IN THE MATTER OF AN ARBITRATION UNDER CHAPTER ELEVEN OF THE NORTH AMERICAN FREE TRADE AGREEMENT AND THE UNCITRAL RULES OF 1976

BETWEEN:

WILLIAM RALPH CLAYTON, WILLIAM RICHARD CLAYTON, DOUGLAS CLAYTON, DANIEL CLAYTON AND BILCON OF DELAWARE, INC.

Claimants

AND

GOVERNMENT OF CANADA

Respondent

EXPERT REPORT OF LESLEY GRIFFITHS

June 9, 2017

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1.0 Qualifications

1. My name is Lesley Griffiths. I have over thirty years' experience in environmental assessment. I have worked as a consultant to clients that include government, proponents, and communities. I have also been appointed as chair or co-chair of various environmental assessment panels constituted under the *Canadian Environmental Assessment Act* (*CEAA*) and corresponding provincial environmental legislation including the Nova Scotia *Environment Act* (*NSEA*). Between 1997 and 2014 I chaired four joint review panels (JRPs) and I was recently appointed to chair a fifth review panel in December 2016.

2. I received a B.A. Hons in English from the University of Birmingham, UK, in 1970, and then relocated to Halifax, NS, where I received a Masters in Library Studies in 1973. After working as Communication Officer for Oxfam-Canada for two years, I returned to school and obtained a B. Design Environmental Planning from the Nova Scotia College of Art and Design in 1979.

3. After a year working as a planner at the Nova Scotia Department of Municipal Affairs where I was a resource person to the Preston communities in the area of watershed management, I formed the firm of Griffiths Muecke in 1980 with Anne Muecke.[1] Griffiths Muecke was a consulting company focusing on environmental and community planning, and public participation.

4. As a consultant I worked for a wide range of clients on projects relating to resource development, waste management, watershed management, tourism and recreation planning, downtown design and planning, and social planning. I specialized in facilitation, stakeholder advisory processes, and consensus-building.

5. My experience in environmental assessment has included work on the Sable Offshore Energy Project, the Blue Atlantic Transmission Project, military flying

[1] Anne Muecke was my business partner from 1980 to 2011. Anne's husband, Gunter Muecke, was a member of the Whites Point JRP. I have not discussed anything relating to the JRP's deliberations with either Anne Muecke or Dr. Muecke.

activities in Labrador and Quebec (impacts of low-level flying), surface coal mining in Cape Breton, community impacts of the introduction of factory freezer trawlers, and the review of the Georges Bank oil and gas moratorium.

6. I have also served as a member or chair of the following six review panels, five of which were joint review panels (the sixth being a panel for a joint process):

(a) In 1991 I was appointed as a member to the Federal-Provincial Environmental Assessment Panel to review the Halifax-Dartmouth Metropolitan Wastewater Management System, also known as the Halifax Harbour Cleanup Project (1991-93). This panel was constituted under the *NS3*

(b) *EA* and the federal Environmental Assessment and Review Process (EARP).

(c) In 1997 I was appointed to chair the JRP for the Voisey's Bay Mine and Mill Project (a nickel-copper-cobalt mine) in northern Labrador, Newfoundland and Labrador. This review process was guided by a Memorandum of Understanding signed by representatives of the federal and provincial governments, Innu Nation and the Labrador Inuit Association. The panel submitted its Report in 1999. The panel's three-part interpretation of the objectives of sustainable development has been widely quoted and used in subsequent panel reviews.[2]

(d) In 2005 I was appointed to chair the JRP for the Sydney Tar Ponds and Coke Ovens Site Remediation Project in Sydney, Cape Breton, Nova Scotia. The project was intended to clean up extensive

[2] The preservation of ecosystem integrity and the maintenance of biological diversity; respect for the right of future generations to the sustainable use of renewable resources; and the attainment of durable and equitable social and economic benefits. **R-351**, *Voisey's Bay Mine and Mill Environmental Assessment Panel Report* (Mar. 1999).

contamination of soil and water, caused by decades of contaminant release by the steelmaking industry in the heart of the City of Sydney. The panel submitted its Report in 2006.

(e) In 2009 I was appointed to co-chair (with Mr. Herbert Clarke) the JRP for the Lower Churchill Hydroelectric Generation Project in Labrador, Newfoundland and Labrador. The proposed project put forward by the crown corporation, Nalcor Energy, included two hydroelectric facilities and associated reservoirs generating a combined total of 3,074 megawatts. The review included hearing and addressing the concerns of indigenous communities, governments and organizations in Labrador and Quebec.

(f) In 2013 I was appointed to chair the JRP for the Marathon Platinum Group Metals and Copper Mine Project in Marathon, northern Ontario to replace the original panel chair who had resigned. The process was about to start public hearings when the proponent indicated that they could not proceed due to economic factors. The JRP was subsequently disbanded later in 2014.

(g) In December 2016, I was appointed to chair the Review Panel established for the joint process for the review of the Milton Logistics Hub, a review process that is currently ongoing. The project, proposed by the Canadian National Railway Company (CN) would see the development of a multi-modal rail hub to the west of Toronto. This is a joint review process but not a federal-provincial panel. The review process has been designed to meet the requirements of both the *CEAA* 2012 and the Canadian Transportation Agency, which has legislated responsibilities to make a determination regarding the reasonableness of the rail line proposal.

7. Also, in 2007, the Nova Scotia Department of Energy commissioned the Offshore Energy Environmental Research Association (OEER) to carry out the Fundy Tidal Energy Strategic Environmental Assessment (SEA), and I was appointed as Process Lead. The SEA focused on tidal energy development in the Bay of Fundy, and addressed both the sustainability of strategic decisions and the early involvement of stakeholders. The Report was submitted in 2008.

8. In addition to my experience serving on review panels or in environmental assessment processes, I have served on a part-time basis as Executive Director at East Coast Environmental Law (ECELAW), a non-profit organization that responds to community inquiries, carries out legal and policy research, and works to build capacity in the public and among legal practitioners to ensure that environmental laws are effectively used and strengthened.

9. Since retiring from Griffiths Muecke I have also been retained on projects which include: participating in a Review of Environmental Assessment Best Practice for the Nova Scotia Department of Environment in 2013; facilitating a stakeholder advisory roundtable in 2014 for the Nova Scotia Independent Aquaculture Regulatory Review; and carrying out a public participation project in support of the Halifax Regional Library's strategic planning process in 2016.

10. My curriculum vitae is attached as Annex I to this Report. The opinions expressed here are my own.

2.0 Purpose of the Report

11. In the Award on Jurisdiction and Liability of March 17, 2015, the Tribunal determined that the Whites Point JRP's recommendation that the Whites Point project should not be permitted to proceed on the basis of its "inconsistency with community core values" was a "fundamental departure from the methodology required by Canadian and Nova Scotia law."[3] The Tribunal also found that "the Whites Point Quarry JRP was legally obligated under s. 16 of *CEAA* to report on all

[3] Award on Jurisdiction and Liability, 17 March 2015, ("Award"), ¶ 600.

factors mentioned there, including mitigation measures,"[4] but that despite acknowledging that mitigation measures were possible for many project effects, it did "not explain why no mitigation measures at all were possible in respect of the 'community core values', even if in the view of the JRP they would not have been entirely sufficient."[5] As a result, the Tribunal found that the Claimants were denied "a fair opportunity to know the case it had to meet and address it."[6] I understand Canada was found liable for having breached NAFTA as a result of these acts of the JRP.

12. I have been asked to provide an opinion as to the conclusions the Whites Point JRP could have reasonably reached with regard to its significance determination under *CEAA* had it not committed the NAFTA breach described above. In doing so, I was requested to focus on environmental factors that were relevant to the Whites Point JRP's mandate under *CEAA*.

13. In preparing this Report I reviewed the public record of the Whites Point JRP, including the JRP's Terms of Reference, the Environmental Impact Statement (EIS) Guidelines, Bilcon's EIS, the comments of stakeholders and government departments on the EIS, information requests prepared by the JRP and Bilcon's responses, the hearing transcripts, responses to undertakings, and the Whites Point JRP's Report and recommendations. In the course of my preparations I also reviewed the March 8, 2017 Expert Report of David Estrin, submitted in support of the Claimants' Damages Memorial.

14. My Report is structured as follows: in Part 3, I provide an overview of the role and requirements of a review panel under the federal environmental assessment regime. I summarize relevant provisions of *CEAA* and, based on my past experience, I explain how these determine the mandate of a review panel, with reference to the mandate of the Whites Point JRP.

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[4] Award, ¶ 546.

[5] Award, ¶ 547.

[6] Award, ¶ 543.

15. In Part 4, I then provide my opinion as to the conclusions the Whites Point JRP could have reasonably made under *CEAA* had it not adopted the approach that it did in preparing its Report that gave rise to the breach of NAFTA. My analysis here does not definitively conclude what the Whites Point JRP would have recommended under *CEAA* if it had not committed the NAFTA breach, as it is not possible to determine the exact conclusions and recommendations the three panel members would have reached on the basis of the record. Instead, I have used my past experience as a review panel member to identify concerns raised by the Whites Point JRP regarding certain environmental effects that it was mandated to consider, to review the relevant materials in the environmental assessment record that pertain to these environmental effects, and to evaluate whether the JRP could have reasonably concluded that the project would have resulted in likely significant adverse environmental effects under *CEAA*, taking into account proposed mitigation.

16. As I explain below, on the basis of my review, it is my opinion that the Whites Point JRP could have reasonably concluded that the project was likely to cause at least two significant adverse environmental effects, after taking into account proposed mitigation. I explain my opinion in this regard in greater detail in Part 4. It is possible that the JRP could have identified other likely significant adverse environmental effects resulting from the project, but I make no judgement on this in my Report. I also highlight a number of other JRP findings and recommendations, relevant to whether the project should be permitted to proceed under *CEAA*.

3.0 The Role and Requirements of Review Panels Under *CEAA*

3.1. The Purpose and Objectives of Environmental Assessment under *CEAA*

17. I have read the Expert Report of Robert Connelly from the liability phase and I agree with the following statement of Mr. Connelly regarding the role of environmental assessment:

> Environmental assessment is a process used to identify and gather information about the expected future consequences of a proposed

> project before a decision is made as to whether it should proceed. It involves consideration of biophysical factors as well as social, cultural and aesthetic factors, which are described below. The federal environmental assessment process relies on tools found in the physical, social and natural sciences to predict the effects of a proposed project and considers the knowledge of potentially affected citizens and the values they place on the existing environment. It is now generally recognized as a key part of the system of environmental management in Canada.[7]

18. The Whites Point Quarry and Marine Terminal Project environmental assessment review was carried out under a now repealed version of the *CEAA*—the *Canadian Environmental Assessment Act* S.C. 1992. The purposes of this version of the Act were set out in s. 4(1) as follows:

> (a) to ensure that the environmental effects of projects receive careful consideration before responsible authorities take actions in connection with them;
>
> (b) to encourage responsible authorities to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy;
>
> (b.1) to ensure that responsible authorities carry out their responsibilities in a coordinated manner with a view to eliminating unnecessary duplication in the environmental assessment process;
>
> (c) to ensure that projects that are to be carried out in Canada or on federal lands do not cause significant adverse environmental effects outside the jurisdictions in which the projects are carried out; and
>
> (d) to ensure that there be an opportunity for public participation in the environmental assessment process.

19. Without the application of environmental assessment envisaged by these purposes, there would be no integrated review of the combined effects of project construction and activity on the environment. Project approvals and permits would be piecemeal, many aspects of a project might in fact be unregulated, and

[7] Expert Report of Robert Connelly, December 2, 2011, ¶ 16.

individuals, communities, and other stakeholders would have no opportunity for public input. Importantly, paragraph (a) of s. 4(1) requires "careful consideration" of a project's environmental effects. Paragraph (b) enshrines the principle of sustainable development and the connection between a "healthy environment" and a "healthy economy." And paragraph (d) sets the stage for public participation through the environmental assessment process. In my experience these purposes of *CEAA* are served by the panel review process.

3.2. The Role of a Review Panel in Fulfilling *CEAA* Objectives

20. There are four types of environmental assessment under *CEAA* – screenings, comprehensive studies, mediations, and panel reviews. A project can generally be referred to a review panel when it is determined that (a) taking appropriate mitigation measures into account, the project may cause significant adverse environmental effects, or (b) public concerns warrant a reference to a mediator or review panel.[8] Under *CEAA* a review panel is to consist of individuals who are unbiased, do not have a conflict of interest, and have knowledge or experience relevant to the anticipated environmental effects of the project.[9]

21. With regards to environmental assessments conducted by review panels, *CEAA* s. 34 provides:

> 34. A review panel shall, in accordance with any regulations made for that purpose and with its term of reference,
>
> (a) ensure that the information required for an assessment by a review panel is obtained and made available to the public;
>
> (b) hold hearings in a manner that offers the public an opportunity to participate in the assessment;
>
> (c) prepare a report setting out

[8] See, for example, **R-1**, *Canadian Environmental Assessment Act*, S.C. 1991, c. 37, ss. 28(1) ("*CEAA*").

[9] **R-1**, *CEAA*, s. 33(1).

(i) the rationale, conclusions and recommendations of the panel relating to the environmental assessment of the project, including any mitigation measures and follow-up program, and

(ii) a summary of any comments received from the public; and

(d) submit the report to the Minister and the responsible authority.

22. Under s. 34 a panel is required to obtain the necessary information for the assessment and make it available to the public, hold hearings in which the public may participate, prepare a report, and submit it to the Minister and responsible authorities.[10] The report also must contain "the rationale, conclusions and recommendations of the panel relating to the environmental assessment of the project, including any mitigation measures and follow-up program, and a summary of any comments received from the public,"[11] and hence serves to advise decision-makers.

23. Subsection 34(a) requires the review panel to obtain the information required for its assessment. In my experience a panel uses the entire process to try to obtain this information. For example, a panel may proceed to the hearing, while there is still some needed information missing from the record, in order to balance the need for completeness with: (i) an awareness that the process needs to come to an end in a timely fashion, even if the proponent is not, in the panel's view, being totally co-operative; (ii) confidence that some or all of the missing information will emerge during the hearing, in the form of responses to undertakings, or through testimony by other parties; and (iii) a willingness to consider making provision of the information by the proponent or another party one of the terms and conditions of the project approval.

24. Needless to say, this balancing is a delicate act and may not always lead to the desired outcome, leaving a panel to reach conclusions in the absence of certain information. However, if the record shows that the panel had made clear attempts to

[10] **R-1**, *CEAA*, s. 34(a-d).

[11] **R-1**, *CEAA*, s. 34(c).

seek the information, either through information requests before the hearings or through questioning or undertakings at the hearings, the panel must at some point be prepared to draw its conclusions, taking into account the missing information or the continued uncertainty. In some cases missing information may be the fault of the proponent; in other cases, the information is simply not available or would require extensive research.

25. In accordance with *CEAA*'s purpose to provide for public participation in the environmental assessment process,[12] s. 34(a) also requires that the information the panel needs to conduct its review is made available to the public. This includes all information generated through the panel process, including materials from the proponent, submissions by other participants, correspondence, and the hearing transcripts. This information is placed on the Canadian Environmental Assessment Agency's (the "Agency's") public registry. Once the public hearings end the registry closes and the panel is limited to the information provided on the public registry in reaching its conclusions and making recommendations.

26. Subsection 34(b) also serves the purpose of public involvement in the environmental assessment process by requiring the review panel to hold a hearing that offers an opportunity for public participation. The public hearing allows the proponent and other interested parties to provide relevant information and opinions to assist the panel in preparing its report. In my experience, the heart of the hearing is the questioning of presenters – both the proponent and other participants. In the three panels I have chaired to date, the panel has played an active role in questioning presenters, but has also recognized the value of allowing other parties to question the presenter, either directly or through the panel.

27. Similarly, the review panel's report must also contain a summary of any comments received from the public (s. 34(c)(ii)). In my opinion, these requirements

[12] **R-1**, *CEAA*, s. 4(1)(d).

ensure that an environmental assessment review carried out by a panel is a highly transparent process.

28. Lastly, the requirement for the review panel to submit its report to the Minister and responsible authorities under s. 34(d) reflects the ultimate purpose of a review panel, which is to provide advice to the government decision-makers. A panel is empowered to make determinations regarding the likelihood that a project will cause a significant adverse environmental effect – which is a determination that is relevant to government decision-making on a project. However, the decision to "permit the project to be carried out in whole or in part" resides entirely with federal government decision-makers.[13] The panel's report provides information and advice to assist the decision-makers.

3.3. The Factors a Review Panel is to Consider

29. *CEAA* s. 16(1) specifies the factors that all environmental assessment processes, including a panel review, must take into consideration. They include:

> (a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or 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 that are received in accordance with this Act and the regulations;
>
> (d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and
>
> (e) any other matter relevant to the screening, comprehensive study, mediation or assessment by a review panel, such as the need for the project and alternatives to the project, that the responsible authority or, except in the case of a screening, the

[13] **R-1**, *CEAA*, s. 37(1).

Minister after consulting with the responsible authority, may require to be considered.

30. Comprehensive studies and panel reviews must also consider the following factors that are listed in s. 16(2):

(a) the purpose of the project;

(b) alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;

(c) the need for, and the requirements of, any follow-up program in respect of the project; and

(d) the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

31. With regards to the assessment of "environmental effects" under s. 16(1)(a), the term "environment" is defined in s. 2(1) as "the components of the earth" (i.e., bio-physical environment), including:

(a) land, water and air, including all layers of the atmosphere,

(b) all organic and inorganic matter and living organisms, and

(c) the interacting natural systems that include components referred to in paragraphs (a) and (b).

32. The term "environmental effect" is defined more broadly in s. 2(1) as:

[I]n respect of a project,

(a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act,*

(b) any effect of any change referred to in paragraph (a) on

(i) health and socio-economic conditions,

(ii) physical and cultural heritage,

(iii) the current use of lands and resources for traditional purposes by aboriginal persons, or

(iv) any structure, site or thing that is of historical, archeological, paleontological or architectural significance, or

(c) any change to the project that may be caused by the environment.

33. Given the above, a consideration of "environmental effects" under s. 16 (1)(a) may include any change in the biophysical environment caused by a project, in addition to any change in the biophysical environment resulting from the environmental effects of accidents and malfunctions, and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out. An "environmental effect" can also include the effects of any change the project may cause to the biophysical environment that in turn causes an effect on health and socio-economic conditions.

34. A central function of a review panel, which factors into government decision-making on a project, is set out in s. 16(1)(b), which requires panels to determine "the significance of the effect referred to in paragraph (a)." In 1994 the Agency prepared a reference guide entitled the "Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects" to guide decision-making in this area.[14] This document addresses how such decisions fit into the overall process, and explains the three steps of deciding whether an effect is adverse, significant, and likely.

35. With respect to determining if an environmental effect is adverse, the reference guide lists a number of factors, noting that "the importance of individual characteristics will be different in different EAs."[15] The factors include changes in

[14] **R-20**, *Reference Guide: Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*, Canadian Environmental Assessment Agency (Nov. 1994), ("*CEAA Reference Guide*").

[15] **R-20**, *CEAA Reference Guide*, p. 187.

the environment that include "threat to rare or endangered species," "discharges or release of persistent and/or toxic chemicals," "transformation of natural landscapes," and "obstruction of migration or passage of wildlife," and resultant effects on people including "negative effects on human health, well-being, or quality of life" and "loss or damage to commercial species."[16]

36. With respect to deciding "significance" the guide speaks to five criteria: (1) magnitude; (2) geographic extent; (3) duration and frequency; (4) reversibility (or lack of); and (5) ecological context (e.g. is the area ecologically fragile?).[17] Notably, the guide provides that all the criteria should be considered but that "[d]ifferent criteria will be important in different EAs and the extent to which an individual criterion will influence the overall determination of significance will vary between assessments."[18] In light of this last statement, I was surprised by Mr. Estrin's suggestion that the Whites Point project would have been approved absent the NAFTA breach because of a "standard practice in maritime Canada, and Nova Scotia in particular, for quarry and marine terminal environmental assessments to be approved, and not be rejected."[19] While Mr. Estrin's assertion focusses on project approval, it is problematic from the perspective of a review panel making recommendations on a project. A panel cannot abdicate its responsibility to review a project in favour of a review or a decision made for a different project in a different context at a different time under different circumstances.[20] A panel must reach its

[16] **R-20**, *CEAA Reference Guide*, p. 189.

[17] **R-20**, *CEAA Reference Guide*, pp. 188-192.

[18] **R-20**, *CEAA Reference Guide*, p. 190.

[19] Expert Report of David Estrin, March 8, 2017, ¶¶ 6-7 ("Estrin Report")

[20] For example, Mr. Estrin asserts that the approval of the Black Point project in Nova Scotia "supports the conclusion that there would be no reasonable basis for the WPQ not to have been accepted" (Estrin Report, ¶ 8). However, the key difference between Whites Point and Black Point projects was that one was located in the Bay of Fundy, an area of immense marine and avian biological diversity and abundance, and the other on the Atlantic Shore. Whites Point was a panel review, and Black Point was a comprehensive study. The first involved extensive public involvement throughout the process, the second would have much more limited public input. Finally, the decision for the first project was reached in 2007, whereas the decision in the second project was reached in 2016. I disagree that conclusions reached in one project can in any way set a benchmark for an earlier project that was reviewed over nine years earlier.

own conclusions, based on the evidence before it, as environmental assessment is evidence-based, not precedent-based.[21] In my experience, while scientific information from previous environmental assessments may be relevant, conclusions and recommendations made by other panels have no role in panel reviews.

37. The Agency guide also addresses the role of environmental standards, guidelines, or objectives that have been established by different levels of government in significance findings. It warns that "[s]ince there are no standards, guidelines, or objectives for most environmental effects, they cannot be used to determine the significance of many adverse environmental effects, nor do they necessarily protect ecological health. In addition, standards, guidelines, or objectives are set on the basis of individual hazardous agents and do not allow for any interactions that may occur (i.e., cumulative environmental effects)."[22]

38. Finally, with respect to determining if significant adverse environmental effects are likely, the guide suggests two criteria for consideration – probability of occurrence and scientific uncertainty.[23]

39. Determining significance is not and cannot be a purely mechanistic task. Nor is a review panel's significance determination dependent on pronouncements by government officials appearing before the panel as to whether a specific effect of a project will be "significant." In this regard, I note Mr. Estrin's observation that "none of the many federal and provincial officials who made submissions to the JRP stated that the project was likely to cause any significant adverse environmental effects

[21] This is not to say that past experience from past environmental assessments is irrelevant. If, for example, the proponent or an intervener brought forward the results of a well-executed follow-up program from a similar project, which demonstrated the actual effects of the project over time, especially when compared to original predictions, this evidence may be relevant. However, simply hearing that another project had been approved would tell me nothing about the likely environmental effects of the project I am assessing. In the end, if a panel were to simply scan the outcomes of other regulatory processes and then follow suit, the question would become "Why bother with a panel review?"

[22] **R-20**, *CEAA Reference Guide*, p. 191.

[23] **R-20**, *CEAA Reference Guide*, pp. 193-194.

(SAEE) that could not be mitigated" and his suggestion that therefore the Whites Point JRP could not have made a significance finding with respect to such effects.[24]

40. In my experience as a panel member, government submissions do not include significance determinations for the basic reason that it is not the job of government departments to make significance findings in a panel review; it is the panel's job. Government departments understand and respect the mandate that has been given to the panel and do not attempt to usurp the panel's role. If in fact this was not the case during a public hearing I was chairing, I would likely, in consultation with my colleagues, explain why statements regarding significance determinations made by government representatives were unnecessary and unhelpful, and would ask that they refrain from making and sharing these determinations.[25] What I do look for from government officials is: (1) information about the aspects of the project that would be regulated by their department, including information to help the panel understand to what extent the regulatory framework can ensure that significant adverse effects are avoided and where the gaps are; and (2) scientific and technical expertise and experience that can help the panel evaluate the proponent's predictions.

41. Ultimately, while documents such as the Agency guide provide a starting point, environmental assessment is always context specific. For example, under s. 16(1)(c) panels must consider comments of the public that might pertain to the significance determination, and these will vary on the basis of the nature of the project and the sensitivity of the biophysical and human environment. Further, environmental assessment involves prediction, and with prediction comes uncertainty. Weighing uncertainty and making a judgment about whether an

[24] Estrin Report, ¶¶ 4-5.

[25] I note that Mr. Estrin also concludes that no government official concluded or recommended "that the WPQ should not be approved" (Estrin Report, ¶ 4). For the same reasons that I have cited with respect to government departments telling the panel what would or would not constitute a significant adverse environmental effect, I would not expect an opinion on whether the project should be approved. This is the panel's role. This means, of course, that when a government department does **not** state that the project should **not** be approved, as a panel member I would not conclude that the department was endorsing approval of that project.

environmental effect is likely, significant, and adverse is complex and decisions will vary in each case. As a panel member, the most important factor is that the panel's report is transparent in terms of the information upon which its conclusions are based, and the reasoning employed. In this way, the responsible authority and the Minister can understand the significance finding of the panel and choose to agree or disagree with it.

42. Paragraph 16(1)(d) spells out another important function of a review panel in making its significance determination. It requires review panels to consider mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects.[26] It is important to note the qualification included in s. 16(1)(d). Mitigation measures should be technically and economically feasible, and must obviously be effective. It is often a challenging task to make this determination as a panel member, especially if a mitigation measure has been proposed by an intervener rather than the proponent.

43. Finally, s. 16(1)(e) gives the Minister the power to broaden the scope of the review by requiring the panel to consider "any other matter" relevant to the assessment. These matters can include the need for the project and alternatives to the project that the responsible authority or the Minister may require to be considered. Further, s. 16(2) mandates every review panel to consider "additional factors" including the purpose of the project, alternative means of carrying out the project that are technically and economically feasible and the environmental effects of such alternative means, the need for and requirements of any follow up program, and the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future. Identifying the effects of the project on renewable resources is, in my opinion, an important step towards *CEAA*'s goal of ensuring sustainable development.

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[26] The term "mitigation" is defined in **R-1**, *CEAA*, s. 2(1) as "in respect of a project, the elimination, reduction or control of the adverse environmental effects of the project and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means."

44. In conclusion, review panels are required to consider a wide range of factors in carrying out their review of the environmental effects of a project. As is made clear by s. 37(1), a central function of the review panel's exercise is to provide government decision-makers with advice as to whether a project is likely to cause significant adverse environmental effects. However, a panel review is not merely a hunt for such effects, and panels must take a broad approach that allows for public involvement and evaluates all of the s. 16 factors in the appropriate context. In my opinion, all of the panel's findings are relevant to government decision-making.

3.4. The Dual Mandate of Joint Review Panels

45. Under s. 40 of *CEAA*, the Minister may enter into an agreement or arrangement with another jurisdiction that has powers, duties, or functions relating to the environmental assessment of the project.

46. Typically, but not necessarily, a JRP is the result of federal-provincial collaboration, as was the case in the Whites Point JRP. A joint panel agreement between the federal and provincial responsible authorities usually addresses the constitution of the JRP, how it will conduct the assessment, the provision and role of the Secretariat, cost-sharing and/or cost-recovery, the provision and function of the registry, the submission and release of the report, the decision-making process, and participant funding.

47. JRPs are required to fulfill their dual federal and provincial mandates by carrying out a unified review, based on the required list of factors to be reviewed in the panel's terms of reference. The terms of reference are typically appended to the joint panel agreement and include the components of the review process, the scope of the assessment, and the factors to be considered in the review, all of which are based upon applicable federal and provincial environmental assessment requirements.

48. Although the requirements for an environmental assessment may differ federally and provincially, submissions received during the environmental

assessment process do not usually differentiate between federal and provincial issues. Furthermore, panels are not directed to separate out effects according to whether they are relevant to federal or provincial decision-makers, or both. Nevertheless, in reviewing the environmental assessment record, drawing conclusions, and drafting recommendations, review panels are usually mindful that "the review panel's recommendations can be implemented only within the constitutional and legislative capabilities of the governments to which they are addressed."[27] This enables relevant decision-makers to extract the evidence and conclusions that are relevant to their legislative requirements. However, if the panel does not make an explicit distinction in its conclusions this does not, in my view, mean that its report is invalid. For example, a finding regarding the biophysical environmental effects of the project on a matter falling under federal jurisdiction may still be relevant to a decision that must be made under provincial legislation regarding the socio-economic effects of the project. As an illustration, a panel's findings about the effects of a project on the habitat of a commercial fish species could be relevant to a decision about effects on the related commercial fishery.

3.5. The Framework of the Whites Point JRP's Assessment of the Whites Point Project

49. With the role and requirements of review panels under *CEAA* in mind, I now turn to the framework of the Whites Point JRP process. On November 3, 2004 the federal Minister of Environment and the Nova Scotia Minister of Environment and Labour entered into the Joint Panel Agreement concerning the Establishment of a Joint Review Panel for the Whites Point Quarry and Marine Terminal Project (the "Joint Panel Agreement").[28] This agreement established the Whites Point JRP and the mandate for its review. As described below, the Joint Panel Agreement identified specific factors that the Whites Point JRP was required to consider in its review.

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[27] **R-32**, *Your Role in an Assessment by a Review Panel: A Guide for Chairpersons and Members*, Canadian Environmental Assessment Agency (Jul. 2001), p. 27.

[28] **C-363**, *Agreement Concerning the establishment of a Joint Review Panel for the Whites Point Quarry and Marine Terminal Project between the Minister of the Environment, Canada and the Minister of the Environment and Labour, Nova Scotia* (Nov. 3, 2001) ("Joint Panel Agreement").

This, in turn, shaped key principles that were incorporated into the EIS Guidelines, which laid out the JRP's expectations for the review and provided guidance to the proponent as to how its project would be evaluated.

3.5.1. Factors the JRP was Required to Consider under the Terms of Reference

50. As explained above, the Joint Panel Agreement reflects both the federal and provincial mandate of the Whites Point JRP. In particular, the agreement states that:

> The Report shall include recommendations on all factors set out in section 16 of the Canadian Environmental Assessment Act and, pursuant to Part IV of the Nova Scotia Environment Act , recommend either the approval, including mitigation measures, or rejection of the Project.[29]

51. The reference to s. 16 of *CEAA*, confirms that the Whites Point JRP was required to carry out an analysis of likely significant adverse environmental effects after mitigation in its assessment of the project. The Terms of Reference for the Joint Review Panel, attached to the Joint Panel Agreement, also identified the following specific factors the JRP was required to consider in its review:

(a) purpose of the Project;

(b) need for the Project;

(c) alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means;

(d) alternatives to the Project;

(e) the location of the proposed undertaking and the nature and sensitivity of the surrounding area;

(f) planned or existing land use in the area of the undertaking;

(g) other undertakings in the area;

[29] **C-363**, Joint Panel Agreement, s. 6.3.

(h) the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out;

(i) the socio-economic effects of the Project;

(j) the temporal and spatial boundaries of the study area(s);

(k) comments from the public that are received during the review;

(l) steps taken by the Proponent to address environmental concerns expressed by the public;

(m) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;

(n) follow-up and monitoring programs including the need for such programs;

(o) the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future; and

(p) residual adverse effects and their significance.[30]

52. This list is a combination of the factors that were required to be considered under *CEAA* and the *NSEA*, which reflects the dual mandate of the Whites Point JRP. For example, while the JRP was to consider the "environmental effects" of the project (a term that was defined in the Joint Panel Agreement on the basis of the definition of "environmental effect" under *CEAA*), it was also to consider the "socio-economic effects" of the project, which I take as a reference to the socio-economic effects of the project that were to be evaluated under the *NSEA*. In this regard, the Terms of Reference made it clear that the JRP was required to consider both the socio-economic effects of the project as this term is understood under the *NSEA* as well as socio-economic effects of the project that are a consequence of changes to the bio-physical environment as mandated by *CEAA*.

[30] **C-363**, Joint Panel Agreement, Terms of Reference, Part III.

3.5.2. Requirements of the EIS Guidelines

53. Having been assigned its mandate in the Joint Panel Agreement and Terms of Reference, the Whites Point JRP then issued the EIS Guidelines which identified the information and data that the proponent was required to provide so that the JRP could carry out its mandate.

54. The preparation of the EIS Guidelines for the Whites Point environmental assessment was a four-step process:

1. Draft guidelines were prepared by the Agency before the appointment of the panel;[31]
2. The draft guidelines were released to the public for review and written comment;[32]
3. The JRP held public meetings (scoping sessions) to receive oral input from interested parties;[33] and
4. The JRP considered all comments received, in writing or at the scoping sessions, and prepared the final EIS Guidelines.[34]

55. EIS Guidelines provide a roadmap for the proponent to use in preparing the EIS. In my experience a review panel uses detailed input from government departments and other interested parties, together with its own judgment and expertise to identify the information required for it to adequately address their Terms of Reference and to determine the overall impact of the project and its residual effects. Guidelines typically follow a standard approach involving selection

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[31] See Canada's Counter-Memorial (Liability Phase), December 9, 2011 ("Canada's Liability Phase Counter -Memorial"), ¶ 171, citing to **R-209**, Draft EIS Guidelines (Nov. 10, 2004).

[32] See Canada's Liability Phase Counter-Memorial, ¶ 171, citing to **R-239**, News Release – Whites Point Quarry and Marine Terminal Project – Joint Review Panel – The Public is Invited to Comment on the Draft Guidelines for the Preparation of the Environmental Impact Statement (Nov. 10, 2004).

[33] See Canada's Liability Phase Counter-Memorial, ¶ 171-172, citing to **R-240**, News Release – Whites Point Quarry and Marine Terminal Project Joint Review Panel Announce Public Meetings and Public Operational Procedures (Dec. 2, 2004).

[34] See Canada's Liability Phase Counter-Memorial, ¶ 175, citing to **R-210**, *Environmental Impact Statement Guidelines for the Review of the Whites Point Quarry and Marine Terminal Project* (Mar. 2005) ("EIS Guidelines").

of Valued Ecosystem Components (VECs). However, the proponent is encouraged to identify additional VECs as appropriate. The VEC approach has been standard in Canadian environmental assessments since the 1980s.[35]

56. With regards to the information required for the Whites Point JRP's assessment, the EIS Guidelines specified that the proponent was required to provide a detailed description of the project, its construction, operation, and decommissioning.[36] The EIS Guidelines then asked for a detailed description of the surrounding environment and the biota it supports, including the human environment,[37] and required predictions of the impact of the project on each selected VEC over the lifetime of the project.[38] The proponent's assessment in this regard was to provide a "clear, traceable path of information from the baseline conditions through the identification of potential impacts, monitoring, mitigation, residual impacts and determination of significance of effects."[39] The remaining sections of the EIS Guidelines addressed cumulative effects,[40] environmental management including accidents and malfunctions,[41] and environmental protection which addresses the proponent's plans for monitoring, mitigation, follow-up, and compensation.[42]

57. The EIS Guidelines drafted by the Whites Point JRP also identified a number of principles that would govern the JRP's approach to conducting its review. These principles reflect the general purpose and objectives of *CEAA*, as outlined in s. 4 of the Act. In my view, in addition to providing a framework for the JRP's review, they

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[35] **R-21**, Beanlands G.E. and Duinker, P., *An Ecological Framework For Environmental Impact Assessment in Canada* (1983) Institute for Resource and Environmental Studies, Dalhousie University and Federal Environmental Assessment Review Office, pp. 18-19.

[36] **R-210**, EIS Guidelines, pp. 18-21.

[37] **R-210**, EIS Guidelines, p. 25.

[38] **R-210**, EIS Guidelines, pp. 37-38.

[39] **R-210**, EIS Guidelines, p. 38.

[40] **R-210**, EIS Guidelines, pp. 50-51.

[41] **R-210**, EIS Guidelines, pp. 51-53.

[42] **R-210**, EIS Guidelines, pp. 53-58.

could also serve as relevant considerations in the advice to decision-makers under *CEAA* s. 37(1). These principles included use of and respect for traditional and community environmental knowledge,[43] public involvement,[44] sustainable development,[45] the ecosystem approach,[46] and the precautionary approach.[47]

4.0 My Opinion on the Conclusions that the Whites Point JRP Could Have Drawn if the NAFTA Breach had not been Committed

4.1 Approach to My Analysis

58. In this section I provide my opinion regarding the findings the Whites Point JRP could have legitimately made, based on the body of evidence before it, if it had not committed the acts found by the Tribunal to constitute a breach of NAFTA. I also highlight other findings that were in fact made by the JRP, and that were relevant to government decision-making regarding the Whites Point project.

59. My starting point for this analysis was the JRP Report itself. In reviewing the Report, I have kept in mind the Tribunal's observation that:

> The Report expressly identifies only one effect of the project as both significant and adverse, namely, "inconsistency with community core values." With respect to other impacts of the project, the Panel allowed that "with the effective application of appropriate mitigation measures, competent project management and appropriate regulatory oversight, most project effects should not be judged 'significant.'"[48]

60. In his Expert Report, Mr. Estrin appears to place considerable weight on the JRP's statement, cited in the Tribunal passage above, in concluding that if the JRP had not adopted the "community core values" approach the Whites Point project

[43] **R-210**, EIS Guidelines, pp. 8-9.

[44] **R-210**, EIS Guidelines, pp. 9-10.

[45] **R-210**, EIS Guidelines, pp. 10-11.

[46] **R-210**, EIS Guidelines, p. 11.

[47] **R-210**, EIS Guidelines, p. 12.

[48] Award, ¶ 503.

would have been approved.[49] I accept that the Whites Point JRP only "expressly" identified inconsistency with "community core values" as a significant adverse environmental effect. However, I do not believe the JRP's finding provides a basis for concluding that the Whites Point project would have been approved absent the NAFTA breach. The JRP described inconsistency of the project with community core values as a "primary consideration influencing [its] decision to recommend rejection."[50] But having taken this approach, it is clear that the JRP did not complete its determination process with regard to other elements of the project about which the JRP had raised concerns. By "complete its determination process" I mean either determining that the project would have a significant adverse environmental effect, or that certain terms and conditions should be applied in order to ensure the residual adverse effects would not be significant.

61. On my review of the Report, the JRP clearly had concerns about a number of potentially significant adverse environmental effects of the project. It did not expressly conclude that these other effects were likely significant adverse environmental effects under *CEAA*, but it did not declare these effects to <u>not</u> be significant. Rather, it appears that the JRP simply did not complete its analysis. As such, in my view it does not necessarily follow that in the absence of the NAFTA breach the JRP Report would have provided federal decision-makers with findings and recommendations that were supportive of project approval. As I explain below, the JRP also made other findings that were relevant to the question of whether the project should proceed.

62. I applied the following methodology in preparing this section of my Report:

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[49] Estrin Report, ¶ 6 ("It is my professional opinion that the WPQ Project was approvable, and would be approved, if standard federal Canada and Nova Scotia environmental assessment evaluation criteria and practices were fairly and objectively applied to the project. There was no reasonable basis for Canada and Nova Scotia to deny EA approval of WPQ.")

[50] **R-212**, *Environmental Assessment of the Whites Point Quarry and Marine Terminal Project, Joint Review Panel Report* (Oct. 2007) ("JRP Report"), p. 103.

(a) I reviewed the entire JRP Report and considered the overall framework adopted by the JRP in preparing its recommendations to decision-makers.

(b) I considered the JRP's findings regarding potential environmental effects of the project. While the JRP concluded "most" (but not all) project effects should not be judged to be significant adverse environmental effects with appropriate mitigation and regulatory oversight and competent management,[51] it clearly had concerns with respect to specific project effects, due for example to lack of information or to concerns about the effectiveness of the mitigation proposed. Despite these concerns, the JRP did not always reach a conclusion as to whether or not these project effects would likely result in significant adverse environmental effects.

(c) Based on the findings I identified in the JRP Report, I focussed on the environmental effects of the project on specific VECs in respect of which the JRP appears to have had serious concerns, but did not make a significance determination. These VECs were the endangered North Atlantic right whale, the American lobster, surface water on the quarry site and migratory birds.[52]

(d) I then considered how each of these issues were addressed in the Whites Point environmental assessment in greater detail, through a review of the relevant information in the public record – including Bilcon's EIS, the JRP's information requests and Bilcon's responses,

[51] **R-212**, JRP Report, pp. 83-84.

[52] My selection of these effects does not constitute a comprehensive assessment of the Whites Point project. My analysis of these effects only considers what the JRP could have reasonably concluded with respect to these effects, if it had carried out the analysis of whether they were likely significant adverse environmental effects after mitigation. In so doing, I do not purport to arrive at a definitive conclusion as to the actual outcome of the JRP's review, absent the NAFTA breaches.

written representations of government departments and other stakeholders, and the hearing transcripts.

(e) I then arrived at a conclusion as to whether the JRP could have reasonably found a likely significant environmental effect after mitigation in connection with these VECs. I conclude that it would have been reasonable for a review panel to have determined that the project was likely to cause significant adverse environmental effects on two of these VECs – the endangered North Atlantic right whale and the American lobster. I explain why in sections 4.2.1 and 4.2.2 below.

(f) Finally, in section 4.3, I highlight some of the JRP's other findings and advice regarding the project that in my view would have still been made regardless of the NAFTA breach. In this section, I explain why the JRP may have considered these findings to be relevant to the federal government's decision as to whether or not the project should be approved or rejected.

63. To be clear, my analysis is not intended to provide a definitive conclusion as to what the actual recommendations and outcome of the Whites Point JRP process would have been, absent the NAFTA breach. A JRP consists of at least three members whose knowledge and experience will vary, and based on my experience, the conclusions of a review panel are reached after extensive discussion. To a degree there will always be differences in approach or interpretation. My analysis is also limited to my review of written submissions and hearing transcripts. Unlike the Whites Point JRP, I did not have the benefit of attending all of the public hearings, nor did I have an opportunity to ask questions to the proponent or interveners on these effects. Nevertheless, I have applied my extensive experience as a panel member to review the available information in the record in order to draw the conclusions I set out below.

4.2 Consideration of the Environmental Effects of the Whites Point Project on Specific VECs

64. As I explained above, I considered the likely environmental effects of the Whites Point project on the endangered North Atlantic right whale, the American lobster, surface water on the quarry site, and migratory birds. On my review of the record I am of the opinion that the JRP could have reasonably concluded that the project would have likely resulted in significant adverse environmental effects on the right whale and the lobster, taking into account proposed mitigation. I explain why in sections 4.2.1 and 4.2.2 below.

65. I am less inclined to conclude that a finding of significant adverse environmental effects could have reasonably been made in respect of surface water on the quarry site and migratory birds, and I have accordingly not included sections on these VECs in my Report. However, I note that the JRP made findings in connection with surface water that in my view would have been made regardless of the NAFTA breach and that may have been relevant to the issue of project approval. I highlight these and other conclusions of the JRP in section 4.3 below, entitled "Consideration of Other Findings Regarding the Whites Point Project."

4.2.1. Endangered Species: North Atlantic Right Whale

66. A number of rare and endangered species were identified throughout the review process as being present at or in the vicinity of the Whites Point project site. In this section I address the North Atlantic right whale because it is a high profile endangered species, subject to extensive international recovery efforts, and it received considerable attention from both the proponent and interveners during the review. Two primary impacts of the project on the right whale were identified by the JRP – vessel strikes and the potential impact of blasting on this endangered species.[53] On the former impact, the JRP found the probability of a whale/project vessel interaction to be a "potentially adverse environmental effect."[54] On the latter,

[53] **R-212**, JRP Report, pp. 57, 64.

[54] **R-212**, JRP Report, p. 57.

the JRP concluded that "the requirement for mitigative measures well beyond those proposed by the Proponent would qualify this as an adverse environmental effect."[55] The JRP later found that "[g]iven the limited economic and social benefits of the Project to the local communities, the Province, and the country… the Project should not proceed in a situation where endangered species and a local way of life would be at risk due to project effects."[56]

67. Below I consider the proponent's views, and the views expressed by Department of Fisheries and Oceans (DFO) and key intervenors, in arriving at a conclusion as to what the JRP could have reasonably concluded had it completed its evaluation of likely significant adverse environmental effects, after proposed mitigation, of the project on the right whale.

4.2.1.1. Proponent's Views

68. In its EIS, Bilcon acknowledged that the North Atlantic right whale was designated as "endangered" by the federal *Species at Risk Act* (SARA)/the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).[57] Bilcon noted that right whales are abundant in the Bay of Fundy from June to November, and are mainly concentrated in the lower Bay of Fundy east of Grand Manan Island.[58] While its own survey did not observe right whales in the nearshore waters, Bilcon acknowledged their potential presence closer to the shore of Digby Neck.[59] According to Bilcon, the

[55] **R-212**, JRP Report, p. 64. While the JRP did not use the word "significant" here, I note that determining whether an effect was an "adverse environmental effect" formed part of its mandate under provincial legislation.

[56] **R-212**, JRP Report, p. 103.

[57] **R-579**, Whites Point Quarry & Marine Terminal, Environmental Impact Statement, Volume VI (Mar. 31, 2006), ("EIS – Volume VI"), Chapter 9.2.4, p. 77; see also **R-591**, *COSEWIC assessment and update status report on the North Atlantic right whale Eubalaena glacialis in Canada*, Committee on the Status of Endangered Wildlife in Canada (2003), p. vi.

[58] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 118.

[59] **R-579**, EIS – Volume VI, Chapter 9.2.4, p. 91.

total population of North Atlantic right whales at the time the EIS was prepared was about 322 animals and had been decreasing over the previous decade.[60]

69. Bilcon also acknowledged in the EIS that two potential project impacts on this species were the effects of blasting and the risk of collisions with vessels.[61] It noted other factors contributing to the state of this species including the genetic and demographic effects of small population size, habitat loss and degradation, infectious disease, contaminants, marine biotoxins, an inadequacy of prey resources as a result of changes in ocean climate and circulation, and disturbance from tourism.[62]

70. With respect to whale/vessel interactions Bilcon's EIS acknowledged that the North Atlantic right whale is known to be particularly susceptible to collisions with ships because it moves slowly and spends extended periods at or just below the surface.[63] Ship strikes were thought to be the principal immediate threat to the North Atlantic right whale population.[64] In this regard, Bilcon estimated in its EIS that the Project would generate additional ship traffic consisting of approximately 50 bulk carrier trips annually, representing an increase of six percent in large vessel movements in the Bay of Fundy.[65] The bulk carriers would use the designated inbound/outbound shipping lanes. The ships would leave and rejoin the designated lanes at a gradual angle when approaching and leaving the marine terminal.[66]

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[60] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 118.

[61] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 118; **R-580**, Whites Point Quarry & Marine Terminal, Environmental Impact Statement, Volume VII (Mar. 31, 2006) ("EIS – Volume VII"), Chapter 11.2, p. 23.

[62] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 118.

[63] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 128.

[64] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 128.

[65] **R-580**, EIS – Volume VII, Chapter 11.2, p. 23.

[66] **R-578**, Whites Point Quarry & Marine Terminal, Environmental Impact Statement, Volume V (Mar. 31, 2006) ("EIS – Volume V"), Chapter 7.6, p. 33.

71. Bilcon proposed in its EIS to designate the route to be used between the terminal and the inbound and outbound shipping lanes.[67] Vessel speed would be reduced as soon as the ship left the designated shipping lane and approached the marine terminal.[68] Similarly, vessel speed would be gradually increased after departing the marine terminal. Vessel speed in the nearshore area would be no greater than 12 knots and would be reduced if right whales were known to be in the area.[69] Bilcon did not specify whether or how this mitigation would be enforced and noted that the vessel's speed is the responsibility of the ship's captain and dependent in part upon prevailing sea conditions.[70] But Bilcon committed to monitor the arrival and departure times of the bulk carriers.[71] Further, if whale watching tours or whale research vessels reported right whale sightings to Bilcon, it would relay this information to the captain of the bulk carrier.[72]

72. Bilcon concluded in the EIS that the probability of a right whale/vessel encounter in the area between the shipping lanes and the marine terminal would be highly unlikely.[73] It also predicted an insignificant negative cumulative effect related to ship interactions with right whales partly because there were no planned projects or activities that would increase the movements of large ships in the area between the shipping lanes and the marine terminal.[74]

73. Regarding the effects of blasting, Bilcon noted in the EIS that the detonation of explosives can cause auditory damage to marine mammals including whales and could potentially be lethal.[75] During the start-up phase of the project Bilcon

[67] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 128.

[68] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 132.

[69] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 132.

[70] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 132.

[71] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 133.

[72] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 133.

[73] **R-579**, EIS – Volume VI, Chapter 9.2.13, p. 132.

[74] **R-580**, EIS – Volume VII, Chapter 10.0.3, p. 5.

[75] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 121.

proposed to conduct blasting on a weekly basis, and thereafter every two weeks.[76] Using site-specific data (topography, bedrock composition, and bathymetry) and a proposed blast design including the weight and type of explosive, shot pattern and spacing, shot hole depth and diameter, and delay sequence, Bilcon modelled shock wave propagation from the proposed blast sites to the marine water column.[77] Modeling results were presented as a "worst case" situation for quarry blasting in relation to the marine water column.[78] The model results indicated that the peak level at 500 m would be approximately 186 decibels (dB) in the water.[79]

74. Based on DFO guidelines established for air gun systems used in seismic exploration, Bilcon proposed in the EIS to use a threshold of 180 dB RMS.[80] This threshold was deemed to be the level at which marine mammals could sustain temporary threshold shift (TTS) -- a temporary and recoverable decrease in hearing ability.[81]

75. To mitigate blasting effects on the North Atlantic right whale, Bilcon proposed in its EIS "using the minimum weight of explosives" and establishing safety zones.[82] If a given species were observed to be present within the specific safety zone for that species, blasting would be delayed by at least 30 minutes.[83] If a second sighting had not been made during that period, blasting would recommence. Because DFO had indicated that blasting could result in whales changing their behaviour at considerable distance from the blast location, the safety zone for the North Atlantic right whale would be 2.5 kilometres.[84] A trained observer, located on

[76] **R-579**, EIS – Volume VI, Chapter 9.1.9, p. 68.

[77] **R-579**, EIS – Volume VI, Chapter 9.2.9, p. 112.

[78] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 121.

[79] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 122.

[80] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 122.

[81] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 122.

[82] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 123.

[83] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 123.

[84] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 123.

a raised platform on shore, would use binoculars to search for the presence of animals within this zone and, if necessary, notify the blast coordinator.[85] Bilcon would also encourage notification of the presence of right whales by marine tour operators.[86] Bilcon would also monitor underwater noise levels at 500 metres, 1,000 metres, 2,500 metres, and at the perimeter of the North Atlantic Right Whale Conservation Area.[87]

76. Finally, Bilcon predicted in its EIS an insignificant negative cumulative effect for marine mammals related to the use of blasting because of Bilcon's proposed mitigation measures and the infrequency of blasting in the region at the time.[88]

4.2.1.2. DFO's Views

77. I note that DFO categorically stated in its response to questions by the panel at the hearing that, with respect to the right whale, there is no "Allowable Harm" – which could be reasonably interpreted to mean that the loss of a single animal due to project activities over the fifty years of operation would be unacceptable.[89]

78. With respect to the potential for ship/whale collisions, DFO acknowledged in its presentation at the hearing that the re-routing of the shipping lanes had substantially reduced the chances of a vessel encountering a whale, and that the route from the shipping lane to the marine terminal is not a known aggregation area for whales, including right whales.[90] The reduced speed in this area would reduce

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[85] **R-576**, Whites Point Quarry & Marine Terminal, Environmental Impact Statement, Appendix Volume III, Tab 9 - "Whites Point Quarry – Blasting Protocol" (May 2005) ("EIS – Appendix Volume III"), p. 3 (p. 84 of pdf).

[86] **R-579**, EIS – Volume VI, Chapter 9.2.11, p. 124.

[87] **R-576**, EIS – Appendix Volume III, p. 3 (p. 84 of pdf).

[88] **R-580**, EIS – Volume VII, Chapter 10.0.3, p. 5.

[89] **R-463**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 4, Volume 4 (Jun. 20, 2007) ("JRP Hearing Transcript, Day 4"), p. 812:1-4: ("We determine that, in part, through something we call an Allowable Harm assessment, which is a scientific review process done through peer review that looks at the productivity of the species and the amount of human-induced mortality and harm that it can tolerate. For both inner Bay of Fundy Salmon and for right whale, that process has been done. And in both cases, it's determined that there's no allowable mortality for either of those species.")

[90] **R-463**, JRP Hearing Transcript, Day 4, p. 773:3-5.

the potential for lethal strikes.[91] However, the project would still cause an increase of about six percent in large vessel movements.[92] This could reasonably be interpreted as causing a small increased risk of collision.

79. In this regard, DFO observed in answering the panel's questions at the hearing that it was very difficult to know for sure when a whale had been killed and what the cause was, particularly if this happened offshore.[93] Whales could be killed by vessels of all sizes.[94] If the dead animal could be examined it may be possible to tell from the type of injury the type of vessel responsible. However, the body of a dead whale may not be found, and vessels may not report collisions.[95]

80. With respect to blasting, DFO indicated in its presentation at the hearing that, overall, there was considerable uncertainty in relation to prediction of blasting effects on the endangered North Atlantic right whale.[96] This uncertainty relates to sound propagation modeling,[97] the behavioural responses of marine mammals,[98] and the ability to detect marine mammals at distances of 2500 metres, particularly under poor visibility conditions.[99] DFO also indicated that blasting can have a range of effects on marine mammals from no response, to small behavioural changes, masking of hearing, temporary or permanent changes in hearing sensitivity, to non-auditory injury such as haemorrhage and direct fatality.[100]

81. While DFO considered it unlikely that blasting would have a physical effect on marine mammals, including right whales, beyond 500 metres, DFO noted in its

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[91] **R-463**, JRP Hearing Transcript, Day 4, p. 773:6-10.

[92] **R-463**, JRP Hearing Transcript, Day 4, p. 772:17-20.

[93] **R-463**, JRP Hearing Transcript, Day 4, pp. 790:11-22, 850:22-851:5.

[94] **R-463**, JRP Hearing Transcript, Day 4, pp. 790:7-10, 853:18-19.

[95] **R-463**, JRP Hearing Transcript, Day 4, pp. 790:19-791:1, 851:1-10.

[96] **R-463**, JRP Hearing Transcript, Day 4, pp. 770-771.

[97] **R-463**, JRP Hearing Transcript, Day 4, p. 769:7-25.

[98] **R-463**, JRP Hearing Transcript, Day 4, p. 770:7-10.

[99] **R-463**, JRP Hearing Transcript, Day 4, pp. 771:1-4, 801:2-6.

[100] **R-463**, JRP Hearing Transcript, Day 4, p. 769:1-6.

presentation at the hearing that there could be behavioural effects. What these would be and whether they would have a long-term effect was uncertain.[101] Longer-term or subtle behavioural effects, if induced in endangered right whales following blast sound exposure, would be very hard to detect and quantify.[102] DFO stated that such questions could only be addressed with a well-designed, broad-scale research programme.[103] Effects on marine mammals, including right whales, would be more serious if behavioural changes displaced feeding marine mammals, displaced them from breeding or nursery areas, or diverted them from migration routes or corridors.[104]

82. DFO pointed out in its review of Bilcon's proposed blasting plan that the acoustic modeling carried out by the proponent was for a single shot blast only, rather than the multiple blasts that would be used in operations.[105] Multiple blasts may be sufficiently closely spaced to partially overlap, extending the length of the superimposed pulse rather than increasing its amplitude.[106] DFO also commented in its Comments on the Whites Point Quarry and Marine Terminal Blasting Protocol, dated February 10, 2006, that reliably modeling effects of blasting is more difficult than modeling effects for exploration seismics because the coupling of sound is more complex, and that therefore DFO's conclusions are "qualitative and speculative."[107]

83. DFO recommended in its presentation at the hearing that the acoustic modeling should be verified by a test blast in near and far field locations before

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[101] **R-463**, JRP Hearing Transcript, Day 4, p. 770:7-10.

[102] **R-463**, JRP Hearing Transcript, Day 4, pp. 770:7-10, 787:10-23; **R-576**, EIS – Appendix Volume III, p. 14 (p. 102 of pdf).

[103] **R-576**, EIS – Appendix Volume III, p. 14 (p. 102 of pdf).

[104] **R-576**, EIS – Appendix Volume III, p. 12 (p. 100 of pdf); **R-463**, JRP Hearing Transcript, Day 4, p. 787.

[105] **R-576**, EIS – Appendix Volume III, p. 8 (p. 96 of pdf).

[106] **R-463**, JRP Hearing Transcript, Day 4, p. 808.

[107] **R-576**, EIS – Appendix Volume III, p. 7 (p. 95 of pdf).

operations begin and at a time when right whales were not present in the Bay.[108] The underwater blast sound levels should be measured at 500, 1,000, and 2,500 metres plus at the margin of the right whale core area.[109] If the results of this testing and subsequent monitoring showed unacceptable results, Bilcon would need to mitigate the effect by changing its blasting protocols or schedule.[110]

84. In its response to questions from the panel at the hearings, DFO stated that there was uncertainty as to the effectiveness of Bilcon's proposal to use observers to determine the presence of right whales in the safety zone when blasting is about to take place.[111] Fog, rain, and waves would reduce the ability of the observer to make accurate sightings.[112] DFO considered that when winds are at Beaufort scale 4 ("a moderate breeze" – 20-28 kilometres/hour) or higher, data is not usable.[113] Observer fatigue would also be an important factor.[114] Further, right whales could dive for 20 minutes at a time so an observer would have to spend an extended period of time to spot the animal at the surface.[115] At the hearing as well as in their written comments, DFO indicated that there should be visual observation of marine mammal behaviour before, during, and after operational blasting when whales are present.[116]

85. With respect to the potential effects of blasting on right whales, there were multiple uncertainties identified by DFO (which appear to have been endorsed by other participants):

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[108] **R-463**, JRP Hearing Transcript, Day 4, p. 771:13-21.

[109] **R-463**, JRP Hearing Transcript, Day 4, p. 771:18-19.

[110] **R-576**, EIS – Appendix Volume III, p. 14 (p. 102 of pdf).

[111] **R-463**, JRP Hearing Transcript, Day 4, p. 795-796.

[112] **R-463**, JRP Hearing Transcript, Day 4, p. 795:5-9.

[113] **R-463**, JRP Hearing Transcript, Day 4, p. 795:5-9.

[114] **R-463**, JRP Hearing Transcript, Day 4, p. 795:17-25.

[115] **R-463**, JRP Hearing Transcript, Day 4, p. 796:12-15.

[116] **R-463**, JRP Hearing Transcript, Day 4, p. 771:22-25; **R-576**, EIS – Appendix Volume III, p. 15 (p. 103 of pdf).

- uncertainty about the physical or behavioural effects on marine mammals within 500 metres of the blast site;[117]

- uncertainty about the impact of behavioural effects beyond 500 metres;[118]

- uncertainty about the sound pressure levels required to generate biological effects in marine mammals;[119]

- uncertainty about the ability of the acoustic modeling used by Bilcon to accurately predict the effects of multi-path sound propagation (sound waves through the air, and sound waves and vibration propagated through the substrate);[120]

- uncertainty about potential for longer-term or subtle behavioural changes caused by acoustic interference;[121] and

- uncertainty about the feasibility of Bilcon's proposed mitigation, namely the ability of observers to detect marine mammals at 500 and 2,500 metres in various weathers and sea states.[122]

4.2.1.3. Intervenors' Views

86. Several intervenors also commented on the project's potential effects on the right whale. For example:

- In its comments on Bilcon's EIS, Canadian Parks and Wilderness Society (CPAWS) highlighted comments made by DFO regarding lack of

[117] **R-498**, Fisheries and Oceans Canada, Presentation on the Whites Point Quarry and Marine Terminal Project ("DFO – JRP Presentation"), p. 10.

[118] **R-498**, DFO – JRP Presentation, p. 10.

[119] **R-576**, EIS – Appendix Volume III, p. 12 (p. 100 of pdf).

[120] **R-576**, EIS – Appendix Volume III, pp. 6-7 (pp. 94-95 of pdf).

[121] **R-576**, EIS – Appendix Volume III, p. 14 (p. 102 of pdf).

[122] **R-498**, DFO – JRP Presentation, p. 11.

knowledge and uncertainty with respect to the effects of blasting,[123] and referred to research carried out in Newfoundland and Labrador that show whales may abandon an area where industrial activity such as blasting and shipping is present, and that this avoidance can last for several years.[124] CPAWS observed that, by the time the effects of the project activities become evident, impacts may already be present and mitigation may be difficult or impossible, despite monitoring efforts.[125]

- In its written submission, World Wildlife Fund Canada (WWF-Canada) noted that the Grand Manan Basin is a Whale Conservation Area because it is critically important right whale nursery and feeding area.[126] While moving the shipping lanes has reduced the risk of vessel strikes, surveys indicated that right whales can be found throughout the outer Bay of Fundy during late summer and fall. Thus, according to WWF-Canada, ensuring that ships stay out of the Whale Conservation Area would not eliminate the risk of strikes.[127] WWF-Canada also noted that the degree of uncertainty regarding the impacts of sound on cetaceans is high, because cetaceans are highly dependent on acoustics for navigation and critical life processes including communication with mates and calves and finding food.[128] Thus, even slight damage to their hearing capability can have significant impacts.[129] Accordingly, WWF-Canada submitted

[123] **R-592**, Canadian Parks and Wilderness Society, Nova Scotia Chapter (CPAWS-NS), Review of the Whites Point Quarry and Marine Terminal Environmental Impact Statement (Aug. 11, 2006), pp. 13-14 ("CPAWS – Review of EIS").

[124] **R-592**, CPAWS – Review of EIS, p. 15.

[125] **R-592**, CPAWS – Review of EIS, p. 15.

[126] **R-593**, World Wildlife Fund Canada – Atlantic Regional Office, Written Submission to Joint Review Panel (Jun. 11, 2007) ("WWF-Canada – Written Submission"), p. 2.

[127] **R-593**, WWF-Canada – Written Submission, p. 2.

[128] **R-593**, WWF-Canada – Written Submission, p. 3.

[129] **R-593**, WWF-Canada – Written Submission, p. 3.

that the proposed project should not be allowed to proceed if it would significantly inhibit right whale recovery efforts.[130]

- In its presentation at the hearing, the Sierra Club questioned Bilcon's data in the EIS regarding sightings of the right whale between the shipping lanes and the Whites Point coastline, and presented evidence that right whales use this more frequently.[131]

- Other participants talked about seeing right whales quite close to shore. For example, the operator of a whale watching business described seeing two right whales about 100 feet from shore at Gulliver's Cove, approximately 10 miles east of Whites Point.[132]

- Participants also spoke about the importance of whale watching to the local economy, both in terms of the activity itself and in terms of how the presence of whales draws tourists to the area.[133]

4.2.1.4. My Conclusions

87. In reaching a conclusion about the project's effects on the endangered North Atlantic right whale, foremost in my mind would be the well documented vulnerability of this particular species, the importance of the lower part of the Bay of Fundy as critical habitat, the proximity of the Whites Point project to this area, the potential risks presented by the project activities, and the fact that the project would continue operations for fifty years.

88. With respect to vessel strikes, it was Bilcon's position that the risk of a bulk carrier striking a right whale as it travelled to or from the marine terminal would be

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[130] **R-593**, WWF-Canada – Written Submission, pp. 2-3.

[131] **C-163**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 11, Volume 11 (Jun. 28, 2007), pp. 2632-2634.

[132] **C-164**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 12, Volume 12 (Jun. 29, 2007), p. 2868:18-2869:4.

[133] **R-594**, Nova Scotia Tourism, Culture and Heritage, Presentation to Joint Review Panel (Jun. 25, 2007), slide 15.

very low because: the vessels would use the shipping lanes which do not cross the Whale Conservation Area; very few whales frequent the waters between the lanes and the terminal; and ship speeds in this area would be in a range at which there would be a low risk of causing a lethal injury.[134] Further mitigation would include directing the ship's captain to reduce speed in certain areas, and maintaining communications with whale watching boats and others.[135]

89. Routing and speed appear to be the two main mitigative factors. However, as DFO noted in its presentation at the hearing, it was not made clear to what extent Bilcon could dictate speed to the ship's operators.[136] In these circumstances a review panel could have reasonably recommended a process to be carried out before the project began operations involving DFO, the Atlantic Pilotage Authority, and the proponent in order to determine the optimal route while addressing protection of marine mammals and safety.

90. In my view, the incremental shipping added by the project would not by itself result in a huge impact on the right whale, and further mitigation could be possible. This being said, there would be no way to guarantee that a bulk carrier would not cause a lethal strike or serious injury over the project's life of 50 years unless the vessels maintained a low speed all the time that they are in waters that right whales may be using. This is probably not something that the proponent could control and, if it were to be made an enforceable condition, it would likely need to be part of a marine regulation to cover all shipping traffic.

91. With respect to blasting, there was in my view far more uncertainty. DFO recommended that some of this uncertainty could be reduced by redoing the acoustic modeling, using a more realistic pattern of multiple shots, and then carrying out test blasts when right whales are not present and monitoring the

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[134] **R-579**, EIS – Volume VI, Chapter 9.2.13, pp. 130-133.

[135] **R-579**, EIS – Volume VI, Chapter 9.2.13, pp. 132-133.

[136] **R-463**, JRP Transcript, Day 4, p. 773:6-14.

results in the water column at different distances.[137] While this would certainly provide more information about the physical effects of blasting it would not reduce the uncertainty around the consequent effects in biological receptors. It is not uncommon for scientists and ecologists to recommend more long-term research during an environmental assessment, as did DFO in this instance. Sometimes it is not unreasonable that this proceed at the same time with a particular project's operations. However, in the case of the Whites Point project the uncertainty regarding blasting effects would be particularly concerning given the threshold that DFO felt the project should meet with respect to right whales – namely, that not a single animal be lost.[138]

92. Further, many objections were raised by DFO and others regarding the likelihood that the proposed observer program would ensure that right whales were not present within the safety zone when blasting was about to occur.[139] In my view, it would be very difficult for even the most careful observer to sight an animal that may spend very short periods (seconds in fact) at the surface in less than optimal conditions of sea state and visibility. The likelihood of observer fatigue was also noted.[140] DFO's submissions are particularly persuasive given its extensive experience running observer programs for various purposes.

93. I also note that it appears there would have been very little chance of feedback on the program's effectiveness – if an observer did not see a given species on a given day, it could be the animal was not present, or that it could not be seen, or that the observer was distracted. Nobody would ever know. Similarly, an animal might be present, might sustain a sub-lethal injury, or might change its behaviour in a way that might over the short or long term impair its survival chances, but again there would be no feedback to the observer or to Bilcon. Therefore, I am of the view

[137] **R-576**, EIS – Appendix Volume III, p. 15 (p. 103 of pdf).

[138] **R-463**, JRP Hearing Transcript, Day 4, p. 812:1-4.

[139] **R-576**, EIS – Appendix Volume III, pp. 13, 16 (pp. 101, 104 of pdf).

[140] **R-463**, JRP Hearing Transcript, Day 4, p. 795:15-25.

that this mitigation program would not be effective at decreasing the risk that a right whale could be within the safety zone when blasting takes place.

94. Finally, the North Atlantic right whale is in its current precarious position because of the cumulative effects of many different factors. However, I am of the view that the proponent did not carry an adequate cumulative effects assessment. It is not sufficient to say that no additional blasting or shipping is expected take place in the vicinity of the proposed quarry when the vulnerability of the right whale population continues to be affected by many other variables throughout its habitat.

95. Earlier in this section I noted that Bilcon acknowledged that other factors, besides ship strikes and industrial activities such as blasting, contribute to the endangered state of this species, including the genetic and demographic effects of small population size, habitat loss and degradation, infectious disease, contaminants, marine biotoxins, an inadequacy of prey resources as a result of changes in ocean climate and circulation, and disturbance from tourism. The western North Atlantic population of the right whale travels widely throughout its range from Florida to Newfoundland.[141] In my opinion an adequate cumulative effects assessment should have addressed, even if only at a high level, the trends within this range affecting the right whale's habitat (e.g., contaminants and temperature changes) and threats to individual animals (e.g., ship strikes and fishing gear entanglements), and the progress of the recovery plans in place in both Canada[142] and the US.

I conclude, based on the information available in the environmental assessment record, that a review panel could have reasonably found that the

[141] **R-591**, *COSEWIC assessment and update status report on the North Atlantic right whale Eubalaena glacialis in Canada*, Committee on the Status of Endangered Wildlife in Canada (2003), p. iv.

[142] **R-595**, The Right Whale Recovery Team, "Canadian North Atlantic Right Whale Recovery Plan", World Wildlife Fund Canada and the Department of Fisheries and Oceans (Sep. 2000). The recommendations of this plan were organized under five main strategies: "A. Reduction of Vessel Collisions … B. Reduction of the Impacts of Encounters with Fishing Gear … C. Reduction of Disturbance from Human Activities … D. Reduction of Exposure to Contaminants and Habitat Degradation … E. Population Monitoring and Research."

Whites Point project would have a likely significant adverse environmental effect on the endangered North Atlantic right whale because of the uncertainty around blasting effects, the absence of effective mitigation, and the increase in risk of a lethal or sub-lethal shipping strike. Without an adequate cumulative effects assessment to prove otherwise, I am also of the opinion it would be reasonable to conclude that the Whites Point project would subject the North Atlantic right whale to increased risk of harm, which would act cumulatively with other risk factors to reduce the right whale's chances of recovery.

4.2.2. Commercial Fish Species: American Lobster

96. In this section I focus on certain effects of the project on the American lobster because it supports a very valuable fishery in Southwest Nova Scotia, is an important part of the local economy on Digby Neck and Islands, and also provides an example of how the project could affect components of the adjacent marine environment. At the outset, I note that the JRP appears to have had concerns over several effects of the project on lobsters. These included the risk of invasive species transported into the waters of the Digby Neck by vessels coming from New Jersey, which the JRP considered to be a "potential adverse environmental effect,"[143] and the impact of blasting on lobsters, which the JRP found "is likely to have an adverse environmental effect on lobster on a local scale."[144] The JRP also noted concerns about the physical location of the marine terminal and its impact on lobster fishers[145] and the potential discharge of contaminants and sediments[146] from blasting activity into the marine environment, which could impact lobster habitat.

97. The backdrop to these findings was the importance of lobster to the local economy. The panel described fishing as "the mainstay of the economy in Southwest Nova Scotia" and as being "at the heart of the region's plans for a sustainable

[143] **R-212**, JRP Report, p. 59.

[144] **R-212**, JRP Report, p. 66. The JRP also noted other potential effects of the project, such as the location of the marine terminal in relation to lobster trap setting areas, and the impact of this on fishing activities (**R-212**, JRP Report, p. 58), which I do not consider in my analysis in this section.

[145] **R-212**, JRP Report, p. 58.

[146] **R-212**, JRP Report, p. 7.

economy."[147] It further noted that "Lobster Fishing Area 34 (LFA 34), which includes the Bay of Fundy adjacent to the proposed site… is the highest-value fishing area in Atlantic Canada"[148] and that "DFO experts told the Panel that the waters between the site and the shipping lanes are of high value relative to adjacent Lobster Fishing Areas."[149] In light of the findings noted above, the JRP concluded the project "is likely to have an adverse environmental effect on the socio-economic health and viability of some of the fishing communities of Digby Neck and Islands."[150]

98. Below, I consider the proponent's views, and the views expressed by DFO and key intervenors, in arriving at my opinion as to what the JRP could have reasonably concluded if it had completed an evaluation of likely significant adverse environmental effects of the project, after mitigation, on lobster.

4.2.2.1. Proponent's Views

99. Bilcon acknowledged in the EIS that the nearshore waters off Whites Point are considered good habitat for the American lobster.[151] While other fisheries in the region were in decline and employing fewer fishers, Bilcon indicated that the lobster fishery was the one exception.[152] Over the previous 10 to 15 years, the landed value and number of lobster fishers had remained relatively stable.[153] Bilcon recognized that lobster has traditionally been and remains the primary fishing industry sector on Digby Neck.[154] Between 1998 – 2004, lobster landings in Digby Neck and the

[147] **R-212**, JRP Report, p. 76.

[148] **R-212**, JRP Report, p. 76.

[149] **R-212**, JRP Report, p. 76.

[150] **R-212**, JRP Report, p. 77.

[151] **R-579**, EIS – Volume VI, Chapter 9.2.4, p. 90.

[152] **R-580**, EIS – Volume VII, Chapter 9.3.10, p. 85.

[153] **R-580**, EIS – Volume VII, Chapter 9.3.10, p. 85.

[154] **R-580**, EIS – Volume VII, Chapter 9.3.10, p. 86.

Islands increased from $10.1 million to $19.2 million, an increase of 90 percent; while groundfish declined from $3.7 million to $2.2 million in the same period.[155]

100. In the EIS, Bilcon identified potential biophysical project effects on lobster including blasting, the construction and operation of the marine terminal, habitat changes as a result of surface water releases or dust, and the risk of invasive species being transported to the Digby Neck area by the bulk carriers.[156] In addition, potential socio-economic effects could be caused to the lobster fishery, and by extension, to local fishing communities, if biophysical effects reduced catches.[157]

101. With respect to the risk of invasive species, Bilcon filed a detailed report by Carver and Mallet, October 6, 2003, titled "A preliminary assessment of the risks of introducing non-indigenous phytoplankton, zooplankton species or pathogens/parasites from South Amboy, New Jersey (Raritan Bay) into Whites Point, Digby Neck, Nova Scotia."[158] The authors attempted to evaluate the risk of introducing the various species of concern into the Bay of Fundy, but this task was difficult because in many cases environmental tolerance data was not available.[159] I note that almost none of the content of the report was referred to in the text of the main volume of the EIS.[160]

102. Recognizing that ballast water discharge can be responsible for harmful marine ecosystem effects, Bilcon noted in the EIS that the Government of Canada

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[155] **R-279**, Digby Neck/Islands Economic Profile, Submitted by: Gardner Pinfold Consulting Economists Ltd. (Feb. 2006), p. 12.

[156] **R-579**, EIS – Volume VI, Chapter 9.2.10, pp. 115-117.

[157] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115; **R-580**, EIS – Volume VII, Chapter 9.3.8, p. 68; **C-161**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 8, Volume 8 (Jun. 25, 2007), pp. 1684:12-15, 1688:5-18.

[158] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135; **C-392**, EIS Reference Vol II – C.E. Carver and A.L. Mallet, "A preliminary assessment of the risk of introducing nonindigenous phytoplankton, zooplankton specifies or pathogens/parasites from South Amboy, New Jersey (Raritan Bay) into Whites Point, Digby Neck, Nova Scotia", October 6, 2003, ("Carver and Mallet").

[159] **C-392**, Carver and Mallet, p. 2.

[160] The sole reference was at **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

had in 2005 proposed "Ballast Water Control and Management Regulations."[161] The new regulations would cover ballast water management, ballast water exchange, exchange standard, ballast water treatment standard, sediment disposal, ballast water management plan, and exceptional circumstances and reporting procedures.[162]

103. Bilcon stated in the EIS that it would not have a dedicated shipping vessel but would contract shipping companies and would therefore have no control over where ballast water is taken or exchanged.[163] Bilcon stated that it planned to contract shipping companies that were following prescribed guidelines and complying with regulations on ballast water control and management.[164] Yet Bilcon maintained that the responsibility to follow existing ballast water management guidelines or the regulations when they are in place would rest with the shipping company.[165]

104. While noting that Ballast Water Control and Management Regulations were scheduled to come into force in 2006,[166] Bilcon did not propose any mitigation in connection with the risk of invasive species.[167] Bilcon did carry out baseline data collection to identify which invasive species were already present in the Whites Point environment and proposed to monitor for changes in order to give early warning if any new species were introduced.[168] It also claimed that the project

[161] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 134.

[162] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 134.

[163] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

[164] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

[165] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

[166] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

[167] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 136.

[168] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 136.

would have a neutral effect with respect to invasive species, specifically because ballast water management was not the company's responsibility.[169]

105. With respect to blasting, Bilcon stated in the EIS that there was limited scientific research and information available regarding the effects of noise and vibration on lobster.[170] It therefore relied on recent research on the effects of seismic energy on snow crabs to establish threshold criteria for adverse effects on lobster from blasting.[171] During research on snow crabs by Christian et al. (2003), snow crabs and fertilized eggs were exposed to 220 dB re 1 µPa.[172] No significant effects were observed on the snow crabs, but there was some evidence that eggs were negatively affected.[173] Experiments carried out with the commercial snow crab fishery also showed some evidence that noise may affect catch rates of crustaceans.[174] Snow crabs receiving less than 182 dB re 1 µPa 0-P were more easily caught than those receiving more than 185 dB re 1 µPa 0-P.[175] Bilcon therefore concluded that blasting could temporarily affect lobster activity patterns, resulting in less lobster movement and possibly lower catches.[176]

106. Based on its modeling, Bilcon predicted in the EIS that no American lobster life stage would be exposed to peak pressure levels exceeding 210 – 216 dB re 1 µPa if blasting were conducted at ordinary high tide.[177] Bilcon proposed to blast within

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[169] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 136: "Since the responsibility for ballast water management lies with the shipping company to comply with existing guidelines and pending regulations, and ballast water exchange in designated areas, this would result in a long term, neutral (no) effect, of regional scale."

[170] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115.

[171] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115.

[172] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115; see **C-444**, Christian, John M.Sc. "Whites Cove Quarry Blasting: Potential Impacts on American Lobster" 8 October 2003, (Christian 2003 Ref. Vol. V, Tab 24).

[173] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115.

[174] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115.

[175] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115.

[176] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 115.

[177] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

three hours of low tide which would reduce peak pressure levels to below 204 – 210 dB re 1 µPa 0-P.[178] In the snow crab research, eggs were exposed to 33 minutes of seismic energy, whereas quarry blasting would involve explosions of less than 0.5 seconds.[179] Bilcon acknowledged that blasting could affect lobster behaviour that in turn could affect catchability but predicted the effects would be negligible given the short duration and infrequency of the blasts.[180]

107. Bilcon also stated in the EIS that the possibility that lobsters might produce triploid eggs because of overpressure was investigated.[181] Triploid females are always sterile, and the progeny of triploid males will not be viable. Production of triploid eggs can occur at pressure/time of 10,000 psi for five minutes. At Whites Point, Bilcon predicted that overpressure would be below 100 kPa or 14.5 psi and the duration of the blast would be less than 1 second, therefore no production of triploid eggs was expected.[182]

108. In order to reduce risk to all life cycle stages of the American lobster Bilcon proposed in the EIS to use setback distances exceeding the general guideline/threshold criteria for 100 kPa peak pressure and 13 mm/s ground vibration for fish, fish habitat, and spawning areas, and predicted insignificant negative physical and behavioural effects on lobster.[183]

109. Regarding the location of the marine terminal Bilcon asserted in the EIS that this would not disrupt lobster trap setting areas, but acknowledged that the arrival and departure each week of the bulk carrier could disrupt fishing activities in a radius of one half mile around the terminal for a 24 hour period.[184] Bilcon estimated

[178] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

[179] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

[180] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

[181] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

[182] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

[183] **R-579**, EIS – Volume VI, Chapter 9.2.10, p. 116.

[184] **R-580**, EIS – Volume VII, Chapter 9.3.8, p. 67.

this would amount to 24 days in a six month lobster season, or less if shipping frequency was reduced in January and February.[185] Bilcon's proposed mitigation included consultation with fishers, designation of specific ship lanes in nearshore waters, advance notice of shipment schedules, and the provision of a lobster trap fund to be created by Bilcon and administered by local lobster fishers to compensate for the loss of traps and gear.[186]

110. Finally, during construction of the marine terminal Bilcon stated in the EIS that there would be few impacts on lobsters and lobster habitat because it would use pipe piles, which have a very limited footprint, and because there would be no dredging, blasting, or filling in marine waters.[187] Bilcon acknowledged that high concentrations of suspended solids can affect invertebrates, especially during the larval stages.[188] Bilcon carried out baseline sampling of Total Suspended Solids (TSS) in the receiving waters and found values between zero and 4.0 mg/l.[189] It proposed to manage the discharge of TSS through establishment of environmental protection zones (buffer strips), and a system of controlled drainage channels, sediment retention ponds, constructed wetlands, and maintenance of the existing coastal bog.[190] It predicted that effluent discharge would meet the expected provincial limit of 25 mg/l.[191] To demonstrate compliance it would monitor weekly for TSS and potential of hydrogen (pH).[192]

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[185] **R-580**, EIS – Volume VII, Chapter 9.3.13, p. 95.

[186] **R-580**, EIS – Volume VII, Chapter 9.3.13, p. 95.

[187] **R-578**, EIS – Volume V, Chapter 7, pp. 4, 10-11, 41; **R-580**, EIS – Volume VII, Chapter 9.3, p. 81.

[188] **R-579**, EIS – Volume VI, Chapter 9.1.6, p. 44.

[189] **R-579**, EIS – Volume VI, Chapter 9.1.6, p. 44.

[190] **R-579**, EIS – Volume VI, Chapter 9.1.6, p. 47.

[191] **R-579**, EIS – Volume VI, Chapter 9.1.6, p. 48.

[192] **R-579**, EIS – Volume VI, Chapter 9.1.6, p. 48.

4.2.2.2. DFO's Views

111. At the hearings DFO stated that invasive species usually travel in ballast water but could also be attached to vessel hulls.[193] In this regard it identified parasitic lobster disease that affected the Long Island lobster fishery in 1999 as a potential concern.[194] The parasite itself would be unlikely to eliminate a given population of lobsters, but could have a serious impact, especially in combination with other environmental factors such as warmer water temperature.[195]

112. At the hearings Transport Canada said that the Ballast Water Control and Management Regulations would apply to any ship travelling from south of Cape Cod to Nova Scotia and would require an exchange of the ship's ballast water before entering the waters off Digby Neck.[196] In an undertaking Transport Canada clarified that the regulations required an exchange of 95 percent by volume.[197] However, in an emergency a ship would not have to manage the exchange of its ballast water.[198]

113. DFO was categorical in stating at the hearings that only one successful colonization through discharge from one vessel was needed to introduce an invasive species that could affect a whole region.[199] Invasive species are responsible for billions of dollars in lost revenue and control measures annually; examples include two species of tunicates that affected many aquaculture sites, and the European Green Crab that originally arrived from Cape Cod in bilge water.[200] Monitoring could help detect possible invasive species in the early stages of colonization. However,

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[193] **R-463**, JRP Hearing Transcript, Day 4, p. 827:16-19; **R-159**, Email from Mark Mclean to Debra Myles re: DFO Comments on EIS (Aug. 3, 2006), p. 19.

[194] **R-463**, JRP Hearing Transcript, Day 4, p. 829:25-830:6.

[195] **R-463**, JRP Hearing Transcript, Day 4, p. 830:7-9.

[196] **R-462**, JRP Hearing Transcript, Day 4, p. 729-730.

[197] **R-596**, E-mail from Garry MacCaull, Transport Canada to Debra Myles, CEAA containing answers to Undertaking #27 and #28 from Joint Review Panel (Jun. 27, 2007).

[198] **R-462**, JRP Hearing Transcript, Day 4, p. 732.

[199] **R-463**, JRP Hearing Transcript, Day 4, p. 777.

[200] **R-463**, JRP Hearing Transcript, Day 4, pp. 776:20-777:5.

depending on the species, eliminating or controlling the introduced species after it is detected can be difficult or impossible.[201]

114. With respect to the impacts of blasting on lobsters, DFO confirmed during its presentation at the hearing Bilcon's assertion that there was very little information on this subject.[202] DFO staff did carry out research in Newfoundland on the impact of seismic noise on lobsters that showed that adult lobster exposed to seismic sound levels of 227 dB showed no mortality or significant injury.[203] However, non-lethal effects were observed with respect to feeding and biochemistry, sometimes weeks to months after exposure.[204]

115. During the hearing, DFO cautioned that these initial studies were exploratory, and should not be over-interpreted.[205] Also, the recent study did not include an assessment of noise on lobster eggs or larvae.[206] Given that uncertainty remained with respect to the effects of blasting on lobsters, DFO stated that Bilcon should carry out a monitoring program with input from DFO should the project proceed.[207] Such a program could involve sampling before and in between actual blasts, to see if the catch rate declined dramatically after a blast. It could also involve looking at hemolymph protein to see if blasting affected the molt cycle of lobster.[208]

4.2.2.3. Intervenors' Views

116. Several intervenors commented on the potential environmental effects of invasive species and blasting on lobsters. Specifically:

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[201] **R-463**, JRP Hearing Transcript, Day 4, pp. 777:23-778:2.

[202] **R-463**, JRP Hearing Transcript, Day 4, p. 775:22-23.

[203] **R-463**, JRP Hearing Transcript, Day 4, p. 776:2-4.

[204] **R-463**, JRP Hearing Transcript, Day 4, p. 776:5-8.

[205] **R-463**, JRP Hearing Transcript, Day 4, p. 776:11-13.

[206] **R-463**, JRP Hearing Transcript, Day 4, p. 776:13-15.

[207] **R-463**, JRP Hearing Transcript, Day 4, p. 776:16-19.

[208] **R-463**, JRP Hearing Transcript, Day 4, p. 832:10-12.

- CPAWS stated in its review of the EIS that while the lobster fishery has been stable in recent years, little is known about how lobster are affected by and react to noise from blasting and other activities such as crushing.[209] Possible risks include reduced reproduction rates, changed movement patterns, and reduced catches. CPAWS asserted that these would be unacceptable risks for such a highly valuable and currently stable industry.[210]

- In its written submission LFA 34 Management Board, representing 985 fish harvesters, expressed concern about potential changes to the feeding and behavioural patterns of lobsters caused by blasting.[211] Female lobsters need nutrition before and after a molt, which is a critical stage of their life cycle. LFA 34 questioned whether changes in feeding patterns would weaken the females, and whether behavioural changes would impact on breeding rituals and practices.[212] It also questioned whether blasting would create water pressures that would negatively affect migratory patterns.[213]

- LFA 34 Management Board noted in its written submission that bulk carriers would travel through waters where lobster disease had devastated the Long Island lobster industry, and reiterated DFO's position that nothing could be done to contain invasive species once they were in Nova Scotia waters.[214] LFA 34 also questioned how successful prevention approaches could be, citing the St. Lawrence Seaway which has exercised a preventative approach for many years, and yet must still

[209] **R-592**, CPAWS – Review of EIS, pp. 16-17.

[210] **R-592**, CPAWS – Review of EIS, pp. 16-17.

[211] **R-275**, LFA 34 Management Board, Presentation to the Joint Review Panel, Whites Point Quarry and Marine Terminal Project (Jun. 27, 2007) ("LFA 34 Management Board – JRP Presentation"), p. 4.

[212] **R-275**, LFA 34 Management Board – JRP Presentation, p. 4.

[213] **R-275**, LFA 34 Management Board – JRP Presentation, p. 4.

[214] **R-275**, LFA 34 Management Board – JRP Presentation, p. 6.

deal with approximately 15 invasive species invading the Great Lakes every year.[215] If lobster disease were introduced in Southwestern Nova Scotia, potentially thousands of jobs could be lost.[216]

- LFA 34 Management Board also wrote in its written submission about the importance of protecting habitat critical to the survival of juvenile lobsters, namely cobble type bottom that provides crevices where juveniles can be protected from predation.[217] The Board stated that that accumulation of sediment from quarry operations over fifty years would pose a high risk to critical nurseries and juvenile lobster habitat.[218] LFA 34 Management Board also stated that the potential area impacted could be larger than expected because of the potential for sediment drift.[219] Sediment drift can destroy vital plankton and zooplankton that are the food for lobster larvae and many other species.[220] Chemicals from the quarry operation would also be of great concern; chemical drifts would pose a high risk of mortality for lobster larvae and egg-bearing females.[221] In this regard, the Bay of Fundy and St. Mary's Bay were connected by two passages with strong currents, and St. Mary's Bay is known as one of the best lobster habitats in LFA 34.[222]

- LFA Management Board also noted in the written submission that the lobster season from the end of November to the end of May has a limited number of days because of bad weather and extreme cold.[223] It would

[215] **R-275**, LFA 34 Management Board – JRP Presentation, p. 6.

[216] **R-275**, LFA 34 Management Board – JRP Presentation, p. 6.

[217] **R-275**, LFA 34 Management Board – JRP Presentation, p. 2.

[218] **R-275**, LFA 34 Management Board – JRP Presentation, p. 4.

[219] **R-275**, LFA 34 Management Board – JRP Presentation, p. 3.

[220] **R-275**, LFA 34 Management Board – JRP Presentation, p. 4.

[221] **R-275**, LFA 34 Management Board – JRP Presentation, p. 3.

[222] **R-275**, LFA 34 Management Board – JRP Presentation, p. 2.

[223] **R-275**, LFA 34 Management Board – JRP Presentation, p. 6.

not be feasible for fishers to move their traps every two weeks before blasting took place. If fog moved in and blasting was delayed, fishers could lose even more days. The Board also considered Bilcon's limited compensation proposals to be unacceptable.[224]

- At the hearings, Ecology Action Centre (EAC) noted that there had been a 90 percent decline in lobster catches in Long Island Sound in 1999.[225] The decline was caused by a combination of the presence of a parasite, warmer water, and an increased density of lobsters.[226] EAC quoted the Carver and Mallet report to the effect that the relatively short trip for a vessel from New Jersey to Whites Point would make it easier for organisms to survive in the ballast water.[227] EAC recommended that monitoring of ballast water should be done every time a bulk carrier arrives at Whites Point[228] and also asked in a written presentation whether funds would be set aside for a rapid response.[229]

4.2.2.4. My Conclusions

117. In reaching a conclusion on the potential effects of the project on lobster in the vicinity of the project site, the following factors would in my opinion be important:

- The effects of blasting on all life stages of the lobster are uncertain, and there appears to have been very little pertinent research;

- There were justified concerns over invasive species being imported into the waters near the quarry site;

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[224] **R-275**, LFA 34 Management Board – JRP Presentation, p. 6.

[225] **C-109**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 10, Volume 10 (Jun. 27, 2007) ("JRP Hearing Transcript, Day 10"), p. 2463:5-6.

[226] **C-109**, JRP Hearing Transcript, Day 10, p. 2463:10-18.

[227] **C-109**, JRP Hearing Transcript, Day 10, p. 2467:8-12.

[228] **C-109**, JRP Hearing Transcript, Day 10, p. 2484:7-10.

[229] **R-597**, Ecology Action Centre, Joint Review Panel Hearing Presentation (Jun. 27, 2007), p. 39.

- It was uncertain to what extent new regulations could prevent invasive species colonization from happening over the life of the project;

- It was uncertain, given the numbers of other vessels travelling between the Bay of Fundy and northeastern United States ports, whether the project would increase the risk of new invasive species;

- There were differing views on the extent to which Bilcon's surface water management, blasting protocols, and marine terminal operation would prevent sediment and chemical releases into adjacent waters;

- The lobster fishing industry is vitally important to the region; there were concerns about the extent of biophysical effects from the project and whether these would be localized or regional in scope;

- Although not biophysical in origin, the project would likely cause a certain amount of disruption to lobster harvesters. This effect could combine with biophysical effects to increase stress on the industry and on communities.

118. Regarding the effects of blasting, no scientific evidence regarding the possible effects of blasting on lobsters was available during the panel review. Both Bilcon and DFO were extrapolating from studies of snow crab exposed to seismic noise. Given the importance of the lobster fishery in southwestern Nova Scotia, from both economic and community perspectives, in my view this is an unacceptable gap when trying to determine if the project could proceed without causing harm to both the biophysical and socio-economic environment. Bilcon suggested that effects would be limited to temporary behavioural changes in adult lobsters that might in turn affect catchability. While this prediction, if true, would be a concern to local lobster harvesters and would combine with other project-related disruption to make their living more precarious, it also ignored all the other life stages of the lobster.

119. The monitoring Bilcon proposed was intended to prove predictions of noise and vibration in the water. Even if Bilcon undertook the more rigorous monitoring recommended by DFO,[230] it is in my view not evident that this would materially add to the body of scientific knowledge needed to properly understand interactions between quarry development and lobster habitat and the lobster life cycle. To do this, Bilcon would need to carry out studies on the effects of the blasting on all life stages of lobster.

120. With respect to invasive species, DFO raised what to me were serious concerns. There is a marked difference between the more urbanized and industrialized waters of Raritan Bay, New Jersey (where ballast water would be taken on)[231] and the relatively pristine waters of the Digby area. Species of concern were present in Raritan Bay[232] and the project would create a direct link and a potential transmission method between the two areas.[233] While ballast water exchange regulations were proposed as a mitigation measure, and while meeting them would ensure that at least 95 percent of the ballast water would be exchanged, there was still a likelihood that the remaining five percent could import invasive species. It was also unclear how often, if ever, the emergency exceptions in the regulations would be required and what the effect would be.

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[230] DFO stated in its comments on the EIS: "At 500m range, blast pressure measurements should be made near-bottom rather than at 1m depth where the direct wave and surface reflection will be expected to nearly cancel. Near-bottom, the pressure levels will maximize. These monitoring considerations should be clarified. Far-field monitoring should also be conducted, as recommended in the initial DFO advice on the blasting plan and as discussed above. Monitoring should be conducted at various times of the year to take into account seasonal variation and should continue until reasonable conclusions can be drawn about the accuracy of sound modeling and effects predictions. If this project were to proceed, it would be advisable to make baseline measurements of bulk carrier noise around the terminal and nearby areas of potential environmental sensitivity. Monitoring for potential effects of blasting on lobster should be conducted when lobsters are nearshore." (**R-159**, Email from Mark Mclean to Debra Myles re: DFO Comments on EIS, August 3, 2006, p. 34).

[231] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

[232] As identified in **C-392**, Carver and Mallet, pp. 10-13.

[233] **R-579**, EIS – Volume VI, Chapter 9.2.14, p. 135.

121. Finally, in my view, Bilcon's position that compliance with the Ballast Water Management Regulations would be the responsibility of the ship's captain, and thus could not be considered an adverse project effect, is simply incorrect. Shipping was clearly part of the scope of the project and therefore, could have a project effect. Furthermore, it demonstrates unwillingness on the part of the proponent to consider how to mitigate this potential effect.

122. Because of the importance of the lobster industry, the multiple risks posed by the state of the environment in Raritan Bay, what seems to be the limited effectiveness of the ballast water exchange procedures, and the absence of adaptive management options once an invasive species has established itself, I am of the view that a review panel could reasonably conclude that the creation of a new shipping route between Whites Point and New Jersey would result in a marked increase in risk that parasitic lobster disease or some other invasive species would be introduced into the relatively pristine waters of Digby Neck and Islands, which could then have a regional impact on the lobster industry. I believe that this risk would constitute a likely significant adverse environmental effect on lobster in the vicinity of the Whites Point project site and beyond.

123. With respect to the potential of the project to result in adverse impacts on lobster habitat (e.g., through discharges of sediment pond water or chemicals into the marine environment), in my view this would depend largely on the ability of the proponent to manage surface water drainage and sediment retention to a high level of effectiveness, all the time. Bilcon proposed to collect all surface drainage on the quarry site to be channeled through a set of five interconnected sediment ponds.[234] These would allow fine sediments from washing operations to settle out, would provide a source of recycled water for the quarry, and would control run-off during storm events. Surface water drainage would eventually flow in the Bay of Fundy

[234] **R-598**, Bilcon of Nova Scotia, Undertaking #4 (Jun. 27, 2007), p. 2. Bilcon acknowledged in the undertaking that it was "assuming all runoff…is directed to the ponds." In reality, this is not the case as losses due to infiltration, interception, depression storage and other abstractions will occur.

through a constructed wetland, though exceptionally high water levels could require surface run-off from an undeveloped portion of the site to be bypassed directly into the Bay.[235]

124. Interveners criticized the proponent's plans and the panel noted that Bilcon made significant changes to the design and management procedures of the sedimentation ponds, right to the end of the public hearings.[236] In itself this is not necessarily a bad thing – environmental assessment should indeed be iterative and a proponent is well advised to be open to making project design changes in response to valid issues raised through the process. However, the Panel concluded that Bilcon's design adjustments still did not adequately address climate change predictions for the region leading to concerns that high volume and high flow-rate discharges from the ponds might be necessary in anticipation of exceptional storm events.[237]

125. The Panel also addressed concerns about residual amounts of ammonium nitrate fuel oil (ANFO) remaining in fractured rock through spillage or incomplete detonation.[238] One scenario would see charges being set but then blasting having to be delayed because of fog or other reasons. Portions of ANFO could leach into surface or groundwater. Small concentrations of ammonium in water are toxic to fish, while nitrates in the fresh water or the marine environment can stimulate algal growth, leading to eutrophication.[239]

126. The Panel was not convinced that the proponent's protocols would minimize the loss of explosives into the surface waters and groundwater. It was also unable to

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[235] **R-598**, Bilcon of Nova Scotia, Undertaking #4 (Jun. 27, 2007), p. 2.

[236] **R-212**, JRP Report, p. 6.

[237] **R-212**, JRP Report, p. 6.

[238] **R-212**, JRP Report, p. 6

[239] **R-212**, JRP Report, p. 6.

conclude that the proposed surface water retention structures would retain fine sediments and dissolved contaminants during extreme climatic events.[240]

127. In sum, it appears that possible effects on the lobster fishing industry were of two kinds:

- those related either directly or indirectly to biophysical effects from blasting, the introduction of invasive species, and substances introduced into the nearshore waters from surface drainage or the operation of the marine terminal; and

- those related to conflict of various types between fishing activities and project activities.

128. The second category does not qualify as an environmental effect under the federal legislation, and itself would not provide a basis for a finding of significant adverse environmental effect. However, in the case of Whites Point project, the two categories of effect had potential to act on the lobster fishing industry in a cumulative fashion – even if the narrow definition ("any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out") provided in the terms of reference would preclude this finding. In my opinion, the fact that lobster fishers would have experienced the combined effects of both the biophysical changes and the resource use conflicts is a relevant consideration when evaluating the acceptability of the project.

129. If the project's interface with the lobster industry only consisted of the marine terminal and weekly transits by the bulk carrier, I would anticipate that, with genuine consultation and relationship building, good ongoing communications, and a fair and well-designed compensation plan, local lobster harvesters and the quarry might eventually find ways to co-exist more or less amicably. However,

[240] **R-212**, JRP Report, pp. 6-7.

adding the uncertainty of twice monthly blasting, the potential for sediment and chemical releases, and the longer-term prospect of a lobster parasite or some other disease arriving would increase the stress on local lobster harvesters and could result in some of them being displaced from their usual fishing areas. Such a displacement could lead to a fisher having to leave the industry or could increase pressure and conflict in adjacent areas.

130. In the context of the federal review, a panel is required to review all of the evidence in the record, especially that provided by the proponent, to determine if there is a sufficient basis to conclude that adequate mitigation and monitoring has been proposed, that the risk is low, and that if significant adverse effects do occur, there are steps that can be taken to address the problem. In this regard, the fact that adequate research was not provided on the effects of blasting on lobster does not necessarily mean that adverse effects are inevitable. Similarly, the uncertainty as to whether a specific invasive species would be transported to Nova Scotia, and the combination with other factors to cause serious ecosystem damage, does not mean that adverse effects are inevitable. Nevertheless, in the case of the Whites Point project, I am of the view that the evidence presented on the issue of project effects on lobsters presented multiple risks and a great deal of uncertainty.

131. I would also add that the Whites Point JRP's Terms of Reference required the panel to consider "the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future."[241] Based on the information available during the assessment and the associated uncertainties of the project's impacts, I am of the view that a review panel could have reasonably concluded that while the project would extract and export a non-renewable resource, it would have the potential to significantly affect the capacity of neighbouring renewable resources (lobster) to meet the needs of local residents and future generations.

[241] **R-212**, JRP Report, p. 115.

Based my review of the environmental assessment record, I am of the opinion a review panel could have reasonably concluded that the Whites Point project would have a likely significant adverse environmental effect on American lobster and lobster habitat because of the uncertainty around blasting effects, the high potential for invasive species to be introduced via shipping, and the potential for habitat damage through sediment and chemical releases. The mitigation proposed in connection with these effects would not in my view have adequately avoided these risks. These biophysical effects could also cause adverse socio-economic effects to lobster harvesters and their communities. These stresses on the lobster fishing industry could be exacerbated by disruption and gear damage caused by operation of the marine terminal.

4.3 Consideration of Other Findings Regarding the Whites Point Project

132. As previously discussed, the role of a review panel is to provide advice to government. In the federal context this advice can relate to factors identified in the legislation and by extension in the panel's terms of reference. While the federal responsible authority is ultimately required to decide whether any of the residual adverse environmental effects of the project after mitigation would be significant, panels usually include observations in their report as to general factors that may be relevant to the government's determination of whether or not a project should proceed. Such information may be relevant to the responsible authority, if it determines the project is likely to cause significant adverse environmental effects after mitigation, and the federal government is required to determine whether these effects are justified in the circumstances.

133. I am of the opinion that the Whites Point JRP made certain findings in its Report that would have been relevant to government decision-making if the JRP had made a determination of likely significant adverse environmental effects that did not breach NAFTA. I highlight some of these findings below.

4.3.1. Adequacy of Information Provided

134. In my review of the Report, I note a major preoccupation of the Whites Point JRP appears to have been the adequacy of the information provided by the

proponent regarding contemplated project activities and how this impacted its assessment of environmental effects.[242] The JRP expressed "concerns about the evidence provided during the assessment process"[243] and it set a number of these concerns out in Table 2-1 of its Report.[244]

135. In this regard, I disagree with Mr. Estrin's conclusion that the "substantive and wide scope of the WPQ EIS, supplementary information provided by Bilcon experts to the JRP and the information/studies provided by Bilcon in response to undertakings to the JRP compellingly indicate for the WPQ, all plausible adverse environmental effects were identified and evaluated, as were means to prevent, mitigate or otherwise deal with potentially significant effects."[245] From my review of the record it appears that the JRP had a number of concerns regarding the information provided by Bilcon.

136. More fundamentally in my view, the problem with Mr. Estrin's argument is that volume of the EIS has been equated with quality and completeness of content. A panel review requires a proponent to provide detailed information about the project and its potential effects. In order to meet the terms of the EIS guidelines a proponent will need to prepare or commission a wide range of technical studies. The volume of material submitted by a proponent will naturally vary from one review to another but will in every case be substantial. There was nothing unusual about the Whites Point review in this regard, and in my opinion there was nothing to indicate that Bilcon had been in some way particularly diligent. The length of the EIS, the number of background studies, and the fact that the proponent responded to the JRP's

[242] **R-212**, JRP Report, pp. 84-86. In particular, the JRP observed that "[t]he changing nature of the Project, from its first formal presentation in the EIS through presentations made by the Proponent during the public hearings, created some serious problems for the Panel during the review process…Quantitative estimates, physical locations, timing of events, potential impacts and interconnectedness with other aspects of the Project varied to such an extent that the Panel's confidence in the conceptual design and associated quantitative underpinnings was undermined."

[243] **R-212**, JRP Report, p. 84.

[244] **R-212**, JRP Report, p. 85.

[245] Estrin Report, ¶ 42.

information requests (as they are required to do by the process) do not prove, as Mr. Estrin asserts, that therefore the proponent must have identified all project effects and all required mitigation.

137. Furthermore, I believe that considering an environment assessment review as being in some way an examination, marked by the JRP, that the proponent must pass by providing all the correct answers, does the intent of an environmental assessment under *CEAA* a considerable disservice. I believe that review panels are appointed when the Minister recognizes that the circumstances surrounding a proposed project are very complex, with many interests involved, and there is potential for the project to have serious and long-lasting effects. I also believe the review process is a recognition that no one party – for example, not the proponent and not a single government department – will have all the needed answers, and that therefore a collaborative process is required, engaging knowledge and wisdom from multiple parties. In my opinion, a wise proponent welcomes this opportunity and responds constructively to critiques of the material it has submitted. I would never expect a proponent to identify and evaluate "all plausible adverse environmental effects" by itself.

4.3.2. Risk of Malfunctions or Accidents

138. As part of its assessment of environmental effects a JRP must consider the potential environmental effects of malfunctions or accidents.[246] On my review of the record it appears the Whites Point JRP was concerned that Bilcon had underestimated this risk for certain project effects.

139. I identified an example of such an effect through my consideration of management of surface water on the quarry site. In its Report, the JRP concluded there were "uncertainties about the storage capacity of the sedimentation ponds during extreme storm events,"[247] and that a "failure of the sedimentation ponds or

[246] **R-1**, *CEAA*, s. 16(1)(a).

[247] **R-212**, JRP Report, p. 33.

an emergency diversion of stormwater during the lifetime of the Project is likely and would result in the release of sediments and flocculants into the Bay of Fundy."[248]

140. With respect to the issue of surface water run-off, Bilcon began by claiming that it would be carrying out "dry mining"[249] and that its sediment pond depth would need to be able to accommodate the storage of sediments (approximately 1 metre), process water, and stormwater from a 100 year maximum 24 hour storm event or a 100 year maximum 5-day event, based on a 25-year data set.[250] However, during the review, government departments raised two major issues regarding this topic: the need to revise the groundwater model in order to address the contribution of quarry dewatering to the hydrologic budget, and the inadequacy of data used to predict the size and frequency of major storm events.

141. For example, Natural Resources Canada (NRCan) disputed Bilcon's claim that the Whites Point quarry would be in effect "dry mining" and presented an alternative view of the way groundwater moves in the basalt.[251] Where Bilcon had indicated that the water table was confined to the Middle Flow Unit of the basalts and that quarrying would only take place in the Upper Flow Unit, NRCan indicated that it was much more likely that Bilcon would be working with a complex fractured rock aquifer in which flow would not be at all uniform.[252] There would not be a single water table, but instead many different water levels throughout both flow units.[253] NRCan also critiqued Bilcon's research approach as being inadequate to delineate this sort of fractured aquifer, and indicated the information that would be

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[248] **R-212**, JRP Report, p. 34.

[249] **R-579**, EIS – Volume VI, Chapter 9.1.3, p. 28.

[250] **R-581**, Whites Point Quarry & Marine Terminal, Revised Project Description (Nov. 1, 2006) ("Revised Project Description"), Appendix 1, Whites Point Quarry EIS - Water Budget Details Summary, p. 3.

[251] **C-387**, Natural Resources Canada's Submission for the Whites Point Quarry and Marine Terminal Project (Jun. 12, 2007).

[252] **C-159**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 6, Volume 6 (Jun. 22, 2007) ("JRP Hearing Transcript, Day 6"), p. 1218.

[253] **C-159**, JRP Hearing Transcript, Day 6, p. 1219.

needed to properly assess environmental effects.[254] Based on the information presented by NRCan, the quarry would likely intersect many water-bearing fractures and would in effect act as a giant pumping well.[255]

142. NRCan further indicated that quarry operations could be expected to impact groundwater recharge, drainage at the quarry, groundwater levels, seepage from quarry walls, well yields, discharge to surface waters, and groundwater quality.[256] It therefore recommended that Bilcon should provide worst-case scenario estimates of the effects of drainage activities on groundwater levels, well yields, and discharge.[257]

143. The Nova Scotia Department of Environment and Labour (NSDEL) agreed with some aspects of the NRCan analysis[258] and stated that as it was apparent that Bilcon's activity would intersect with water tables at different levels, this would require specific approval from NSDEL and that more information would be required to construct a more accurate groundwater model.[259] When asked specific questions about the water budget or about the likely performance of the constructed wetland, NSDEL indicated that it would be looking for more detailed information at this later stage.[260] When asked by the Panel about the likely effectiveness of the proposed constructed wetland in treating effluent from the sediment ponds, NSDEL again referred to the detailed evaluation that would take place during the Stage V approval process, subject to the approval of the project.[261]

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[254] **C-159**, JRP Hearing Transcript, Day 6, pp. 1229-30.

[255] **C-159**, JRP Hearing Transcript, Day 6, p. 1229.

[256] **C-159**, JRP Hearing Transcript, Day 6, p. 1227.

[257] The possible effects of the project on domestic wells, both quality and quantity, was raised as an issue during the assessment but is not covered in this Report.

[258] **C-159**, JRP Hearing Transcript, Day 6, p. 1256.

[259] **C-159**, JRP Hearing Transcript, Day 6, p. 1261.

[260] **C-158**, Whites Point Quarry and Marine Terminal Public Hearing Transcript, Day 5, Volume 5 (Jun. 21, 2007) ("JRP Hearing Transcript, Day 5"), p. 1034.

[261] **C-158**, JRP Hearing Transcript, Day 5, p. 1014.

144. In addition to the dewatering concern, Environment Canada expressed concern over the ability of Bilcon's surface water management plan to handle extreme weather events. At the hearing Environment Canada noted that it was necessary to consider the change in the future frequency and intensity of weather extremes. Recent research indicated that the return interval for extreme events was decreasing, and that by the end of the century a 100-year event could become a 50-year event.[262] It also noted that the proponent had not provided information about the extreme rainfall threshold on which its designs were based.[263] Further, Bilcon proposed to begin the drawdown of the sediment retention pond water at least 72 hours prior to a forecasted major storm. However, Environment Canada only issued severe weather warnings 12 to 24 hours in advance of a predicted event and a worded forecast for rainfall amounts is issued no more than 48 hours in advance.[264]

145. This issue – surface water management – provides a good example of the tensions inherent in a panel review process. On the one hand, a proponent must respond fully to EIS guidelines and provide a relatively complete project description to predict the full range of impacts requested, including worst-case scenarios for accidents and malfunctions. On the other hand, the assessment process is intended to be iterative to a certain extent. Interveners or panel members may raise issues and concerns, and the proponent may need to adjust their proposal to address those issues.

146. In this instance, Bilcon began by claiming that it would be carrying out "dry mining."[265] The first project description submitted did not discuss sediment pond storage requirements. In response to information requests the revised project description indicated that sediment ponds would be about 4.0 metres in depth in

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[262] **C-158**, JRP Hearing Transcript, Day 5, p. 914.

[263] Bilcon rectified this in Undertaking 4 but only at the very end of the process, too late to be addressed at the hearing. See, **R-598**, Bilcon of Nova Scotia, Undertaking #4 (Jun. 27, 2007).

[264] **C-158**, JRP Transcript, Day 5, p. 914.

[265] **R-579**, EIS – Volume VI, Chapter 9.1.3, p. 28.

order to store sediments (up to 1 metre), process water, and stormwater.[266] By the end of the hearing it seemed very likely that the process of quarrying would intersect with various water tables,[267] and in an undertaking response Bilcon's surface water management proposals had been changed to include a sediment forebay in one of the ponds to reduce accumulation of sediments in the other ponds, a plan to divert drainage from an undeveloped portion of the site in the event of a storm, and also a plan to drawdown water in the sediment ponds in advance of a forecasted storms.[268] Environment Canada questioned how effective preventative drawdown of water levels could be as a mitigation measure given that advance warnings of such storms are usually only provided 12 to 24 hours ahead.[269] Neither in the EIS, nor in the undertaking response that addressed surface water management, did Bilcon provide any predictions for the impact of a worst-case sediment pond overflow event. The undertaking response was submitted on Day 10 of the hearings which meant that it was essentially too late for the Panel and interveners to discuss this information at the hearing.

147. Based on my past experience, I would not be persuaded by NSDEL's suggestion that a more complete hydrologic budget, with more extensive groundwater modeling to address the different picture of a complex fractured aquifer presented by NRCan, and a detailed surface water management plan would address all concerns through the stage V approval process. In my view, this would ignore the purpose of a panel review. The environmental review process, through the EIS Guidelines, clearly laid out the information required and gave the panel the mandate to address surface water management, and surface and marine water environmental effects, including those of accidents and malfunctions, during the review – and not to assume that missing elements would simply picked up

[266] **R-581**, Revised Project Description, Fig. SP2, p. 79.

[267] The contribution of groundwater to surface drainage was not quantified.

[268] **R-598**, Bilcon of Nova Scotia, Undertaking #4 (Jun. 27, 2007).

[269] **C-158**, JRP Transcript, Day 5, p. 914.

afterwards. The panel is required to determine the environmental effects of the project, not to defer the task to some other body at some other time.

148. In the end, while the Panel did not make a significance determination with respect to surface water management, it clearly had concerns about this aspect of the project and the risk it presented of deleterious effects of sedimentation and blasting residues on the marine environment. However, I highlight this as an example of the JRP's concerns regarding the effects of malfunctions and accidents that the panel was obliged to consider in its review – concerns that would have existed even in a NAFTA compliant JRP report.

4.3.3. Sustainable Development

149. One of the main purposes of *CEAA*, as stated in s. 4(b) is "to encourage responsible authorities to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy."[270] This is reflected in the s. 16(2) requirement incumbent on every review panel to consider "the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future."[271]

150. In this regard, panels have taken the approach of providing advice to government relating to question of the sustainability of a project and the equitable balancing of the costs and benefits of a project, both environmental and socio-economic. For example:

- A decade before the Whites Point JRP Report, the Voisey's Bay Mine and Mill Project JRP, which I chaired, addressed "The Project and Sustainable Development" in its 1999 Report.[272] The panel drew conclusions relating

[270] **R-1**, *CEAA*, ss. 4(b).

[271] **R-1**, *CEAA*, ss. 16(2)(d).

[272] **R-351**, *Voisey's Bay Mine and Mill Environmental Assessment Panel Report* (Mar. 1999), Chapter 2, pp. 6-11.

to ecosystem integrity, biodiversity and renewable resources, and to durable and equitable social and economic benefits.

- In my more recent experience as a panelist on the Lower Churchill Hydroelectric Generation Project JRP, after reaching our conclusions regarding the significance of the project's residual effects, we prepared concluding remarks that were intended to "provide assistance to decision makers based on the Panel's lengthy and detailed involvement with the proposed Project over the past two and a half years, and invaluable experience in being able to engage in a dialogue with the (sic) Nalcor and a wide range of review participants during the hearing."[273] The principle that underpinned this advice on the Lower Churchill project was the Panel's belief that: "[t]he effects, risks and uncertainties of the Project should be fairly distributed among affected communities, jurisdictions and generations, and the project should result in net environmental, social and economic benefits."[274]

- Two years after the Whites Point JRP submitted its Report, the JRP for the Mackenzie Gas Project provided similar advice in a chapter entitled *"Sustainability and Net Contributions."*[275]

151. In keeping with its *CEAA* mandate, the Whites Point JRP made clear in the EIS Guidelines that it would "consider the Project's contribution towards achieving sustainability" and laid out the criteria it would use to assess this contribution.[276] In my opinion, a panel may comment on any matter related to its mandate under the pertinent legislation and its Terms of Reference that, in the panel's opinion, is

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[273] **R-414**, *Report of Joint Review Panel*, Lower Churchill Hydroelectric Generation Project, Nalcor Energy, Newfoundland and Labrador [excerpt], p. 269.

[274] **R-414**, *Report of Joint Review Panel*, Lower Churchill Hydroelectric Generation Project, Nalcor Energy, Newfoundland and Labrador [excerpt], p. 270.

[275] **R-415**, *Mackenzie Gas Project, Foundation for a Sustainable Northern Future, Report of the Joint Review Panel* (Dec. 2009), Chapter 19, pp. 585-620.

[276] **R-210**, EIS Guidelines, s. 3.3, pp. 10-11.

relevant to the question of whether a project which is likely to cause a significant adverse environmental effect is justified in the circumstances. In the Whites Point context this means that the JRP could choose to reflect on the purpose of and need for the project, alternatives to the project and alternative means of carrying out the project, the nature and sensitivity of the surrounding area, the benefits of the project, and all of the adverse environmental effects that the JRP identified, whether or not they were determined to reach the threshold of significance. To this end, the Whites Point JRP's Report described how the JRP applied the guiding principles of sustainable development in the EIS Guidelines, to its consideration of the project.

152. For example, the Report noted that the "EIS did not address the fundamental question of whether the Project will deliver long-term improvements to community sustainability."[277] It also included Tables 3-1 and 3-2 which described how, in the Panel's opinion, the benefits and burdens of the project would be distributed (locally, regionally, nationally, or internationally).[278] The JRP concluded that "the Proponent's approach to sustainable development does not adequately account for the region's identified strategies for sustainability" and that the EIS "did not consider how benefits derived from the Project over its lifetime might be used to create long-term sustainable employment opportunities while simultaneously maintaining a healthy and resilient environment."[279]

153. The JRP later concluded, in response to the question of whether "the Project makes a net contribution to sustainability" that "[g]iven the limited economic and social benefits of the Project to the local communities, the province, and the country, the Panel found the Project should not proceed in a situation where endangered species and a local way of life would be at risk due to project effects."[280]

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[277] **R-212**, JRP Report, p. 91.

[278] **R-212**, JRP Report, Tables 3-1 and 3-2, pp. 97-98.

[279] **R-212**, JRP Report, p. 91.

[280] **R-212**, JRP Report, p. 103.

154. In this Report I have set out my view that it would be reasonable for a JRP, if required to revisit the findings in the Whites Point JRP because of the NAFTA breach, and on the basis of the public record, to find that the project would likely result in specific significant adverse environmental effects under *CEAA*. In light of this finding I also believe that:

- It would have also been reasonable for a JRP to carry out a sustainability analysis of the project and to provide that analysis to government decision-makers as advice;

- Adequate notice of this approach was provided to proponent;

- The approach that was taken by the Whites Point JRP on the issue of sustainability was reasonable and consistent with the practice of other JRPs;

- The list of project benefits identified by the panel in Table 3-1 is a fair representation of the project benefits put forward by the proponent;

- The presumably stable employment base generated by the project (34 direct jobs and 6.5 indirect jobs) during operations would provide substantial opportunities over 50 years in a rural area;

- The JRP heard many concerns expressed about the potential impacts of the project on the fisheries and on tourism, and my own conclusions regarding possible effects on the North Atlantic right whale and the American lobster raise the distinct possibility that other jobs might be lost, or other economic development opportunities precluded as a result of the project. It is possible that the number of jobs lost or not created could even have exceeded the number of jobs at the quarry. But I draw no conclusions about that;

- The need for the project appears to have been presented by Bilcon in terms of its corporate requirements for a reliable and affordable source of aggregates,[281] whereas I believe that sustainable development criteria requires the need to be defined in a broader societal context. The aggregate would not be used to supply Nova Scotian or Canadian requirements, therefore the role of the project in this context would be to provide economic development in rural Digby County;

- Based on the panel's list of benefits and impacts, there would appear to be a solid factual basis for concluding that the project would not contribute to sustainable development. On this basis, it would be reasonable to conclude that the likely significant adverse environmental effects of the project would not be justified in the circumstances. It would also be reasonable for a panel to make a general recommendation that responsible authorities under *CEAA* should not exercise their power, duty, or function to approve the project.

SIGNED at Halifax, NS
June 9, 2017

Lesley Griffiths

Lesley Griffiths

[281] **R-578**, EIS – Volume V, Chapter 7.1, p. 5.

ANNEX I – CURRICULUM VITAE

Lesley Griffiths

Lesley Griffiths B.A. Hons, B. Des, M.L.S.
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Lesley Griffiths is a freelance environmental consultant. Until 2011 she was Co-Principal of Griffiths Muecke, a firm founded in 1980 to provide consulting services in the areas of consultation and consensus-building processes, environmental impact assessment, resource management, and community development. From 2011 until January 2013 she held the position of Executive Director at East Coast Environmental Law (www.ecelaw.ca), a non-profit organization founded in 2007 to provide public access to environmental law information and advice and promote the development of progressive environmental legislation. Over the last twenty years, Lesley has been appointed to chair five major federal-provincial environmental review panels, and to lead the Fundy Tidal Energy Strategic Environmental Assessment.

As an environmental and community planning consultant Lesley developed extensive experience relating to coastal and offshore planning and assessment processes, stakeholder involvement and facilitation, recreation and tourism planning, and community development. She developed and implemented information and consultation strategies for a wide range of projects including community and social planning, community economic development, resource developments, and various types of waste management. Lesley is also an experienced and effective facilitator, having led numerous workshops, community liaison committees and stakeholder advisory groups.

Lesley has extensive experience in environmental assessment from the perspectives of decision-makers, proponents and communities. In 2012-13 she chaired a federal-provincial panel (subsequently disbanded when the proponent withdrew from the hearings) to review a proposed mine in Marathon, Ontario. She co-chaired the federal-provincial review panel for the Lower Churchill Hydroelectric project, submitting the final Report in August 2012. In 2007-8 she served as Process Lead for the Fundy Tidal Energy Strategic Environmental Assessment. In 2005 she was appointed Chair of the Sydney Tar Ponds Environmental Review Panel (completed July 2006). In 1997-99 she chaired the federal-provincial review panel for the environmental assessment of the Voisey's Bay Mine and Mill Project in northern Labrador, and in 2003 she was appointed Chair of a provincial panel to review the TransLabrador Highway Phase III project. Lesley was also a review panel member under EARP for the original Halifax Harbour Clean-up

project and co-chaired the Minister's Task Force on Clean Air in 1992, producing Nova Scotia's first air quality management strategy.

In 2014 Lesley facilitated a 20-person Stakeholder Roundtable for the Nova Scotia Independent Aquaculture Regulatory Review process. She is currently collaborating with A. L. Arbic Consulting on a public consultation process, *"Let's Talk Libraries: Reimagine Your Public Library",* for the Halifax Public Library.

Education

- B. Design Environmental Planning (1979), Nova Scotia College of Art and Design
- Master of Library Service (1973), Dalhousie University
- B.A (Honours) English (1970), University of Birmingham, England

Professional Memberships

- Formerly a member of the Canadian Institute of Planners, Atlantic Institute of Planners, and the International Association for Public Participation

Projects

Community and Stakeholder Consultations, Public Participation

- Facilitator, Stakeholder Roundtable, NS Independent Aquaculture Regulatory Review (Client Independent Review Panel)
- Facilitation and report preparation for workshop on agricultural land use planning issues (Client: Nova Scotia Federation of Agriculture)
- Cumulative Environmental Effects of Surface Coal Mining in Cape Breton Regional Municipality (Client: NS Environment and Labour)
- Saint George's Parish Hall, Community and Congregation Consultation (Client: Saint George's Parish)
- Five Island Lake Community Liaison Committee, contaminated site communications and consultation services (Client: NS Department of Transportation and Public Works)
- Cape Breton Trails for Tourism Strategy (Client Economic Planning Group and Enterprise Cape Breton Corporation)
- Provincial consultation on the Strategy for Physically Active Children and Youth (Client: Martell Consulting and Nova Scotia Sport and Recreation Commission)
- Voluntary Sector Initiative: federal consultation process with non-profit sector (Client Metro United Way and Voluntary Sector Initiative Secretariat)
- Deep Panuke Project: consultation and information program (Client: Jacques Whitford and EnCana)
- Halifax Harbour Solutions Project, treatment plant siting consultation process (Client: HRM Harbour Solutions)
- Minister's Task Force on Regionalized Health Care, public meeting facilitation (Client: NS Department of Health)
- TransMaritime Pipeline Project, public notification and consultation program (Client: Dillon Consulting and TransCanada Pipelines)

- Metro United Way Client Consultations (Client: Metro United Way)
- Highway 104 Community Liaison Committee (Client: NS Department of Transportation and Public Works)
- Beechville-Lakeside-Timberlea Transportation Study (Client: NS Department of Transportation and Public Works)

Environmental Impact Assessment

- Review of Environmental Assessment Best Practice (Client: NS Environment and Verterra)
- Blue Atlantic Transmission System Project, consultation and information program (Client: Jacques Whitford and El Paso)
- Sable Offshore Energy Inc. Environmental Effects Monitoring Advisory Group, facilitation and consulting services (Client: ExxonMobil)
- Lower Churchill Hydro Project: Stakeholder workshop to scope out potential environmental impacts (Client: Newfoundland and Labrador Hydro)
- Sable Offshore Energy Project: Status of Follow-up, case study (Client: Mobil Oil Limited)
- Low Level Flying Compliance Monitoring Follow-up Workshop, expert panel (Client: Department of National Defence)
- Georges Bank Review, design and facilitation of community information workshops (Client: Georges Bank Review Panel)
- HMCS Queen Charlotte Naval Reserve Facility: Socioeconomic Screening (Client: Department of National Defence)
- The Environmental Impact Statement on Military Flying Activities in Labrador and Quebec, preparation of community review (Client: Town of Happy Valley-Goose Bay)
- Brookfield Cement Plant and Community Liaison Committee, facilitation and consulting services to community committee reviewing hazardous wastes project (Client: Lafarge Canada)

Community Development, Urban Design and Tourism and Recreation Planning

- Gold River Land Use and Development Plan (Client: Acadia First Nation)
- Preston Area Trails Association trails concept plan (Client: PATA)
- Women in Nova Scotia: Mental Illness and the Criminal Justice System, A Qualitative Review (Client: Elizabeth Fry Society)
- Centre for Sustainability and Youth Leadership: Needs Assessment (Client: HRM)
- Halifax Regional Trails Advisory Team Workshop and Evaluation (Client: HRM)
- HRM Capital District Task Force Urban Design project (Client: Gordon Ratcliffe Landscape Architects and HRM)
- Liverpool Waterfront Development Plan (Client: Region of Queens Municipality)
- Medway Lights Tourism Development Plan (Client: Region of Queens Municipality)

- Pennant Point Park Business Plan — sustainable strategy for park co-management (Client: Greater Chebucto Community Development Association)
- District of Chester Trail Development Project (Client: District of Chester)
- Hubbards Waterfront Development, public consultation process and feasibility study (Client: Hubbards Waterfront Development Corporation)
- Coastal and Rural Communities Conference Planning Project (Client: Praxis and NS Department of Education)
- Dartmouth Multi-Use Trail and Banook Shoreline Improvements Project (Client Gordon Ratcliffe Landscape Architects and City of Dartmouth)
- Queens County Tourism Signage Project (Client: Region of Queens Municipality)
- Crescent Beach Development Plan, Lockeport (Client: Town of Lockeport)

Waste Management

- Evaluation of Education and Public Awareness Programs (Client: RRFB)
- Facilitation of "Getting to 300kg" Waste Reduction and Diversion Workshop (Client: RRFB)
- Hazardous Waste Management: review of legislation and policy across Canada (Client: NS Department of Environment and Labour)
- Contaminated Sites Management: review of legislation and policy (Client: NS Department of Environment and Labour)
- Crane Mountain Landfill Site Consultation (Client: Fundy Solid Waste Commission, New Brunswick)
- Halifax Harbour Solutions Symposium — stakeholder consultation (Client: HRM)
- Environmental Management Information and Training for Small and Medium Enterprises (Client: Environment Canada)
- Waste Reduction and Recycling Plan for CFB Halifax (Client: Jacques Whitford and CFB Halifax)
- Situation Analysis of Recycling in Nova Scotia (Client: RIS Limited, NS Department of Environment and Ontario Multi Material Recycling Inc)
- Waste Exchange in Atlantic Canada: Feasibility Study (Client: Owen Washburn and Associates Limited and Environment Canada)

Other Projects

- Offshore Oil and Gas Environmental Effects Monitoring: organization of international scientific conference at BIO (Client: Fisheries and Oceans Canada)
- Business and the Environment - *The Bottom Line.* Development and delivery of a training workshop for business advisors (Client: Environment Canada)
- *Design Guidelines for Media Accessibility*, — manual for Parks Canada addressing accessibility issues in parks and historic sites for persons with disabilities (Client: GDA Limited and Parks Canada)
- Environmental Impacts of Aquaculture Workshop, organization of national event (Client: Environment Canada)

Appointments and Volunteer Positions

- Chair, Milton Logistics Hub Review Panel, established for the joint process for the review between *CEAA* and the Canadian Transportation Agency (2016-ongoing)
- Member, Futuring Team, St John's United Church (2006-2014), Co-chair, Transition Team (2015-present). Presbyter, Halifax Presbytery (2015-present)
- Co-Chair, Federal-Provincial Review Panel, Lower Churchill Hydroelectric Project (2009 – 2011)
- Chair, Federal-Provincial Review Panel, Sydney Tar Ponds (2005-06)
- President, Halifax Rowing Club (2004-2007)
- Chair, Environmental Review Panel, TransLabrador Highway Phase III (2003-4)
- Vice President, Clean Nova Scotia (2000-2005)
- Chair, Federal-Provincial Review Panel, Voisey's Bay Mine and Mill, Labrador (1997-99)
- Advisory Committee, School of Resource and Environmental Studies (1994-98)
- Co-Chair, Minister's Task Force on Clean Air (1991-93)
- Member, Federal Provincial Review Panel, Halifax Harbour Project (1991-1992)