) and the adverse environmental effects language is somewhat consistent with the former statute as well. *CEA Act, 2012* defines "mitigation measures" as:

2(a) "mitigation measures" means measures for the elimination, reduction or control of the adverse environmental effects of a designated project, and includes restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means.

CEA Act, 2012, s. 2(a).

34. The case at hand is distinguishable from *West Vancouver*. In *West Vancouver*, the Court determined that it was not improper at law to defer studies because the Panel had sufficient evidence before it to assess the environmental effects of the project. In contrast, in the case at hand, the Joint Review Panel does not have sufficient evidence to assess these effects. In consequence, the incomplete environmental assessment is not rendered complete by Northern Gateway's commitment to conduct future studies.

(d) These deficiencies in the environmental assessment cannot be cured through the conditions proposed by the Joint Review Panel.

35. Even if all of the potential conditions specified by the Joint Review Panel in its notice of April 12, 2013 are kept as conditions to the approval and all of the commitments that Northern Gateway made during the course of the technical hearings and at other times are imposed as conditions of certification, it would be wrong at law to recommend approval with all of those conditions. The Coalition submits that the addition of conditions does not transform the application into a lawful one but rather compounds the legal problem that Northern Gateway has created through its failure to provide a proper identification of the potential adverse environmental effects of the Project.

(e) The absence of a complete assessment of the environmental effects of the Project and their significance cannot be cured by mitigation.

36. Northern Gateway cannot rectify the fact that they failed to adequately assess the environmental effects of this Project and their significance by committing to strong mitigation measures. First, section 19 of the *CEA Act, 2012* requires Northern Gateway to assess mitigation in addition to the environmental effects of the Project. Second, effective mitigation measures cannot be proposed without first identifying the significant adverse environmental effects to be mitigated. Otherwise the mitigation measures proposed are theoretical at best and incomplete, conjectural or haphazard at worst. Mitigation measures need to correspond to the adverse environmental effects to be counteracted. In short, Northern Gateway cannot avoid its obligation to assess the environmental effects of the Project by assessing mitigation.

(f) The Panel cannot, at law, recommend approval of the Project because the environmental assessment is incomplete.

37. By recommending approval of the Project at this incomplete stage, the Joint Review Panel (and the Minister if he subsequently approved the Project) would err in law by:

- i) not following the statutory mandate;
- ii) not acting according the principles of fairness to the parties;
- iii) encouraging similar projects to proceed on a piecemeal fashion; and
- iv) violating the precautionary principle.

(i) Approving this Project would be contrary to the Panel's statutory mandate.

38. The Joint Review Panel is required to set out its environmental assessment of the Project under the *CEA Act, 2012* pursuant to section 52(3) of the *NEB Act*. The environmental assessment for this Project, as demonstrated above, does not comply with the statutory requirements of section 19 of the *CEA Act, 2012*. Thus the Panel would fail to fulfill its statutory mandate were it to submit this assessment and recommend approval of the Project.

NEB Act, s 52(3).

(ii) Approving the Project would encourage similar projects to proceed on a piecemeal fashion.

39. If the Project is allowed to proceed then proponents such as Northern Gateway will submit environmental assessments that are works in progress rather than finished products of careful thought and study. It is incumbent upon Northern Gateway to have performed the work at the outset so that the final environmental assessment may be tested. Instead, Northern Gateway has asked for approval of the Project, based on a promise to do further research without the oversight that comes through the Joint Review Panel process. This approach is wrong at law and fundamentally flawed.

(iii) Approving the Project would be unfair to the parties.

40. The Coalition submits that it would be unfair at law to allow Northern Gateway to conduct research necessary to assess the environmental effects of the Project post-approval. This approach would curtail the rights of parties who have been granted intervenor status to question the Project and to offer comments.
41. In the current matter, everyone - the intervenors, the public, and in particular the Joint Review Panel - takes the application as framed by Northern Gateway. It would be a travesty to allow Northern Gateway to simply proceed to the approval stage without the necessary oversight that would be afforded as a result of this process.
42. With so many further obligations left to future research and study, there is no opportunity for the parties, including the Coalition, to question the fundamental underpinnings of such research as well as the methodology that will be applied to drive all of the future obligations. Moreover, Project as a whole benefits where the parties can question the future obligations that Northern Gateway has committed to performing. In such a fashion, the Project becomes a better one by involving the comments of parties throughout the entire process. The *CEA Act, 2012* contemplates such a process in section 19(1)(c).

(iv) Approving the Project would violate the precautionary principle.

43. The Joint Review Panel cannot recommend approval of the Project in the absence of a complete environmental assessment because to do so violates the precautionary principle.
44. In the context of the Northern Gateway hearings, the *CEA Act, 2012* requires the Joint Review Panel to exercise its powers in a manner that applies the precautionary principle.
- CEA Act, 2012, s 4(2).*

45. As articulated in Principle 15 of the *Rio Declaration on Environment and Development*, the precautionary principle is as follows: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. The Rio Declaration was adopted by Canada.

Rio Declaration on Environment and Development, adopted by the United Nations Conference on Environment and Development, 3-14 June 1992, UN Doc. A/CONF. 151/26/ (vol. I) <<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>>.

46. Approving the Project would violate the precautionary principle because the Project poses threats of serious or irreversible damage. Furthermore, there is a lack of scientific certainty regarding the risk of these threats. The Project threatens to seriously damage the environment. The impacts on species at risk, including caribou, humpback whales and sturgeon, are potentially devastating. The risks of landslides are poorly understood. If a landslide ruptured either of the pipelines, the ecological consequences could be dire. Likewise, the catastrophic loss of an oil tanker could cause serious environmental, social and commercial damage.
47. Since the Project threatens to cause serious damage, the precautionary principle requires the Joint Review Panel to recommend against approval of the Project. The Joint Review Panel cannot recommend approval of the Project given the uncertainty regarding the risks associated with the Project and the lack of identified technically and economically feasible measures to address these serious impacts.
48. Furthermore, the precautionary principle bars the Joint Review Panel from recommending approval of the Project because Canadian society has clearly indicated that it is not prepared to accept the risks associated with this Project. The federal government’s policy regarding the precautionary principle states that “[i]t is legitimate that decisions be guided by society’s chosen level of protection against risk”. Society has clearly indicated that the risks associated with the Project are unacceptable. This was made clear by the numerous interveners who opposed the pipeline, the hundreds who

made oral statements before the Panel and the position taken by many First Nations in British Columbia. The message that the risk associated with this Project is unacceptable is found in a sampling of the statements made by community members at the hearings:

The proposed project...will bring with it destructive and polluting tanker traffic at an unacceptable risk of an oil spill devastating our coasts.

Chief Marilyn Slett, Bella Bella

It's been shown for years that Enbridge does not exceed industry standards. This is an unacceptable risk to our waterways and coastal regions the pipeline will cross.

Michael Houg, Prince George

...this is a proposed project which would put the B.C. coast at unacceptable risk of a devastating oil spill in the interest of ramping up extraction of tar sands oil, thereby increasing greenhouse gas emissions, which exacerbate global warming, with negative long-term impacts on Canada. It should not be approved.

Pat McMahon, Victoria

Every portion of this proposed project has a considerable and unacceptable risk.

Kelly Marsh, Kitamaat Village

I sincerely implore of the Joint Review Panel to consider our statements independently of political pressures and to say "No" to this pipeline project, the risks are just too high.

Collette Stewart, Terrace

Everything is interconnected, and the odds of an oil spill are too high and it puts our whole way of life at risk and all our lives at risk.

Francis Brown (on behalf of Evelyn Windsor), Bella Bella (Heiltsuk First Nation)

Since Canada's policy dictates that society's chosen level of risk should guide precautionary decision-making, the Joint Review Panel cannot recommend approval of this Project.

Canada, Privy Council Office of Canada, *A Framework for the Application of Precaution in Science-Based Decision Making About Risk*, (Ottawa: 2003), online: Privy Council Office of Canada < <http://www.pco-bcp.gc.ca/docs/information/publications/precaution/Precaution-eng.pdf>>.

Hearing Transcript, Vol. 39 (5 April 2012), Line 29203.

Hearing Transcript, Vol. 60 (9 June 2012), Line 9197.

Hearing Transcript, Vol. 122 (10 January 2013), Line 3480.

Hearing Transcript, Vol. 58 (25 June 2012), Line 7775.

Hearing Transcript, Vol. 51 (9 May 2012), Line 3129

Hearing Transcript, Vol. 38 (4 April 2012), Line 27524.

C. SUBMISSIONS OF THE COALITION – THE PROJECT IS NOT IN THE PUBLIC INTEREST

1. The law with respect to public interest.

49. The Coalition submits that, on the balance of the potential benefits and the risks and burdens of the Project, the Project is not in the public interest.

50. Pursuant to section 52(2)(e) of the *NEB Act*, the Joint Review Panel must consider any public interest that may, in the Board's opinion, be affected by the issuance of a certificate for the Project or by dismissal of the application.

NEB Act, s 52(2)(e).

51. The public interest is inclusive of all Canadians and refers to a balance of economic, environmental and social interests that change as society's values and preferences evolve over time.

Emera Brunswick Pipeline Company Ltd. (31 May 2007), NEB Decision GH-1-2006 at 84 [*Emera*] [Appendix C].

52. When making a determination of the public interest, the Board is required to identify and weigh all relevant evidence on the record and come to a determination whether, overall, the Project is in the public interest or in the present and future public convenience and necessity. The Board must balance the totality of benefits and the totality of burdens of the Project to come to its determination under section 52 of the *NEB Act* as to whether the Project is in the present and future public interest and necessity.

Emera at 84, 94.

53. The Coalition submits that the Project is not in the public interest because the burdens and risks of the Project outweigh the potential economic benefits. Specifically, the Coalition submits that:

- (a) Northern Gateway has failed to demonstrate binding commercial support for the Project;
- (b) Northern Gateway relies on economic benefits from increased oil and gas production induced by the Project which are outside of the scope of the proceedings; and
- (c) the cost/benefit models used by Northern Gateway overestimate the economic benefits and underestimate the societal costs of the Project.

2. Northern Gateway has failed to demonstrate binding commercial support for the Project.

54. More than 7 years after holding open seasons for both the proposed condensate pipeline and the proposed crude oil pipeline, Northern Gateway has failed to provide evidence of binding commercial support for the Project.

55. Enbridge Inc. (“Enbridge”) held an open season for the proposed condensate pipeline from July 7, 2005 to September 30, 2005.

Attachment to Northern Gateway Response to Kinder Morgan Information Request No. 1
(6 October 2011), Exhibit B41-24 at 1, 3.

56. Enbridge held a “non-binding” open season for the proposed crude oil pipeline from October 19, 2005 to December 16, 2005.

Attachment to Northern Gateway Response to Kinder Morgan Information Request No. 1
(6 October 2011), Exhibit B41-24 at 5, 7.

57. The purpose of the open season for the proposed crude oil pipeline, as stated by Enbridge in the open season documents, was to confirm shipper support for the pipeline. Enbridge stated that the Project remained dependent on achievement of commercial feasibility prior to an application for regulatory approval.

Attachment to Northern Gateway Response to Kinder Morgan Information Request No. 1
(6 October 2011), Exhibit B41-24 at 5, 16.

58. With respect to the open season for the proposed condensate line, Enbridge indicated that they would be working with interested parties over the few months following the open season to finalize the transportation agreements and partnership agreements.

Attachment to Northern Gateway Response to Kinder Morgan Information Request No. 1
(6 October 2011), Exhibit B41-24 at 3.

59. In the Project Application, Northern Gateway stated that following the open season processes held in 2005, regulatory uncertainty was a significant concern for prospective shippers and a barrier to prospective shippers entering into shipping commitments.

Northern Gateway Project Application, Volume 2: Economics, Commercial and Financing,
(27 May 2010), Exhibit B1-4 at 2-1.

60. The prospective shippers also expressed concerns regarding the cost estimate, cost estimate transparency, project funding, toll methodology, timing, allocation of risk and return on equity.

Northern Gateway Response to Kinder Morgan Information Request No. 1
(6 October 2011), Exhibit 41-23, IR 1.2(d) at 2.

61. Northern Gateway also concluded that it required additional financial support for project development.

Northern Gateway Project Application, Volume 2: Economics, Commercial and Financing
(27 May 2010), Exhibit B1-4 at 2-1.

62. Beginning in 2007 and proceeding into early 2008, Northern Gateway approached prospective shippers identified through the open season process to determine if they would provide financial support for predevelopment activities in the form of ten \$10 million units.

Northern Gateway Project Application, Volume 2: Economics, Commercial and Financing
(27 May 2010), Exhibit B1-4 at 2-1 to 2-2.

63. Prospective shippers entered into Precedent Agreements to allow all parties to resolve the uncertainties and issues that had been identified. The Precedent Agreements were designed to describe the events and circumstances that must occur before a commitment to ship or pay on a pipeline would take contractual effect through the tendering and execution of Transportation Services Agreements.

Northern Gateway Project Application, Volume 2: Economics, Commercial and Financing
(27 May 2010), Exhibit B1-4 at 2-2 to 2-3.

64. The Precedent Agreements do not obligate any prospective shipper to execute a Transportation Services Agreement unless the shipper has received, at its sole discretion, the necessary internal approval of its senior management or board of directors, as the case may be. The Precedent Agreements do not require any prospective shipper to commit to the volume of crude it will ship or pay for on the crude oil pipeline or the term it will contract for unless and until the shipper executes a Transportation Services Agreement.

Northern Gateway Response to Kinder Morgan IR No. 1 (6 October 2011),
Exhibit 41-23 at IR 1.5(b), (c) at 6-7.

65. The lack of binding conditional Transportation Service Agreements was raised by Kinder Morgan Canada Inc. (“Kinder Morgan”) as a preliminary matter to the current proceedings. Kinder Morgan argued that the Project Application was incomplete and that the Joint Review Panel’s consideration of the Project Application should not proceed given the absence of any form of binding transportation service agreements.

Letter from S. Denstedt on behalf of Kinder Morgan Canada Inc. (2 December 2010),
Exhibit D106-1-1 at 1-6.

66. In response to the preliminary matter raised by Kinder Morgan, the Joint Review Panel responded in its *Panel Session Results and Decision* that while recent pipeline projects had been supported by evidence of firm or conditional shipping commitments, such contractual commitments were not a precondition to the Board’s consideration of the Project Application. The Joint Review Panel stated that such contractual commitments represented strong, but not necessary, evidence of the economic feasibility of a project.

Panel Session Results and Decision (19 January 2011), Exhibit A22-3 at 17.

67. As noted by the Joint Review Panel in its *Panel Session Results and Decision*, recent pipeline projects have been supported by binding conditional transportation service agreements to demonstrate commercial support for the project. For example, in an open season that ended in April 2012, Kinder Morgan received binding 20-year shipping agreements for 510,000 barrels per day of crude oil to be shipped to the west coast of

Canada on its proposed TransMountain pipeline expansion. Regulatory uncertainty did not appear to be a barrier to prospective shippers entering into binding shipping agreements for the TransMountain pipeline expansion.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19751-19753.

68. For projects such as the proposed Kinder Morgan TransMountain pipeline expansion, once the project receives regulatory approval, the conditional transportation service agreements become binding on the prospective shippers. In the case of the current Project, Northern Gateway has not demonstrated commercial support for the Project that would become binding upon Project approval.

69. Northern Gateway has confirmed that determination of the commercial viability of the Project depends on binding Transportation Service Agreements. As of September 21, 2012, no prospective shippers had entered into binding Transportation Service Agreements. Northern Gateway has not presented any evidence that prospective shippers have entered into binding Transportation Shipping Agreements as of the close of hearings on May 1, 2013.

Hearing Transcript, Vol. 78 (21 September 2012) at Lines 26749 – 26766, 26781-26784.

70. Northern Gateway has argued that the Funding Partners' contribution of \$140 million to project development costs demonstrates commercial support for the Project. However, \$140 million represents only 2.5 percent of the total Project costs of \$5.5 billion that the Funding Partners would be committed to had they entered into binding conditional Transportation Service Agreements.

Hearing Transcript, Vol. 69 (4 September 2012) at Line 14645.

71. Northern Gateway has stated that financial commitments to the Project by potential shippers are the ultimate test of the merits of the Project as assessed by the Canadian oil industry. To date, no shippers have made that commitment.

Hearing Transcript, Vol. 69 (4 September 2012) at Lines 14639, 14660.

72. More than 7 years after holding open seasons for both the proposed condensate pipeline and the proposed crude oil pipeline, Northern Gateway has failed to provide evidence of binding commercial support for the Project. Therefore, the need for the Project has not been demonstrated nor confirmed by the Canadian oil industry.

3. Northern Gateway relies on economic benefits from increased oil and gas production induced by the Project which are outside of the scope of the proceedings.

73. As evidence of the economic benefits of the Project, Northern Gateway relies in part on economic benefits that would result from increased oil and gas production induced by the Project. As discussed in paragraphs 95 to 147 below, the Coalition submits that the economic benefits of the Project, including these induced benefits, have been overestimated.

74. However, even if it is assumed that Northern Gateway's estimate of the financial benefits from increased oil and gas production induced by the Project are correct, the Joint Review Panel is still required to balance the totality of the benefits of the Project against the totality of the burdens and costs of the Project.

75. In the *Panel Session Results and Decision*, the Joint Review Panel determined that the environmental effects of upstream oil and gas development induced by the Project are outside of the scope of the Panel's review and assessment of the Project.

Panel Session Results and Decision (19 January 2011), Exhibit A22-3 at 12-14.

76. In a motion to the Joint Review Panel, the Coalition submitted that if the Joint Review Panel found that there was an insufficient direct connection between the Project and upstream oil sands development, then the Panel must exclude from its consideration any of the economic benefits of the upstream oil sands development induced by the Project.

Living Oceans Society, Raincoast Conservation Foundation and ForestEthics Notice of Motion (13 October 2011), Exhibit D122-3-02 at para 55.

77. In its Decision on the Coalition Notice of Motion, the Joint Review Panel stated that the issue of the exclusion of the consideration of the economic benefits of upstream oil sands development induced by the Project could be adequately raised in final argument.
Panel Ruling No. 4, Notice of Motion from Living Oceans Society, Raincoast Conservation Foundation and ForestEthics (6 December 2011), Exhibit A69-1 at 3.
78. The Coalition continues to submit that, given that the Joint Review Panel has excluded evidence of the environmental effects of upstream oil and gas development induced by the Project, the Panel must exclude from its consideration any of the economic benefits of the upstream oil and gas development induced by the Project.
79. Northern Gateway submits that the Project will result in a price uplift for crude oil from the Western Canadian Sedimentary Basin (“WCSB”) ranging from \$0.34 to \$3.35 per barrel between 2018 and 2035, depending on the type of oil.
Public Interest Benefit Evaluation of the Enbridge Northern Pipeline Project: Update and Reply Evidence (20 July 2012), Exhibit B83-04 Table 2.3 at 50 [Public Interest Benefit Evaluation].
80. Northern Gateway submits that the Project will result in an incremental revenue gain of \$114.8 billion for WCSB crude oil production and sales from 2019 to 2048 as a result of the price uplift.
Public Interest Benefit Evaluation, Exhibit B83-04 at 50-51.
81. Northern Gateway submits that over the period 2000 to 2010, investment expenditures by the conventional oil and gas sector have averaged about 47 percent of net income.
Public Interest Benefit Evaluation, Exhibit B83-04 at 51.
82. The *Public Interest Benefit Evaluation* assumed that the geographical distribution of the reinvestment and the type of reinvestment would be similar to those recorded in the Canadian Association of Petroleum Producers (“CAPP”) *Statistical Handbook* for the period 2007 to 2010.

Public Interest Benefit Evaluation, Exhibit B83-04 at 52.

83. The CAPP *Statistical Handbook* issued in September 2011 indicates that total expenditures in the oil and gas sector in Alberta in 2007 to 2010 were \$146.8 billion. The *Statistical Handbook* also indicates that during that period, \$121 billion or 82 percent of the expenditures in the oil and gas sector in Alberta were in the oil sands.

Canadian Association of Petroleum Producers, *Statistical Handbook* (September 2011),
Tables 4.3(b), 4.16(b), Exhibit B122-3-19 at 2-3.

84. Northern Gateway submits that the increased revenues for WCSB crude oil production and sales resulting from the Project would lead to an estimated increase in investment in Canadian oil and gas development of \$48 billion over the period 2019 to 2048.

Public Interest Benefit Evaluation, Exhibit B83-04 at 61.

85. Northern Gateway submits that the increased oil and gas production from the increased reinvestment resulting from the Project will result in increased Gross Domestic Product (“GDP”) of \$109.6 billion over the period 2019 to 2048, including direct, indirect and induced impacts. The increase in GDP from increased oil and gas production accounts for 35 percent of the total estimated GDP impacts of the Project.

Public Interest Benefit Evaluation, Exhibit B83-04, Table 3.1 at 54, Table 3.7 at 62.

86. Despite the assertion in the *Public Interest Benefit Evaluation* that the geographical distribution of the reinvestment and the type of reinvestment would be similar to those recorded in the CAPP *Statistical Handbook* for the period 2007 to 2010, Dr. Robert Mansell stated in oral testimony that the *Public Interest Benefit Evaluation* assumed that all of the reinvestment was in the conventional oil and gas industry.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19570-19578.

87. Dr. Mansell indicated that had the *Public Interest Benefit Evaluation* assumed that some portion of the reinvestment occurred in the oil sands consistent with the CAPP *Statistical*

Handbook data for the period 2007 to 2010, the result would have been even higher oil production than presented in the *Public Interest Benefit Evaluation*.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19612-19617.

88. Despite asserting in the *Public Interest Benefit Analysis* that increased oil and gas production resulting from the Project will result in increased GDP of \$109.6 billion over the period 2019 to 2048, Dr. Mansell asserted in oral testimony that the Project will not impact the amount of crude oil produced. Dr. Mansell did not explain this discrepancy.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 20705, 20714.

89. In the calculation of the increased GDP arising from reinvestment and increased oil and gas production, whether in the oil sands or conventional production, the *Public Interest Benefit Evaluation* does not account for any of the environmental impacts or socio-economic costs associated with that increased oil and gas production.

Hearing Transcript, Vol. 73, (8 September 2012) at Lines 19687-19710.

90. As stated in *Emera*, the Joint Review Panel must identify and weigh all relevant evidence on the record and come to a determination whether the Project is in the public interest and whether the Project meets the test for present and future public convenience and necessity. The Panel must balance the totality of the benefits against the totality of the burdens to come to its final determination as to whether the Project is in the present and future public interest and necessity.

Emera at 84,94.

91. In the *Panel Session Results and Decision*, the Joint Review Panel stated:

“...we do not consider that there is a sufficiently direct connection between the Project and any particular existing or proposed oil sands development, or other oil production activities, to warrant consideration of the environmental effects of such activities as part of our assessment of the Project under the CEA Act or the NEB Act. Subject to consideration of cumulative effects, as referred to in section 2.1.3, we will not consider the environmental effects of upstream hydrocarbon production projects or activities in our review.”

Panel Session Results and Decision (19 January 2011), Exhibit A22-3 at 13.

92. “Environmental effects” are not defined in the *NEB Act*. “Environmental effects” as defined in the *CEA Act, 2012* include a change in socio-economic conditions resulting from the Project.

CEA Act, 2012, s 5(2)(b)(i).

93. Given that the Joint Review Panel decided to exclude evidence of the environmental effects of oil sands development and other conventional oil and gas production activities induced by the Project from being presented in written and oral evidence, the Panel must exclude consideration of the economic benefits arising from increased oil sands development or other oil and gas activities induced by the Project in order to consider the totality of the benefits against the totality of the burdens induced by the Project in a balanced manner.

94. It is not logical for the Joint Review Panel to consider the benefits of induced upstream oil and gas development while rejecting consideration of the negative impacts of those developments in the pipeline approval process. Such consideration would be an error in law. Therefore, the Panel must not consider the induced upstream economic benefits of the Project as presented in the *Public Interest Benefit Evaluation* when determining the public interest.

Michael M. Wenig and Patricia Sutherland, “Considering the Upstream/Downstream Effects of the Mackenzie Pipeline: Rough Paddling for the National Energy Board”, (2004) 86 Resources 1 at 3 [Appendix D].

4. The cost/benefit models used by Northern Gateway overestimate the financial benefits and underestimate the societal costs of the Project.

95. A number of the assumptions built into the economic models used for the Project result in an overestimation of the economic benefits and an underestimation of the societal costs of the Project.

96. The estimation of the financial impacts of the Project in the *Update of Market Prospects and Benefit Analysis for the Northern Gateway Project* (“*Market Update*”) and the subsequent use of those financial estimates in the *Public Interest Benefit Evaluation* are subject to the following errors:

- (a) the *Market Update* fails to consider the impact of certain additional pipeline projects that may provide market access to the west coast of Canada and to eastern Canada;
- (b) the *Market Update* and the *Public Interest Benefit Evaluation* fail to account for the impact of the Project on Western Canadian oil production;
- (c) the *Market Update* and *Public Interest Benefit Evaluation* fail to consider that some portion of the oil transported on the Northern Gateway pipeline may not enter the free market;
- (d) the *Market Update* fails to consider the potential impact of low carbon fuel standards in the United States and elsewhere; and
- (e) the *Public Interest Benefit Evaluation* fails to account for the loss of natural capital resulting from increased oil and gas production induced by the Project.

Update of Market Prospects and Benefit Analysis for the Northern Gateway Project, (20 July 2012) Exhibit 83-03 [*Market Update*].

(a) **The *Market Update* fails to consider the impact of certain additional pipeline projects that may provide market access to the west coast of Canada and to eastern Canada.**

97. The Coalition submits that the *Market Update* fails to consider the impact of certain additional pipeline projects that may provide market access to the west coast of Canada and to eastern Canada.

98. The *Market Update* submits that the Project allows Canadian crude producers to stop selling to their least financially attractive refiner clients and reduces their need to ship heavy crude via comparatively expensive rail transport. Northern Gateway submits that the result of the Project is increased net prices at Edmonton for Canadian heavy crude producers.

Market Update, Exhibit 83-03 at 5-6.

99. In the absence of sufficient pipeline capacity, the model used in the *Market Update* uses more expensive rail transport in both the Base Case and Project scenarios. Under the Project scenario, the additional capacity provided by the Northern Gateway pipeline eliminates the need for rail shipments to British Columbia ports or the US Gulf Coast for the first 5 years of the Project (2018-2023) and results in very sizable reductions in rail shipments in subsequent years. Therefore, a portion of the net price increase at Edmonton resulting from the Project results from avoidance of more expensive rail transport.

Market Update, Exhibit 83-03 at 5-6.

100. The *Market Update* states that, if rail transport is not available for some reason, the alternatives for the Western Canadian crude producers are one or more high capacity export pipelines to a sizable market or the shut-in of oil production.

Market Update, Exhibit 83-03 at 39.

101. The *Market Update* states that it includes in its modeling the existing North American crude pipeline network, all non-Enbridge pipeline projects approved by the Board plus other Enbridge and non-Enbridge projects considered likely to proceed.

Market Update, Exhibit 83-03 at 18.

102. However, the *Market Update* excluded from its modeling the proposed Enbridge Line 9B expansion and product change and the proposed expansion of the Kinder Morgan TransMountain pipeline.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19712-19718, 19751-19753.

103. In 2012, Enbridge announced their intention to reverse Line 9B from Westover, Ontario to Montreal, Quebec and to apply to transport heavy crude oil on Lines 9A and 9B. This would provide an additional 240,000 barrels per day of capacity to eastern Canada for some combination of western Canadian light and heavy crude oils and crude oil from the US Bakken field.

Hearing Transcript, Vol. 73(8 September 2012) at Lines 19732-19747.

104. In oral testimony, Mr. Neil Earnest explained that at the time the *Market Update* was prepared, Enbridge did not have an application before the NEB for the Line 9B reversal and product change and therefore Line 9B was not considered in the *Market Update*.

Hearing Transcript, Vol. 73(8 September 2012) at Lines 19717

105. The *Market Update* also did not model the potential expansion of the Kinder Morgan TransMountain pipeline to the Westridge marine terminal in Burnaby, British Columbia. The proposed TransMountain pipeline expansion, if approved, would increase the potential pipeline capacity to the Westridge terminal by 450,000 barrels per day with an in-service date of 2017.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19751- 19753.

106. In oral testimony, Mr. Earnest stated that Kinder Morgan did not have a facilities application for the proposed TransMountain pipeline expansion before the Board at the time of the hearing and that he did not think that it was appropriate or fair to obligate Northern Gateway to demonstrate that the usefulness of the Northern Gateway pipeline would be impacted if a competitor's pipeline were hypothetically built first.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19759-10760.

107. The Canadian Environmental Assessment Agency indicates that a cumulative effects assessment should reflect "the most likely future scenario". An environmental assessment should consider projects that are "certain" and "reasonably foreseeable." The responsible authority is not required to consider "hypothetical" projects but may do so at their discretion.

Canadian Environmental Assessment Agency, *Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act* (2008) Operational Policy Statement, on-line at <<http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=1F77F3C2-1>> at 2.

108. "Certain" projects include projects where there is a high probability that the action will proceed, including where a "[s]ubmission for regulatory review is imminent" or the "[i]ntent to proceed [has been] officially announced by [the] proponent to regulatory agencies." "Reasonably foreseeable" projects are projects where the action may proceed but there is some uncertainty about that conclusion.

Canadian Environmental Assessment Agency, *Cumulative Effects Assessment Practitioners Guide* (1999), online at <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=43952694-1> at 18-19.

109. It was apparent at the time of the hearings that the applications for the reversal of Line 9B and the expansion of the TransMountain pipeline were imminent or at minimum, had been announced by the proponents and it was apparent that those projects may proceed. Therefore, those projects were reasonably foreseeable and should have been included in the analysis in the *Market Update*.

110. As noted in paragraph 99 above, a portion of the net price increase at Edmonton resulting from the Project results from the avoidance of more expensive rail transport. The Line 9B and TransMountain pipeline expansion projects together represent between 450,000 and 690,000 barrels per day of additional pipeline capacity to eastern Canada and a British Columbia port that was not included in the *Market Update*. The Coalition submits that this causes a significant, but unknown, overestimation of the net price increase to western Canadian oil producers at Edmonton that may result from the Project as a result of reduced rail transport. Line 9B and the TransMountain pipeline expansion may provide high-capacity pipeline alternatives to rail transport.

(b) The *Market Update* and the *Public Interest Benefit Evaluation* fail to account for the impact of the Project on Western Canadian oil production.

111. The Coalition submits that the *Market Update* and the *Public Interest Benefit Evaluation* fail to account for the impact of the Project on Western Canadian oil production.

112. The *Market Update* and the *Public Interest Benefit Evaluation* use the June 2011 CAPP Canadian crude supply forecast for both the base case and Project scenarios.

Market Update, Exhibit 83-03 at 5.

Public Interest Benefit Evaluation, Exhibit B83-04 at 53.

113. Both the *Market Update* and the *Public Interest Benefit Evaluation* assume that Canadian crude oil production is unchanged with or without the Project in place. The models use rail transportation as an alternate to shut-in of Canadian crude oil production. Therefore, in the models, Canadian crude oil production remains unchanged with or without the Project.

Market Update, Exhibit 83-03 at 12, 64.

Public Interest Benefit Evaluation, Exhibit B83-04 at 21, 35, 39.

114. However, in oral testimony, Dr. Mansell and Mr. Earnest referred on several occasions to the possibility of the shut-in of Western Canadian crude oil production in the absence of the Project as a more realistic scenario.

Hearing Transcript, Vol. 69 (4 September 2012) at Lines 14596, 14608, 14680-14681.
Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19550, 19560-19562, 19639-19652.

115. In explaining how the price uplift resulting from the Project applied to all Western Canadian crude oil and for the entire 18-year period modeled in the *Market Update*, Mr. Earnest explained that, with Canadian crude oil production held constant, the Project withdraws 500,000 barrels per day from the North American market and this has a positive effect on crude oil prices. Conversely, in the absence of the Project, holding Canadian crude oil production constant, an additional 500,000 barrels per day must be sold into the North American market and this has a negative impact on crude oil prices.

Hearing Transcript, Vol. 70 (5 September 2012) at Lines 15934-15940.

116. However, as discussed in paragraphs 73 to 94 above, the *Public Interest Benefit Evaluation* finds a GDP impact of \$109.6 billion over the period 2019 to 2048 resulting from increased oil and gas production as a result of the Project.

Public Interest Benefit Evaluation, Exhibit B83-04, Table 3.7 at 62.

117. Clearly, the assumption in the *Market Update* that western Canadian crude production remains unchanged with or without the Project is not consistent with the finding in the *Public Interest Benefit Evaluation* that increased oil and gas production induced by the Project will result in a \$109.6 billion increase in GDP. One of these assumptions or findings must be incorrect.

118. The *Market Update* models the difference between North American oil prices with and without the Project while holding Canadian crude oil production constant. Realistically, the appropriate model would predict the difference between North American oil prices

with and without the Project while reflecting that oil production increases with the Project, decreasing the North American market price for oil and reducing the benefits realized from the Project. This has not been modeled.

119. The CAPP *Crude Oil Forecast, Market and Pipelines* issued in June 2012 predicted Western Canadian crude oil production of 4.5 million barrels per day in 2020. If the Project does not proceed, Western Canadian crude oil production would likely decrease as a result of increased rail costs or shut-in of production. This reduced production would, in turn, be expected to result in some price increase for WCSB crude, similar to the impact of withdrawing 525,000 barrels per day of WCSB production from the North American market through the Project. Yet, this potential price increase, in the absence of the Project, is not reflected in the *Market Update*.

Canadian Association of Petroleum Producers, *Crude Oil Forecast, Market and Pipelines* (June 2012), Exhibit D4-17 at (i).

120. The Coalition submits that the failure of the *Market Update* to account for the changes in oil production induced by the Project or production deferred in the absence of the Project renders the forecast of the economic impact of the Project inaccurate and unreliable.

(c) **The *Market Update* and *Public Interest Benefit Evaluation* fail to consider that a portion of the oil transported on the Northern Gateway pipeline may not enter the free market.**

121. The Coalition submits that the *Market Update* and *Public Interest Benefit Evaluation* fail to consider that some portion of the oil transported on the Northern Gateway pipeline may not enter the free market. The *Market Update* and the *Public Interest Benefit Evaluation* therefore overestimate the potential market uplift resulting from the Project.

122. The *Market Update* model operates to maximize the Western Canadian crude netback price at Edmonton, assuming independently operating producers and refiners. The model

assumes that the oil transported on the Northern Gateway pipeline and other pipelines is allocated on a competitive basis amongst private, independent market operators.

Market Update, Exhibit 83-03 at 14-15.

123. MEG Energy, Nexen and Sinopec are funding participants in the Project.

Hearing Transcript, Vol. 71 (6 September 2012) at Lines 16449-16952.

124. The Chinese National Offshore Oil Company (“CNOOC”) purchased a 16.69 percent interest in MEG Energy in 2005.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 21439-21442.

125. CNOOC would also become a funding participant in the Project through its acquisition of Nexen.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 21443-21446.

126. The majority owner of CNOOC is the Government of China.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 21330-21331.

127. The majority owner of Sinopec is the Government of China.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 21333-21334.

128. CNOOC and Sinopec both own and operate significant refinery capacity in China.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 21338.

129. It is Northern Gateway’s evidence that China’s oil import decisions may reflect policy rather than commercial drivers.

Reply Evidence of Roland Priddle (20 July 2012), Exhibit 83-05 at 9.

130. The Government of China caps the price of some domestic refined products at a price that is below the appropriate free market price. Chinese refiners cannot control the price paid

for imported Saudi Light or Arabian Light crude oils. Therefore, the Chinese refiners absorb the price discount for refined products as dictated by the Government of China.

Hearing Transcript, Vol. 71 (6 September 2012) at Lines 16990-16991.

131. CNOOC and Sinopec also own producer assets in Canada.

Hearing Transcript, Vol. 71 (6 September 2012) at Lines 16886-16890, 16955-16958.

132. An integrated producer/refiner will make their decision on where to allocate costs based on their own particular tax, royalty and operating cost situation.

Hearing Transcript, Vol. 70 (5 September 2012) at Lines 16310-16325.

133. Therefore, an integrated producer/refiner, such as CNOOC or Sinopec, who also holds an interest in the Project as a funding participant, may make arrangements within their organizations to ship their own production to their own refineries. Such oil may not enter the broader free market for Western Canadian crude oil and therefore may not be priced at market prices. The *Market Update* model relies on independent, free market decisions that may not apply in this situation.

134. Further, Northern Gateway has not disclosed all of the funding participants. Enbridge has also confirmed that interests in the Project may be disposed through other commercial arrangements. New funding participants, including additional state-controlled companies, may acquire an interest in the Project through the acquisition of that interest from existing funding participants. Therefore, there is the possibility that a significant portion of the oil flowing through the Project may not enter the free market.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19775-19790.

135. Not only does the failure to enter the market undermine the free market assumptions of the *Market Update* model, it also prevents the Joint Review Panel from objectively determining or weighing the contribution of the Project to the Canadian public interest when the Project may, at some point, be controlled by foreign state-owned entities whose

interests differ from that of the Canadian public interest. This undermines a fundamental assumption of the *Market Update* model and the certainty of determining if the Project is in the Canadian public interest.

(d) The *Market Update* fails to consider the potential impact of low carbon fuel standards in the United States and elsewhere.

136. The Coalition submits that the *Market Update* fails to consider the potential impact of low carbon fuel standards in the United States and elsewhere. The Coalition submits that this may result in price reductions for oil sands-produced heavy crude oil that are not reflected in the *Market Update*.

137. The *Market Update* stated that the key markets for oil shipped by the Project will be Northeast Asia and the US West Coast.

Market Update, Exhibit 83-03 at 3.

138. The *Market Update* also stated that Californian regulatory authorities are currently implementing a Low Carbon Fuel Standard that will influence the amount of Canadian crude exported to California and that the precise implications of the standard on the crude processing economics for California refiners are not known at this time.

Market Update, Exhibit 83-03 at 4.

139. In oral testimony, Mr. Earnest indicated that the impacts of the California Low Carbon Fuel Standard on the ability of western Canadian oil producers to sell to the California market were difficult to predict. Therefore, the California market was excluded from the *Market Update* modeling.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19848-10854.

140. Further, Mr. Earnest testified that he did not rule out the possibility of potential Asian markets also implementing a Low Carbon Fuel Standard. The possibility of potential

Asian markets also implementing a Low Carbon Fuel Standard was not considered in the *Market Update*.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 19859-19862.

141. Therefore, the *Market Update* fails to consider a factor that could significantly affect the potential markets and price paid for oil sands-produced heavy crude oil. This adds uncertainty to the economic predictions in the *Market Update*.

(e) **The *Public Interest Benefit Evaluation* fails to account for the loss of natural capital resulting from increased oil and gas production induced by the Project.**

142. As discussed in paragraphs 111 to 120 above, the Project will result in increased oil production, whether from the oil sands or from conventional sources,. In fact, 35 percent of the increase in GDP resulting from the Project, as estimated in the *Public Interest Benefit Evaluation*, results from increased oil and gas production. However, the *Public Interest Benefit Evaluation* fails to account for the increased rate of depletion of Canada's oil resources occurring as a result of the Project. The Coalition submits that the *Public Interest Benefit Evaluation* has therefore failed to consider a significant adverse cost to the Canadian public interest.

143. The *Public Interest Benefit Evaluation* refers to an analysis by the Canadian Centre for the Study of Living Standards estimating that, in 2008, the natural resource wealth in Canada's oil sands amounted to \$1.5 trillion or 18 percent of Canada's tangible wealth.

Public Interest Benefit Evaluation, Exhibit B83-04 at 21.

144. The *Public Interest Benefit Evaluation* analyzes the benefits and costs of the Project but does not account for the increased rate of depletion of Canada's oil resources resulting from increased oil and gas production induced by the Project. The *Public Interest Benefit Evaluation* does not analyze the change in the balance sheet for Canada's oil resources as a result of the Project.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 20059-20060.

145. In oral testimony, Dr. Mansell indicated that despite increased oil production which may result from the Project, accessible oil reserves may increase as new technology makes more of the oil reserves economic to develop.

Hearing Transcript, Vol. 73 (8 September 2012) at Lines 20060-20067.

146. However, the reality remains that the total quantity of Canada's oil reserves in 2048 will be less with the Project than without the Project (or alternatively, the Project does not induce any increased oil production and the *Public Interest Benefit Evaluation* overestimates the benefits of the Project by including induced oil production). The *Public Interest Benefit Evaluation* fails to account for this differential rate of depletion of Canada's oil reserves resulting from the Project. In assessing whether or not this Project is in the public interest, the Joint Review Panel must consider that the Project accelerates the depletion and export of a non-renewable and finite natural resource.

147. In summary, numerous assumptions built into the economic models used for the Project result in an overestimation of the economic benefits and an underestimation of the societal costs of the Project. The Joint Review Panel must consider this when considering the balance between the benefits and burdens of the Project.

D. SUBMISSION OF THE COALITION – THE PROJECT WILL RESULT IN SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS

148. Pursuant to section 52(4) of the *CEA Act, 2012*, the Governor in Council must determine if the significant adverse environmental effects that the Project is likely to cause are justified in the circumstances. Further, as discussed in Part C above, the *NEB Act* requires a weighing of the benefits of the Project against the risks and burdens in determining if the Project is in the public interest.
149. The *CEA Act, 2012* stipulates that the test to be applied for determining whether any designated project should proceed from an environmental assessment perspective is

whether approval of the project would result in significant adverse environmental effects. In making that determination, the Joint Review panel must consider the purposes of the *CEA Act, 2012*:

- 4 (1) The purposes of this Act are
 - (a) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;
 - (b) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;
 - (c) to promote cooperation and coordinated action between federal and provincial governments with respect to environmental assessments;
 - (d) to promote communication and cooperation with aboriginal peoples with respect to environmental assessments;
 - (e) to ensure that opportunities are provided for meaningful public participation during an environmental assessment;
 - (f) to ensure that an environmental assessment is completed in a timely manner;...

CEA Act, 2012, s 4(1)(a)-(f).

150. The Coalition submits that the Project will result in significant adverse environmental effects that cannot be justified in the circumstances. The Coalition further submits that the risks and burdens of the Project outweigh the potential benefits of the Project.

151. The Coalition submits that Northern Gateway, by failing to adequately identify the potential significant adverse environmental effects of the Project as discussed in Part B above, by failing to identify effective, technically and economically feasible mitigation measures for many of those impacts and by delaying critical studies until post approval,

has failed to demonstrate that the benefits of the Project outweigh the burdens and risks and has failed to demonstrate that the potential significant adverse environmental effects are justified in the circumstances. Specifically, the Coalition submits that:

- (a) Northern Gateway's reliance on future research and future planning prevents the Joint Review Panel from properly assessing the potential adverse environmental effects of the Project;
- (b) The Project will cause significant adverse environmental effects whether or not a marine spill occurs;
- (c) Northern Gateway's risk reduction, mitigation and spill response measures for a marine oil spill are either unproven or inadequate;
- (d) Northern Gateway has failed to adequately identify and address the potential impacts on salmon and the potential impacts on the commercial, recreational and cultural uses of salmon; and
- (e) Northern Gateway has failed to demonstrate and confirm that environmental performance has improved since the Marshall, Michigan spill in July 2010.

1. Northern Gateway's reliance on future research and future planning prevents the Joint Review Panel from properly assessing the potential adverse environmental effects of the Project.

152. In many cases, Northern Gateway has deferred the assessment of the risks associated with the Project or the effectiveness of mitigation measures to future studies and plans to be completed after the Project has been approved by the Governor in Council. As discussed in Part B above, this does not meet the requirements of section 19 of the *CEA Act*, 2012.

153. This also does not permit the Joint Review Panel to assess the significance of the environmental effects, as required, nor does it permit the Joint Review Panel to review the technical and economic feasibility of mitigation measures that are not yet fully developed.
154. This deferral of the environmental assessment is illustrated in three areas where necessary research has not been completed and the current state of knowledge is insufficient to adequately assess the risk:
- (a) insufficient knowledge of the fate and behaviour of diluted bitumen in the marine environment;
 - (b) insufficient assessment of the geohazard risks along the pipeline route; and
 - (c) failure to conduct drift studies to determine the timing and risk associated with marine rescue in the Open Water Area (“OWA”).
- (a) **There is insufficient knowledge of the fate and behaviour of diluted bitumen in the marine environment for the Joint Review Panel to properly assess the risks associated with a marine oil spill.**
155. The Project is premised on the assertion that diluted bitumen will float on receiving waters in the marine environment. The question of whether diluted bitumen products will sink or float following a spill is a critical issue to be determined in assessing the environmental effects of the Project. The answer will assist in determining which species are in danger of exposure to spilled diluted bitumen and the pathways by which they will be exposed.

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 17122-17127, 17409.

156. At present, none of the responsible agencies of the Government of Canada has a scientifically reliable understanding of the pathways of effects of a spill in the marine environment of diluted bitumen products.

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 17386-17391.

157. Determining whether spilled diluted bitumen will float or sink is also important to the assessment of mitigation measures, as the answer will determine whether or not the spilled bitumen product will be amenable to oil recovery technology designed for floating oil.

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 17140-17142.

158. The evidence filed in support of the premise that diluted bitumen will float consists of two reports by SL Ross Environmental Research Ltd. The Coalition submits that the SL Ross reports are insufficient to support that premise that bitumen will float in all situations in the marine environment. In particular, the Coalition submits that:

- (a) the samples subjected to weathering analysis as reported in *Technical Data Report: Properties and Fate of Hydrocarbons Associated with Hypothetical Spills at the Marine Terminal and in the Confined Channel Area* (“SL Ross 2010 Report”) were unrealistically thick slicks at 2 cm. Had a more realistic slick of 1 mm been used, the samples would have weathered ten times faster, thereby achieving higher densities much more quickly than did the samples measured;

Randy Belore, *Technical Data Report: Properties and Fate of Hydrocarbons Associated with Hypothetical Spills at the Marine Terminal and in the Confined Channel Area* (26 October 2010), Exhibit 16-31 at 2-1 [SL Ross 2010 Report].

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 6-7.

- (b) by failing to present results for testing at temperatures and wind speeds frequently occurring in the Project area, both the *SL Ross 2010 Report* and *Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend* (“*SL Ross 2012 Report*”) significantly understated the time required to weather diluted bitumen products to a density at which they would begin to sink;

SL Ross Environmental Research Limited, *Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend* (6 February 2013), Exhibit B193-2 [*SL Ross 2012 Report*].

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 10.

- (c) by failing to account for the difference in the rates of thermal expansion of diluted bitumen and water, both the *SL Ross 2010 Report* and the *SL Ross 2012 Report* presented misleading conclusions regarding the likelihood that spilled bitumen products would sink in fresh or marine receiving waters; and

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 13.

- (d) by failing to account for silt loading or for the presence of zooplankton and other organic material in the water column, or the effects of density gradients existing where fresh and salt water meet in the Confined Channel Assessment Area (“CCAA”), the *SL Ross 2010 Report* and the *SL Ross 2012 Report* failed to consider important mechanical factors that would assist in sinking bitumen products spilled in the marine environment.

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 11.

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 17214-17217.

159. The existing data for bitumen fate and behavior is found in the *SL Ross 2010 Report*, the *SL Ross 2012 Report* and in data provided directly to Dr. Jeffrey Short by Environment Canada. Independent analysis of these reports by Dr. Short showed that, when corrected for temperatures and wind speeds commonly occurring in the CCAA, and applying the actual salinity of seawater in that area, Cold Lake bitumen blends could sink in as little as 25 hours in Kitimat Arm and might also sink after prolonged weathering throughout the CCAA.

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 11.

160. Dr. Short's analysis of the *SL Ross 2010 Report* and the *SL Ross 2012 Report* disclosed variations in density measurement of weathered Cold Lake Bitumen that were sufficiently significant (in the range of 2 to 4 kg/m³) as to render the results questionable where densities within 1 to 2 kg/m³ of the density of water are being measured. Dr. Short concluded that far more testing would need to be done, on a wider variety of products likely to be shipped on the proposed pipeline, and at variables of temperature, wind speed and salinity that more closely approximate conditions in the Project area, before environmental effects of a spill could be evaluated.

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 13.

161. Dr. Short also concluded that, on the basis of the limited testing done to date, a clear conclusion can be drawn that diluted bitumen products would often eventually sink in fresh water due solely to evaporative weathering, and would also sink in brackish marine waters in plausible circumstances.

Jeffrey W. Short, *Susceptibility of Diluted Bitumen Products from the Alberta Tar Sands to Sinking in Water* (4 April 2013), Exhibit D72-80-2 at 13.

162. Further, the evidence filed by the Northern Gateway is insufficient to establish the levels and locations of sediment in the waters of the CCAA. Given its geography, with two glacially-fed rivers and numerous small streams entering the area, it is reasonable to

expect that, at least at certain times of the year, there would be sediment load entering the CCAA.

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 17200-17201.

163. The need for additional knowledge of the potential fate and behaviour of the oils proposed to be shipped by the Project in the case of a spill in the marine environment was also reflected in recommendations made by Environment Canada that:

- (a) Northern Gateway consider an ongoing research effort into the environmental behaviour and fate models for the hydrocarbon products to be shipped; and
- (b) Northern Gateway undertake additional spill modelling and risk assessment studies based on current state-of-the art knowledge and practice.

Environment Canada, *Written Evidence Submission of Environment Canada to the Joint Review Panel* (22 December 2011), Exhibit E9-6-32, at para 67, 98.

Environment Canada, *Technical Review of Enbridge Northern Gateway Marine Spill Modelling Studies and Related Environmental Consequence Analysis* (11 September 2012), Exhibit E9-39-2 at 4.

164. In oral testimony, Dr. Bruce Hollebhone of Environment Canada confirmed that little is known about the impacts or long term persistence of oil sands products in the environment and more research is needed.

Hearing Transcript, Vol. 171 (26 April 2012) at Lines 23649-23652.

165. Dr. Hollebhone concurred with Dr. Short's assessment that the evidence filed to date was insufficient. He noted that further testing was required and stressed the importance of testing at a range of temperatures to "bracket" the conditions likely to be experienced in the field. Dr. Hollebhone also noted that his lab typically would produce results for fresh,

brackish and salt water at a range of temperatures. Dr. Hollebhone described several parameters that are important in the testing, but noted that temperature is “a very important parameter.”

Hearing Transcript, Vol. 167 (22 April 2013) at Lines 17229-17276.

166. Dr. Hollebhone also confirmed that information on the fate and behaviour of the products to be shipped by the Project is important to determining the consequences of an oil spill in the marine environment.

Hearing Transcript, Vol. 171 (26 April 2012) at Lines 23604-23614.

167. Risk is a function of probability and consequence. Therefore, in the absence of adequate information of the consequences of a spill of oil sands products in the marine environment, the Joint Review Panel cannot determine the risk associated with this aspect of the Project. Therefore, the Coalition submits that the Joint Review Panel cannot meet the requirement of section 19(1)(b) of *CEA Act, 2012* to determine the significance of the environmental effect of a potential spill into the marine environment.

Hearing Transcript, Vol. 171 (26 April 2012) at Lines 23604-23605.

(b) Assessment of the geohazard risks along the pipeline route has not been completed.

168. The Coalition submits that the assessment of the geohazard risks along the pipeline route has not been completed to the level that would permit the Joint Review Panel to determine the significance of that risk.

169. With respect to geohazard risks along the proposed pipeline route, Natural Resources Canada stated that its review of Enbridge’s assessment of potential landslide effects on the pipeline corridor could not be completed without additional mapping of the geohazards along the pipeline route.

Submission of Natural Resources Canada, (22 December 2011), Exhibit E9-6-30 at para 74.

170. In response to Joint Review Panel Ruling No. 91, Northern Gateway subsequently submitted geohazard maps for the proposed pipeline route.

Northern Gateway Pipelines Response to Joint Review Panel Ruling No. 91 (5 October 2012), Exhibits B133-1 through B133-32 and B134-1 through B133-32.

171. In oral testimony, Dr. Andrée Blais-Stevens of Natural Resources Canada confirmed that, while the submitted Northern Gateway geohazard maps provided an inventory of landslide features, the maps did not assess or rate landslide susceptibility.

Hearing Transcript, Vol. 110 (28 November 2012) at Lines 7426-7435.

172. Dr. Blais-Stevens also stated that it was unclear if the geohazard maps submitted by Northern Gateway included and depicted an inventory of landslides to the height of land adjacent to the pipeline corridor.

Hearing Transcript, Vol. 110 (28 November 2012) at Lines 7423-7425.

173. Further, Dr. Blais-Stevens confirmed that Natural Resources Canada had not prepared a landslide susceptibility map for the proposed Project pipeline route.

Hearing Transcript, Vol. 110 (28 November 2012) at Lines 7436-7437.

174. In its review of Northern Gateway's evidence with respect to geohazards, Natural Resources Canada also found that Enbridge did not adequately describe how the Project elements and activities may have effects on the existing geology, terrain conditions and geohazards and that Enbridge did not discuss how geohazards will increase or decrease or if the occurrence, frequency and intensity of landslide events would remain the same as a result of the proposed Project.

Submission of Natural Resources Canada, (22 December 2011), Exhibit E9-6-30 at para 84-85.

175. In oral testimony, Natural Resources Canada confirmed that they had not, at the time of the hearings, received any additional information from Northern Gateway addressing the concerns discussed in paragraph 174 above.

Hearing Transcript, Vol. 110 (28 November 2012) at Lines 7457-7466.

176. In oral testimony, Dr. Blais-Stevens confirmed that her previous research found that pipelines and roads in northwestern British Columbia, but not necessarily along the proposed Project pipeline route, had in the past been damaged by landslides.

Hearing Transcript, Vol. 110 (28 November 2012) at Lines 7467-7504, 7872-7873.

177. Dr. Blais-Stevens also testified that climate change impacts and vegetation changes resulting from pine beetle damage could increase the potential for landslides to occur.

Hearing Transcript, Vol. 110 (28 November 2012) at Lines 7514-7522.

178. In oral testimony, Mr. Ray Doering, Manager of Engineering for the Northern Gateway Project, stated that there was a substantial amount of additional geotechnical work that needed to be undertaken to further inform the geohazard risk analysis.

Hearing Transcript, Vol. 87 (11 October 2012) at Line 7838.

179. In oral testimony, Mr. Drummond Cavers, Principle Engineer, AMEC Environmental and Infrastructure, confirmed that additional LIDAR surveys would be conducted on the entire proposed pipeline corridor in order to detect additional landslide features. However, this work will not be completed until the detailed engineering phase.

Hearing Transcript, Vol. 85 (9 October 2012) at Lines 4917-4944, 5436-5441.

180. The evidence demonstrates that Northern Gateway has not completed a sufficient assessment of landslide susceptibility along the proposed pipeline route. Further, Northern Gateway has not assessed the potential impact of the Project itself on existing geology, terrain conditions and geohazards. Northern Gateway has also not assessed the potential impact of pine beetle damage and climate change on the future landslide risks. By Northern Gateway's own admission, a substantial amount of additional geotechnical work is required to inform the geohazard risk analysis.

181. The Joint Review Panel cannot adequately assess the geohazard risk and the subsequent environmental consequences of landslides and slopes failures in the absence of a landslide susceptibility assessment of the proposed pipeline corridor. Northern Gateway's commitment to conduct additional geohazard surveys post-approval does not address this inadequacy. The Joint Review Panel is required to assess the potential environmental effects prior to, rather than after, approval of the Project.

(c) Drift studies to determine the risk of grounding in the Open Water Area and to identify mitigation measures have not been completed.

182. The voluntary Tanker Exclusion Zone was established to ensure that a tanker en route from Alaska to the west coast of the United States which suffered an engine failure would have sufficient time to make repairs or obtain tug assistance before drifting ashore.

*Pacific Pilotage Authority of Canada – Letter of Comment, (26 August 2012),
Document A3A1A6 at 3.*

183. The Tanker Exclusion Zone was defined on the basis of drift studies which established the area off Canada's west coast where a disabled tanker could drift ashore before the arrival of tugs in unfavourable weather. The intention of the Tanker Exclusion Zone is to prevent the grounding of an oil tanker on the British Columbia coast.

*Hearing Transcript, Vol. 169 (24 April 2013) at Lines 20343-20346, 20351-20356,
20422-20426.*

184. The Coalition submits that the risk of a tanker grounding as a result of an engine failure in the Tanker Exclusion Zone is the same whether the tanker is travelling north to south from Alaska to the west coast of the United States or east to west through the Open Water Area from a Canadian port to the open ocean.

185. In oral testimony, Mr. Keith Michel, Chairman, Herbert Engineering Corp., confirmed that a drift study to determine if a disabled tanker could drift aground in Dixon Entrance or Queen Charlotte Sound would be conducted as part of the detailed design phase.

Hearing Transcript, Vol. 159 (22 March 2013) at Lines 3694-3697.

186. Mr. Michel indicated that the drift study could lead to the identification of mitigation approaches for disabled tugs in the open water area. This could include the possibility of holding escort tugs at Triple Island until the tanker has passed through the OWA.

Hearing Transcript, Vol. 162 (4 April 2013) at Lines 8426-8438.

187. Mr. Michel indicated that the drift study would evaluate the effectiveness of an escort tug reaching a disabled tanker in the OWA.

Hearing Transcript, Vol. 157 (20 March 2013) at Lines 582-584.

188. Therefore, the risk of a disabled tanker running aground in Dixon Entrance or Queen Charlotte Sound, the approach to mitigating that risk and the effectiveness of that mitigation will not be evaluated until the detailed design phase of the Project. There remains a high degree of uncertainty as to whether rescue tugs will be stationed at appropriate locations and be capable of responding to a disabled tanker in the OWA before there is a risk of grounding. Therefore, the Joint Review Panel is unable to evaluate this risk or to assess the feasibility of the proposed mitigation actions. However, the Joint Review Panel is required to assess this risk before, rather than after, considering approval of the Project.

2. The Project will cause significant adverse environmental effects whether or not a marine spill occurs

189. The evidence before the Joint Review Panel indicates that the Project would cause significant adverse environmental effects in the event of any oil spill, either in the terrestrial or in the marine environment.

Hearing Transcript, Vol. 145 (26 February 2013) at Lines 17322-17323.

Hearing Transcript, Vol. 167 (22 April 2013) at Line 16511-16515.

Hearing Transcript, Vol. 98 (1 November 2012) at Line 21452.

Written Evidence of Raincoast Conservation Foundation, Part 1 (21 December 2012),

Exhibit 170-2-02 at para 100.

190. The evidence also makes clear that, even if no oil spill occurs, the Project would cause significant adverse environmental effects upon wildlife including species of wildlife that are listed pursuant to the provisions of the *SAR Act*.

191. These populations of wildlife will likely suffer adverse environmental effects in both the terrestrial as well as the marine environment and would include woodland caribou, salmon, herring, marbled murrelets, cetaceans such as humpback whale, northern resident and transient killer whales, fin whales and sea otters.

Written Evidence of Raincoast Conservation Foundation, Part 1 (21 December 2012),
Exhibit 170-2-02 at para 90.

Written Evidence of Raincoast Conservation Foundation, Part 2-2 (21 December 2012),
Exhibit 170-2-07 at paras 55-61.

Written Evidence of Raincoast Conservation Foundation, Part 2-3 (21 December 2012),
Exhibit 170-2-08 at para 92.

Written Evidence of Raincoast Conservation Foundation, Part 3 (21 December 2012),
Exhibit 170-2-14 at para 51.

Written Evidence of Raincoast Conservation Foundation, Part 4-2 (21 December 2012),
Exhibit 170-2-17 at para 55.

Written Evidence of Raincoast Conservation Foundation, Part 5 (21 December 2012),
Exhibit 170-2-18 at paras 20-21.

192. In summary, there are significant adverse environmental effects that may occur as a result of this Project. These significant adverse effects would occur in both the terrestrial as well as the marine environment. These significant adverse effects would occur during the construction and operation of the pipeline, the construction and operation of the marine terminal and the loading and transport of the product transported through the proposed pipeline onto tankers. Moreover, when the potential for accident and malfunction is considered, there are significant adverse environmental effects that would occur in both the terrestrial and marine environments as a result of an oil spill. Given the significant

adverse environmental effects that could result from the Project, the Joint Review Panel cannot recommend approval of the Project.

3. Northern Gateway's risk reduction, mitigation and spill response measures for a marine oil spill are either unproven or inadequate.

193. In many cases, Northern Gateway has failed to identify effective risk reduction, mitigation and response measures for marine oil spills. Specifically:

- (a) Northern Gateway has failed to identify and properly evaluate places-of-refuge;
- (b) Northern Gateway's reliance on tugs of opportunity for open sea rescue is unwarranted;
- (c) Northern Gateway has not identified any ocean salvage capability;
- (d) Northern Gateway has not provided a response gap analysis for its marine spill response plans;
- (e) Northern Gateway's reliance on the use of dispersants in a marine oil spill is unwarranted; and
- (f) Northern Gateway has failed to identify effective spill response measures for sunken oil in the marine environment.

(a) Northern Gateway has failed to identify and properly evaluate places-of-refuge.

194. Northern Gateway has not identified or properly evaluated potential places-of-refuge, particularly for tankers which become disabled or are required to seek shelter in the

OWA. Additional work is required to identify and evaluate places-of-refuge should a tanker need immediate access for repairs to prevent vessel or environmental damage.

EnviroEmerg Consulting, *A Technical Analysis of Marine Transportation Statements for the Enbridge Northern Gateway Project: Tanker Casualty Risk Reduction and Spill Response Preparedness* (21 December 2011), Exhibit D122-7-04 at 10 [*Spill Response Preparedness Analysis*].

195. The potential places-of-refuge need to be more fully evaluated. A full evaluation of potential places-of-refuge would include:

- (a) an analysis of historical sea and weather data to estimate how frequently a tanker would be required to undertake alternative transit measures owing to adverse sea conditions;
- (b) determinations of the technical suitability to anchor a VLCC in the place-of-refuge;
- (c) a human health risk assessment to assess the risk of chemical exposure or fire, particularly in the case of a condensate leak or fire;
- (d) an ecological assessment of the selected site;
- (e) communication and consultation with communities close to the place-of-refuge.

Spill Response Preparedness Analysis, Exhibit D122-7-04 at 29.

Spill Response Preparedness Analysis, Exhibit D122-7-05 at 46.

(b) Northern Gateway's reliance on tugs of opportunity for open sea rescue is unwarranted.

196. Northern Gateway has committed that the escort tugs will have ocean rescue and emergency towing capabilities and will be available for immediate dispatch to assist a disabled tanker out to 200 nautical miles.

Marine Resources Group and The Glosten Associates, Inc., *An Escort and Docking Tug System, Northern Gateway Project, Kitimat, British Columbia* (18 November 2011), Exhibit B44-3 at 6, 10.

197. As discussed in paragraphs 182 to 188 above, given the absence of a drift study, there is no assurance that an escort tug stationed at Hecate Strait or actively escorting a tanker in the CCAA would reach a disabled tanker before the tanker drifted aground.

198. Further, Northern Gateway has not identified the protocols and procedures for releasing an escort tug from tanker escort duty to respond to an ocean rescue situation. Northern Gateway has not identified where tankers will hold in either the OWA or CCAA if an escort tug must respond to an open ocean rescue situation. Northern Gateway has not identified the protocols and procedures to be followed if more than one escort tug is required to respond to an ocean rescue situation. Northern Gateway has not identified the sea conditions under which it would be unsafe to attempt an ocean rescue with an escort tug. Northern Gateway has not identified strategies for dealing with disabled tankers under various conditions: does the rescue tug hold a disabled tanker at its position; does it tow the disabled tanker to a safe refuge; does it guide a disabled tanker to a safe grounding; does the plan differ if the tanker is leaking oil; does the plan differ if there is a fire on the tanker; does the plan differ if there is major structural damage to the tanker? In the absence of answers to these questions, Northern Gateway and the Joint Review Panel cannot rely on escort tugs as an effective ocean rescue measure.

Spill Response Preparedness Analysis, Exhibit D122-7-04 at 18.

(c) Northern Gateway has not identified any ocean salvage capability.

199. Northern Gateway has not identified any capability to salvage a disabled tanker in the open water area. There is no discussion of salvage capability in the Project Application or supporting documents.

200. Salvage is initiated once the master of the vessel has determined that the resources and personnel available onboard are inadequate to either save the vessel or prevent a spill. Timely and robust salvage is essential whenever a tanker's structural integrity has been compromised by fire, explosion, metal fatigue, collision, grounding or allision. Salvage is a specialized operation and process that requires technical specialists such as salvors, divers and stability analysts to undertake site assessments and structural stability analysis. Additionally, salvage requires specialized equipment to stabilize a vessel, make temporary repairs or remove oil from cargo tanks.

Spill Response Preparedness Analysis, Exhibit D122-7-05 at 43-44.

201. While specially designed escort tugs may hold or tow a disabled tanker, salvage of a tanker is beyond the capabilities of an escort tug.

202. As a minimum, a salvage plan would identify a salvage provider with timely access to the CCAA and open water area out to 200 nautical miles. The salvage provider should have, as a minimum, the following capabilities:

- (a) 24-hour a day response availability;
- (b) an identified on-scene response time;
- (c) lightering and product transfer capability;
- (d) subsurface product removal and transfer capability;

- (e) stability and structural integrity assessment capability; and
- (f) wreck removal capability.

Spill Response Preparedness Analysis, Exhibit D122-7-05 at 44.

203. In the absence of a salvage plan and an identified salvage provider, Northern Gateway cannot rely on escort tugs to provide effective ocean rescue services.

(d) Northern Gateway has not provided a response gap analysis for its marine spill response plans.

204. While Northern Gateway has identified the use of emergency response equipment and vessels in the event of a marine oil spill, Northern Gateway has not provided a response gap analysis for those response measures. The term “response gap” refers to the period when sea or weather conditions would preclude safe or effective deployment of oil spill response systems.

Spill Response Preparedness Analysis, Exhibit D122-7-05 at 59-60.

205. The Coalition provided a preliminary response gap analysis based on the effectiveness of booms and skimmers under various wave height conditions. Wave heights were taken from weather buoys in the marine operating area for the Project. The preliminary response gap analysis suggested that booms and skimmers would be ineffective 30 percent of the time and that their effectiveness would be impaired 61 percent of the time.

Written Evidence of Living Oceans Society (21 December 2011), Exhibit D122-7-02
at para 93-96.

206. A response gap analysis for oil tankers in Prince William Sound, Alaska found that no oil spill response activities would be safe or feasible in parts of the Sound for 38 percent of

the time on average. During the winter season, the response gap was up to 65 percent of the time at one location.

Spill Response Preparedness Analysis, Exhibit D122-7-05 at 59.

207. In the absence of a response gap analysis, Northern Gateway and the Joint Review Panel cannot assess the potential effectiveness of Northern Gateway's proposed spill response measures.

(e) Northern Gateway's reliance on the use of dispersants in a marine oil spill is unwarranted.

208. In the Project Application and other documents, Northern Gateway proposes the use of chemical dispersants, along with the use of booms, skimmers and in-situ burning, as a spill response measure for an oil spill in the marine environment. For example, Northern Gateway proposed the use of dispersants in all five spill scenarios presented in the Project Application. The use of dispersants is also presented as a typical response activity in the TERMPOL studies related to the Project.

Volume 8C: Risk Assessment and Management of Spills – Marine Transportation
(27 May 2010), Exhibit B3-43 at 10-9, 10-16, 10-23, 10-30, 10-36.

TERMPOL Study No. 3.15: General Risk Analysis and Intended Methods of Reducing Risk (8 June 2011), Exhibit B23-15 at 7-10, 10-5, 10-20.

209. However, Northern Gateway's reliance on chemical dispersants as a spill response and mitigation measure is unwarranted for the following reasons.

210. The use of chemical dispersants in fish-bearing waters is currently legally precluded in Canada. Use of a dispersant in fish-bearing waters could constitute a violation of section 36(3) of the *Fisheries Act*. There is currently no regulatory mechanism that would allow the deposit of a chemical dispersant in fish-bearing waters. Even if there was a regulatory mechanism that would allow the use of dispersants, it is Environment Canada's policy not to pre-approve dispersants. Northern Gateway's reliance on dispersants as a spill

response measure relies on a regulatory change by Environment Canada that is not certain. Therefore, Northern Gateway is relying on a spill response and mitigation measure that is not currently legally permissible in fish-bearing waters in Canada.

Hearing Transcript, Vol. 171 (26 April 2013) at Lines 23358-23368.

Northern Gateway Response to Federal Government IR No. 1 (6 October 2011) at 224.

Hearing Transcript, Vol. 135 (6 February 2013) at Lines 3654, 3678.

Hearing Transcript, Vol. 168 (23 April 2013) at Line 17676.

211. Northern Gateway has not provided any gap analysis as to when the use of dispersants, if permitted, would be ineffective due to wind or wave conditions. A preliminary gap analysis conducted by Living Oceans Society suggested that dispersant use would not be possible due to wind conditions in the Project area for 30 percent of the time and would not be effective due to wave height 33 percent of the time. Research conducted in Prince William Sound in Alaska found that dispersant use would not be viable 75 percent and 80 percent of the year in the Central Sound and Hinchinbrook Entrance respectively.

Living Oceans Society, *Dispersant Use in Canada's Pacific Coast: Relevant Factors and Preliminary Response Gap Analysis for the Enbridge Northern Gateway Project Area* (21 December 2011), Exhibit D122-7-06 at 7, 17-18 [*Dispersant Analysis*].

212. In their written evidence, Environment Canada stated that current best practices in other jurisdictions are that dispersants not be applied within three nautical miles of the shore or in water shallower than 30 metres (100 feet). These guidelines would preclude the use of dispersants in all the CCAA spill scenarios presented by Northern Gateway.

Written Evidence Submissions of Environment Canada to the Joint Review Panel (22 December 2011), Exhibit E9-6-32 at para 74.

213. The effectiveness of chemical dispersants is further limited by the weathering of the spilled oil and the formation of emulsions. The window for effective use of dispersants may be as short as 12 hours after the oil has been spilled into the marine environment.

Dispersant Analysis, Exhibit D122-7-06 at 9.

SL Ross Environmental Research Ltd., *Tank Tests to Evaluate the Effectiveness of Corexit 9500 Dispersant on Synthetic Crude Oil and Mackay River Bitumen* (24 November 2011) Exhibit B46-40 at 9.

Hearing Transcript, Vol. 137 (8 February 2013) at Lines 6568-6584.

Hearing Transcript, Vol. 142 (22 February 2013) at Lines 14307-14311.

214. Environment Canada normally will not recommend the use of dispersants without both dispersant effectiveness testing and acute toxicity testing on Rainbow Trout. Environment Canada also strongly encourages that toxicity testing for *Daphnia* species and Luminescent Bacteria also be carried out. Therefore, unless the toxicity of the proposed dispersant has been tested to Environment Canada's satisfaction prior to the spill, it is unlikely that use of the dispersant would be approved even if a regulatory mechanism for such approval existed.

Written Evidence Submissions of Environment Canada to the Joint Review Panel (22 December 2011), Exhibit E9-6-32 at para 74.

215. Northern Gateway and the Joint Review Panel cannot rely on the use of dispersants as a spill response and mitigation measure given that there is no regulatory mechanism that would permit the use of dispersants and given the limited conditions under which dispersants would be effective.

(f) Northern Gateway has failed to identify effective spill response measures for sunken oil in the marine environment.

216. Oils that submerge or sink are very difficult to track for the purposes of cleanup. A literature review conducted by Counterspill Research Inc. found that there were no

measures currently in use that effectively and efficiently tracked the trajectory of submerged oils and that, once sunken, it was very difficult to distinguish pooled oil.

Counterspil Research Inc., *A Review of Countermeasures Technologies for Viscous Oils that Submerge* (21 December 2011), Exhibit D122-7-08 at 2-5.

217. Containment of floating spilled oils can be achieved only in low current, low wave conditions. Containment of submerged or sunken oils, presuming they can be found, is difficult. The technologies reviewed were found to be highly dependent on bottom characteristics, current and oil type.

Counterspil Research Inc., *A Review of Countermeasures Technologies for Viscous Oils that Submerge* (21 December 2011), Exhibit D122-7-08 at 6.

218. Neutrally buoyant oils suspended in the water column are for all practical purposes impossible to contain in the presence of currents.

Counterspil Research Inc., *A Review of Countermeasures Technologies for Viscous Oils that Submerge* (21 December 2011), Exhibit D122-7-08 at 6.

219. Oils that cool beyond their “pour point” and are no longer able to flow at ambient temperature are not amenable to spill response technology. They may adhere to equipment or sorbents, but resist flowing into collection vessels.

Counterspil Research Inc., *A Review of Countermeasures Technologies for Viscous Oils that Submerge* (21 December 2011), Exhibit D122-7-08 at 1, 10-11.

220. Recovery of floating oils, or those submerged less than 30 cm, is possible with existing skimmer technology. Techniques and technology for recovering oils submerged below that point does not yet exist. Recovery of sunken oil is possible only through the use of diver-directed pumps. The use of diver-directed pumps is not possible with all bottom types or beyond certain depths and is in any event a dangerous and expensive undertaking. Remotely operated submersible dredging devices are in the research and

development phase, but it is unknown whether or not net environmental benefit can be achieved using dredging devices that disturb sediments on the ocean floor.

Counterspil Research Inc., *A Review of Countermeasures Technologies for Viscous Oils that Submerge* (21 December 2011), Exhibit D122-7-08 at 10-11.

221. In oral testimony, there was also considerable discussion of recovery methods for oil that would submerge at depth in the marine environment.

Hearing Transcript, Vol. 138 (18 February 2013) at Lines 8187-8247.

Hearing Transcript, Vol. 139 (19 February 2013) at Lines 9973-10076.

222. Northern Gateway's position with respect to response to submerged oil in the marine environment may be summarized as follows:

- (a) the oils to be transported by the Project are not expected to submerge with weathering in the marine environment; and
- (b) initial response to a marine spill incident would reduce the likelihood of oil submerging in the marine environment.

Hearing Transcript, Vol. 138 (18 February 2013) at Lines 8199-8200, 8231-8232.

223. As discussed in paragraphs 155 to 167 above, the question of whether the oils transported by the Project will submerge with weathering in the marine environment remains unresolved.

224. Further, Northern Gateway has conceded that there may be conditions in which the weathered oils will submerge or sink in the marine environment.

Hearing Transcript, Vol. 137 (8 February 2013) at Lines 6446-6450.

Hearing Transcript, Vol. 138 (18 February 2013) at Line 8223.

Hearing Transcript, Vol. 139 (19 February 2013) at Lines 9967-9969.

225. However, Northern Gateway has not presented nor evaluated a technically feasible recovery strategy for submerged oil below a few metres in depth. Therefore, not only are the environmental effects of submerged oil in this location unknown, the mitigation strategies for recovery of the oil are untested.

Hearing Transcript, Vol. 139 (19 February 2013) at Lines 10055-10076.

226. In summary, Northern Gateway has failed to identify effective risk reduction, mitigation and response measures for marine oil spills. Therefore, it cannot be established that the significant adverse environmental effects of a marine oil spill can be effectively prevented or mitigated.

4. Northern Gateway has failed to adequately identify and address the potential impacts on salmon and the potential impacts on the commercial, recreational and cultural uses of salmon.

227. Salmon are an essential economic, social and cultural resource in British Columbia. Therefore, potential impacts on salmon cannot be taken lightly. The issues discussed above, namely inadequate baseline studies, inadequate risk assessment and inadequate identification and confirmation of mitigation measures, are particularly applicable to salmon. The people of British Columbia cannot risk the future of salmon based on promises to learn more and do better.

228. Wild salmon serve as a vital source of food for Aboriginal groups and have a central place in Aboriginal culture. The five wild salmon species found throughout British Columbia waters are considered the most important staple food source for many coastal Aboriginal communities and form a portion of the diet for some non-coastal communities. Interviews conducted in Kitimaat Village indicated that between 70 and 100 percent of the local community relied on food, social and ceremonial (“FSC”) fishing and that generally one or more members of a family fished for food purposes.

Triton Environmental Consultants Ltd. and Jacques Whitford AXYS, *Technical Data Report, Marine Fisheries, Enbridge Northern Gateway Project* (26 October 2010), Exhibit B9-41 at 4-5 to 4-6 [*Marine Fisheries TDR*].

229. There is also an important Aboriginal FSC freshwater salmon fishery in the Upper Fraser, Nechako and Skeena basins.

Submission of Fisheries and Oceans Canada and Canadian Coast Guard (22 December 2012), Exhibit E9-6-13 at paras 52-53.

230. There is an important commercial salmon fishery in Fish Management Areas 5 and 6 harvesting close to \$10 million in value from 2000 to 2008.

Marine Fisheries TDR, Exhibit B9-40 at 3-14.

231. Northern Gateway has acknowledged that the commercial fishery is a very important industry in the region and that salmon are important to all of British Columbia.

Hearing Transcript, Vol. 116 (15 December 2012) at Line 16109.

232. There is also a significant recreational and commercial recreational salmon fishery in British Columbia.

Marine Fishery TDR, Exhibit B9-41 at 5-1 to 5-14.

233. In addition, salmon are an important food source for grizzly bears and other wildlife and a nutrient source for streams and rivers.

234. Despite the commercial, cultural and ecological significance of salmon, the Project Application lacks adequate baseline information for salmon populations, habitat and usage.

235. Northern Gateway conducted fish surveys only in late summer of 2005.

Hearing Transcript, Vol. 113 (12 December 2012) at Lines 12476-12481.

236. Northern Gateway did not conduct any fish surveys in the marine project effects assessment area. Northern Gateway did not conduct any field work to identify salmon streams that drain into Kitimat Arm or Douglas Channel. Northern Gateway did not make any attempt to identify intertidal spawning habitat for salmon.

Hearing Transcript, Vol. 112 (11 December 2012) at Lines 9509-9515, 9530-9531.

237. Northern Gateway has not collected any baseline data on water quality, sediment quality or contamination of fish on salmon-bearing streams.

Hearing Transcript, Vol. 105 (9 November 2011) at Lines 30119-30125

238. Northern Gateway indicated that surveys of fish abundance, diversity and habitat and information on specific habitat use would not be conducted until after Project approval.

Hearing Transcript, Vol. 113 (12 December 2012) at Lines 12511-12518.

239. Current information on Aboriginal use of marine fish and other tidal water resources is limited.

Marine Fishery TDR, Exhibit B9-41 at 4-2.

240. In their written submission, Fisheries and Oceans Canada indicated that the management of freshwater recreational fisheries for anadromous fish has been delegated to the provinces. Fisheries and Oceans Canada anticipated that the Provinces of Alberta and British Columbia would submit evidence relevant to the management of those fisheries to the Joint Review Panel. The Provinces of Alberta and British Columbia did not submit any evidence to the Joint Review Panel with respect to the management of freshwater recreational fisheries.

Submission of Fisheries and Oceans Canada and Canadian Coast Guard
(22 December 2012), Exhibit E9-6-13 at para 50.

241. Northern Gateway concedes that:

- (a) significant adverse impacts on salmon may occur as a result of an oil spill from the Project;

Hearing Transcript, Vol. 145 (26 February 2013) at Lines 17322-17323.

Hearing Transcript, Vol. 105 (9 November 2012) at Line 30441.

- (b) adverse impacts from an oil spill in the Kitimat River could have an adverse impact on salmon in both the freshwater and marine environments;

Hearing Transcript, Vol. 145 (26 February 2013) at Lines 17483-17486.

- (c) an oil spill or condensate spill into the Morice River could result in significant and adverse environmental effects;

Hearing Transcript, Vol. 98 (1 November 2012) at Line 21452.

- (d) submerged oil could find its way into interstitial gravels. Salmonid eggs and larvae are highly sensitive to polycyclic aromatic hydrocarbons in interstitial water;

Hearing Transcript, Vol. 93 (18 October 2012) at Lines 15964-15966.

Technical Data Report: Ecological and Human Health Risk Assessment (12 July 2012), Exhibit B80-3 at 7-4.

- (e) drilling fluid may inadvertently escape into the aquatic environment when carrying out horizontal directional drilling; and

Hearing Transcript, Vol. 87 (11 October 2012) at Lines 7262-7265, 7405-7410.

- (f) an oil spill into a salmon-bearing watercourse would create hardships for commercial fishers, commercial recreational fishers and Aboriginal groups that depend on salmon.

Hearing Transcript, Vol. 98 (1 November 2012) at Line 22396.

242. Northern Gateway conducted detailed studies of the fate and ecological effects of an oil spill at only two locations along the pipeline route that included salmon habitat – KP 1033.4 at the Morice River and KP 1102.7 at the Morice River.

Technical Data Report: Ecological and Human Health Risk Assessment (12 July 2012),
Exhibit B80-2 at 4-12 to 4-13.

243. The *Ecological and Human Health Risk Assessment for Pipeline Spills* concluded that fish and aquatic biota would be affected during the acute phase of the spills for a period extending from days to weeks. The *Ecological and Human Health Risk Assessment for Pipeline Spills* concluded that a portion of the reproductive cycle for fish could be affected for a single year, with concentrations being reduced to below effect levels in subsequent years. The *Ecological and Human Health Risk Assessment for Pipeline Spills* further concluded that, while the presence of residual hydrocarbons could persist for an extended period of time, adverse environmental effects would not be expected to continue beyond one to two years and are expected to be reversible.

Technical Data Report: Ecological and Human Health Risk Assessment (12 July 2012),
Exhibit B80-3 at 11-2.

244. However, more than two years after the oil spill in Marshall, Michigan, oil continued to migrate and accumulate in the stream bed. Therefore, the conclusion of the *Ecological and Human Health Risk Assessment for Pipeline Spills* that adverse environmental effects would not be expected to continue beyond one to two years seems unreasonable.

Hearing Transcript, Vol. 94 (19 October 2012) at Lines 16908-16915.

245. Fisheries and Oceans Canada confirmed that the accuracy of the spill likelihoods, spill trajectories and the fate and behaviour of chemicals of potential concern present in oil are outside of Fisheries and Oceans' expertise and mandate to review. In fact, Fisheries and Oceans Canada has not conducted any analysis of the effects of oil spills.

Hearing Transcript, Vol. 107 (23 November 2012) at Lines 3114-3117, 3231-3232.

246. Northern Gateway confirmed that detailed, site specific spill response planning would not occur until after approval of the Project.

Hearing Transcript, Vol. 95 (19 October 2012) at Lines 18583-18601.

247. Fisheries and Oceans Canada's primary tool to mitigate fish habitat loss is the requirement to create compensating habitat under the no-net-loss principle.

Hearing Transcript, Vol. 107 (23 November 2012) at Lines 3629-3635.

248. Northern Gateway has prepared conceptual fish habitat compensation plans for the freshwater and marine environments but the conceptual plans do not explicitly identify where or how many off-site compensation projects would be developed.

Conceptual Freshwater Fish Habitat Compensation Plan (12 July 2012), Exhibit B80-13
at 1-1.

Conceptual Marine Fish Habitat Compensation Plan (12 July 2012), Exhibit B80-14
at 1-1.

249. Fisheries and Oceans Canada suggests that habitat compensation is typically only 60 to 80 percent effective.

Hearing Transcript, Vol. 107 (23 November 2012) at Lines 3645-3649.

250. Northern Gateway has not undertaken any studies of the effectiveness of habitat compensation.

Hearing Transcript, Vol. 104 (8 November 2012) at Lines 29602-29603.

251. Fisheries and Oceans Canada encouraged Northern Gateway to develop site specific management plans to demonstrate to the Joint Review Panel and others that the potential adverse effects to fish and fish habitat can be managed effectively through planned mitigation measures and best management practices. If site specific fish habitat management plans were to be reviewed by the Joint Review Panel, they should have been submitted in evidence. However, Northern Gateway has deferred detailed habitat surveys and site specific fish habitat management plans until after Project approval. Therefore, the

Joint Review Panel cannot assess the potential effectiveness of the planned mitigation measures as suggested by Fisheries and Oceans Canada.

*Government of Canada Response to IR No. 1 from Josette Wier (6 July 2012),
Exhibit E9-21-16 at 2.*

252. The Coalition submits that the Joint Review Panel cannot adequately assess the potential impacts of the Project on salmon given the lack of baseline data on populations, diversity and habitat, and the uncertainty surrounding Northern Gateway's mitigation plans. Fisheries and Oceans Canada has not conducted any analysis of the effects of potential oil spills from the Project.

253. Given the importance of salmon to the Aboriginal, commercial and recreational fishery in British Columbia and the ecological importance of salmon, this is not an area where the Joint Review Panel can accept significant uncertainty as to the risks and consequences of the potential adverse environmental effects.

5. Northern Gateway has failed to demonstrate and confirm that environmental performance has improved since the Marshall, Michigan spill in July 2010.

254. Since 1994, Enbridge has had at least 18 safety and environmental failures on its North American pipeline system that resulted in corrective orders, enforcement orders or penalties. In one of those enforcement actions, a judgment for \$1 million was issued against Enbridge for 400 violations related to pipeline construction in Wisconsin in 2006-2007. Three of the 18 failures each resulted in the release of over 3 million litres of oil.

Enbridge Infractions Table (21 December 2011), Exhibit D66-3-12.

255. The US National Transportation Safety Board investigation into the Enbridge pipeline rupture and release at Marshall, Michigan on July 25, 2010 found pervasive organizational failures at Enbridge including:

- (a) deficient pipeline integrity management systems;

- (b) inadequate training of control centre personnel;
- (c) a culture amongst control centre staff that accepted not adhering to approved procedures;
- (d) insufficient public awareness and education with respect to notification of releases;
- (e) a failure to identify and ensure the availability of well-trained emergency responders; and
- (f) a failure to prepare for worst-case discharges.

National Transportation Safety Board, *Enbridge Incorporated Hazardous Liquid Pipeline Rupture and Release, Marshall, Michigan, July 25, 2010* (2012), Pipeline Accident Report NTSB/PAR-12/01 (Exhibit B92-3) at 118-121 [*Marshall Release Report*].

256. Despite Enbridge claiming to have a program of continuous improvement in place for approximately 10 years, many of the deficiencies identified in the *Marshall Release Report* had been identified in previous Enbridge release incidents. For example, as early as 1999, the Transportation Safety Board of Canada had identified that Enbridge's pipeline integrity management program was inadequate.

Hearing Transcript, Vol. 94 (19 October 2012) at Line 16408.

Transportation Safety Board of Canada, *Crude Oil Pipeline Rupture, Enbridge Pipelines Inc., 864-Millimetre-Diameter Mainline, Kilometre 714.8541, Approximately 10.6 Kilometres East of Regina, Saskatchewan* (20 May 1999), Pipeline Investigation Report D99H0021 (Exhibit D66-4-2) at 7-8.

257. In oral testimony, Mr. Kevin Underhill, Vice-President of Health, Safety and Environment and Support Services with Enbridge, testified that Enbridge was making changes based on the results and recommendations of the *Marshall Release Report* including:

- (a) safety culture initiatives;
- (b) improvements in leak detection;
- (c) improvements in integrity performance;
- (d) enhancements in the control centre;
- (e) enhancements in the emergency response program; and
- (f) enhancements to public awareness efforts.

Hearing Transcript, Vol. 92 (17 October 2012) at Lines 14466-14469.

258. In oral testimony, Mr. Walter Kresic, Vice-President of Pipeline Integrity with Enbridge, agreed that the occurrence of a leak was one measure of the performance of the pipeline integrity management system. Further, Mr. Kresic indicated that the number of leaks per 1000 kilometres of pipeline per year and the quantity of oil spilled per 1000 kilometres of pipeline per year were two measures of pipeline performance.

Hearing Transcript, Vol. 94 (19 October 2012) at Lines 16445-16446, 16458-16460,
16463-16486.

259. Further, Mr. Kresic agreed that if Enbridge's continuous improvement program was working as intended, the number of leaks per 1000 kilometres of pipeline per year and the quantity of oil spilled per 1000 kilometres of pipeline per year would continue to decline.

Hearing Transcript, Vol. 94 (19 October 2012) at Lines 16982-16992.

260. In oral testimony, Mr. John Carruthers, President of Northern Gateway Pipelines Inc., confirmed that accountability was one component of Enbridge's Corporate Social Responsibility Policy and that included following through on commitments and taking accountability for Enbridge's actions.

Hearing Transcript, Vol. 74 (17 September 2012) at Lines 21173-21179.

261. However, Northern Gateway refused to commit to a threshold value for the number of leaks per 1000 kilometres of pipeline per year or the quantity of oil spilled per 1000 kilometres of pipeline per year at which Northern Gateway would suspend the construction or operation of the Project.

Hearing Transcript, Vol. 94 (19 October 2012) at Lines 17010-17026.

262. It is difficult to determine how Northern Gateway would be held accountable for implementing effective improvements to its integrity management system, leak detection system, control centre operations and emergency response system in the absence of a performance measurement that triggers some action. The Coalition submits that Northern Gateway should be committed to a level of pipeline performance that is at least as rigorous as Enbridge's 2011 performance and should be held accountable if the Project fails to meet those performance standards. Otherwise, Northern Gateway's commitment to accountability and continuous improvement is meaningless.

263. In light of Northern Gateway's failure to identify proven, effective and feasible mitigation measures and the significant adverse environmental effects that would occur were this Project approved, the Panel cannot recommend approval of this Project.

E. PROPOSED CONDITIONS

264. The Coalition has reviewed the Collection of Potential Conditions released by the Joint Review Panel on April 12, 2013. Before commenting on the Potential Conditions, the Coalition reiterates its position that the Project is not in the public interest and that the Project will create significant adverse environmental effects that are not justified in the circumstances. Furthermore, the Joint Review Panel cannot recommend approval of the Project given the incomplete environmental assessment. The Coalition reiterates its

position that, regardless of the conditions imposed on the Project, the Joint Review Panel must recommend against approval of the Project.

1. Potential Conditions which are supported

265. The Coalition acknowledges the work of the Joint Review Panel in formulating the Potential Conditions. The Coalition supports the intent and substance of the Potential Conditions listed in Table 1 below and submits that the Potential Conditions listed in Table 1 should be submitted to the Minister pursuant to section 52(1)(b) of the *NEB Act*.

Table 1: Potential Conditions Supported by the Coalition

Project Phase	Potential Condition No. as per Exhibit A346-5
General	1-8
Prior to commencing construction	9-15, 22-23, 25, 29-34, 38-70, 74-77, 82-89, 91-93, 98-100, 105-118, 120-123, 126,130-132, 134
Prior to commencing operations/ during construction	135- 166, 169, 173, 176, 179-180
After commencing operations	181-199

2. Listing of Commitments under Potential Conditions 2, 3 and 48-51

266. The Coalition supports the intent and substance of Potential Conditions No. 2 and 3. In summary, Potential Condition No. 2 would require Northern Gateway to design, locate, construct, install and operate the Project in accordance with all specifications, standards, policies, mitigation measures, procedures and other information included or referred to in its Project Application or as otherwise committed to during the proceedings. Similarly,

Potential Condition No. 3 would require Northern Gateway to implement all of the policies, practices, programs, mitigation measures, recommendations and procedures for the protection of the environment included or referred to in the Project Application or as otherwise committed to during the proceedings.

Collection of Potential Conditions (12 April 2013), Exhibit A346-5 at 4.

267. Further, Potential Conditions Nos. 48-51 require that the Environmental Protection Management Plan for the Project include all environmental protection procedures, mitigation measures and monitoring commitments as set out in the Project Application, subsequent filings, evidence collected during the hearing process or otherwise committed to during questioning or in related submissions during the proceeding.

Collection of Potential Conditions (12 April 2013), Exhibit A346-5 at 14-15.

268. While the Coalition supports the intent and substance of Potential Conditions Nos. 2, 3 and 48-51, the Coalition submits that, as a practical matter, it will be difficult to monitor that all of Northern Gateway's commitments made during the proceedings are being met in the absence of an express listing of the commitments. At the time of the construction and operation of the Project, if it should proceed, the oral and written commitments made by Northern Gateway during the proceedings may not be readily accessible for reference and tracking.

269. Therefore, the Coalition has attempted to compile the commitments made by Northern Gateway in oral testimony, Information Request responses and other documents that were part of the proceedings. These commitments are compiled in Appendix A to this final written argument. The Coalition has attempted to compile those commitments that are not otherwise reflected in the Collection of Potential Conditions or in Northern Gateway's Commitments Table. Furthermore, the Coalition did not capture the commitments made by Northern Gateway in Volume 7A of their Application, which lays out the Construction Environmental Protection Management Plan. However, the Coalition assumes that the commitments in Volume 7A will be added to and tracked through Northern Gateway's

Commitments Table. The Coalition also notes that the assessment of the environmental effects of the Project is based on the assumption that the commitments in Volume 7A and elsewhere will be implemented during construction, operations and decommissioning.

Commitments Table, Attachment to Northern Gateway Response to Joint Review Panel Information Request 15.1 (12 November 2012), Exhibit 165-3.

Project Application, Vol. 7A, Construction Environmental Protection and Management Plan (27 May 2010), Exhibit B3-19.

270. The Coalition submits that Northern Gateway's commitments as recorded in Appendix A should be incorporated by reference into Potential Conditions Nos. 2, 3 and 48-51 or be set as additional conditions for the Project.

3. Amendments to the Potential Conditions

(a) Filing Documents for Approval

271. Many of the listed Potential Conditions require that Northern Gateway file documents and reports for approval by the Board. However, other Potential Conditions require only that Northern Gateway file the documents with the Board.
272. While the simple filing of documents may provide information to the Board, it does not ensure that the filed document is adequate for the intended purposes. The intent in filing a document with the Board must be that the Board will review the document to determine if it meets the purpose of the stated Potential Condition. This cannot be assured if there is no approval mechanism. By simply filing the required document, there is no assessment of the quality or adequacy of the document.
273. For example, Potential Condition Nos. 78-79 require that Northern Gateway submit to the Board details of the mitigation measures for the control and treatment of groundwater and for the treatment of sulphide-bearing rock during and following the construction of the Clore and Hoult tunnels. In the absence of an approval process, there is no assurance that

the proposed mitigation measures will adequately address the risks associated with groundwater and sulphide-bearing rock.

Collection of Potential Conditions (12 April 2013), Exhibit A346-5, at 21-22.

274. Therefore, the Coalition submits that, in a number of Potential Conditions, the required document should be filed for approval by the Board. The Coalition therefore recommends that the Potential Conditions listed in Appendix B to this final written argument be amended as indicated in Appendix B to require that the document be submitted for approval by the Board.

(b) Potential Condition No. 119

275. Potential Condition No. 119 requires that Northern Gateway file landowner complaint records with the Board every six months for five years after commencing Project operations. The Coalition submits that Northern Gateway should be required to file landowner complaint records every six months for the life of the Project. The Coalition submits that landowner complaints are likely to occur later in the life of the Project as equipment ages, operating standards change, environmental conditions change and ownership of the Project may change. The Coalition submits that landowner complaint records should be submitted to the Board for the life of the Project to allow the Board to track changes and trends in landowner complaints over the life of the Project.

276. Therefore, the Coalition submits that Potential Condition No. 119 should be amended as follows:

...Northern Gateway must also file its landowner complaint records **every six months for five years after commencing Project operations**. Northern Gateway must also make landowner complaint records available to applicable landowners upon request.

(c) **Potential Condition Nos. 19-21 and 24**

277. With respect to the Pipeline Environmental Effects Monitoring Program and the Marine Environmental Effects Monitoring Program, Northern Gateway indicated that environmental monitoring would be conducted pre-construction, during construction and post-construction.

Hearing Transcript, Vol. 102 (6 November 2012) at Line 26500.

278. Potential Conditions Nos. 13-24 would require Northern Gateway to submit the Pipeline Environmental Effects Monitoring Program, Marine Environmental Effects Monitoring Program, pre-construction survey frameworks and pre-construction survey results and monitoring plans. However, it is not clear from the Potential Conditions that environmental effects monitoring must continue through the construction period.

279. Further, Potential Conditions Nos. 19-21 and 24 provide that Northern Gateway may indicate, in the pre-construction survey results and monitoring plans, if no further monitoring is planned for certain species and habitats. The Coalition submits that ending the monitoring of any species or habitat identified in the pre-construction phase prior to construction is premature and may miss potential adverse impacts on these species and habitats during the construction and post-construction phases.

280. Therefore, the Coalition submits that Potential Condition Nos. 19-21 should be amended as follows:

Northern Gateway must file with the NEB, **within 30 days after completing the Pipeline Environmental Effects Monitoring Program pre-construction surveys**, the following:

- a) survey results and evidence that they were provided to the appropriate federal and provincial authorities;
- b) monitoring plans stemming from survey results, ~~including and~~ how those plans will be incorporated into the Pipeline Environmental Effects Monitoring Program

~~and how monitoring will be conducted during the construction and post-construction phases or, if no further monitoring is planned for certain species or habitats, a justification; and~~

c) a summary of the outcomes of Northern Gateway's collaboration with relevant government authorities, participating Aboriginal groups, research organizations, and public stakeholder groups on the monitoring plans.

281. Similarly, the Coalition submits that Potential Recommendation No. 24 should be amended as follows:

Northern Gateway must file with the NEB, **within 90 days after completing the Marine Environmental Effects Monitoring Program pre-construction surveys**, but no later than one year prior to commencing operations, the following:

a) survey results and evidence that they were provided to the appropriate federal and provincial authorities;

b) monitoring plans stemming from survey results, ~~including and~~ how those will be incorporated into the Marine Environmental Effects Monitoring Program and how monitoring will be conducted during the construction and post-construction phases or, if no further monitoring is planned for certain species or habitats, a justification;

c) a summary of the outcomes of Northern Gateway's collaboration with relevant government authorities, participating Aboriginal groups, research organizations, and public stakeholder groups on the monitoring plans; and

d) a description of how available and applicable Aboriginal Traditional Knowledge and TLU studies have been taken into consideration in developing the monitoring plans.

4. Additional Recommended Conditions

(a) Recommended Condition 1

282. As discussed in paragraphs 254 to 263 above, despite assurances of continuous improvement and operational changes since the Marshall, Michigan spill in July 2010, Northern Gateway refused to commit to a measure of pipeline spill performance. A measurement of pipeline spill performance would allow the Board to track the

effectiveness of Northern Gateway's continuous improvement program and spill prevention and mitigation measures.

283. Therefore, the Coalition recommends that the Joint Review Panel set the following condition for the Project:

Recommended Condition 1:

Northern Gateway must file with the NEB every six months after line opening, a report documenting the number of leaks and spills and the quantity of product leaked or spilled per 1,000 kilometers of pipeline in the Project. If in any 12 month period, the number of leaks and spills exceeds 1 leak or spill per 1,000 kilometers of pipeline or the quantity of product spilled exceeds 300 barrels of product per 1,000 kilometers of pipeline, for either the condensate or oil pipeline, Northern Gateway shall immediately shutdown the operation of the condensate or oil pipeline as the case may be. Prior to recommencing operation of the pipeline, Northern Gateway must submit a plan to the NEB addressing the causes of the leaks and spills and receive the approval of the NEB to recommence the operation of the pipeline.

(b) Recommended Condition 2

284. In oral testimony, Mr. Michel stated that the International Marine Organization required, commencing in 2013, new tankers to have coated tops and bottoms of cargo tanks. Mr. Michel stated that it was common for tankers to have coated tops and bottoms of cargo tanks and that 70 percent of tankers had such coatings. Mr. Michel also stated that the requirement for coatings was important. However, Northern Gateway would not commit to requiring tankers loading or unloading at the Kitimat marine terminal to have cargo tanks coated on the top and bottom.

Hearing Transcript, Vol. 156 (19 March 2013) at Lines 31587, 31679.

Hearing Transcript, Vol. 159 (22 March 2013) at Lines 3428-3437.

285. The Coalition recommends that the Joint Review Panel set the following condition for the Project:

Recommended Condition 2:

Northern Gateway must, as a requirement of the Tanker Acceptance Program, require that tankers loading or unloading at the Kitimat marine terminal have cargo tanks coated on the top and bottom.

(c) Recommended Conditions 3 and 4

286. The Project will create greenhouse gas emissions during the construction and operation of the pipelines and the Kitimat marine terminal. The annual greenhouse gas emissions from the operation of the marine terminal are estimated to be 60,614 tonnes CO₂e, primarily from the operation of marine vessels at the terminal. The total incremental greenhouse gas emissions resulting from the Project are estimated to be 100,000 tonnes CO₂e annually during the construction phase and 200,000 tonnes CO₂e annually during operations.

*Project Application, Vol. 6A, Pipeline and Tank Terminal ESA (27 May 2010),
Exhibit 3-1 at 4-73 to 4-75.*

*Jacques Whitford AXYS Ltd., Technical Data Report, Atmospheric Environment,
Enbridge Northern Gateway Project (26 October 2010), Exhibit B10-3 at
4-23 to 4-24.*

Public Interest Benefit Evaluation, Exhibit B83-04 at 78.

287. Northern Gateway has committed that they will use the Best Available Technology Economically Achievable, best industry practices and other mitigation measures to limit emissions from the Project.

*Northern Gateway Response to Federal Government IR No. 1 (6 October 2011),
Exhibit B41-4 at 176.*

288. The Coalition submits that the emission of 200,000 tonnes CO₂e annually is a significant adverse environmental effect. The Coalition submits that Northern Gateway must take steps to render the construction and operation of the Project carbon neutral.
289. Therefore, the Coalition recommends that the Joint Review Panel set the following conditions for the Project:

Recommended Condition 3:

Northern Gateway must submit to the NEB for approval, at least six months before commencing construction, a plan estimating the annual greenhouse gas emissions that will result from Project construction and a plan to annually offset an equivalent amount of greenhouse gas emissions. The plan may include:

- (a) carbon capture and storage in biomass;
- (b) carbon capture and deep geological sequestration;
- (c) the purchase of carbon offset credits;
- (d) the financial support of carbon offset projects; and
- (e) such other carbon offset mechanisms as identified by Northern Gateway and approved by the NEB.

Recommended Condition 4:

Northern Gateway must submit to the NEB for approval, at least six months before applying for leave to open, a plan estimating the annual greenhouse gas emissions that will result from the operation of the Project and a plan to annually offset an equivalent amount of greenhouse gas emissions. The plan may include:

- (a) carbon capture and storage in biomass;
- (b) carbon capture and deep geological sequestration;
- (c) the purchase of carbon offset credits;
- (d) the financial support of carbon offset projects; and
- (e) such other carbon offset mechanisms as identified by Northern Gateway and approved by the NEB.

(d) Recommended Condition 5

290. Northern Gateway indicated that it is their intention to collect three years of information on transects that would run from the marine riparian zone to the sub-tidal zone at the

Kitimat marine terminal site. The surveys would record the diversity and abundance of species in those areas, collect information on sediment quality and water quality, collect information on tissue quality from species present and quantify the habitat and the environmental quality.

Hearing Transcript, Vol. 113 (12 December 2012) at Lines 12515-12516.

291. This intention has not been documented in the Collection of Potential Conditions or Northern Gateway's Commitments List.
292. Therefore, the Coalition recommends that the Joint Review Panel set the following condition for the Project:

Recommended Condition 5:

Northern Gateway must conduct surveys, as part of the Marine Environmental Effects Monitoring Program, for at least three years prior to construction, on transects running from the marine riparian zone to the sub-tidal zone at the Kitimat marine terminal site. The surveys must record, as a minimum:

- (a) the diversity and abundance of species;
- (b) sediment quality;
- (c) water quality;
- (d) tissue quality from species present; and
- (e) the habitat available for marine species.

(e) Recommended Condition 6

293. In oral testimony, Mr. Carruthers stated that Enbridge was committed to measuring, auditing and publicly reporting on their corporate social responsibility program. Further, Mr. Carruthers confirmed that one of Enbridge's core corporate responsibilities was accountability.

Hearing Transcript, Vol. 74 (12 September 2012) at Lines 21170, 21174-21175.

294. In oral testimony, Mr. Paul Anderson, Director of Environment, Northern Gateway, stated that monitoring plans would be submitted to the Board and as part of the public record.

Hearing Transcript, Vol. 102 (6 November 2012) at Line 26501.

295. The Coalition submits that, should the Project proceed, it is in the public interest that Northern Gateway meet all of the conditions of the Certificate of Public Convenience and Necessity and meet all the commitments made during the proceedings. Consistent with Northern Gateway's commitment to transparency and accountability, the Coalition submits that all plans, monitoring results, reports and documents which Northern Gateway is required to submit to the Board must be readily available to the public.

296. Therefore, the Coalition recommends that the Joint Review Panel set the following condition for the Project:

Recommendation 6:

Northern Gateway must make all plans, results, reports and documents which Northern Gateway is required to submit to the NEB under these Conditions readily available on a publicly accessible website maintained by Northern Gateway. Northern Gateway may apply to the NEB to exclude from the public website confidential financial or commercial information or information which may impair the security of the Project. When confidential information has been excluded from the public website, notice of the exclusion must be posted on the website.

F. SUMMARY AND CONCLUSIONS

297. In summary, the Coalition submits that:

- (a) Northern Gateway has failed to provide a complete environmental assessment as required by the *NEB Act* and the *CEA Act, 2012*;

- (b) Northern Gateway has deferred research and studies necessary to complete the environmental assessment to the post approval stage. The Joint Review Panel cannot recommend approval of the Project in the absence of a complete environmental assessment;
- (c) Northern Gateway has unreasonably relied on mitigation measures that are unproven or ineffective. The result is that the Project is likely to cause significant adverse environmental effects that cannot be justified in the circumstances;
- (d) Northern Gateway has failed to demonstrate binding commercial support for the Project; and
- (e) Northern Gateway has failed to demonstrate that the potential benefits of the Project outweigh the risks and significant adverse environmental effects of the Project.

298. The Coalition submits that all of these failures can only lead to the conclusion that the Project is not in the Canadian public interest.

299. The Joint Review Panel has heard from hundreds of First Nations, environmental groups, communities and individuals expressing the same concern: that the risks associated with the Project far exceed any potential economic benefits. Those voices have stated repeatedly that our rivers, oceans, forests, fisheries, wildlife, health and way of life are too valuable to risk for uncertain economic benefits. It is now in the Joint Review Panel's hands to listen to those voices and to act in a manner that contributes to sustainability and to the Canadian public interest.

300. The Coalition submits that the Joint Review Panel must recommend against approval of the Project.

APPENDIX A: TABLE OF NORTHERN GATEWAY COMMITMENTS
(as referred to in Potential Condition Nos. 2-3 and 48-51)

Pipeline		
A1	Northern Gateway will staff all pump stations along the route 24/7.	Hearing Transcript, Vol. 151 (13 March 2013), Line 25007.
A2	In the zone along the Upper Kitimat Valley, Northern Gateway will place valves to limit the potential volume release to below 2000 m ³ to any tributary to the Kitimat River, or to the Kitimat River itself.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.2(g)</i> , (14 September 2012) Exhibit B109-2 at 9-10.
A3	Northern Gateway will monitor and measure H ₂ S prior to entry for any confined space. Northern Gateway will continuously monitor H ₂ S in pump stations.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.5(d) and (e)</i> , (14 September 2012) Exhibit B109-2 at 29.
A4	Northern Gateway will construct the pipeline using pipe manufactured to either or both CSA-Z245.1 and API 5L standards, as well as its own pipe purchase specification, which imposes requirements that are more stringent than those in either CSA Z245.1 or API 5L.	<i>Northern Gateway Response to Josette Wier Information Request No. 8.14(a-b)</i> (31 August 2012) Exhibit B132-2 at 13.
A5	Enbridge will ensure that the hydrocarbons transported in the Northern Gateway pipelines will not contain significant corrosive substances through the setting of tariff limits on potential corrodents (water, sediment, etc.) and by comprehensively monitoring every batch of product entering the system.	<i>Northern Gateway Response to Federal Government Information Request No. 1.3</i> , (6 October 2011) Exhibit B41-4 at 5.

A6	Northern Gateway will update its Valve Location Engineering Assessment as part of the ongoing pipeline risk assessment work.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.5(c.4), (24 November 2011) Exhibit B47-10 at 13.</i>
A7	Northern Gateway will maintain low loss of containment (LOC) probability by increasing measures to prevent time related LOCs from occurring as the life cycle end of the pipeline nears. Such measures include more frequent internal inspection to detect metal loss and consequent replacement of any segments showing signs of corrosion or fatigue and external coating inspection at any locations where coating abrasion may have occurred.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.7(a), (24 November 2011) Exhibit B47-10 at 18.</i>
A8	Northern Gateway will work with the BC provincial government where it is not possible to cross highway rights-of-way at 90 degrees due to technical constraints.	<i>Northern Gateway Response to Province of British Columbia Information Request No. 2.2(c), (11 November 2011) Exhibit B47-28 at 7.</i>
A9	Northern Gateway will complete a Project-specific cost benefit analysis during detailed engineering which weighs the costs and operational benefits of multiple variable frequency drives (VFDs) against those of a single VFD plus back-up pressure control valve (PCV) design.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 11.6(c), (3 September 2012) Exhibit B101-2 at 30.</i>
A10	Northern Gateway commits that, if the station discharge pressure reaches the high shut down limit, a pump shutdown sequence will be initiated within 0.25 seconds and will continue to command pumps to stop at 20 second intervals until either the pressure is reduced to below the high limit or until all pumps are stopped. If the station discharge pressure reaches the high - high limit, all running pumps will be commanded to stop within 0.25 seconds.	<i>Northern Gateway Response to Josette Wier Information Request No. 3.21(d), (23 November 2011) Exhibit B43-7 at 25.</i>

A11	Northern Gateway will use special containment structures and mechanisms to ensure that maintenance and integrity inspection of the pipeline does not result in an offsite release.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 2-14.</i>
A12	Northern Gateway will visit valve sites several times a year for servicing.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 2-15.</i>
A13	Northern Gateway will initiate regular right-of-way inspection programs once the pipelines have been commissioned. These programs will include regularly scheduled aerial reconnaissance of the entire right-of-way and ground-level assessments.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 2-14.</i>
A14	Northern Gateway will undertake ongoing vegetation control so that areas of the pipeline right-of-way that must remain visible from the air at all times are kept clear of large vegetation.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 2-14.</i>
Pipeline Environmental Effects Monitoring Program		
A15	Northern Gateway will monitor environmental conditions before, during and after construction. Conditions during construction and after construction will be compared to the pre-construction conditions.	Hearing Transcript, Vol. 102 (6 November 2012), Line 26500.
A16	Northern Gateway will produce an annual report from the Pipeline Environmental Effects Monitoring Program that will be provided to interested parties and to the public.	Hearing Transcript, Vol. 147 (28 February 2013), Line 20588.

Geohazard Assessment		
A17	Northern Gateway will further investigate the risk of landslides near KP 1052.	Hearing Transcript, Vol. 85 (9 October 2012), Lines 5429-5432.
A18	Northern Gateway will acquire LIDAR data for the entire length of the pipeline during the design phase of the project.	Hearing Transcript, Vol. 85 (9 October 2012), Line 4937-4940.
A19	Northern Gateway will assess lower level geohazards.	Hearing Transcript, Vol. 85 (9 October 2012), Line 5234.
A20	Northern Gateway will monitor geohazards during design, construction and operation of the pipeline.	Hearing Transcript, Vol. 85 (9 October 2012), Line 5238.
A21	Northern Gateway will study the hazard presented by glacial marine clay deposits and develop mitigation measures during the detailed design phase.	Hearing Transcript, Vol. 85 (9 October 2012), Lines 5342-5343 and 5350.
A22	Northern Gateway will coordinate warning systems for tsunamis generated by offshore earthquakes with existing Pacific Basin tsunami warning systems.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-36 at 14-6.</i>

A23	<p>Northern Gateway will conduct the following studies to better assess geohazards prior to or during detailed design:</p> <ul style="list-style-type: none">• Drilling and test pitting to further characterize route subsurface conditions, particularly in areas with potentially sensitive soils• Geophysical surveys to assess ground conditions and correlate subsurface data in areas between drill locations• Additional geotechnical investigations at watercourses, including the SWAT program, to support detailed engineering of watercourse crossing designs. This will include drilling investigations and geophysical investigations, as well as surveyed cross sections and a section along the thalweg, to provide information for numerical modeling of flows and scour.• Geotechnical verification program to confirm route conditions in specific locations	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 12.4(a), (14 September 2012) Exhibit B109-2 at 19.</i></p>
A24	<p>Northern Gateway will estimate the impact load and potential effects associated with rock fall on a site-specific basis during detailed engineering.</p>	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 12.4(b), (14 September 2012) Exhibit B109-2 at 19.</i></p>
A25	<p>Northern Gateway will have no surface or above-ground facilities in areas of rock fall or avalanche risk.</p>	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 12.4(b), (14 September 2012) Exhibit B109-2 at 19.</i></p>
A26	<p>Northern Gateway will estimate scour depth associated with debris flows on the basis of site investigation data including bed material type and characteristics, slope gradient, estimated flow characteristics, location on the fan relative to erosion and deposition areas, and other factors.</p>	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 12.4(c), (14 September 2012) Exhibit B109-2 at 19-20.</i></p>

A27	Where erosion may extend to rock, such as in a bedrock channel, Northern Gateway will place the pipelines into the rock and line the bottom of the channel restored with concrete or shotcrete, if required.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.4(c), (14 September 2012) Exhibit B109-2 at 20.</i>
A28	Northern Gateway will undertake further slope hazard assessment studies of the Clore and Hoult tunnels during detailed engineering. Mitigation measures to address portal area specific slope hazards will be developed, if required, at that time.	<i>Northern Gateway Response to Province of British Columbia Information Request No. 2.11(a), (11 November 2011) Exhibit B47-28 at 32.</i>
A29	Northern Gateway will further investigate conditions relative to flows or slides in fine grained frozen materials during detailed engineering.	<i>Northern Gateway Response to Province of British Columbia Information Request No. 2.12, (11 November 2011) Exhibit B47-28 at 37.</i>
A30	Northern Gateway will examine areas of potential permafrost that may influence, or be influenced by, the proposed Project.	<i>Northern Gateway Response to Province of British Columbia Information Request No. 2.12(c), (11 November 2011) Exhibit B47-28 at 38.</i>

Geochemical Hazards		
A31	Northern Gateway will visually identify minerals potentially subject to metal leaching during assessments for acid rick drainage (ARD). Where such minerals are found in sufficient concentrations to pose a potential problem, Northern Gateway will apply mitigation. Mitigation measures may include ARD mitigation, isolation of affected materials from groundwater movement, or placement in a sealed or isolated environment.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.3(d)</i> , (14 September 2012) Exhibit B109-2 at 14.
A32	Northern Gateway will conduct ongoing identification and assessment in areas potentially prone to ARD during construction using visual methods as an initial screening tool followed by sampling and testing as required.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal</i> , (27 May 2010) Exhibit B3-4 at 7-40.
A33	Northern Gateway will employ best practices and accepted methods during construction to prevent the occurrence of ARD wherever possible.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal</i> , (27 May 2010) Exhibit B3-4 at 7-40.
A34	Northern Gateway will monitor the effectiveness of ARD mitigation measures.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12(b)</i> , (14 September 2012) Exhibit B109-2 at 13.

A35	Northern Gateway will not use rock identified through assessment and testing to have ARD and metal leaching potential for infrastructure development.	<i>Northern Gateway Response to Eco Justice Information Request No. 2.9(k)</i> , (24 November 2011) Exhibit B47-4 at 15.
Wildlife and habitat		
A36	Northern Gateway will fund independent scientific research into the protection of critical habitat and the preservation of species that may be impacted by the project, including the woodland caribou, the white sturgeon and the marble murrelet.	Hearing Transcript, Vol. 102 (6 November 2012), Lines 26506-26508.
A37	Northern Gateway will undertake programs to estimate population size and trends of grizzly bears.	Hearing Transcript, Vol. 103 (7 November 2012), Lines 28209-28210.
A38	Northern Gateway will develop a linear feature removal plan for the Bulkley Valley grizzly bear.	Hearing Transcript, Vol. 103 (7 November 2012), Line 28214.
A39	Northern Gateway will implement General Mitigation Measure Number 18 in relation to grizzly bears to prohibit project personnel from harassing, disturbing, harvesting or feeding grizzly bears.	Hearing Transcript, Vol. 103 (7 November 2012), Line 28646.
A40	Northern Gateway will restore caribou habitat in the Little Smoky Range at a ratio of 4:1.	Hearing Transcript, Vol. 103 (7 November 2012), Lines 28835-28836.
A41	Northern Gateway commits that the project will not cause an increase in linear disturbance in sensitive areas including caribou ranges.	Hearing Transcript, Vol. 101 (5 November 2012), Line 25597.
A42	Northern Gateway will implement a program consistent with <i>CEA Act</i> to mitigate impacts on grizzly bears and wolverines. The program has four parts: a restoration plan (to restore habitat along the right-of-way), a compensation plan (to restore habitat off site), monitoring of the effectiveness of the restoration and compensation plans, and monitoring of the animal. Northern Gateway will create a third-party research scientific advisory to help set up this program.	Hearing Transcript, Vol. 102 (6 November 2012), Lines 26490 and 26502.

A43	Northern Gateway will schedule clearing for pipeline construction in areas with moose to avoid identified sensitive seasons and life-stages whenever possible.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.13(b)</i> , (24 November 2011) Exhibit B47-10 at 37.
A44	Northern Gateway will achieve the objective of no net increase in linear feature density.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.16(a-b)</i> , (24 November 2011) Exhibit B47-10 at 48.
A45	Northern Gateway's Terrestrial Mammal Protection Plan will specify mitigation measures and emergency response, and include a terrestrial mammal hazing plan, a terrestrial mammal cleaning plan and a terrestrial mammal follow-up plan. The hazing plan will be comprehensive and will include information such as type, quantity, location(s), maintenance and use of necessary equipment; contact information for experts trained in hazing techniques, coordination of hazing measures and responsibilities and roles of relevant stakeholders and experts.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation</i> , (27 May 2010) Exhibit B3-40 at 8-70.
Plants		
A46	Northern Gateway will conduct pipeline centerline surveys to identify and if possible avoid any rare plants and rare plant communities.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.1</i> , (14 September 2012) Exhibit B109-2 at 2.
A47	Northern Gateway will conduct rare plant surveys along the center line of the proposed powerlines.	Hearing Transcript, Vol. 102 (6 November 2012), Line 26700.

A48	Northern Gateway will review proposed restoration and recovery plans, updated guidelines from Alberta Environment and Sustainable Resource Development, Alberta Native Plant Council, and the BC Ministry of the Environment, as well as industry best practices and monitoring results from other projects prior to the development of final mitigation plans.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.1</i> , (14 September 2012) Exhibit B109-2 at 5.
A49	Northern Gateway will re-establish rare ecological plant communities by collecting seeds and root crowns of the rare species, growing them at a greenhouse onsite, and planting them on the disturbed portions of the right of way that are not going to be used in micro site conditions that are typical of the community. Depending on the nature of the community, Northern Gateway will build fences around the plants, and add fertilizer and irrigation. Northern Gateway will monitor the species and undertake remedial measures as needed.	Hearing Transcript, Vol. 104 (8 November 2012), Lines 29143, 29146, 29148-29149.
A50	In order to achieve its reclamation objectives, Northern Gateway will contour surfaces, install drainage and erosion control structures, replace topsoil and re-vegetate and manage disturbed sites. The re-vegetation program includes a natural recovery plan, a watercourse reclamation plan and post-construction monitoring plan. Post-construction monitoring will be implemented to determine the effectiveness of enhanced reclamation and other protective measures and will include regular reporting to the NEB and other regulatory agencies. The monitoring results will be used to adjust the protective measures outlined in the revegetation program, as appropriate.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.1</i> , (14 September 2012) Exhibit B109-2 at 4.
A51	Northern Gateway will use native and indigenous species adapted to the local conditions for revegetation to promote the reestablishment of ecological function and eventually restore the full range of variability in biological structure and diversity including rare plants.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.1</i> , (14 September 2012) Exhibit B109-2 at 2.

A52	<p>Following completion of the pipeline construction, Northern Gateway will reclaim, stabilize and seed to establish a vegetated cover on the upland portion of the riparian management zone (i.e., areas 16 to 30 m from the stream bank). Reclamation will be initiated as soon as possible.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-25.</i></p>
A53	<p>Following completion of the pipeline construction, Northern Gateway will allow the riparian buffer zone (i.e., areas from high water mark to 16 m from the stream bank) to regenerate. Replanting will occur where post-construction monitoring indicates that riparian vegetation is not rejuvenating naturally. Planted shrubs will be native to the local biogeoclimatic zone or ecozone.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-25.</i></p>
A54	<p>Northern Gateway will consider applying these additional techniques for rare plant mitigation during detailed design:</p> <ul style="list-style-type: none"> • narrow right-of-way or change the shape/orientation of facilities • drill or bore beneath the rare plant species or habitat • alter construction schedule to move to winter dormant period • use of buffer materials to cover rare species during dormant period including geotextiles, straw bales, snow ramps and silt fencing • establishing native plant islands to aid in seed dispersion and support biodiversity 	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 12.1, (14 September 2012) Exhibit B109-2 at 4.</i></p>
A55	<p>Northern Gateway will restore vegetative cover as soon as possible after construction on sites not needed after construction, such as stockpile sites.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-71.</i></p>

Forests		
A56	Northern Gateway will build above ground facilities with buffer areas and use FireSmart best practices to protect against forest fire damage.	<i>Northern Gateway Response to Federal Government Information Request No. 1.10, (6 October 2011) Exhibit B41-4 at 17.</i>
A57	Northern Gateway will update the project’s Fire Response Contingency Plan to be consistent with the Canadian Incident Command System (“ICS”) and the <i>Wildfire Regulation</i> prior to construction.	<i>Northern Gateway Response to Federal Government Information Request No. 1.44-1.45, (6 October 2011) Exhibit B41-4 at 92-93.</i>
A58	<p>Northern Gateway will incorporate the following into its Construction EPMP:</p> <p>“In consultation with the local Forestry officer, and unless otherwise permitted, controlled burning of organic debris will only be conducted when the following site specific Canadian Forest Fire Weather Index System fuel moisture codes and fire weather indexes are met:</p> <ul style="list-style-type: none"> • Fine Fuel Moisture Code (FFMC), a numerical rating of the moisture content of litter and other cured fine fuels is less than 70. • Duff Moisture Code (DMC), a numerical rating of the average moisture content of loosely compacted organic layers of moderate depth, is less than 30. • Drought Code (DC), a numerical rating of the average moisture content of deep, compact, organic layers, is less than 200. • Initial Spread Index (ISI), a numerical rating of the expected rate of fire spread, combines the effects of wind and FFMC on rate of spread without the influence of variable quantities of fuel, is less than 10. • Build Up Index (BUI), a numerical rating of the total amount of fuel available for combustion, is less than 40. • Fire Weather Index (FWI), a numerical rating of fire intensity that combines ISI and BUI, is suitable as a general index of fire danger throughout forested and rural areas, is less than 17 (low to moderate).” 	<i>Northern Gateway Response to Federal Government Information Request No. 1.43, (6 October 2011) Exhibit B41-4 at 90-91.</i>

A59	<p>Northern Gateway will develop a comprehensive Timber Salvage Plan which will cover the entire Footprint approved for construction, including the RoW itself and all temporary and extra work space, utility corridors, access roads, camps, etc. This plan will be inclusive of applicable private, industry and regulatory stakeholders that have been identified, and will include spatial tracking of log decks. It will include provisions for the storage, transportation and disposal of all pine trees, as this is highly regulated in both Provinces.</p>	<p><i>Northern Gateway Response to Federal Government Information Request No. 1.40, (6 October 2011) Exhibit B41-4 at 86-87.</i></p>
A60	<p>NRCan requested that Enbridge</p> <ul style="list-style-type: none"> • survey for the occurrence and incidence of forest pathogens and insects (other than MPB) along the proposed RoW so that changes in forest health can be determined • describe what strategies Enbridge will use to reduce the risk of forest pathogen impacts and to monitor pathogen activities. <p>Northern Gateway will discuss this suggestion with Provincial forestry resource managers in British Columbia and Alberta to seek direction regarding inclusion of these types of surveys and strategies in pre-construction timber salvage planning.</p>	<p><i>Northern Gateway Response to Federal Government Information Request No. 1.42, (6 October 2011) Exhibit B41-4 at 89.</i></p>
A61	<p>Northern Gateway will work with those having an interest in forest research plots to ascertain the significance of specific plots to minimize or eliminate damage during detailed routing.</p>	<p><i>Northern Gateway Response to Federal Government Information Request No. 1.47, (6 October 2011) Exhibit B41-4 at 97.</i></p>
A62	<p>Northern Gateway will identify all forest research plots and protect them with a 25m buffer where feasible, or identify them for compensation when entitled by regulation.</p> <p>Criteria for designation as a priority “forest research plot” are as follows:</p> <ul style="list-style-type: none"> • Forest Inventory Plots, specifically Permanent Sample Plots (“PSPs”) which occur at known, geospatially referenced locations throughout both provinces. • Forest Insect and Disease plots that continue to have residual significance with respect to population dynamics, pest control, etc. 	<p><i>Northern Gateway Response to Federal Government Information Request No. 1.47, (6 October 2011) Exhibit B41-4 at 97.</i></p>

	<ul style="list-style-type: none"> • Silviculture installations, where stakeholder dialogue has identified significant long term value. 	
A63	Northern Gateway will conduct a reforestation program on the temporary (forested land) withdrawals that are not used for Project infrastructure.	<i>Northern Gateway Response to Federal Government Information Request No. 1.48 (6 October 2011) Exhibit B41-4 at 99.</i>
A64	Northern Gateway will designate all forested lands outside the designated work area as no-cutting areas, mark those areas (e.g., with brightly coloured fencing, rope or equivalent), and clearly indicate on project construction plans that these are areas of restricted activity.	<i>Northern Gateway Project Application, Volume 6B: Environmental and Socio-Economic Assessment (ESA) – Marine Terminal (27 May 2010) Exhibit B1-4 at 12-19.</i>
A65	Northern Gateway will verify all mapped old growth stands within the project development area prior to construction.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-5 at 8-102.</i>
A66	If the pipeline cannot be rerouted around old growth forests, Northern Gateway will not include extra temporary workspace and will limit grubbing to the ditch line and any areas requiring grading. If extra temporary workspace is required in old growth forests, the appropriate government authorities will be consulted to determine the most appropriate construction strategy.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-5 at 8-102.</i>

A67	Northern Gateway will ensure that, before old growth forests are removed, field checks are completed to verify presence of old growth forests and for indigenous wildlife species that use old growth habitat.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-5 at 8-102.</i>
A68	Northern Gateway will restore the old growth forest in the Southern Alberta Uplands.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-5 at 8-108.</i>
Freshwater		
A69	Northern Gateway will conduct water sampling for HDDs in larger watercourses where there is a lot of flow. These watercourses will be identified in the Pipeline Environmental Effects Monitoring Program.	Hearing Transcript, Vol. 102 (6 November 2012), Lines 26809-26810.
A70	Northern Gateway will implement a river crossing monitoring program. Line patrols will be used to monitor for exposed pipe, bank movement, accumulation of debris, flooding, or any other changes in the right-of-way condition at these sites. Should any of these events be observed, such as significant alterations to the crossing profile caused by high water levels, qualified parties will conduct more detailed assessments and any required remediation will be implemented.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.10, (22 September 2011) Exhibit B35-2 at 17.</i>

A71	Northern Gateway will conduct geotechnical/hyrotechnical assessments to protect the pipeline against scour, river meandering, bank instabilities, or other hazards. Site surveys will be used to provide depth of cover at the crossings as required. When required, in line inspection will be used to determine if any mechanical damage has been caused by river debris or water traffic. Remediation will be conducted in accordance with Enbridge's Integrity Management Plan, to confirm that the pipelines are acceptably maintained and protected at all river crossing locations.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.10, (22 September 2011) Exhibit B35-2 at 17.</i>
A72	Northern Gateway will repair or replace existing bank protection works if temporarily disturbed during construction.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.10, (22 September 2011) Exhibit B35-2 at 17.</i>
A73	Where bank protection works are prescribed for the Northern Gateway pipelines, Northern Gateway will assess the effects of those works (e.g., increased local bed scour) on adjacent operators and extend the works, if necessary, to provide protection to those operators.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.10, (22 September 2011) Exhibit B35-2 at 17.</i>
A74	Northern Gateway will not implement any bank protection works that have the potential to increase the potential for bank erosion or bed scour where bank protection works already exist.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.10, (22 September 2011) Exhibit B35-2 at 17.</i>
A75	Northern Gateway will increase on-site monitoring in watercourse crossings where there are species that have either federal or provincial management concerns.	<i>Northern Gateway Response to Federal Government Information Request No. 1.20, (6 October 2011) Exhibit B41-4 at 38.</i>

A76	Northern Gateway will undertake post-construction sampling of watercourse crossings to ensure that mitigation and protection measures are working as intended.	<i>Northern Gateway Response to Federal Government Information Request No. 1.20, (6 October 2011) Exhibit B41-4 at 38.</i>
A77	Northern Gateway will use non-invasive approaches such as directional drills during construction of watercourse crossings on six of the major tributaries to the Kitimat River in order that fish movements and habitat within the stream are not impacted.	<i>Northern Gateway Response to Cheryl Brown Information Request No. 2.11(a), (23 November 2011) Exhibit B43-4 at 12.</i>
A78	Northern Gateway will provide cross-drainage where roads cross wetlands, swales or overland drainage paths.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-13.</i>
A79	Northern Gateway will construct access road crossings at stable channel sections and avoid crossings where the channel bed and banks are unstable.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-13.</i>
A80	Northern Gateway will place crossings perpendicular to the watercourse.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-13.</i>

A81	Northern Gateway will remove temporary crossings before spring break-up unless they have been specifically located and sized to have the capacity to convey the 1:25-year annual peak discharge.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-13.</i>
A82	Where the streambed substrates consist of gravels or cobbles, Northern Gateway will salvage substrates before trenching, and replace them as part of the restoration (before reintroducing flows).	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-14.</i>
A83	Northern Gateway will selectively using rip-rap to stabilize channel banks where other methods of bank stabilization cannot be effectively implemented. The use of rip-rap as a stabilization measure will be limited and will be evaluated on a crossing-specific basis by a qualified river engineer.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-14.</i>
A84	Northern Gateway commits that watercourse crossings will comply with the following guidelines and policies: <ul style="list-style-type: none"> • Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body (Alberta Environment 2001b, Internet site) • Code of Practice for Watercourse Crossings (Alberta Environment 2001c, Internet site) • Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing, Province of Alberta (Alberta Environment 2001a, Internet site) • Pipeline Associated Watercourse Crossings (CAPP 2005) 	<i>Attachment 23 to Northern Gateway Response to Federal Government Information Request No. 1, (6 October 2011) Exhibit B41-8 at 38.</i>

A85	Northern Gateway commits that groundwater use and effects will comply with the following guidelines: <ul style="list-style-type: none">• Guidelines for Licencing Water Diversion (Alberta)• Environmental Code of Practice (Alberta)	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.2(a)</i> , (6 October 2011) Exhibit B40-6 at 8.
A86	If a potable water supply is contaminated due to a Northern Gateway oil spill, Northern Gateway will provide an alternate water supply.	Hearing Transcript, Vol. 147 (28 February 2013), Lines 20621-20623.
A87	In the event that groundwater quality or quantity was adversely impacted and could not be remediated, Northern Gateway will implement a well compensation program which will provide financial compensation for licenced water users to replace, reconstruct or treat contaminated water supplies including the filling and sealing of any affected wells.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.2(d)</i> , (6 October 2011) Exhibit B40-6 at 9.
A88	Northern Gateway will ensure that water withdrawals comply with the following codes and guidelines: <ul style="list-style-type: none">• Alberta Environmental Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines• DFO Ice Bridges and Snow Fills Operational Statement• DFO Freshwater Intake End-of-Pipe Fish Screen Guideline	<i>Northern Gateway Response to Federal Government Information Request No. 1.26</i> , (6 October 2011) Exhibit B41-4 at 57.
A89	Northern Gateway will restore natural hydrological regimes and use subsurface drainage control measures to mitigate the effects of surface or shallow groundwater.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal</i> , (27 May 2010) Exhibit B3-5 at 8-124.

A90	Northern Gateway will mitigate the potential effects of the Project on runoff drainage paths by maintaining natural drainage paths within the PDA or providing stable drainage diversions, if required.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-13.</i>
A91	Northern Gateway will undertake discharges of water from wastewater treatment facilities at construction camps or from hydrostatic testing in a manner that does not result in major effects on surface water flows.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-37.</i>
A92	Northern Gateway will provide erosion protection and sediment control at all discharge points.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-37.</i>
A93	Northern Gateway will use construction practices for instream work that maintain flow past the work site and in the downstream watercourse (i.e., flow bypass).	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-45.</i>

A94	Northern Gateway will carry out instream activities during periods of low flow, such as during winter months.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-83.</i>
A95	Northern Gateway will use isolation techniques to isolate the instream construction site.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-83.</i>
A96	Northern Gateway will discharge any water pumped from the isolated instream outside the watercourse to an appropriately sized sediment removal facility. Clean water from the sediment removal facility will be directed back to the surface watercourse of origin, preferably downstream from the instream workspace.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-45.</i>
A97	Northern Gateway will ensure that wastewater from construction camps is treated on site or trucked for disposal at a water treatment plant.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-91.</i>

A98	Northern Gateway will monitor stream discharges prior to and during periods of surface water withdrawals.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-95.</i>
A99	Northern Gateway will monitor receiving water bodies near water discharge points for signs of erosion due to water discharged from the Project. This includes monitoring the drainage channels between the Hoult and Clore tunnel portals and the receiving water bodies for possible erosion.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-95.</i>
A100	<p>Northern Gateway will conduct aerial reconnaissance, with ground truthing (as required), annually to monitor environmental effects along the right-of-way and associated permanent access roads. Aerial surveys will be used to monitor effects both under open water conditions and after every high flow event (i.e., 1:20-year or greater return period flood). The aerial reconnaissance monitoring will include a visual inspection of all pipeline and permanent access road watercourse crossings to identify or assess:</p> <ul style="list-style-type: none"> • maintenance of overland flow patterns (ponding along the right-of-way or along access roads could indicate insufficient cross-drainage) • integrity of cross-berms and cross-drainage, especially on long or steep approach slopes to watercourse crossings • stream bed conditions and bank stability, verifying materials disturbed during construction are stable and not being eroded or displaced, that trench backfill is not obstructing instream flows (i.e., acting as a sill) and that erosion is not occurring on the right-of-way • debris accumulations at culverts or bridges along permanent access roads (debris accumulations should be cleared so that the hydraulic capacity of the crossings is not impaired) • the integrity and performance of permanent runoff containment and sediment control structures, such as will be 	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-96.</i>

	<p>constructed at the Kitimat Terminal</p> <ul style="list-style-type: none"> • the success of revegetation and reclamation 	
A101	<p>Water quality monitoring will be implemented during the construction, operations and decommissioning phases to verify compliance with regulatory requirements and applicable guidelines. Monitoring will include:</p> <ul style="list-style-type: none"> • confirming that appropriate mitigation measures are implemented and are successful in reducing potential contaminants loadings (e.g., along the right-of-way and permanent access roads) • monitoring of TSS concentrations before and during periods of watercourse crossings construction • water quality sampling and analysis before release of hydrostatic test water • storm water quality monitoring at the Kitimat Terminal 	<p><i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-96.</i></p>
A102	<p>Northern Gateway commits that the water quality will return to pre-disturbed conditions at the end of the Project and after decommissioning.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-8 at 10-97.</i></p>
A103	<p>Northern Gateway will gate roads that it has tenure over and that lead to rivers or creeks to reduce angling pressure on fish populations.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-116.</i></p>
A104	<p>Northern Gateway will provide full-time environmental construction monitoring for instream works or works that pose moderate to high risk to fish habitats.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-132.</i></p>

A105	Northern Gateway's environmental inspector will require that all non-natural, non-biodegradable materials in freshwater fish habitat are removed and disposed of in an appropriate manner.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-132.</i>
A106	Northern Gateway will ensure that construction camps, stockpile sites, staging areas and waste disposal areas are setback more than 30 m from fish-bearing water bodies.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-21.</i>
A107	Northern Gateway will manage runoff and effluents so there is no interaction between construction camps, stockpile sites, staging areas and waste disposal areas and fish and fish habitats.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-21.</i>
A108	Northern Gateway will salvage instream cover features such as large woody debris (LWD) and boulders.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-24.</i>
A109	Northern Gateway will establish a 30-m wide riparian management zone on fish-bearing water courses, a 16-m riparian buffer zone on fish-bearing watercourses and a 10-m riparian buffer zone on non-fish-bearing watercourses. The edge of the riparian buffer zones will be flagged before any site disturbance activities occur. Work within this area will be staged to manage the disturbances near fish habitat. Extra temporary workspace will be established outside the 16-m buffer zone of all fish-bearing streams, or as directed	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-24.</i>

	by the environmental inspector.	
Soil		
A110	Northern Gateway will implement full right-of-way stripping on agricultural land as the primary topsoil management practice.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.3, (6 October 2011) Exhibit B40-6 at 11.</i>
A111	Northern Gateway will suspend or modify work in the event that heavy rains or unexpected thawing of frozen soils lead to rutting, which may damage the soil structure or result in admixing. Methods such as the use of corduroy and matting will be used to limit adverse effects, where completing the work is urgent.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.3, (6 October 2011) Exhibit B40-6 at 11.</i>
A112	Northern Gateway will have environmental inspectors who are trained to identify soils that are too soft, as a result of rain or thawing, to allow work to continue.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.3, (6 October 2011) Exhibit B40-6 at 11.</i>
A113	Northern Gateway will initiate a soil monitoring program within the RADEAA that will evaluate changes in soil quality caused by inputs of acidifying emissions (i.e., changes in soil chemical parameters such as pH, cation exchange capacity, exchangeable bases, exchangeable aluminum, and soluble aluminum and biological parameters such as soil microorganism function and diversity).	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-3 at 6-82.</i>

A114	Northern Gateway will only conduct grubbing where soil removal is necessary and only immediately prior to soil work.	<i>Northern Gateway Response to Federal Government Information Request No. 1.48, (6 October 2011) Exhibit B41-4 at 99.</i>
Air Quality		
A115	Northern Gateway will implement an air quality monitoring program around the terminal to collect data on the cumulative contributions of emissions from the ships at the terminal.	Hearing Transcript, Vol. 114 (13 December 2012), Line 14116.
A116	Northern Gateway will fully mitigate emissions from tanker blanket gas through use of on-board or onshore scrubbing technology, or both.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-5 at 8-142.</i>
A117	Northern Gateway will mitigate air emissions from the Kitimat Terminal through equipment maintenance, application of dust suppressants and reducing activities with poor dispersion under unfavourable meteorological conditions.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-5 at 8-142.</i>
A118	Northern Gateway will apply Best Available Technologies Economically Achievable ("BATEA") <u>and</u> best industry practices to ensure that air quality in the region remains acceptable with respect to applicable air quality objectives and standards.	<i>Northern Gateway Response to Carita Bergman Information Request No. 1.1(c), (23 November 2011) Exhibit B43-3 at 3.</i>

A119	<p>Northern Gateway will implement the following measures in order to monitor concentrations of SO₂:</p> <ul style="list-style-type: none">• Passive monitors will be placed at three locations. SO₂ will be monitored monthly for at least one year following the Kitimat Terminal becoming operational. Results of the monitoring program will be used to determine if additional monthly sampling is required. One of the reference sites will be representative of local background air quality. The SO₂ monitoring site will be selected to represent a location at which the predicted increase in the annual average SO₂ attributable to the Kitimat Terminal is minor. The selected reference site will experience air quality regimes representative of the Kitimat Terminal baseline air quality (less than 0.5 ppb). The second reference site will be affected by SO₂ emissions (such as the Kitimat Haul Road monitoring station).• Each month, these SO₂ monitoring sites will run duplicate samples (six samples in total) and include one blank sample for every set of field samples.• Passive monitoring of SO₂ will begin six months before facility commissioning or the arrival of the first vessel at the Kitimat Terminal, whichever occurs first.• Placement of the monitors will comply with the British Columbia Field Sampling Manual. Site documentation must be produced according to industry best practices.• Data summary reports will be provided for sampling done in each calendar quarter and made available 60 days following the end of each calendar quarter.• The sampling program will obtain 12 monthly samples at each site. Minimum sampling achievement will be set at 95%, equivalent to a maximum of one missed sample at any site.• The measured monthly concentrations of SO₂ will be compared with the distribution of monthly average values extracted from the dispersion modelling results. They will also be compared with the British Columbia Level A annual air quality objective for SO₂ (9 ppb). If the comparison supports the conclusions that the predicted concentrations are substantially overestimated and do not exceed the annual objective, the monitoring will cease following one year of operations. Otherwise, monitoring will continue.• A 24-hour passive sampling interval will be done during the first year of operations when marine vessels	<p><i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 4-75, 4-78 and 4-79.</i></p>
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	<p>are at the berths.</p> <ul style="list-style-type: none">• Representative samples of fuel oil—used by vessels during manoeuvring in the harbour and while on standby at the berths—will be collected from each visiting vessel for at least one year following the start of operations, and the associated total sulphur and asphaltene content determined. These data will be compared with the fuel quality data used to estimate the sulphur and particulate emissions from the shipping vessels in the models. Revised estimates of SO₂ and particulate matter (PM) will be compared with those used in the modelling.• Meteorological data from the Kitimat Whitesail and other monitoring stations will also be examined to determine the potential for atmospheric dispersion during the sampling interval.• If predicted concentrations are at, or below, the British Columbia Level A annual air quality objective for SO₂, sampling of fuel from all vessels will be discontinued. However, Northern Gateway will continue to conduct spot checks on vessel fuels to ensure that the fuel standards are being met by vessel owners.• If any exceedances of SO₂ occur, they will be fully explained and, if required and appropriate, the need for mitigation determined.	
A120	<p>Northern Gateway will begin discussions of a cooperative industry and government initiative that would develop strategies to reduce acidifying emissions in the Kitimat airshed.</p>	<p><i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-3 at 6-83.</i></p>

Financial liability		
A121	<p>Northern Gateway will be financially responsible for all damages it causes, even those not covered by its insurance policy. This commitment will endure throughout the construction, operation and abandonment phases of this Project. No financial limits will be placed on this commitment.</p>	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 9.3(f), (25 January 2012) Exhibit B58-2 at 11-12.</i></p> <p><i>Northern Gateway Response to Joint Review Panel Information Request No. 11.14(c.2 and c.3), (3 September 2012) Exhibit B101-2 at 77.</i></p>
A122	<p>Northern Gateway is responsible to landowners for all damage caused as a direct result of its operations.</p>	<p><i>Northern Gateway Response to Fort St. James Sustainability Information Request No. 2.3.2, (24 November 2011) Exhibit B47-6 at 5.</i></p>
A123	<p>Northern Gateway will compensate for crop loss or interruptions to farming activities caused as a direct result of its operations.</p>	<p><i>Northern Gateway Response to Fort St. James Sustainability Information Request No. 4.1.1(f), (24 November 2011) Exhibit B47-6 at 3.</i></p>
A124	<p>In the event of an oil spill in the CCAA or OWA, Northern Gateway will make compensation available to individuals, businesses or Aboriginal groups who can demonstrate a quantifiable loss as a result of restrictions imposed on marine or foreshore access or activities. This will mean that businesses could be compensated for loss of revenue, damage to boats and/or equipment, and/or any operating costs of having to travel to alternate sites to pursue commercial fishing or other activities.</p>	<p><i>Northern Gateway Project Application, Volume 6C: Risk Assessment and Management of Spills, (14 August 2012) Exhibit B3-41, at 9-26.</i></p>

A125	Northern Gateway will address appropriate compensation with affected trappers where trapping activities are impacted by the pipeline.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.9(a.2)</i> , (24 November 2011) Exhibit B47-10 at 21.
A126	Northern Gateway's distribution policy will call for the temporary suspension of cash distributions if the insurance and sources of funds listed in <i>Northern Gateway Response to Joint Review Panel Information Request 9.3(h)</i> , (1 January 2012) Exhibit B58-2 at 12 are inadequate to cover losses and claims of Northern Gateway and/or third parties.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 11.14(b.2)</i> , (3 September 2012) Exhibit B101-2 at 77.
A127	If any impairment in wetland function is identified as a result of construction, Northern Gateway will provide compensation for any alteration which is consistent with federal and provincial wetland policies.	Hearing Transcript, Vol. 104 (8 November 2012), Line 29815.
A128	Northern Gateway will compensate for habitat alteration caused by watercourse crossing.	Hearing Transcript, Vol. 104 (8 November 2012), Line 29438.
A129	Northern Gateway will be responsible for any damages to the marine environment that are directly attributable to its operations.	Hearing Transcript, Vol. 98 (1 November 2012), Line 22405.
A130	Northern Gateway will compensate forest tenure holders in the Alberta Plateau and the Interior Plateau for loss of timber production over the life of the Project.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal</i> , (27 May 2010) Exhibit B3-5 at 8-109.

Financial		
A131	Northern Gateway Pipelines Inc. (the general partner) will ensure the limited partners have the financial strength to participate in the Project, and have the ability to fund overruns if necessary during the construction phase.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 2, (18 August 2011) Exhibit B31-2 at 29.</i>
A132	Northern Gateway will require shippers to provide financial assurances as defined in the Transportation Service Agreement.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 2, (18 August 2011) Exhibit B31-2 at 29.</i>
Community Investment		
A133	Northern Gateway will procure 100 percent of the required pipe in Canada.	Hearing Transcript, Vol. 105 (9 November 2012), Line 30724.
A134	Northern Gateway will make a reasonable attempt to hire local people to fill all positions during operations.	Hearing Transcript, Vol. 105 (9 November 2012), Line 30778.
A135	Northern Gateway will develop construction execution plans (CEPs) in consultation with potentially affected Aboriginal groups, municipal authorities, local businesses, police, emergency responders, hospital authorities, school boards and provincial government departments.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 14.1(a.1), (9 November 2012) Exhibit B164-2 at 3-4.</i>
A136	Northern Gateway will complete a yearly summary of training activities and outcomes every December.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 14.1(a.2), (9 November 2012) Exhibit B164-2 at 7.</i>
A137	Northern Gateway will require the training institutions and organizations that provide industry related training, as a condition to any funding provided, to provide training and a monitoring plan.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 5.3 (a.1), (6 October 2011) Exhibit B40-2 at 9.</i>

A138	During construction, Northern Gateway will monitor the Canadian supply of capital equipment to ensure that it is maximized.	<i>Northern Gateway Project Application, Volume 6C: Environmental and Socio-Economic Assessment (ESA) – Human Environment</i> , (27 May 2010) Exhibit B3-16 at 4-31.
Aboriginal Issues		
A139	Northern Gateway’s environmental effects monitoring programs will focus primarily on environmental quality and the types of species and resources that are used by largely Aboriginal people for traditional food consumption.	Hearing Transcript, Vol. 147 (28 February 2013), Line 20834.
A140	Northern Gateway will track consultations with Aboriginal people and other stakeholders and summarize consultations in tracking tables.	Hearing Transcript, Vol. 106 (22 November 2012), Line 371.
A141	Northern Gateway will offer traditional land use studies and offer to do harvesting studies prior to the start of operations.	Hearing Transcript, Vol. 112 (11 December 2012), Line 10234.
A142	Northern Gateway will engage Aboriginal groups in the development of pipeline spill response plans, geographic response plans, control point mapping, and environmental sensitivity atlases.	Hearing Transcript, Vol. 145 (26 February 2013), Lines 17832-17833.
A143	Northern Gateway will conduct a route walk with selected Aboriginal individuals along the proposed pipeline centerline prior to setting the final centerline to better understand traditional harvesting areas and cultural sites.	Hearing Transcript, Vol. 154 (16 March 2013), Lines 29213-29214.
A144	Northern Gateway will require contractors to provide regular total employee statistics and total Aboriginal involvement as a monitoring standard of the contractors’ Aboriginal Participation Plan.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 5.3 (a.1)</i> , (6 October 2011) Exhibit B40-2 at 8.

A145	Northern Gateway will discuss with Aboriginal coastal communities the potential for these communities to own or operate coastal response centres.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation,</i> (27 May 2010) Exhibit B3-37 at 2-3.
A146	Northern Gateway will collection information on the use of specific country foods (e.g., amount collected and consumed, time of harvest, time of use) as part of Aboriginal traditional knowledge (ATK) community reports produced by Aboriginal groups as part of COPC monitoring.	<i>Northern Gateway Project Application, Volume 6C: Environmental and Socio-Economic Assessment (ESA) – Human Environment,</i> (27 May 2010) Exhibit B3-16 at 4-79.
Workforce		
A147	Northern Gateway will reduce potential adverse effects of its workforce on regional services and infrastructure by housing workers in construction camps, and providing best-practice medical facilities and staff, security services, and recreational facilities.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f),</i> (1 January 2012) Exhibit B58-2 at 2.
A148	Northern Gateway will establish and enforce policies to limit adverse interactions between the workforce and the local communities. These policies will advocate: <ul style="list-style-type: none"> • coordinating and working with local police (generally Royal Canadian Mounted Police [RCMP]) on enforcement issues, including monitoring traffic, and proactively preventing traffic congestion and increased potential for accidents • coordinating and working with local health providers • using buses or shared vehicles to reduce adverse effects on traffic • establishing liaisons with local town and city governments and NGOs for early detection of possible tensions or friction caused by project activities or work crews 	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f),</i> (1 January 2012) Exhibit B58-2 at 2.

A149	Northern Gateway will prohibit project personnel and contractors from hunting and fishing along the right of way, at the marine terminal, and at other construction sites during project construction. Northern Gateway will also prohibit crews staying in construction camps from hunting or fishing.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f), (1 January 2012) Exhibit B58-2 at 2.</i>
A150	Northern Gateway will prohibit harvesting invertebrates at the marine terminal site and ancillary facilities.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f), (1 January 2012) Exhibit B58-2 at 2.</i>
A151	Northern Gateway will prohibit construction personnel from carrying firearms or archery equipment while working on the Project or while using or occupying any project vehicles, except as expressly approved in writing in accordance with the Northern Gateway Construction Safety Manual (CSM) variance procedure.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f), (1 January 2012) Exhibit B58-2 at 2.</i>
A152	Northern Gateway will consult and engage organized labour associations and unions, individually affected aboriginal communities, municipal authorities, local business communities, police, emergency responders and hospital authorities to develop construction camp policies that are appropriate for the project.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f),(1 January 2012) Exhibit B58-2 at 3.</i>
A153	Northern Gateway will enforce disciplinary action for violations of Enbridge's Respectful Workplace Policy, Enbridge's Drug and Alcohol Free Workplace Policy, and Enbridge's 6 Lifesaving Rules by any Northern Gateway Project worker.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f),(1 January 2012) Exhibit B58-2 at 3.</i>
A154	Northern Gateway will discipline personnel who do not comply with the documented provisions, including that of the Construction EPMP, company policies and standards, or who in general disregard the environment or local communities.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 9.1(a-f),(1 January 2012) Exhibit B58-2 at 4.</i>

Marine		
A155	Northern Gateway will undertake three years of marine bird surveys throughout the CCAA, which would include the Upper Kitimat Arm and estuary area as part of the Marine Environmental Effects Monitoring Program.	Hearing Transcript, Vol. 100 (3 November 2012), Line 24193.
A156	Northern Gateway will invite First Nations communities in the CCAA and in the terminal area to participate in conducting surveys that are part of its Marine Environmental Monitoring Program.	Hearing Transcript, Vol. 113 (12 December 2012), Line 12517.
A157	Northern Gateway will use information from the Marine Environmental Effects Monitoring Program as part of an adaptive management program to identify needs for changes in Project operations and/or environmental management approaches.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.1(d)</i> , (6 October 2011) Exhibit B40-6 at 6.
A158	Northern Gateway will conduct further investigations on the habitat requirements of humpback whales, in conjunction with others with expertise and interest in whale habitat, prior to construction of the marine terminal.	Hearing Transcript, Vol. 74 (17 September 2012), Lines 20417-20418.
A159	Northern Gateway will monitor the impacts of humpback whale habitat during the operation of the Project to determine the impacts of the Project on humpback whale habitat.	Hearing Transcript, Vol. 74 (17 September 2012), Line 20420.
A160	Northern Gateway will collect data on marine mammal densities for three years pre-construction and three years post-construction.	Hearing Transcript, Vol. 112 (11 December 2012), Line 9149.
A161	Northern Gateway will fund studies by each of the eight coastal First Nations within the CCAA to quantify the FSC fishery and other harvesting.	Hearing Transcript, Vol. 114 (13 December 2012), Line 13078.
A162	Northern Gateway will implement a two-year pre-operational monitoring program of catches that will be developed in consultation with fisheries groups in the area.	Hearing Transcript, Vol. 116 (15 December 2012), Line 16086.

A163	Northern Gateway will continue to work with community advisory groups to identify ways of limiting effects on aesthetics for marine recreational users.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment – Marine Transportation, (27 May 2010) Exhibit B3-36 at 13-55.</i>
A164	Northern Gateway will commit to at least a four-year passive acoustic monitoring (PAM) study (two years prior to operations and two years after start of operations) with an option for additional years if required.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4, (22 September 2011) Exhibit B35-2 at 53.</i>
A165	Northern Gateway will develop safety radii for marine mammals during in-water construction activity using marine mammal noise exposure criteria. The safety radii will extend from the sound source to the point at which the exposure is equivalent to the temporary threshold shift criteria plus a 10% safety buffer. Northern Gateway will develop criteria for Stellar sea lions and cetaceans. Northern Gateway will use both the exposure criteria developed by Southall et al and those used by the National Marine Fisheries Service during field validation and will apply the criteria that result in the larger safety radii. The pre-determined safety radii will be validated at the commencement of in-water construction activities.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.30(f), (22 September 2011) Exhibit B35-2 at 61-62.</i>
A166	Northern Gateway will use hydrophones to measure sound levels at the radii perimeters at the start of loud construction activities (e.g., dredging, pile-drilling, blasting) to ensure that sound levels are at or below TTS exposure criteria. If sound levels exceed exposure criteria, the safety radii will be adjusted as required.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.30(f), (22 September 2011) Exhibit B35-2 at 62.</i>
A167	Northern Gateway will provide a whale monitoring boat that will identify whales along the Northern and Southern Approaches. During daylight hours, this boat will complete a surveillance cruise of limited areas of the CCAA that will be transited by a tanker approximately 30 to 60 minutes before the passage of that tanker.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 5-2.</i>

A168	Northern Gateway commits that, if whales are identified during vessel transits, the whale monitoring boat will notify the tanker of the location of whales. The captain will reduce speed to the minimum safe level. The captain, in consultation with the pilot will determine if route adjustments should be made.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 5-2.</i>
A169	Northern Gateway will implement mitigation measures for protecting migration, spawning and egg development of anadromous species, such as eulachon and salmon against the impacts of in-water activities where appropriate.	<i>Northern Gateway Response to Joint Review Panel Information Request No.6.1(c), (6 October 2011) Exhibit B40-6 at 5.</i>
A170	Northern Gateway's Marine Mammal Protection Plan will include a marine mammal hazing plan, a marine mammal cleaning plan, and a marine mammal follow-up plan. The hazing plans will be comprehensive and will include information such as type, quantity, location(s), maintenance and use of necessary equipment, as well as contact information for experts trained in hazing techniques, coordination of hazing measures and responsibilities and roles of relevant stakeholders and experts. The cleaning plan will specify all aspects associated with safe cleaning of affected animals. The plan will specify cleaning products, techniques, location of cleaning activities, necessary veterinarian expertise, animal care facilities and infrastructure, and other details.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, (27 May 2010) Exhibit B3-40 at 8-67.</i>
A171	Northern Gateway will implement the Marine Mammal Protection Plan for the life of the project.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.17(c), (24 November 2011) Exhibit B47-10 at 48.</i>

A172	Northern Gateway will consider all marine mammal species during initial study design as well as subsequent analyses.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.30(h), (22 September 2011) Exhibit B35-2 at 64.</i>
A173	Northern Gateway will include all marine mammal species in any monitoring it conducts in the CCAA.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.30(h), (22 September 2011) Exhibit B35-2 at 63-64.</i>
A174	Northern Gateway will undertake a cooperative research initiative with other interested parties including government, industry (shipping, fishing and recreational fishing), participating Aboriginal groups and stakeholders, to determine the effects of underwater noise on NR killer whales, the distribution of their key prey (i.e., salmon) within the CCAA, and to develop industry protocols to limit these effects, as well as generally making a positive contribution toward recovery of this population.	<i>Northern Gateway Response to Federal Government Information Request No. 1.22, (6 October 2011) Exhibit B41-4 at 48.</i>
A175	As part of its Marine Mammal Protection Plan, Northern Gateway will outline measures to limit the effects of underwater noise on non-resident killer whales and other cetaceans in the CCAA. Monitoring of marine mammals would be used to assess the effectiveness of these measures and, if required, modify these measures or implement new measures to address this effect.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment – Marine Transportation, (27 May 2010) Exhibit B3-29 at 10-2.</i>
A176	Northern Gateway will fund ongoing research on effects of underwater noise on marine mammals and associated thresholds for certain species.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4, (22 September 2011) Exhibit B35-2 at 53.</i>

A177	As an extension to its study on potential underwater noise levels, Northern Gateway will provide further details concerning development of its killer whale-specific auditory threshold, along with a brief re-assessment of how these updated results might alter the original assessment in both the CCAA and OWA. Northern Gateway will keep the JRP and DFO apprised of the status and ongoing development of this TDR, which will be filed with the JRP.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 4.30(e)</i> , (22 September 2011) Exhibit B35-2 at 61.
A178	Northern Gateway will establish a Fisheries Liaison Committee and have this committee in operation immediately after project approval.	Hearing Transcript, Vol. 99 (2 November 2012), Line 22769.
A179	The FLC will develop mechanisms for providing compensation for lost or damaged fishing gear and equipment.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 17.1(a)</i> , (22 February 2013) Exhibit B206-2 at 7.
A180	The FLC will be overseen by an independent chairperson.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 17.1(b)</i> , (22 February 2013) Exhibit B206-2 at 9.
A181	Northern Gateway will fund both the initial operational costs and ongoing administrative costs of the FLC throughout the life of the Project. This will include the costs associated with setting up the committee, employing an independent Chairperson and administrative support, administrative costs, renting space for meetings, and preparing correspondence and annual reports.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 17.2(a.3)</i> , (22 February 2013) Exhibit B206-2 at 27.
A182	Vessels calling on the Kitimat Terminal, through the Terminal Regulations, will be required to follow measures adopted by the FLC.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 17.1(c.4)</i> , (22 February 2013) Exhibit B206-2 at 15.

A183	Northern Gateway will work with the FLC to identify mitigation measures to limit adverse sensory disturbances on commercial-recreational and recreational fishers.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment – Marine Transportation, (27 May 2010) Exhibit B3-36 at 13-55.</i>
Marine Terminal		
A184	Northern Gateway will ensure that facilities at the marine terminal and operational methods for these facilities and vessels will be designed to take account of tsunamis that would likely to be generated by underwater slides.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-36 at 14-6.</i>
A185	Northern Gateway will mitigate internal corrosion by internally coating the tank floor and shell of all tanks on the Northern Gateway system.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 12.5(c), (14 September 2012) Exhibit B109-2 at 28.</i>
A186	Northern Gateway will limit in-water infrastructure at the marine terminal to steel piles.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 6.1, (6 October 2011) Exhibit B40-6 at 2.</i>

A187	Northern Gateway commits that dock monitoring, mooring load monitoring, firefighting, gas detection, security and other safety systems will be installed and monitored during all phases of cargo handling operations.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 1-3.</i>
A188	Northern Gateway will install additional custody transferring metering at the Kitimat Terminal.	Hearing Transcript, Vol. 86 (10 October 2012), Line 5797.
A189	Northern Gateway will dispose all dredged material on land at the excess cut disposal area.	<i>Northern Gateway Response to Federal Government Information Request No. 1.33, (6 October 2011) Exhibit B41-4 at 72.</i>
A190	Northern Gateway commits that project alterations will not result in disposal at sea activities being proposed that would require a disposal at sea permit under the <i>Canadian Environmental Protection Act, 1999</i> .	<i>Northern Gateway Response to Federal Government Information Request No. 2.1, (24 November 2011) Exhibit B46-2 at 1.</i>
A191	Northern Gateway will use a dredging system to limit sediment effects, as appropriate.	<i>Northern Gateway Project Application, Volume 6B: Environmental and Socio-Economic Assessment (ESA) – Marine Terminal (27 May 2010) Exhibit B1-4 at 7-8.</i>

A192	Northern Gateway commits that all shore crews handling vessels and hydrocarbon transfers will have extensive training in the safe handling of hydrocarbons.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 1-3.</i>
A193	Northern Gateway will treat surface water runoff from the tank and manifold areas by directing it to, and storing it in, the impoundment reservoir. Excess surface water runoff from the impoundment reservoir will be released into the marine environment through a subtidal, perforated pipe. Before being released to the marine environment, excess water from the impoundment reservoir will be tested to confirm that the concentration of oil is less than 15 parts per million. Surface water runoff from the area outside the tank and manifold areas will be controlled so that this water will be released outside the boomed zone of the berths to the extent practical.	<i>Northern Gateway Project Application, Volume 6B: Environmental and Socio-Economic Assessment (ESA) – Marine Terminal, (27 May 2010) Exhibit B1-4 at 7-7.</i>
A194	Northern Gateway will use an appropriate erosion and runoff controls on land during construction and operations to limit release of sediment to near-shore waters around the terminal (includes use of silt fences and sediment settlement ponds if appropriate)	<i>Northern Gateway Project Application, Volume 6B: Environmental and Socio-Economic Assessment (ESA) – Marine Terminal, (27 May 2010) Exhibit B1-4 at 7-8.</i>
A195	Northern Gateway will adhere to published construction work windows or those determined in consultation with DFO in the marine environment to mitigate impacts.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 12-9.</i>

Shipping and Navigation		
A196	Northern Gateway will not allow a tanker to begin the transit through the CCAA to Kitimat terminal unless, upon arrival, there a berth is available.	<i>Northern Gateway Response to Coastal First Nations Information Request No. 2.9(d)</i> , (24 November 2011) Exhibit B45-3 at 22.
A197	To permit fishing vessels to use anchorages at the same time as larger vessels, Northern Gateway will not block anchorages or refuges.	Hearing Transcript, Vol. 162 (6 April 2013), Lines 8316-8317.
A198	Northern Gateway commits that no tankers will use the Inner Passage.	Hearing Transcript, Vol. 159 (22 March 2013), Lines 2913-2914.
A199	Northern Gateway commits that no tankers will use Laredo Sound.	Hearing Transcript, Vol. 159 (22 March 2013), Lines 2913, 2915-2916.
A200	Northern Gateway commits that no tankers will use Grenville Channel.	Hearing Transcript, Vol. 159 (22 March 2013), Lines 2913, 2917-2918.
A201	Northern Gateway will require all tankers calling at the Kitimat Terminal to have coated ballast tanks as part of its Tanker Acceptance Program.	Hearing Transcript, Vol. 159 (22 March 2013), Lines 3423-3424.
A202	Northern Gateway will not accept tankers without a longitudinal bulkhead as part of its Tanker Acceptance Program.	Hearing Transcript, Vol. 159 (22 March 2013), Lines 3447-3448.
A203	Northern Gateway will require that the longitudinal bulkhead of tankers be oil tight as part of its Tanker Acceptance Program.	Hearing Transcript, Vol. 161 (5 April 2013), Lines 6244-6245.
A204	Northern Gateway will require that all fuel tanks be double hulled as part of its Tanker Acceptance Program.	Hearing Transcript, Vol. 162 (6 April 2013), Lines 7182-7184.

A205	Northern Gateway will ensure, through the Tanker Acceptance Program, that all tankers calling on the Kitimat Terminal will confirm they are aware of the current version of the Terminal Regulations and agree to comply with them.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.24(c), (24 November 2011) Exhibit B47-10 at 74.</i>
A206	Northern Gateway will select criteria for tanker acceptance based on the Oil Companies International Marine Forum Shipping Inspection Report inspection criteria or an equivalent third party vetting system.	<i>Northern Gateway Response to Coastal First Nations Information Request No. 2.5(d), (24 November 2011) Exhibit B45-3 at 15.</i>
A207	Northern Gateway commits that tankers will have passed the Tanker Acceptance Program prior to entering the Open Water Area.	<i>Northern Gateway Response to Coastal First Nations Information Request No. 2.6(b), (24 November 2011) Exhibit B45-3 at 17.</i>
A208	Northern Gateway will ensure that all tankers are equipped with an electronic chart display and information system (ECDIS).	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 1-3.</i>
A209	Northern Gateway will ensure that all tankers will be equipped and will be required to conform with closed loading and vapour recovery operation systems.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 1-3.</i>

A210	Northern Gateway will require tankers calling on the Kitimat Terminal to meet the MARPOL Annex VI amendment regarding use of low sulphur fuel, as well as ongoing actions respecting the North American Emission Control Areas.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 4-14.</i>
A211	Northern Gateway will not accept vessels through its Tanker Acceptance Program whose owners do not agree to abide by the operating guidelines for the CCAA.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 5-2.</i>
A212	Northern Gateway will ensure that tankers are crewed and certified in accordance with IMO Standards for Training and Watchkeeping (STW) for International Shipping under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 5-1.</i>
A213	Northern Gateway will require all masters of foreign deep-sea tankers calling at the Kitimat Terminal to have a full Master Mariners licence	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, (27 May 2010) Exhibit B3-37 at 2-1.</i>

A214	<p>Northern Gateway will develop a Marine Traffic Guide. Tankers and tugs will be required to adhere to the requirements of the guide.</p>	<p><i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 12-35.</i></p>
A215	<p>Northern Gateway will address minor violations of the Terminal Regulations through discussions and warnings. Northern Gateway will address repeated incidents by denying tanker access to the Kitimat Terminal.</p>	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 8.24(c), (24 November 2011) Exhibit B47-10 at 75.</i></p>
A216	<p>Northern Gateway will monitor adherence to its Terminal Regulations by the following means:</p> <ul style="list-style-type: none"> • Tanker vetting as part of the TAP. • Personnel at the Kitimat Terminal will monitor operations at the terminal as well as traffic to and from Kitimat Terminal via AIS and land based radar. • Reports from master and crew aboard the escort tug(s). • Reports from the tanker master. • Reports from pilots. 	<p><i>Northern Gateway Response to Joint Review Panel Information Request No. 8.24(c), (24 November 2011) Exhibit B47-10 at 74-75.</i></p>
A217	<p>Northern Gateway commits that escort tugs with towing capability will have large towing winches and at least 2000 ft of tow line.</p>	<p><i>Northern Gateway Response to Coastal First Nations Information Request No. 2.13(a), (24 November 2011) Exhibit B45-3 at 30.</i></p>
A218	<p>Northern Gateway commits that the tugs will have redundant propulsion systems.</p>	<p>Hearing Transcript, Vol. 160 (4 April 2013), Line 5186.</p>
A219	<p>Northern Gateway will cover the cost of installation of new, recommended and approved navigation aids if Transport Canada and the Canadian Coast Guard are unable or unwilling to pay for those installations.</p>	<p>Hearing Transcript, Vol. 159 (22 March 2013), Lines 2985-2993.</p>

A220	Northern Gateway will cover the cost of additional recommended and approved radar installations if the Canadian Coast Guard fails to fund them.	Hearing Transcript, Vol. 159 (22 March 2013), Lines 3086-3088.
A221	Northern Gateway will put in place meteorological stations for the project.	Hearing Transcript, Vol. 161 (5 April 2013), Line 5692.
A222	Northern Gateway will establish Project procedures to be followed in the expectation of worsening weather conditions so as to avoid the operational limits being approached.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 11.2(a)</i> , (3 September 2012) Exhibit B101-2 at 5-6.
A223	Northern Gateway will identify operational environmental limits in its Terminal Operations Manual (TOM) for tanker and cargo handling at berth.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation</i> , (27 May 2010) Exhibit B3-37 at 2-2.
A224	Northern Gateway will implement an integrated Pilot and tug Master training program. The purpose of this program is to integrate Pilots, tug Masters and escort tugs into a cohesive unit. This training program will commence approximately six months prior to the beginning of Project operations. The first part of this program is the participation of pilots, tug Master and escort tugs in simulation training. The second part of the program would involve the use of the Project escort and docking tugs and a ballasted tanker in the Suezmax to VLCC size range. This training would be conducted on the planned routes with the tanker being configured to represent both ballasted and loaded conditions. There would be no oil cargo on board the tanker. The planning of the incremental training described above would include the PPA, BCCP, the tug escort provider, tug Masters, Transport Canada, Canadian Coast Guard and other appropriate marine industry stakeholders.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 11.1(b)</i> , (3 September 2012) Exhibit B101-2 at 3.

A225	Northern Gateway commits that crews of the escort tugs and other support vessels (e.g., harbour tugs) will have extensive training in response to spills and other emergencies.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-26 at 1-3.</i>
A226	Northern Gateway will ensure that operating protocols for vessels will include definition of operating procedures relative to seismic events of defined magnitudes. The operating protocols will include definition of seismic conditions under which the vessels would continue to transit through the CCAA, move to safe anchorages, or remain outside the CCAA.	<i>Northern Gateway Project Application, Volume 8B: Environmental and Socio-Economic Assessment (ESA) – Marine Transportation, (27 May 2010) Exhibit B3-36 at 14-4.</i>
Oil Spill Response		
A227	Northern Gateway will have regional response personnel on call 24/7.	<i>Northern Gateway Response to Fort St. James Sustainability Information Request No. 2.6.3, (24 November 2011) Exhibit B47-6 at 10.</i>
A228	Northern Gateway will develop Tier 1, Tier 2 and Tier 3 responses, assess accessibility of control points in all seasons, and ground truth potential control points prior to construction.	Hearing Transcript, Vol. 91 (16 October 2012), Line 13305.
A229	Northern Gateway will conduct remediation after spill clean-up.	Hearing Transcript, Vol. 93 (18 October 2012), Line 16010.
A230	Northern Gateway will conduct initial response to oil spills within 6-12 hours of the spill.	Hearing Transcript, Vol. 94 (19 October 2012), Line 16839.

A231	Northern Gateway will review its access management plan and emergency response plan annually (at minimum).	Hearing Transcript, Vol. 94 (19 October 2012), Lines 16860-16861.
A232	Northern Gateway will have an external auditor review its oil spill preparedness and provide feedback throughout the process of developing an oil spill response plan. The external auditor will conduct capability reviews.	Hearing Transcript, Vol. 134 (5 February 2013), Lines 1923-1924.
A233	Northern Gateway will consult local communities in developing its oil spill response plans.	Hearing Transcript, Vol. 138 (18 February 2013), Line 7874.
A234	Northern Gateway will have a 250 cubic metre oil spill response capacity at the terminal.	Hearing Transcript, Vol. 142 (22 February 2013), Line 13530.
A235	Northern Gateway will install additional measures in high consequence areas like the Morice and the Kitimat River to ensure pipeline integrity.	Hearing Transcript, Vol. 98 (1 November 2012), Line 21437.
A236	Northern Gateway will consider passive response measures (berms, depressions and in access roads) to minimize the risk of a spill travelling to a watercourse.	Hearing Transcript, Vol. 98 (1 November 2012), Line 21438.
A237	Northern Gateway will undertake additional surveys in the CCAA and the open water area to aid in spill response planning, effects monitoring and to establish baseline data in the event that a spill occurs.	Hearing Transcript, Vol. 133 (4 February 2013), Line 1104.
A238	Northern Gateway will develop a dispersant use policy in consultation with the federal government and relevant stakeholders.	Hearing Transcript, Vol. 135 (6 February 2013), Lines 3677-3678.
A239	Northern Gateway will run additional scenarios as part of its marine oil spill response plan and have the Scientific Advisory Committee review its models.	Hearing Transcript, Vol. 136 (7 February 2013), Lines 4546-4548.
A240	Northern Gateway will develop an in situ burning policy for the project.	Hearing Transcript, Vol. 138 (18 February 2013), Line 8036.

A241	Northern Gateway commits to having the capability to recover on water 36,000 cubic metres in 10 operational days.	Hearing Transcript, Vol. 138 (18 February 2013), Line 8036.
A242	Northern Gateway will conduct the additional work to finalize high consequence area definition following Project approval.	<i>Northern Gateway Response to Haisla Nation Information Request No. 4.101(b)</i> , (1 October 2012) Exhibit B132-2 at 159.
A243	In the event of an oil spill, Northern Gateway will conduct emergency response operations on a 24-hour basis if it is safe to do so.	<i>Northern Gateway Response to Douglas Channel Watch Information Request No. 1.3(f)</i> , (24 November 2011) Exhibit B47-3 at 6.
A244	Through the Tanker Acceptance Program, Northern Gateway will ensure that the vessel's Shipboard Oil Pollution Emergency Plan will acknowledge and incorporate by reference to the Project's Marine Oil Spill Response Plan and any subordinate planning measures (e.g., Geographic Response Plans).	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.23</i> , (24 November 2011) Exhibit B47-10 at 71-72.
A245	Northern Gateway commits that remotely controlled mainline block valves will be completely closed within 13 minutes of detection of an alarm event.	<i>Northern Gateway Response to Josette Wier Information Request No. 3.4(a)</i> , (23 November 2011) Exhibit B43-7 at 5.
A246	Northern Gateway will ensure that first response stations and locally based personnel and equipment are located at the Kitimat Terminal and in locations along the Northern and Southern Approaches to enable rapid response.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation</i> , (27 May 2010) Exhibit B3-37 at 5-1.
A247	In the event of an oil spill, Northern Gateway will place exclusion booms around sensitive eelgrass habitats in intertidal areas (e.g., Bish Cove, Kitimat River estuary, Minette Bay) to restrict movement of hydrocarbon and around kelp beds.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation</i> , (27 May 2010) Exhibit B3-39 at 8-11.

A248	In the event of a spill, Northern Gateway will monitor the health and recovery of affected bird populations.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, (27 May 2010) Exhibit B3-40 at 8-51.</i>
A249	Northern Gateway will consult the British Columbia Ministry of Environment to determine the most humane treatment for the oiled animals.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, (27 May 2010) Exhibit B3-40 at 8-70.</i>
A250	Northern Gateway's oil spill response plan will establish local wildlife rehabilitation centers in the event of a spill.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, (27 May 2010) Exhibit B3-40 at 8-71.</i>
A251	In the event of a marine spill, Northern Gateway will implement a monitoring program to determine when fish stocks and other marine life have sufficiently recovered so that affected areas can be fully reopened to recreational and commercial fishing and other affected activities.	<i>Northern Gateway Project Application, Volume 8C: Risk Assessment and Management of Spills – Marine Transportation, (27 May 2010) Exhibit B3-41 at 9-21.</i>

Abandonment		
A252	Northern Gateway commits that landowners will not be liable for the costs of pipeline abandonment.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 2, (18 August 2011) Exhibit B31-2 at 28.</i>
A253	Northern Gateway will make all decisions regarding the actual method of abandonment, including with respect to removal versus abandonment in place, based upon the most current sound scientific studies and accepted industry practice at that time.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 2, (18 August 2011) Exhibit B31-2 at 28.</i>
A254	Northern Gateway will include the cost of abandonment, as set forth by a government or regulator, in the toll.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 2, (18 August 2011) Exhibit B31-2 at 29.</i>
A255	Northern Gateway commits that riparian vegetation will not be disturbed as a result of decommissioning.	<i>Northern Gateway Response to Eco Justice Information Request No. 2.11(a), (24 November 2011) Exhibit B47-4 at 20.</i>
A256	Northern Gateway will implement the following mitigation measures during decommissioning: <ul style="list-style-type: none"> • isolation of culverts from flows • reconstruction of channel bed and width under culverts to match upstream and downstream areas • stabilization of disturbed banks and regeneration/replanting of the riparian community at, upstream, and downstream of culverts and bridges 	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-9 at 11-74.</i>
Other		
A257	Northern Gateway will offset the kilowatts of energy consumed for operations with green energy.	Hearing Transcript, Vol. 106 (22 November 2012), Line 559.
A258	Northern Gateway will build the hazardous storage building with construction materials that are designed to prevent the quantity of materials stored within it from impacting the environment and local groundwater. The building will have a secondary containment system.	<i>Northern Gateway Response to Fort St. James Sustainability Information Request No. 2.5.3 and 2.5.4, (24 November 2011) Exhibit B47-6 at 8.</i>

A259	Northern Gateway commits that Highway 27 will remain open during pipeline construction.	<i>Northern Gateway Response to Fort St. James Sustainability Information Request No. 3.1.2 - 3.1.12, (24 November 2011) Exhibit B47-6 at 4.</i>
A260	Northern Gateway commits that no permanent impacts to agriculture in the Fort St. James region will occur as a result of the project.	<i>Northern Gateway Response to Fort St. James Sustainability Information Request No. 4.1.1(f), (24 November 2011) Exhibit B47-6 at 3.</i>
A261	Northern Gateway will work with parties interested in re-using excess cut material excavated for the construction of the pipeline, tunnels and Kitimat terminal to facilitate their request.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.6(c), (24 November 2011) Exhibit B47-10 at 16.</i>
A262	Northern Gateway will consult with affected trappers to avoid destruction of the trapline during construction of the project.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.9(a.2), (24 November 2011) Exhibit B47-10 at 21.</i>
A263	During operations, Northern Gateway will work with relevant stakeholders to accommodate new road crossings.	<i>Northern Gateway Response to Province of British Columbia Information Request No. 2.2(a), (11 November 2011) Exhibit B47-28 at 7.</i>

A264	Northern Gateway will ensure that vehicles and off-road construction equipment are properly tuned and maintained.	<i>Northern Gateway Project Application, Volume 6A: Pipelines and Tank Terminal ESA, (27 May 2010) Exhibit B3-1 at 4-14.</i>
A265	Northern Gateway will develop a detailed access management plan that will take into account requirements for all-season access and maintenance based on final project routing and design.	<i>Northern Gateway Response to Haisla Nation Information Request No. 4.91(a), (1 October 2012) Exhibit B132-2 at 144.</i>
A266	Northern Gateway will identify priority areas and develop detailed priority area specific sub-plans as part of its access management plan. Northern Gateway will collaborate with all interested parties to implement the priority area specific sub-plans.	<i>Northern Gateway Response to Joint Review Panel Information Request No. 8.13(a-b), (24 November 2011) Exhibit B47-10 at 48.</i>
A267	Northern Gateway will have environmental monitors on-site during construction and decommissioning to confirm that mitigation measures are implemented.	<i>Northern Gateway Project Application, Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, (27 May 2010) Exhibit B3-4 at 7-44.</i>

APPENDIX B: PROPOSED AMENDED CONDITIONS

Potential Condition No.	Original	Proposed Amendment
16-18	<p>Pipeline Environmental Effects Monitoring Program: pre-construction survey framework</p> <p>Northern Gateway must file with the NEB, within one year after Project approval, a survey framework associated with the Pipeline Environmental Effects Monitoring Program (required by Conditions 13-15), including, but not limited to: ...</p>	<p>Pipeline Environmental Effects Monitoring Program: pre-construction survey framework</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, within one year after Project approval, a survey framework associated with the Pipeline Environmental Effects Monitoring Program (required by Conditions 13-15), including, but not limited to: ...</p>
26-28	<p>Quality Management Plan</p> <p>Northern Gateway must file with the NEB, at least four months prior to any procurement, a Project-specific Quality Management Plan that includes, but is not limited to: ...</p>	<p>Quality Management Plan</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least four months prior to any procurement, a Project-specific Quality Management Plan that includes, but is not limited to: ...</p>
35-37	<p>Joining Program</p> <p>Northern Gateway must develop a Joining Program and file it with the NEB at least 30 days prior to conducting welding procedure qualification tests for: ...</p>	<p>Joining Program</p> <p>Northern Gateway must develop a Joining Program and file it with the NEB <u>for approval</u> at least 30 days prior to conducting welding procedure qualification tests for: ...</p>

Potential Condition No.	Original	Proposed Amendment
71-73	<p>Linear Feature Management and Removal Plan</p> <p>Northern Gateway must file with the NEB, at least six months prior to commencing construction, a Linear Feature Management and Removal Plan, in accordance with the Linear Feature Management and Removal Plan Framework submitted as part of the OH-4-2011 proceeding. The plan must address all sections noted in the framework and include, but not be limited to: ...</p>	<p>Linear Feature Management and Removal Plan</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least six months prior to commencing construction, a Linear Feature Management and Removal Plan, in accordance with the Linear Feature Management and Removal Plan Framework submitted as part of the OH-4-2011 proceeding. The plan must address all sections noted in the framework and include, but not be limited to: ...</p>
78-79	<p>Tunnel infrastructure</p> <p>Northern Gateway must file with the NEB, at least six months prior to commencing tunnel construction activities: ...</p>	<p>Tunnel infrastructure</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least six months prior to commencing tunnel construction activities: ...</p>
80-81	<p>Pipeline construction within tunnels</p> <p>Northern Gateway must file with the NEB, at least six months prior to commencing pipeline installation in the tunnels, a detailed description of how the pipeline segments within the tunnels will be constructed, including, but not limited to, welding, non-destructive examination, protective coatings, and pressure testing.</p>	<p>Pipeline construction within tunnels</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least six months prior to commencing pipeline installation in the tunnels, a detailed description of how the pipeline segments within the tunnels will be constructed, including, but not limited to, welding, non-destructive examination, protective coatings, and pressure testing.</p>

Potential Condition No.	Original	Proposed Amendment
90	<p>Emergency Response Plan for construction</p> <p>Northern Gateway must file with the NEB, at least 90 days prior to commencing construction, an Emergency Response Plan that addresses 24-hour medical evacuation, fire response, hazardous chemical and fuel spill response, and security. The Emergency Response Plan must include, but not be limited to: ...</p>	<p>Emergency Response Plan for construction</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least 90 days prior to commencing construction, an Emergency Response Plan that addresses 24-hour medical evacuation, fire response, hazardous chemical and fuel spill response, and security. The Emergency Response Plan must include, but not be limited to: ...</p>
101-104	<p>Surveys and mitigation for rare plants and rare ecological communities</p> <p>Northern Gateway must undertake spring, summer, and fall field surveys for rare plants and rare ecological communities. Survey design and sampling methods must consider the availability of unique habitats to support rare species or ecological communities. Northern Gateway must file with the NEB, at least 90 days prior to commencing construction: ...</p>	<p>Surveys and mitigation for rare plants and rare ecological communities</p> <p>Northern Gateway must undertake spring, summer, and fall field surveys for rare plants and rare ecological communities. Survey design and sampling methods must consider the availability of unique habitats to support rare species or ecological communities. Northern Gateway must file with the NEB <u>for approval</u>, at least 90 days prior to commencing construction: ...</p>
124-125	<p>Specifications for field-applied coatings</p> <p>Northern Gateway must file with the NEB, at least 60 days prior to commencing construction, its specifications for field-applied coatings.</p>	<p>Specifications for field-applied coatings</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least 60 days prior to commencing construction, its specifications for field-applied coatings.</p>

Potential Condition No.	Original	Proposed Amendment
133	<p>Post-construction environmental monitoring methods</p> <p>Northern Gateway must file with the NEB, at least 30 days prior to commencing construction:</p> <p>a) the methods for conducting post-construction environmental monitoring for all terrestrial and freshwater areas disturbed during construction; ...</p>	<p>Post-construction environmental monitoring methods</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least 30 days prior to commencing construction:</p> <p>a) the methods for conducting post-construction environmental monitoring for all terrestrial and freshwater areas disturbed during construction; ...</p>
167	<p>Consultation on emergency preparedness and response with interested parties</p> <p>Northern Gateway must file with the NEB, at least three years prior to commencing operations, a plan for consulting on emergency preparedness and response for the pipeline and Kitimat Terminal. This plan must include, but not be limited to: ...</p>	<p>Consultation on emergency preparedness and response with interested parties</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least three years prior to commencing operations, a plan for consulting on emergency preparedness and response for the pipeline and Kitimat Terminal. This plan must include, but not be limited to: ...</p>
168	<p>Emergency Preparedness and Response Exercise and Training Program</p> <p>Northern Gateway must file with the NEB, at least 18 months prior to commencing operations, an Emergency Preparedness and Response Exercise and Training Program for the pipeline and Kitimat Terminal. ...</p>	<p>Emergency Preparedness and Response Exercise and Training Program</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least 18 months prior to commencing operations, an Emergency Preparedness and Response Exercise and Training Program for the pipeline and Kitimat Terminal. ...</p>

Potential Condition No.	Original	Proposed Amendment
170-171	<p>Emergency Preparedness and Response Plan for the pipeline</p> <p>Northern Gateway must file with the NEB, at least one year prior to commencing operations, an Emergency Preparedness and Response Plan for the pipeline to verify compliance with Northern Gateway’s commitments regarding Emergency Preparedness and Response, including ...</p>	<p>Emergency Preparedness and Response Plan for the pipeline</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least one year prior to commencing operations, an Emergency Preparedness and Response Plan for the pipeline to verify compliance with Northern Gateway’s commitments regarding Emergency Preparedness and Response, including ...</p>
172	<p>Emergency Preparedness and Response Plan for Kitimat Terminal</p> <p>Northern Gateway must file with the NEB, at least one year prior to commencing operations, an Emergency Preparedness and Response Plan for Kitimat Terminal to verify compliance with Northern Gateway’s commitments regarding Emergency Preparedness and Response, including ...</p>	<p>Emergency Preparedness and Response Plan for Kitimat Terminal</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least one year prior to commencing operations, an Emergency Preparedness and Response Plan for Kitimat Terminal to verify compliance with Northern Gateway’s commitments regarding Emergency Preparedness and Response, including ...</p>
174-175	<p>Tunnel access control plan and safety systems</p> <p>Northern Gateway must file with the NEB, at least six months prior to commencing operations, a tunnel access control plan and a description of the safety systems to be installed in the tunnels for real-time monitoring of pipeline vibrations, temperature, air quality, fire, and gas.</p>	<p>Tunnel access control plan and safety systems</p> <p>Northern Gateway must file with the NEB <u>for approval</u>, at least six months prior to commencing operations, a tunnel access control plan and a description of the safety systems to be installed in the tunnels for real-time monitoring of pipeline vibrations, temperature, air quality, fire, and gas.</p>

Potential Condition No.	Original	Proposed Amendment
177-178	SCADA and leak detection system design Northern Gateway must file with the NEB, at least 90 days prior to commencing operations , a report describing the final design of the SCADA and leak detection systems for the pipeline...	SCADA and leak detection system design Northern Gateway must file with the NEB <u>for approval</u> , at least 90 days prior to commencing operations , a report describing the final design of the SCADA and leak detection systems for the pipeline...

APPENDIX C

Excerpt from
Emera Brunswick Pipeline Company Ltd. (31 May 2007), NEB Decision GH-1-2006



National Energy
Board

Office national
de l'énergie

Reasons for Decision

**Emera Brunswick Pipeline
Company Ltd.**

GH-1-2006

May 2007

Facilities and Tolls and Tariffs

Canada

National Energy Board

Reasons for Decision

In the Matter of

Emera Brunswick Pipeline Company Ltd.

Application dated 23 May 2006 for a Certificate of Public Convenience and Necessity under section 52 of the *National Energy Board Act* authorizing Emera Brunswick Pipeline Company Ltd. (EBPC) to construct and operate the Brunswick Pipeline, an Order under Part IV of the NEB Act approving the tolls for the Brunswick Pipeline and an Order designating EBPC a Group 2 company.

GH-1-2006

May 2007

Chapter 8

The Board's Public Interest Determination

8.1 The Public Interest

As noted in Chapter 2 of these Reasons for Decision, the Board has described the public interest in the following terms:

The public interest is inclusive of all Canadians and refers to a balance of economic, environmental, and social interests that change as society's values and preferences evolve over time. As a regulator, the Board must estimate the overall public good a project may create and its potential negative aspects, weigh its various impacts, and make a decision.

When applying the “present and future public convenience and necessity” test under Part III of the NEB Act, the Board makes a determination in the overall “public interest”. In its consideration of an application, the Board is required to identify and weigh all relevant evidence on the record and come to a determination whether, overall, the project is in the public interest or in the present and future public convenience and necessity. This requires that the Board balance the benefits and the burdens of the project, based upon analysis of the relevant evidence properly before the Board, to come to its final determination.

This Chapter provides the Board's assessment of the overall benefits and burdens of the Brunswick Pipeline Project in relation to its decision under s. 52, Part III of the NEB Act.

8.2 Benefits and Burdens of the Project

Tables 8-1 and 8-2 summarize the key benefits and burdens, respectively, of the proposed Project that were determined by the Board and outlined in the previous chapters of these Reasons and in the EA. Both tables indicate whether the benefits or burdens would apply locally (i.e., within the immediate vicinity of the Project, such as the City of Saint John), regionally (i.e., within the Maritimes) or nationally.

This is not intended to be a comprehensive list of all benefits and burdens mentioned during the proceeding by participants. Rather, it is a summary of the key benefits and burdens that the Board identified during its analysis of the evidence and ultimately weighed in reaching its decision. Both tables have been generally arranged from top to bottom in relative order of importance, as determined by the Board, during its deliberations and analysis of the evidence. A descriptive and more complete weighing of the benefits and burdens is found in Section 8.3.

Table 8-1
Summary of Key Benefits

<i>Benefits</i>	<i>Type of Impacts</i>
<ul style="list-style-type: none"> Maritime Canada access to new secure natural gas supply source (up to 250,000 MMBtu/day) from a well-known global supplier 	Local Regional National
<ul style="list-style-type: none"> regional incremental natural gas supply source that will enable Maritime Canada to fulfill current and anticipated future natural gas needs by promoting the long-term growth of the regional energy market 	Local Regional National
<ul style="list-style-type: none"> open and competitive markets within Maritime Canada will be encouraged through the increased development of competitive regional markets for natural gas 	Local Regional
<ul style="list-style-type: none"> introduction of an incremental source of natural gas supply to the region could decrease potential short-term price volatility and facilitate long-term price stability for the region 	Local Regional National
<ul style="list-style-type: none"> increased utilization of current Maritime energy infrastructure through accessibility to an incremental reliable supply source. For example, M&NP shippers can mitigate demand charges by utilizing existing delivery points as receipt points for the Repsol gas supplies and then utilizing their existing Canadian capacity to exchange or backhaul the gas to where it might be actually consumed or possibly resold. 	Local Regional National
<ul style="list-style-type: none"> flexibility to draw supply from various fields and therefore ability to mitigate potential supply problems in any given supply basin 	Regional National
<ul style="list-style-type: none"> EBPC's commitment to provide training and funding to first responders 	Local Regional
<ul style="list-style-type: none"> Potential for increased use of natural gas over other less clean burning fuels such as coal and oil 	Local Regional National
<ul style="list-style-type: none"> Aboriginal "set-aside" that would target two percent of all third-party contracted services for NB Mi'kmaq and Maliseet businesses 	Regional

<i>Benefits</i>	<i>Type of Impacts</i>
<ul style="list-style-type: none"> Project is expected to create direct, indirect and induced employment and income for the City of Saint John and the region, for example: <ul style="list-style-type: none"> by allowing local and regional workers and businesses to better compete, and be successful, in their bids on tenders for labour and materials; direct incremental jobs in Saint John area [during construction total direct employment of approx. 373 person years; during operation – four full time equivalent positions on pipeline]; and during construction - \$137 million in GDP for New Brunswick and \$210 million for rest of Canada. During operation- GDP impact of \$2 million for province and \$2 million for rest of Canada. Annual gross economic impact \$4 million for province, \$5 million for rest of Canada. 	Local Regional National
<ul style="list-style-type: none"> enabling M&NP shippers to turn back capacity on the M&NP US system, relieving those shippers of demand charge obligations 	Regional
<ul style="list-style-type: none"> pipeline would contribute tax revenues to various levels of government, estimated at \$3.3 million (property), \$2 million (federal), \$1 million (provincial), and \$1 million (capital tax) for a total of \$7.3 million annually. (Approx. \$700, 000 property taxes to City of Saint John) 	Local Regional National

**Table 8-2
Summary of Key Burdens**

<i>Burdens</i>	<i>Type of Impacts</i>
<ul style="list-style-type: none"> concerns about access to communities in the event of an emergency and the capacity of first responders to handle an emergency 	Local
<ul style="list-style-type: none"> potential for accidents or malfunctions associated with the pipeline and concerns about resulting impacts on local population 	Local
<ul style="list-style-type: none"> potential for and concerns about blast vibration damage to structures and the environment 	Local

<i>Burdens</i>	<i>Type of Impacts</i>
<ul style="list-style-type: none"> concerns about increased noise and vibration, and the duration of construction, especially for residents of Pokiok and Milford, associated with the HDD under Saint John River 	Local
<ul style="list-style-type: none"> disruption and loss of landowners' use, enjoyment, and opportunities for development of their properties 	Local
<ul style="list-style-type: none"> potential adverse environmental effects on biophysical (e.g., effects to vegetation, wildlife and surface water) and socio-economic (e.g., disruption of recreational pursuits) components of Rockwood Park 	Local
<ul style="list-style-type: none"> key potential adverse environmental effects on the biophysical environment along the pipeline RoW include effects on Species at Risk and Species of Conservation Concern, and on wetlands, as well as effects from unauthorized access to the RoW and acid rock drainage other potential environmental effects on the biophysical environment along the pipeline RoW include effects on soil and soil productivity, vegetation, water quality and quantity, fish and fish habitat, wildlife and wildlife habitat, and air quality 	Local Regional National
<ul style="list-style-type: none"> potential issues may arise when underground infrastructure is located in close proximity to a pipeline 	Local
<ul style="list-style-type: none"> key potential adverse environmental effects on the socio-economic environment along the pipeline RoW include effects on heritage resources and on the current use of lands and resources for traditional purposes by Aboriginal persons other potential environmental effects on the socio-economic environment along the pipeline RoW include varying degrees of disruption, nuisance, and land-use impacts to landowners, residents, and commuters due to pipeline construction, operation, maintenance, and RoW restrictions 	Local Regional
<ul style="list-style-type: none"> low tolls on the Brunswick Pipeline could render the postage stamp toll on the M&NP Canada system less competitive 	Regional

8.3 Weighing of Benefits and Burdens

Benefits

The Board finds that the benefits associated with the Brunswick Pipeline bringing an additional and stable supply of gas into Maritime Canada are significant, real and numerous. Although some parties questioned whether access to the incremental supply source would be assured through potential direct connection, or whether the current M&NP infrastructure could be used to physically backhaul gas, the Board notes that there are a number of ways in which Maritime Canada could access the gas.

Access to the Project's natural gas supply could be achieved through the use of backhauls, swaps or direct connection to the Brunswick Pipeline. Given the number of potential methods this Project offers for accessing gas, the Board does not believe that some uncertainty or additional costs around one particular method substantially detracts from the considerable weight of the national, regional and local benefits potentially realized through access to a new incremental natural gas supply source.

For example, the Board finds that there would be a strong benefit to regional Canadian shippers, other than shippers on the Brunswick Pipeline, should this Project proceed. The Project will likely encourage increased utilization of current regional infrastructure, such as the M&NP system, through the potential accessibility to an incremental and reliable source of supply. Shippers on M&NP may mitigate their current demand charges by utilizing existing delivery points as receipt points for the Repsol gas supplies and then utilizing their existing Canadian capacity to swap or backhaul gas to where it might actually be consumed or possibly resold. There is an added national benefit to potentially utilizing unused capacity more efficiently on the M&NP system. The Board finds that the promotion of the efficient use of energy infrastructure is a strong benefit to all Canadians.

The Board finds that arguments that this gas may only be received by Irving Oil do not detract from the overall benefit of bringing an additional stable supply of gas to this region. From the evidence, it is understood that Irving Oil currently uses approximately 80 percent of the gas in Maritime Canada, and that it intends to use approximately 80,000 MMBtu/day of incremental gas from the new supply source. The Board finds that the viability of this new supply source is dependent upon the use of Brunswick Pipeline as a connection to a downstream anchor market since natural gas demand in the Maritimes is not independently substantial enough to attract investment in this supply source. Maritime Canada gas usage in 2005, from the M&NP system, amounted to 80,000 MMBtu/day. Given that Irving Oil indicated in evidence that it would continue to honour its commitments on the M&NP Canada system, the logical conclusion is that this Project will result in, at a minimum, an incremental demand for gas of 80,000 MMBtu/day in the Maritimes.

Furthermore, even though Irving Oil is uncertain whether it will ship gas on the Brunswick Pipeline in excess of the amount that it intends to use proprietarily, the evidence indicates gas will also be accessible for use by the Maritime Canada market through various means, including through the Brunswick Pipeline. The Board is of the view that it is reasonable to conclude that Repsol and Irving Oil would seek to maximize the sale of gas into the Maritime Canada market,

and that a local distribution company, like EGNB, could seek to interconnect with the Brunswick Pipeline to benefit from this new system.

There is an economic incentive for Repsol and Irving Oil to facilitate sales to the Maritime Canada market in that there would likely be lower transportation costs associated with delivery into this market than costs incurred if the gas were to be exported. In addition to a direct connection to the Brunswick Pipeline, other ways to access gas using the Project include swaps and backhauls. On this evidence, the Board finds that, on a balance of probabilities, the Maritimes will have access to this new natural gas source, and the Brunswick Pipeline will be instrumental in allowing the Maritimes to achieve the benefits associated with the addition of this incremental supply source.

The Board is of the view that Brunswick Pipeline's reliance on Repsol's portfolio of gas sources creates a considerable benefit in that it provides flexibility to draw supply from various fields. This flexibility mitigates potential supply problems in any specific basin and would provide regional and local Canadian shippers and users of this gas, such as local and regional utilities and businesses, with added assurance of supply. As a result, sourcing gas in this manner will likely encourage increased natural gas use and promote the long-term growth of the natural gas market both in the Maritimes and locally. Though there is no certainty with respect to how Repsol may manage its portfolio of assets, the Board is of the view that any uncertainty of this approach is sufficiently offset by the increased flexibility that reliance on a portfolio allows. In addition, given the investment Repsol and its affiliates have made in the area, as noted in Chapter 4, the Board is of the view that it is a logical conclusion that Repsol would seek to maximize return on its investments. Accordingly, the Board finds that there is a significant benefit associated with the supply of an additional, secure source of gas to the Maritimes. The Board also finds that the Brunswick Pipeline could provide a national benefit; for example, Repsol plans to pursue options to provide future natural gas service to Quebec markets using backhauls on existing pipeline systems.

Another key national, regional and local benefit found by the Board was the potential that the introduction of an incremental source of natural gas supply to the Maritimes could decrease potential short-term volatility and facilitate long-term price stability for the Region. Principles of supply and demand would indicate that increasing supply of a product to an area where supply is predicted to be tight has the potential to alleviate price volatility and put downward pressure on prices, which in turn could result in longer term price stabilization. The regional and local benefit of open and competitive markets within the Maritimes through the increased development of competitive regional markets for natural gas was given considerable weight by the Board. Both of these benefits provide an opportunity for the markets to work more efficiently, which is a benefit to all Canadians, but should specifically benefit residents of the Maritime Canada area.

The Board finds that a moderate benefit to the local and regional community would arise from EBPC's commitment to provide training and funding to first responders. While the primary purpose of this training and funding was described in terms of the ability of first responders to address an emergency arising from a pipeline incident, the Board finds that such additional training and funding will serve the local and regional communities by improving the capacity of first responders to address a broad variety of emergency situations.

The Board accepted EBPC's evidence that increased usage of natural gas could provide a potential environmental benefit to the Maritimes by reducing the region's dependence on less clean burning fuels such as coal and oil. However, the Board assigned this benefit limited weight given that realization of this benefit is likely dependent on other projects and activities outside the scope of this Project.

The Board noted and gave some weight to the evidence that Canadian shippers in the Maritimes may also receive a benefit from being able to turn back unused capacity on the M&NP US system, if the Brunswick Pipeline Project proceeds. This action would relieve them of their significant demand charge obligations on that system.

The Board finds that the Project would provide significant short-term direct incremental employment in the Saint John area, i.e., during construction there would be a total direct employment of approximately 373 person years (340 for construction of the urban portion of the pipeline, and 580 for the rural), plus supporting staff. The Board finds, however, that there could also be a burden associated with the creation of such a large number of short-term jobs within a relatively small population base; therefore, the Board has minimized the overall benefit that it attributed to the increase in short-term employment. The Board also notes that there would be few benefits in terms of jobs during operation, with only four full-time equivalent positions resulting from the Project. Therefore, the Board assigned only minimal weight to the benefit of direct incremental employment.

The Board notes EBPC's commitment to communicate labour and material requirements to labour unions and local suppliers in advance of tenders to allow the local worker and businesses time to prepare bids and adjust labour force and training requirements. This commitment could create an opportunity for local and regional workers and businesses by allowing them to better compete, and be successful, in their bids, further increasing the potential local economic benefits. If the proportional rates of indirect local and regional participation on this Project reach those experienced during the construction of the M&NP mainline (70 percent), the Board finds that this could be a moderate local and regional indirect benefit.

One specific regional benefit identified was EBPC's Aboriginal "set-aside", i.e., it would target two percent of all third-party contracted services for NB Mi'kmaq and Maliseet businesses. This regional benefit was assigned some weight by the Board.

There are regional and national benefits arising from this Project to which the Board assigned some weight. During construction, there would be \$137 million in GDP for the province and \$210 million for rest of Canada. During operation, the Project would have a GDP impact of \$2 million for the province and \$2 million for the rest of Canada. The annual gross economic impact is \$4 million for the province and \$5 million for the rest of Canada.

There were also local, regional and national benefits resulting from the tax revenues the pipeline would contribute to various levels of government. The revenues are estimated at \$3.3 million in property tax, \$2 million in federal tax, \$1 million in provincial tax, and \$1 million for capital tax. The total equates to \$7.3 million annually. Approximately \$700,000 of the property taxes would be distributed to the City of Saint John. Some weight was assigned to these benefits, although it

is recognized that the property tax benefits to the City of Saint John may not be considered substantial if they stood alone.

Burdens

Most of the burdens identified in the previous Chapters of these Reasons and the key burdens identified in Table 8-2 are local in scope. This is often the case for linear fixed facilities.

A number of burdens were identified in the NEB EA report, attached as Appendix VII to these Reasons. Many of these burdens can be mitigated, and the Board assessed and weighed the likely success of potential mitigative options in reaching its determination, under the CEA Act, that the Project is not likely to have significant adverse environmental effects. Nevertheless, some impacts or burdens remain, and they must be considered and weighed in the Board's determination under Part III of the NEB Act.

Three key concerns identified during the proceeding were the risks of potential accidents and malfunctions of a high pressure pipeline, access to communities in the event of an emergency, and the capacity of first responders to handle this type of emergency. The Board finds that EBPC has mitigated the burdens related to these three fundamental public concerns to the Board's satisfaction and is satisfied that the Brunswick Pipeline could be constructed and operated in a safe manner. However, the perception by the public that these burdens have not been adequately addressed creates its own burden of stress and anxiety. As previously noted, EBPC could have gone much further in providing additional information with respect to these issues earlier in the process, which would have allowed a wider audience to have received this information, and to perhaps have been reassured.

As a result of EBPC not fully engaging the public as it could have, should the Project be approved, the Board would impose a number of conditions to alleviate this burden. For example, the Board would require the filing of a complete list of all commitments made and conditions imposed, the preparation of a public consultation program going forward, and the carrying out of a full emergency response exercise with the strong recommendation that it take place in the Milford area. Even with these conditions and the commitments EBPC has made, the Board has assigned this burden of stress and anxiety a high weight.

The potential for blast vibration damage to structures and the environment were burdens identified by the Board. EBPC's commitment to limit the vibrations (the PPV) near vibration-sensitive structures goes some way to mitigating this burden. Similarly, while the Board determined that the adverse environmental effects relating to blasting were not likely to be significant, the potential for damage to the environment, for example, wetlands, should still be assessed as a burden. The Board notes EBPC's proposed mitigative strategies and its commitment, should damage occur to structures and the environment, to remedy or compensate for the damage. However, this does not, in and of itself, eliminate the burden, since there would likely be procedures and time required to remedy any damage. Accordingly, the Board has assigned some weight to this burden.

One of the potential adverse environmental effects on the socio-economic environment of the local residents identified is the effect from noise and vibration, particularly for those residents of

Pokiok and Milford who will be near the HDD sites. While EBPC has committed to certain mitigation measures, it is clear that this burden will likely not be entirely mitigated. In addition, certain methods of mitigation may impose their own burdens; for example, relocating people if the noise is too disruptive requires that they leave their house for a period of time and must make adjustments to their day-to-day lives. As a result, this impact, while fairly short-term in the broad picture of the life of the Project, has been assigned moderate weight given its pervasive nature through a number of months.

The Brunswick Pipeline Project poses the potential in localized instances for disruption and loss of landowners' use, enjoyment, and opportunities for development of their properties, particularly for those who own or occupy the estimated 319 different properties that could be crossed by the pipeline RoW. However, the Board notes EBPC's preferred corridor design using existing RoWs and providing for greater pipeline routing flexibility where possible, its adopted Letter of Commitments for dealing with affected landowners in a fair and consistent manner, and its programs for working with potentially affected landowners to identify and address site-specific land-use interests in its detailed route design and pipeline land agreements where possible. Given these measures, the Board finds that there would be a small residual burden experienced by some landowners and occupants concentrated along the pipeline RoW.

The Board notes that the preferred corridor will follow an existing RoW through portions of Rockwood Park, which was described in evidence as a local and regional environmentally-sensitive landbase. Evidence was provided that many residents of Saint John use Rockwood Park for a broad variety of recreational pursuits and that there is much civic pride associated with the protection of this area. The Board notes that the proposed pipeline corridor traversing through a portion of Rockwood Park has drawn heavy criticism from public intervenors. The Board finds that EBPC's creation of an endowment fund for the Park could partially mitigate the burden associated with the land disturbance within the Park. The Board further finds that following an existing RoW through the Rockwood Park will substantively mitigate the potential biophysical burden associated with that portion of the proposed pipeline. However, the Board finds that a burden to the local and regional users of the Park remains, and therefore moderate weight was given.

Some burdens identified include potential adverse environmental effects on the biophysical environment along the proposed corridor, and involve effects on Species at Risk and Species of Conservation Concern, and wetlands, as well as effects from unauthorized access to the RoW and acid rock drainage. Other potential environmental effects include effects on soil and soil productivity, vegetation, water quality and quantity, fish and fish habitat, wildlife and wildlife habitat, and air quality. Given the mitigations EBPC has committed to, and the conditions the Board would impose should the application be approved, the Board has determined that it is unlikely that any significant adverse environmental effect would remain. Accordingly, low weight was attributed to any particular residual environmental burdens.

Although parties raised a potential burden of negative impacts to property values, specifically, as a result of accidents or malfunctions associated with the pipeline, the Board is of the view that this burden has little weight, particularly considering the multiple layers of protection EBPC has to ensure the safe operation of the pipeline, and as a result, the extremely low possibility of a major accident or malfunction. Furthermore, given the Board's acceptance of the conclusions of

the de Stecher Study regarding the likelihood of negative impacts to property values, and its finding that any negative impacts on property value would be short-term and reversible, the Board has assigned this potential burden little weight.

Another issue identified was with respect to constructing and operating near underground infrastructure in close proximity to a pipeline. However, the Board notes EBPC's commitment to work with the City to achieve synergies, if possible, and with local developers and utilities to minimize disturbances. In addition, there is some flexibility in determining routing and depth of burial within the corridor to avoid potential impacts. Furthermore, the Board notes that St. Clair, to whom the construction and operation of the Pipeline has been contracted, has substantial relevant experience, including direct experience in this locale. As a result, though the mitigations committed to would not eliminate this potential burden, it was given little weight.

Other potential adverse environmental effects on the socio-economic environment of local residents identified as burdens include effects on heritage resources and on the current use of lands and resources for traditional purposes by Aboriginal persons. They also include other temporary disruptions to land use from construction along the proposed RoW. Given the proposed timing of construction, the location of the proposed pipeline along many already existing RoWs, the commitments made by EBPC with respect to heritage resources and traditional land uses, and the conditions the Board would impose should this Project be approved, the Board is of the view that very few residual effects would remain, and those that would remain would be short-term in nature (i.e., during the construction period only). Therefore, these burdens have been given moderate to low weight.

With regard to potential commercial burdens created by the Brunswick Pipeline, the Board recognizes that there is a significant difference on a per GJ basis between the tolls on the Brunswick Pipeline and the M&NP Canada system. However, the Board notes that there is no evidence on the record that shows that protecting the M&NP Canada system and its shippers from competition would serve the Maritime market in a more efficient manner than in letting it operate on its own. In fact, the shippers on M&NP Canada either supported the Project or did not oppose it. Accordingly, the Board gave little weight to the assertion that the tolls on M&NP Canada would become less competitive in the presence of the Brunswick Pipeline.

8.4 Balancing of Benefits and Burdens

The weighing of benefits and burdens with respect to the application before the Board for the Brunswick Pipeline Project was a difficult task. Many of the benefits, as can be seen from the foregoing analysis and the preceding Chapters, are national or regional in scope; few are specifically local. With respect to the burdens, the reverse is true; the majority of the burdens of the Project will be shouldered by the local community. As previously mentioned, it is not unusual that the burdens are often borne by the local community; however, often there is a broader local benefit that arises from a facility, particularly if the facility in question permits the production of local or regional resources.

With respect to the Board's consideration of the benefits and burdens of this Project under Part III of the NEB Act, the Board notes that its conclusion under the CEA Act that the Project would not be likely to cause significant adverse environmental effects, does not imply that there

would be no adverse environmental or socio-economic effects associated with the Project. There still may be some adverse environmental or socio-economic effects that should be considered in identifying, weighing and balancing the overall benefits and burdens of the pipeline under the NEB Act. **The Board must balance the totality of benefits against the totality of burdens to come to its final determination under section 52 of the NEB Act as to whether the Project is in the present and future public interest and necessity.**

In weighing the benefits and burdens for this Project, the Board found that there were significant benefits from the local, regional and national perspectives in the opportunities associated with the access to a new, stable and secure supply of gas to this part of Canada. That being said, the Board recognizes that there are burdens associated with this Project that can not be completely mitigated and that these burdens rest primarily within the local community. Through the imposition of conditions and the guidance provided to EBPC throughout this document with respect to the importance of meaningful public consultation, the Board has determined that the burdens to the local community of Saint John can be further mitigated to the point that they are significantly less than the benefits that will accrue from this Project.

As mentioned in Chapter 6, the Board is of the view that EBPC could have pursued additional opportunities to improve its role and contribution to Saint John and Maritime Canada. The Board recommends that EBPC re-evaluate whether its role and contribution within Saint John and Maritime Canada have been maximized. The Board finds that such a re-evaluation, in combination with an improved ongoing public consultation program, would better demonstrate EBPC's stated position regarding its commitment to responsible corporate conduct and its desire to build a long-term partnership with Saint John and other communities throughout New Brunswick.

Therefore, on whole, taking into account all of the evidence in this proceeding, considering all relevant factors, and given that there are clear substantial benefits regionally and nationally, through which the local community will indirectly benefit, as well as some direct local benefits, the Board finds that the benefits of this Project outweigh the burdens. Accordingly, the Board concludes that the Project is in the present and future public convenience and necessity, and in the Canadian public interest.

8.5 Acknowledgements

The Board would like to acknowledge the participation of all parties in the hearing associated with this application. The Board is committed to ensuring that all stakeholders are engaged effectively in the Board's public process. One aspect of this commitment is to have effective public participation in oral hearings before the Board.

In this proceeding, there was a high level of participation by individuals and groups who had not previously appeared in front of a quasi-judicial tribunal. The time and effort that these parties spent to meaningfully participate in the public hearing was noted, and through their participation, the Board collected evidence that was highly relevant to its deliberations.

APPENDIX D

Michael M. Wenig and Patricia Sutherland, “Considering the Upstream/Downstream Effects of the Mackenzie Pipeline: Rough Paddling for the National Energy Board”, (2004) 86 Resources 1

CONSIDERING THE UPSTREAM/DOWNSTREAM EFFECTS OF THE MACKENZIE PIPELINE: ROUGH PADDLING FOR THE NATIONAL ENERGY BOARD

Michael M. Wenig* and Patricia Sutherland**

Introduction

Unlike land use planners, environmental and natural resource regulators typically have a project-specific focus. But the efficacy of this focus is challenged by the linkages between the single projects being reviewed and numerous other projects or activities. There are two types of linkages. One type arises when the project being reviewed has effects that are cumulative in nature with effects from other projects or activities in a given region. The second type arises when the project being reviewed, if approved and developed, *spurs* other activities that cause adverse effects. In the energy sector, these spin off activities are typically referred to as activities that are “upstream” and “downstream” of the energy project being reviewed.

The two sets of linkages are overlapping in that sometimes the effects of upstream and downstream activities may operate cumulatively with the primary project’s own effects. But those effects are not always cumulative to those of the primary project, so the two sets of linkages are not identical.

There has been considerable controversy over whether project-specific regulators should account for, and ameliorate, adverse cumulative effects and upstream/downstream effects. Proponents of this approach have justified it on environmental protection grounds, but others have questioned it on grounds of fairness and practicality, and on legal grounds related to the constitutional division of labour among federal and provincial governments.

This paper addresses the second of these two sets of linkages—relating to upstream/downstream effects—in the context of the National Energy Board’s forthcoming review of the proposed “Mackenzie Valley pipeline,” a roughly 1300 km pipeline that would transmit northern natural gas to southern

markets by connecting to an Alberta hub in a North American natural gas pipeline system.

The challenge of dealing with upstream/downstream linkages has arguably been particularly problematic for the National Energy Board (NEB), the semi-independent federal agency that regulates inter-jurisdictional pipelines, and international (and some inter-provincial) electricity transmission lines, as well as energy exports, and oil and gas development in the Northwest Territories and in certain offshore regions.¹ The NEB’s strategies with respect to upstream/downstream effects have been challenged by advocates from different sides and in litigation that has gone all the way to the Supreme Court of Canada.² The upstream/downstream topic has a long history with the NEB, but it received considerable attention in several recent proceedings.³ Moreover, the topic appears to be coming to a head in the complex, multi-agency (including NEB) review of the proposed Mackenzie Valley pipeline. Environmental groups have raised the upstream/downstream issue in preliminary, pre-application proceedings.⁴ The agencies have responded somewhat to these concerns by lumping several upstream facilities with the pipeline as part of the overall “project” being assessed.⁵ Notwithstanding this approach, the groups have been frustrated with the agencies’ apparent lack of response to the groups’ concerns, in the agencies’ written guides to date for conducting future environmental assessments.⁶

This paper starts by conceptualizing upstream/downstream activities as those occurring along spectra emanating from a central source or multiple sources. Next, the paper presents the logic for considering upstream/downstream effects. That logic is rooted in the NEB’s “public interest” project review standard, which inherently requires considerations of





RÉSUMÉ

Cet article évalue dans quelle mesure l'Office national de l'énergie (ON_), lorsqu'il décide de délivrer un "certificat d'utilité publique" à l'égard du projet gazier MacKenzie, devrait examiner les effets négatifs des activités en amont et en aval du gazoduc. L'ON_ est confronté à un dilemme en décidant s'il doit examiner les effets d'amont et d'aval, et de quelle façon procéder à cet examen. D'une part, une telle option pose des problèmes méthodologiques considérables et à première vue, elle apparaît injuste envers les promoteurs du pipeline, parce qu'elle suggère que l'Office tiendra les promoteurs responsables de nombreux effets qui échappent à leur contrôle. D'autre part, il existe d'excellentes raisons pour examiner les effets négatifs en amont et en aval. En effet, l'Office est requis d'examiner un projet selon le critère de l' "intérêt public", ce qui nécessite de tenir compte aussi bien des coûts que des avantages publics du projet. Ainsi, si les avantages en amont et en aval sont examinés—ce qui est normalement le cas pour les pipelines—il convient aussi d'examiner les coûts. Cet article critique la façon dont l'Office se propose d'examiner les effets en amont et en aval et offre plusieurs alternatives de nature essentiellement politique pour résoudre ce dilemme.

public costs and benefits at comparable scales. Thus, where upstream/downstream benefits are considered—as is typically the case for pipelines—the corresponding costs must be considered as well. The paper then presents the arguments—based on fairness and practicality—against considering upstream/downstream effects. Finally, the paper critiques, and then offers several alternatives to, the NEB's general approach for resolving the dilemma posed by the arguments for and against considering upstream/downstream effects.

Conceptualizing Upstream/Downstream Activities

In the energy arena, the water-based terms "upstream" and "downstream" are analogies for the flow of energy from production and transmission activities to end-users. In the gas pipeline context, "upstream" activities are those related to the exploration and production of the gas that will be transported by the pipeline and to the processing and transfer of processed gas to the head of the pipeline. However, the scope of "upstream" activities can also extend to the secondary industries that may arise in connection with supplying goods and services for the construction, maintenance, and operation of the pipeline. "Downstream" activities are those that will use the gas transported by the pipeline as well as other activities that will nevertheless be indirectly generated or spurred by the expenditure or investment of the economic wealth generated by the pipeline.

The above lists of "upstream" and "downstream" activities are useful as a starting point, but they give the misleading impression that these two categories are discrete and readily identifiable. In truth, upstream and downstream activities should be viewed less as discrete or well-defined categories than as spectra emanating in different directions from a central point like ripples in water. This concept is

demonstrated, at the upstream end, by current plans for the Mackenzie pipeline to be connected to a gas processing facility that, in turn, is connected through a pipeline gathering system to inter-connected production facilities in each of three "anchor" gas fields that were discovered in the Mackenzie Delta region in the 1970s.⁷

Collectively, the four corporate sponsors of the pipeline project have the legal rights to produce gas in these three anchor fields,⁸ so their upstream activities are already reasonably identifiable. However, the sponsors intend to make the pipeline available to other potential future northern gas producers. This opportunity is expected to spur considerable gas production, and related facilities, in the numerous northern gas fields other than the three "anchor" fields.⁹ As broadly described by one source, the pipeline will "unlock the natural gas potential of the North enabling the development of a vibrant northern oil and gas industry."¹⁰ In fact, even the *prospect* of the pipeline appears to have spurred new northern oil and gas development.¹¹

Of course, these upstream oil and gas developments themselves spur additional activities. For example, northern oil and gas activities require energy and consume other renewable and non-renewable resources that must be produced either locally or elsewhere. And northern oil and gas activities generate economic wealth that in turn spurs other economic activity. All of these spin-offs have environmental effects that likely occur locally, regionally, and in numerous other regions located far from the northern oil and gas developments that "inspired" them.

A similar ripple effect will likely occur at the downstream end of the pipeline from the wide range of activities that will use the gas that flows through the pipeline. At the local level, these activities include NWT-based resource development projects that will become more viable if there



is access to the gas provided by the pipeline.¹² There is considerable speculation that the primary consumers of the gas shipped through the Mackenzie pipeline will be Alberta oil sands operations. These operations have been heavily dependent on natural gas inputs to meet their own energy needs, notwithstanding their apparently substantial progress in energy efficiencies.¹³ Thus, the Mackenzie Valley pipeline could well boost Alberta's oil sands industry by providing an alternative source of gas to the waning sources in the Western Canadian Sedimentary Basin.¹⁴ If not all or mostly consumed by Alberta oil sands, the Mackenzie Delta gas could be consumed at several or many points further downstream of the pipeline's terminus throughout the North American continental gas distribution system.

Wherever Delta gas is consumed, that consumption will generate greenhouse gases and fuel activities that will directly and indirectly cause other environmental impacts in a series of downstream ripples propagated by the initial burst of energy and accompanying economic wealth generated by the pipeline.

This ripple analogy is hardly perfect, because many of these upstream/downstream activities will be spurred by other sources as well as by the Mackenzie pipeline and may occur whether or not the pipeline is constructed. To use the analogy, there may be multiple intersecting ripples of activities emanating from multiple sources. Thus, tracing any one ripple to the pipeline or another particular source may be problematic. After explaining the basic logic for considering upstream/downstream effects, the paper discusses the extent to which such cause-and-effect relationships need to be determined in deciding whether to approve the pipeline.

The Rationale for Considering Upstream/Downstream Effects

The overall legal framework for the multi-government review of the Mackenzie Valley pipeline is complex, but it arguably all boils down to a requirement that government decision-makers—including or especially the NEB—should base their pipeline approval decisions on determinations of whether the pipeline is in the *public interest*. For the Board, this requirement is implicit in the express provision, in section 52 of NEBA, allowing the Board to issue a pipeline approval—in a legal instrument known as a “certificate”—only if the Board is “satisfied” that the pipeline “is and will be required by the present and future public convenience and necessity.”¹⁵

While hard to define, and especially to quantify, the “public interest” represents an aggregation of a project's public costs and benefits or, more broadly, its pros and cons. This meaning is at least implicit in the NEB's own view of the public interest as a “balance” of “economic, environmental, and social interests,” and in the Board's view of its role in

fulfilling the public interest, by “estimat[ing]” a project's “overall public good” and its “potential negative aspects,” and by “weigh[ing]” the project's “various impacts”.¹⁶

From these conceptual standpoints, what is the “public interest” in pipelines? On the benefits side, the construction, operation, and maintenance of pipelines typically offer direct and indirect economic boosts, particularly through employment. While these project-related benefits may be significant,¹⁷ the project's *raison d'être* is arguably to facilitate upstream production of an energy resource and thereby allow downstream uses of the resource, by providing a link between upstream production and downstream users. By definition, this purpose is socially beneficial only when downstream uses of the transported resource, and the accompanying upstream production of the resource, are themselves deemed to provide social benefits. If there were no benefits from upstream and downstream activities, there would be no point building pipelines and similar utilities to link and thereby promote those activities.

In short, considerations of the *benefits* of upstream and downstream activities are inherent in public interest-type approval decisions for pipelines and other energy transmission facilities and exports. As the NEB itself stated in a pipeline approval proceeding, in response to an argument that upstream/downstream activities were beyond federal jurisdiction, if the Board “did not consider the benefits related to matters within provincial jurisdiction [including the benefits to downstream users and upstream resource suppliers] ... very few pipelines would ever be constructed.”¹⁸

The case for consideration of upstream/downstream costs flows directly from the above logic. If the Board must consider the public *benefits* of upstream and downstream activities in deciding whether to approve a pipeline, the cost/benefit nature of the “public interest” test requires consideration of the public *costs* of those upstream and downstream activities, as well.

The Case Against Considering Upstream/Downstream Effects

The argument against considering upstream/downstream effects is largely a practical one. According to this argument, there are considerable uncertainties and difficulties in both predicting the full, potentially infinite range of upstream and downstream activities, and then in determining the activities' adverse effects. For practical reasons, if the Board had to identify *all* upstream/downstream activities within this range, each of the Board's public interest determinations could result in a series of never-ending factual inquiries—or at least be based on numerous highly speculative cause/effect determinations. Identifying the effects of those upstream/downstream





activities is also a complex exercise that can itself be highly speculative.

Again under this argument, even if all the upstream/downstream activities and their accompanying adverse effects could be identified, there remain the complex tasks of choosing and applying a methodology to *weigh* those effects against the activities' benefits, for purposes of deciding whether the pipeline or other energy project will further the public interest. This exercise is arguably well beyond a pipeline regulator's expertise, because it ultimately involves balancing social values in a myriad of activities that are far removed from the pipeline facilities and that are typically regulated, subsidized, or otherwise addressed, by other agencies, especially regional and local ones.¹⁹

The Mackenzie pipeline exemplifies this problem. The pipeline proponents tout their project as helping to satisfy North American demand for natural gas, including demand from Alberta's burgeoning oil sands industry.²⁰ To consider the adverse effects or downsides of satisfying that downstream demand, the NEB would in effect be setting broad energy and environmental policy, and would also need to make fundamental policy choices about appropriate material consumption and other aspects of North American life styles. These policy choices are arguably more appropriately vested in cabinet ministers, and informed by experts from numerous departments, than in a quasi-judicial body like the NEB. Considerations of the pros and cons of even the NWT-based upstream/downstream activities raise fundamental land-use, environmental, and social policy issues that are arguably beyond the NEB's immediate expertise.

The fundamental flaw with this argument is that the Board already delves into broad policy areas beyond its pipeline-related expertise when it considers the gross *benefits* of upstream/downstream activities, which considerations are inherent in determinations of whether the public interest warrants its approval of energy transmission and export applications.²¹ Yet, it would be illogical to consider upstream/downstream benefits without weighing those benefits against the corresponding costs.

An additional argument against considering upstream/downstream costs is that it is unfair to in effect hold the project proponent responsible for myriad upstream/downstream effects (and the costs and time necessary to consider them), because those effects are typically caused or influenced by numerous factors, of which the project under review is only one. Thus, for example, even if the gas transmitted by the Mackenzie Valley pipeline spurs growth in Alberta oil sands production, the pipeline can hardly be entirely "blamed" for the public costs of that production growth. This fairness argument has some merit but, like the practicality argument, it is flawed because it fails to acknowledge the need, inherent in the logic of the

public interest concept, to consider the costs of upstream/downstream activities when the benefits of those activities have been considered.

The Board's Approach to Resolving the Dilemma

The above discussion shows that there is merit to the arguments both for and against considering upstream/downstream costs, which poses a dilemma for public interest reviews like that which the NEB will conduct for the Mackenzie pipeline. How can this dilemma be resolved?

The Board's answer seems to start with its view that it has discretion to consider upstream/downstream effects, but that it does not have a mandatory duty to do so.²² This view has support from the open-ended nature of the "public interest" concept (although the case law is hardly clear as to the extent of discretion the term provides),²³ and from the complexities and uncertainties inherent in determining both the scope of relevant upstream/downstream activities and the methodology for factoring the effects of those activities into the overall public interest equation. But that discretion is arguably bounded by the logic of the public interest test. As discussed above, that logic suggests that the Board has an implied duty to address the costs of upstream/downstream activities—i.e. its failure to consider those costs should not withstand judicial scrutiny under even the most deferential standard of judicial review—when it considers the benefits of those activities.

The Board has followed this logic to some extent, but only when the Board deems the upstream/downstream activities to be "directly connected" or "directly linked" to the proposed pipeline or other proposed activity subject to the Board's review.²⁴ In the Board's view, the likelihood of the activities must also not be "too speculative or uncertain" to be deemed relevant.²⁵ The Board has also suggested that, to be relevant, the costs must be demonstrated by information of sufficient "probative value ... when compared to the exercise necessary to obtain" the information.²⁶

At first blush, these scoping guides sound reasonable from the standpoints of choosing the range of relevant upstream/downstream activities that can be fairly attributable to the project under review and that can be practically identified and assessed.²⁷ However, these guides are deficient in two respects.²⁸ First, the Board does not apply these tests in determining the scope of activities to consider for purposes of counting upstream/downstream benefits. Thus, these guidelines do not ensure that the scope of relevant upstream/downstream activities for purposes of considering upstream/downstream costs is at least as broad as the scope used for counting upstream/downstream benefits.

The second problem is that the Board's focus on the linkage between the project under review and downstream/



upstream activities does not itself address whether there are likely to be upstream/downstream costs of the project. Bankes has alluded to this problem in a previous *Resources* paper involving gas exports,²⁹ but the problem applies with equal force in the pipeline context. For example, there may well be numerous downstream users that are not “directly connected” to the Mackenzie pipeline (unless the gas is shipped directly to particular oil sands operations), but it seems absurd to suggest that there will be no environmental costs (viewed on a gross basis, putting aside net costs or benefits)³⁰ from downstream users’ consumption of the gas shipped through the pipeline.

In sum, the NEB’s guidelines address the practicality and fairness arguments against considering upstream/downstream costs, but they fail to address the inherent logic for considering those costs when benefits are considered and when costs are likely whether or not they can be attributed to activities that are “directly linked” to the project or activity under the NEB’s review.

An Alternative Approach to the Dilemma

While the Board’s approach is flawed, there is likely no other perfect solution to the upstream/downstream dilemma. The following are several suggestions for at least improving the Board’s strategy for tackling this problem.

First, the Board ought to engage the public in a process for developing a generic policy on when and how the Board should consider upstream/downstream effects in its public interest approval proceedings. The issue arises frequently enough that it warrants the NEB’s consideration at a generic level. Yet, the guidelines discussed in part 5 above were expressed in *ad hoc* decisions; the Board’s existing generic policy statements do not specifically address the upstream/downstream topic.

Second, in any generic policy on considering upstream/downstream effects, the Board should commit to consider the costs of upstream/downstream activities at least whenever it considers the benefits of those activities. In fulfilling this commitment, the Board’s assessment of benefits and costs should be proportionate from the standpoints of both the scope of activities considered and the level or rigour of analytical review. As for the rigour of review, if the Board computes the benefits of upstream/downstream activities through a broad, ‘back of the envelope’ analysis, the Board cannot decline using that same level of analysis to compute the activities’ costs, if those costs can’t be assessed in any more detail. Thus, for example, if the Board accepts the Mackenzie pipeline proponents’ suggestion that the pipeline is “needed” primarily to help satisfy North American energy demand, the Board cannot reasonably forego considering the downside risks or social costs of fulfilling that need on the ground that the link between the potentially vast array of

North American energy end-users and the Mackenzie pipeline is too remote.

These general rules of thumb are fair and logical, but they still raise the practical question of *how* the Board can consider the costs of upstream/downstream activities, at least, when such considerations require broad scale, crystal ball-type assessments. This is certainly the case for the Mackenzie pipeline, if downstream activities are viewed at the broad level of North American end-users of natural gas.

A focus on policy would seem to provide the best solution to this methodology problem, because the development of policy in effect requires a consideration of costs and benefits at broad scales covering myriad activities and circumstances. Thus, the Board should first ascertain whether any relevant, broad cabinet-level policies exist that might provide a context or, in other words, a rough formula for factoring upstream/downstream effects into the public interest calculation.³¹ This threshold exercise may be problematic, however, because there may well be significant policy gaps at national or regional levels. This is arguably the case in the context of Canadian energy policy, which arguably lacks a coherent and comprehensive framework for evaluating the public interest in northern gas development and transmission.³² Where written policies are lacking, the Board should consider using its extensive hearing powers to call key government policy-makers as witnesses to explain unwritten or interim policies, although any such oral evidence of policy is arguably less persuasive than written evidence.³³

Once the Board identifies relevant policy statements, the Board should consider how to apply them. As with the previous step, this exercise is problematic because policies may be expressed at too general a level to be readily applied, there may be conflicts among multiple policies, and individual policies may even be incoherent. Under these circumstances, the public cannot expect the Board’s application of generic policies in its specific approval proceedings to be perfect or to satisfy everyone. But if the Board clearly explains its methodology and rationale for applying policy, that transparency will at least provide a framework for public debate and political resolution of contentious policy issues. Although the justification for this transparency seems obvious, the Board’s record is hardly perfect in this respect.³⁴ The same rule of transparency should apply where the Board needs to make up policy if it finds that there are significant policy gaps.

Where and when should the above methodology for identifying and applying policy occur? If nowhere else, it should occur in the Board’s project-specific adjudicatory approval proceedings, pursuant to the procedural rules applicable to other inquiries and analyses conducted by the Board (with the added aspect of transparency as discussed above). But the Board should also consider conducting





generic hearings to establish the policy framework needed for its *ad hoc* approval decisions.³⁵ Generic hearings are more advantageous than project-specific approval proceedings, because the former can be run by schedules that aren't driven primarily by project-specific deadlines and they can more easily take a broad region and multi-project focus than project-specific hearings. Generic hearings for setting policy frameworks can also be held jointly or at least coordinated with generic fact-finding hearings. Bankes has suggested that the Board use this tool to address the cumulative upstream effects of gas exports,³⁶ but the tool may also be useful for addressing cumulative effects issues arising from pipelines and other activities that the Board regulates.

The above suggestions relate to the methodology for *considering* upstream/downstream effects and factoring those effects into the public interest equation. An additional question for the Board is how to deal with those effects when the Board considers them to be unacceptable or, more precisely, to tip the public interest balance against the Board's approval of the project or activity under review. This task is problematic, in large part, because many or most of the adverse upstream/downstream effects may result from activities that the Board lacks jurisdiction to directly regulate³⁷ and, for those activities in provinces, the direct control of which may well be beyond the constitutional authority of any federal agency.

Under these circumstances, the most obvious solution is for the Board to simply disapprove the project under review. However, it may be more constructive for the Board to grant an approval conditioned on a satisfactory amelioration of the upstream/downstream effects by whatever other governmental entity has direct authority over the activities causing those effects.³⁸ For example, environmentalists argue that there is an inadequate framework for managing the plethora of NWT-based resource development projects that will be spurred by the Mackenzie Valley pipeline. If the NEB concurs, and believes the resulting costs tip the public interest against the pipeline, the Board could condition its approval of the pipeline on the federal and territorial governments' fulfillment of their commitment to complete a network of protected areas in the NWT, to provide a sort of bulwark against the biodiversity threats from the proliferation of those resource development projects.³⁹

Conclusion

Upstream/downstream effects are inherently relevant to whether energy transmission projects and exports are in the public interest. The NEB's consideration of those effects currently lacks balance, because the Board applies a more stringent standard for counting relevant costs than it does for benefits. While committing to taking a more even focus on upstream/downstream benefits and costs is easy,

the challenge remains to develop a suitable methodology for carrying out that commitment. For this purpose, the Board should consider an increased focus—through generic or at least project-specific proceedings—on identifying, understanding, and implementing, and then clearly articulating in its decisions, the policy contexts for evaluating both positive and negative upstream/downstream effects.

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Notes

1. For the Board's primary legislative authority with respect to pipelines and oil and gas, see *National Energy Board Act ("NEBA")*, R.S.C. 1985, c. N-7 and *Canada Oil and Gas Operations Act*, R.S.C. 1985, c. 0-7.
2. See *Quebec (Attorney General) v. Canada (National Energy Board)*, [1994] 1 S.C.R. 159 (rejecting hydro-power company's challenge to the NEB's consideration of the impacts of future hydro-electricity facilities in licensing the export of electricity generated by those facilities), *Athabasca Chipewyan First Nation v. B.C. Hydro and Power Authority*, [2001] F.C. 412 (F.C.A.) (rejecting the NEB's issuance of electricity export permits on the ground that the Board failed to consider whether the exports would warrant any changes to the existing upstream generating facilities and the adverse effects of any such changes), and *Alberta Wilderness Ass'n. v. Express Pipelines Ltd.* (1996), 201 N.R. 336 (F.C.A.) (rejecting environmental groups' challenge to the NEB's approval of a cross-border oil pipeline without considering the effects of oil production facilities upstream of the pipeline).
3. One of these proceedings involved the Board's consideration of a cross-border power transmission line. In the hearing, the Board agreed to consider the environmental effects in Canada of local air pollution, but not of globally relevant greenhouse gases, from an upstream power plant in northern Washington State that would supply electricity for the transmission line. *In the Matter of Sumas Energy 2, Inc.* (March 2004), No. EH-1-2000 (N.E.B.), leave to appeal granted, *Sumas Energy 2, Inc. v. NEB*, No. 04-A-20 (F.C.A.). Another proceeding involved the Board's review of a gas pipeline from the B.C. mainland to Vancouver Island. In that proceeding, the Board agreed to consider the environmental effects of a downstream power plant on Vancouver Island that would burn gas transmitted by the pipeline. However, the Board declined to consider the downstream effects from: a second Vancouver Island power plant whose construction was not dependent on the pipeline; other future power generating plants for which there were no plans yet in place; and the greenhouse gas emissions from all other residential, industrial, commercial, and public users of the gas that would be transmitted by the pipeline. *In the Matter of Georgia Strait Crossing Pipeline Limited* (31 May 2002), No. GH-4-2001 at 12-13 (N.E.B.), certificate granted, (Nov. 2003), No. GH-4-2001 (N.E.B.).
4. See e.g. *Sierra Club, et al., Media Release—Mackenzie Pipeline Litmus Test for Prime Minister Martin* (Jan. 15, 2004) and *Background—Environmental Issues to Include in Terms of Reference for Environmental Impact Statement of Mackenzie Gas Project* (Jan. 2004).
5. Northern Pipeline Environmental Impact Assessment and Regulatory Chairs Committee, *Cooperation Plan for the Environmental Impact Assessment and Regulatory Review of a Northern Gas Pipeline Project through the Northwest Territories* (June 2002), Annex 1 (definition of the "northern gas pipeline project"). Thus, the overall project is now referred to as the "Mackenzie Gas Project" rather than simply the "Mackenzie pipeline." See e.g. *Esso, et al., Preliminary Information Package—Vol. 1: Project Description ["PIP-Vol. 1"]* (April 2003) at 1-1.



6. See Monte Hummel, Letter on behalf of World Wildlife Fund Canada to the Canadian Environmental Assessment Agency, *et al.* (14 July 2004) (noting that “very little of what we have been saying seems to be reflected” in the agencies’ draft guidance documents to date) (copy on file with the author).
7. See *e.g.* *PIP-Vol. 1*, *supra* note 5 at 1-7–1-8. As noted above, these upstream facilities, together with the pipeline, comprise the overall “Mackenzie Gas Project” for environmental review purposes.
8. *Ibid.* at 1-3.
9. See *e.g. ibid.* at 1-8, 2-2, 3-6, and 8-20.
10. The Canadian Institute, “Arctic Logistics for Energy and Mining Project Development—A Critical Road Map for Doing Business in the North” Brochure for June 3-4 Conference, Calgary, Alberta. See also *e.g.* Sierra Club of Canada, *et al.*, *Media Release*, *supra* note 4 (NGO representative stating that the pipeline is “transforming the landscape of Canada’s Arctic as we speak” and noting that the federal government is seeking proposals “to develop new oil and gas projects in the Mackenzie Valley and Delta and in the Beaufort Sea, which will feed this pipeline for decades.”), and Karen Wristen, “Adding Fuel to Fire? The Mackenzie Gas Project,” *The Post (Parkland Institute)* (Summer 2004) 1 at 5 (speculating that the pipeline will provide a “huge impetus to develop the 60 or more known gasfields [sic] in the region”).
11. See *e.g.* Diane Cook, “Northerners looking ahead to Mackenzie pipeline activity,” *Oilweek Magazine* (7 June 2004) 34 at 36 (noting that drilling activity is “heating up” in the Mackenzie Valley and Fort Liard areas “[i]n anticipation” of the pipeline’s construction).
12. See *PIP-Vol. 1*, *supra* note 5 at 2-3 (pipeline will have access points for regional communities in the NWT to purchase gas); see also *e.g.* Sierra Club, *et al.*, *Backgrounder*, *supra* note 4 (noting that the pipeline will likely “accelerate industrial activity in adjacent regions.”).
13. See *e.g.* NEB, *Canada’s Oil Sands: Opportunities and Challenges to 2015* (May 2004), at 83–86; see also *e.g.* Grant Robertson, “Natural Gas—Hunt on for new sources,” *Calgary Herald* (27 July 2004) E1.
14. See Wristen, *supra* note 10, at 1, 5. See also NEB, *Canada’s Oil Sands*, *supra* note 13 at 86.
15. See, *e.g.* *Sumas Energy 2*, *supra* note 3 at 9-10 (NEB decision, in the electricity transmission context, stating that “Court decisions and various legal treatises have generally treated ‘public convenience and necessity’ as being synonymous with the ‘public interest.’”). By focussing on the NEB’s “public interest” mandate under *NEBA*, this paper does not address the extent to which other federal legislation—*e.g.* the *Canadian Environmental Assessment Act*, S.C. 1992, c. 37—requires the Board to consider upstream/downstream activities when the effects of those activities operate cumulatively with the effects of the pipeline.
16. NEB, *Public Interest* (www.neb-oe.gc.ca/PublicInterestFootnote_e.htm) (updated 26 March 2004). See also, *e.g.*, *Nakina (Township) v. Canadian National Railway Co.* (1986), 69 N.R. 124 at 125 (F.C.A.) (noting that a public interest determination involves the “weighing and balancing of competing considerations”) and *R. v. Morales*, [1992] 3 S.C.R. 711 at 717-718 (dissenting opinion noting that the public interest refers to the “special set of values which are best understood from the point of view of the aggregate good and are of relevance to matters relating to the well-being of society” (emphasis added)) and *Wang Canada Ltd. v. Canada (Minister of Public Works and Government Services)* [1999] 1 F.C. 3 at 16 (F.C.T.D.) (noting that a public interest determination involves a “weigh[ing] and evaluat[ing] of a broad range of considerations, beyond those in dispute between the parties, with a view to determining what is in the best interests of the Canadian public”).
17. See *PIP-Vol. 1*, *supra* note 5 at 1-11, and 7-1–7-9 (discussing employment and business opportunities related to pipeline construction, maintenance, and operation).
18. *Georgia Strait Crossing*, *supra* note 3 at 11.
19. The multi-jurisdictional interest in upstream and downstream activities also has implications for constitutional federalism, although less for those NWT-based activities which are upstream or downstream of the Mackenzie pipeline than those activities based in Canadian provinces. As for the latter, the NEB’s ability to directly regulate upstream/downstream facilities located in the provinces is problematic. See *Canadian Hunter Exploration Ltd. v. Canada (NEB)*, [1999] F.C.J. No. 460 (F.C.A.) (holding that the NEB lacked constitutional and legislative jurisdiction to regulate a natural gas gathering system in B.C. that was connected to an inter-provincial pipeline that was subject to NEB jurisdiction, because the two facilities were not a single work or undertaking and the upstream facilities were not integral to the inter-provincial pipeline); but see *Westcoast Energy Inc. v. Canada (NEB)*, [1998] 1 S.C.R. 322 (majority holding that, due to likely unique circumstances, the NEB had jurisdiction over certain intra-provincial upstream gas gathering and processing facilities that were connected to an inter-provincial pipeline, because all the facilities were part of a single inter-provincial transportation undertaking for purposes of section 92(10)(a) of the Constitution, and the upstream facilities could be considered part of a single “pipeline” as that term is broadly defined in the *NEBA*). But the NEB’s authority to at least consider the effects of those facilities is more settled. See *Quebec*, *supra* note 2 (SCC holding that the NEB, in licencing the export of electricity generated by future hydro-electric facilities in Quebec, could consider the environmental impacts of those upstream facilities); see also *Friends of the Oldman River Society v. Canada (Minister of Transport)*, [1992] 1 S.C.R. 3 at 66 (“[I]t defies reason to assert that Parliament is constitutionally barred from weighing the broad environmental repercussions, including socio-economic concerns, when legislating with respect to” federal approval of projects that are otherwise within federal jurisdiction).
20. See *PIP-Vol. 1*, *supra* note 5 at 2-1.
21. For that matter, the Board’s regulatory expertise extends beyond pipelines, to a wide variety of federal or inter-jurisdictional energy production and transmission areas, and the Board regularly prepares reports that address broad energy policy issues. See *e.g.* NEB, *Canada’s Oil Sands*, *supra* note 13.
22. This position is reflected in the Board’s statement, in the recent *Georgia Strait* pipeline proceeding, that “[i]t is only logical that with the ability to consider the benefits that may result from a pipeline approval goes the concurrent ability to consider the detriments that could result from such an approval.” *Georgia Strait Crossing*, *supra* note 3 at 11.
23. See, *e.g.* *Nakina (Township)*, *supra* note 16 (holding that a federal railway commission lacked discretion, in deciding whether the closure of a railway station was in the public interest, to forego considering the impacts of that closure on the town in which the station was located), and *Wang Canada Ltd.*, *supra* note 16 at 16 (noting that the public interest is a “broad, somewhat undefined and flexible concept, which nevertheless includes considerations beyond the interests of the parties to a dispute.”); see also *Morales*, *supra* note 16 at 731-732 (majority holding that the “public interest” was too vague to provide a constitutionally acceptable basis for determining a criminal defendant’s eligibility for bail, because the standard is “completely discretionary,” provides “no guidance for legal debate,” and “creates no criteria to define” the circumstances that would justify pre-trial detention) and *R. v. Zundel*, [1992] 2 S.C.R. 731 (majority holding that “harm or injury to the public interest” was too vague to provide a constitutionally acceptable basis for criminalizing false statements).
24. See *e.g.* *Sumas Energy 2*, *supra* note 3 at 146; *Georgia Strait Crossing*, *supra* note 3 at 11.
25. *Georgia Strait Crossing*, *supra* note 3 at 13.
26. *Ibid.* at 12.
27. Hence, the “anchor” field production facilities that are part of the overall “Mackenzie Gas Project,” for environmental assessment purposes, would likely be considered “directly connected” to the pipeline for purposes of the Board’s determination of whether to issue a *NEBA* certificate for the pipeline.
28. If these guides are intended to limit the Board’s analysis to new upstream/downstream activities, they may be deficient for a third reason, because projects may cause changes to existing upstream/downstream activities that have attendant environmental costs. See *Athabasca Chipewyan*, *supra* note 2 (Federal Court of Appeal, in review of the NEB’s issuance of electricity export permits, holding that the Board erred in focusing on the lack of any new electricity generating facilities needed to provide the exported energy, while ignoring whether the exports will require any changes to existing facilities). Even if not changed, upstream/downstream activities may simply be prolonged and have environmental costs associated with that prolonged period that the Board should consider.
29. N. Bankes, “Environmental Security and Gas Exports” (Winter 1996) 53 *Resources 1*.
30. See *Athabasca Chipewyan*, *supra* note 2 at 420 (“Environmental benefits may be relevant to weigh against adverse environmental effects. However, adverse environmental effects cannot be ignored.”).
31. Policies are likely best identified from a hierarchical perspective, with broad, multi-disciplinary policies—like “sustainable development”—at the top and narrower, sector-specific policies—like those pertaining to energy production and consumption and environmental protection—lower down. Policies may also be reflected in a variety of written instruments other than those with “policy” expressly included in their title. These other instruments include purpose statements in international agreements and departmental business plans.
32. See Nigel Bankes & Michael M. Wenig, “Northern Gas Pipeline Policy and Sustainable Development, Then. And Now?” in Bruce G. Doern, ed., *Canadian Energy Policy and the Struggle for Sustainable Development* (Univ. of Toronto Press, 2004), Ch. 10 (in press).





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33. See *NEBA* s. 11(3) (providing the Board with hearing powers equivalent to those of a trial court). See also Alastair R. Lucas, "Harmonization of Federal and Provincial Environmental Policies: The Changing Legal and Policy Framework" in J. Owen Saunders, ed., *Managing Natural Resources in a Federal State* (Toronto: Carswell, 1986) at 50 (noting that government interventions in regulatory hearings remain a "viable" means of presenting "policy positions" on "specific environmental issues.").
34. See e.g. *In the Matter of CanStates Gas Marketing, et al.* (Nov. 1994), No. GH-3-94 (N.E.B.) (NEB decision approving licenses to export natural gas to the U.S. without any explanation of why the exports were in the Canadian public interest).
35. The Board has ample legislative authority to conduct such hearings. See *NEBA* ss. 12(1)(b) and 24(3). This authority is also consistent with the Board's role, under in Part II (ss. 26-28) of *NEBA*, of providing energy policy advice to the federal Cabinet.
36. Bankes, *supra* note 29 at 3-4.
37. But see *Westcoast Energy, supra* note 19 (SCC majority holding that, under the unique circumstances in that case, the NEB had constitutional and legislative jurisdiction to directly regulate intra-provincial gas gathering and processing facilities that were directly upstream of an inter-provincial gas pipeline).
38. For an intra-provincial example of this regulatory approach, see *Application to Construct Recreational and Tourism Facilities in the West Castle Valley* (Dec. 1993), No. 9201 (N.R.C.B.), discussed in Steven A. Kennett, *Spinning Wheels in the Castle: A Lost Decade for Sustainability in Southwestern Alberta*, CIRL Occasional Paper #14 (Calgary: Canadian Institute of Resources Law, 2003); see also Michael M. Wenig, "Cumulative Effects: Oil, Gas, and Biodiversity" (Oct./Nov. 2002) 27 *LawNow* 27 at 29 (suggesting the Alberta Energy and Utilities Board (EUB) use conditional approval model to address the cumulative effects of oil and gas development regulated by the EUB), and Michael M. Wenig, "Federal Policy and Alberta's Oil and Gas: The Challenge of Biodiversity Conservation," in Bruce Doern, ed., *How Ottawa Spends 2004-2005: Mandate Change in the Martin Era* (McGill-Queens University Press, 2004) Chapter 11 (in press) (suggesting that the federal government use conditional approvals in a variety of circumstances to satisfy its obligations to conserve biological diversity from threats posed by Alberta oil and gas production).
39. The NEB's enforcement of these kinds of conditions raises federalism concerns, at least, when the conditions relate to upstream/downstream activities that occur entirely within provincial boundaries and when provincial action is required to fulfill the conditions. Thus far, this approach has passed constitutional muster. See *Quebec, supra* note 2 (SCC holding that the NEB, in licencing the export of electricity generated by future hydro-electric facilities in Quebec, could condition its licence approval on the successful completion of environmental assessments for the future facilities). However, a thorough constitutional analysis is beyond the scope of this paper.

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