

# Case Comment: A (Pre)Cautionary Tale about the Kearl Oil Sands Decision

## The Significance of *Pembina Institute for Appropriate Development et al. v. Canada (Attorney-General)*<sup>1</sup> for the Future of Environmental Assessment

---

Dr. Nathalie J. Chalifour<sup>2</sup>

*In Pembina, the Federal Court reviewed a Joint Panel Report evaluating the environmental impacts of the Kearl Oil Sands project. The case received considerable attention for its laudable finding that the Panel should have provided reasons to support its conclusion that the project's proposed GHG emissions would be insignificant. However, this paper critiques the decision for accepting the Panel's reliance upon future, uncertain mitigation measures and recommendations as a basis for finding that the various environmental impacts – including GHG emissions, but also impacts upon water, land, wildlife and human health – would be insignificant. The author respectfully argues that the Court gave too broad an interpretation to the concept of “technically feasible” mitigation measures, given the high degree of uncertainty involved. The author also posits that the*

*Court failed in its duty to apply the precautionary principle in environmental assessment, as now mandated in the CEEA. The Court justified the Panel's reliance upon measures and recommendations with uncertain outcomes as appropriate mitigation of environmental impacts by relying upon the concept of adaptive management as a counter to the precautionary principle. The author argues that the Court erred in doing so. Application of the precautionary principle is a legislated duty that reduces the threshold of uncertainty that panels may tolerate in assessing environmental impacts. While adaptive management is a concept that can be applied in the implementation of follow-up programs, it is not an appropriate substitute for the duty to apply the precautionary principle.*

---

*Dans Pembina, la Cour fédérale a révisé le rapport d'un comité d'examen conjoint évaluant les effets environnementaux du projet d'exploitation des sables bitumineux Kearl. La décision a été reconnue pour sa conclusion que le comité aura dû offrir une justification pour la détermination que les émissions de gaz à effet de serre (GES) anticipé ne seront pas importantes. Cependant, cet article critique le fait que la cour s'est fiée aux recommandations et des mesures d'atténuation incertaines pour conclure que les effets environnementaux du projet – y inclut les émissions de GES mais aussi les effets sur l'eau, la terre, la faune et la flore, et la santé humaine – ne seraient pas importantes. Je prétends respectueusement que la Cour a accordé une interprétation trop*

*large à ce qui est réalisable sur le plan technique pour les mesures d'atténuation étant donné l'incertitude qui était présente. En outre, je prétends que la Cour n'a pas bien appliqué le principe de précaution qui est maintenant obligatoire dans la LCEE. La Cour s'est fiée à l'idée de la gestion adaptative pour justifier la conclusion du comité en ce qui concerne les mesures incertaines. Je crois que c'était une erreur. L'obligation d'appliquer le principe de précaution réduit le niveau d'incertitude que les comités peuvent tolérer en évaluant les effets environnementaux. La gestion adaptative est pertinente dans le contexte de programmes de suivi, mais n'est pas un substitut pour le principe de précaution.*

---

<sup>1</sup> *Pembina Institute for Appropriate Development v. Canada (Attorney General)*, 2008 FC 302, 323 F.T.R. 297 [Pembina].

<sup>2</sup> Assistant Professor, Faculty of Law, University of Ottawa. The author wishes to thank Gavin Smith (LL.B. candidate, 2011) and Jonathan Laski (LL.B. 2009) for their excellent research assistance. The author also wishes to acknowledge the Law Foundation of Ontario for its research funding relating to this project.

- 
1. INTRODUCTION
  2. BACKGROUND AND CONTEXT
    - 2.1 The Oil Sands
    - 2.2 The Environmental Impact of the Oil Sands
    - 2.3 Human Health Concerns
    - 2.4 Environmental Assessment of Kearl Oil Sands
    - 2.5 Judicial Review Application
    - 2.6 Response to the Judicial Review Decision
  3. THE ROLE OF PRECAUTION IN DEALING WITH UNCERTAINTY IN THE SIGNIFICANCE ASSESSMENT
    - 3.1 Decision Making Process Under the CEAA
    - 3.2 The “Effects, Significance and Mitigation” Trilogy
      - 3.2.1 Environmental Effects
      - 3.2.2 Significance
      - 3.2.3 Mitigation by Technically and Economically Feasible Measures
    - 3.3 The Inclusion of the Precautionary Principle in the CEAA
    - 3.4 Using Adaptive Management to Digress from the CEAA’s Precautionary Mandate
    - 3.5 Three Illustrations
      - 3.5.1 Reclamation
      - 3.5.2 Endangered Species
      - 3.5.3 Cumulative Impacts
  4. SECTION 34(C) – DUTY TO ARTICULATE CONCLUSION AND RATIONALE
    - 4.1 Sequence of Analysis
    - 4.2 Articulation of Conclusion and Rationale
  5. CONCLUSION
-

Environmental assessments are widely understood to be key planning tools which inform decision makers about the potential impacts of projects prior to their approval.<sup>3</sup> As summarized by the Supreme Court of Canada in the *Oldman River* decision, environmental assessment is “a planning tool that is now generally regarded as an integral component of sound decision-making.”<sup>4</sup> The *Canadian Environmental Assessment Act* (“CEAA”) states that environmental assessment is meant “to ensure that projects are considered in a careful and precautionary manner before federal authorities take action in connection with them, in order to ensure that such projects do not cause significant adverse environmental effects.”<sup>5</sup>

Carefully considering projects to ensure that they do not cause significant adverse environmental effects is, however, easier said than done. Evaluating the potential environmental impacts of projects is usually a complex, scientific exercise which often entails some degree of

---

<sup>3</sup> See e.g. Meinhard Doelle, *The Federal Environmental Assessment Process: A guide and critique* (Markham: LexisNexis Butterworths, 2008) at 1 [Doelle]; Jamie Benidickson, *Environmental Law*, 3rd ed. (Toronto: Irwin Law, 2009) at 249-252; William A. Tilleman, “Environmental Assessment” in Elaine L. Hughes, Alastair R. Lucas & William A. Tilleman, *Environmental Law and Policy*, 3rd ed. (Toronto: Emond Montgomery Publications Limited, 2003) [Tilleman]; Paul Muldoon *et al.*, *An Introduction to Environmental Law and Policy in Canada* (Toronto: Emond Montgomery Publications Limited, 2009) at 127-131; Christopher Wood, *Environmental Impact Assessment: A Comparative Review* (New York: Longman Group Limited, 1995) at 1-3 [Wood].

<sup>4</sup> *Friends of the Oldman River Society v. Canada (Minister of Transport)*, [1992] 1 S.C.R. 3 at 71, 88 D.L.R. (4<sup>th</sup>) 1 [*Oldman River*].

<sup>5</sup> *Canadian Environmental Assessment Act*, S.C. 1992, c. 37, s. 4(1)(a) [CEAA].

uncertainty.<sup>6</sup> The fact that most environmental harms will occur at some point in the future and are often difficult to measure in quantifiable, tangible terms, can render them largely invisible, especially in contrast with economic benefits, such as profits, taxes and jobs, which are usually easy to quantify and bear economic fruit in the short term.<sup>7</sup> The high visibility and tangibility of economic benefits as compared to the less visible environmental harms creates a tilted playing field in the overall evaluation of projects.<sup>8</sup>

The precautionary principle has evolved over the last couple of decades as a tool to help decision-makers balance the risks of serious, irreversible environmental damage with more immediate economic goals.<sup>9</sup> The principle, which essentially asks decision-makers to err on the side of caution in the face of uncertain but potentially serious environmental harm, was incorporated into the *CEAA* in 2003.<sup>10</sup> Specifically, the *CEAA* requires that environmental assessment be administered “in a manner that protects the environment and human health and applies the precautionary principle.”<sup>11</sup>

---

<sup>6</sup> There is a great deal written about scientific knowledge, uncertainty and risk assessment in an environmental context. For example, see John S. Applegate, “The Story of Reserve Mining – Managing Scientific Uncertainty in Environmental Regulation” in Richard Lazarus & Oliver Houck, eds., *Environmental Law Stories* (New York: Foundation Press, 2005); Stephanie Tai, “Uncertainty About Uncertainty: The Impact of Judicial Decisions on Assessing Scientific Uncertainty” (2009) 11 U. Pa. J. Const. L. 671. For a broader discussion of uncertainty, see Ann Kinzig *et al.*, “Coping With Uncertainty: A Call for a New Science-Policy Forum” (2003) 32 *AMBIO: A Journal of Human Environment* 330.

<sup>7</sup> For example, consider comparing the environmental harm of the loss of a species to the loss of jobs. While very real, the impacts of the former are very difficult to quantify whereas the loss of jobs are easily translated into numbers that are easy to communicate. There is much written about the valuation and measurability of environmental goods and services. For example, see Nathaniel Keohane & Sheila Olmstead, *Markets and the Environment* (Washington: Island Press, 2007); Jay Anderson *et al.*, *Natural Capital: Using Ecosystem Services Valuation and Market Based Instruments as Tools for Sustainable Forest Management* (Sustainable Forest Management Network) [forthcoming in 2010] (discussing the role of valuation in the context of forest conservation). See also the oft-cited article, Robert Constanza, “The Value of the World’s Ecosystem Services and Natural Capital” (1997) 387 *Nature* 252, in which economist Robert Constanza applies valuation methodologies to estimate the value of nature in dollar terms at \$33 trillion per year, more than the global gross national product.

<sup>8</sup> Examining the question of the precautionary principle in the context of oceans management, VanderZwaag *et al.* note that “Canada has largely wandered towards weak versions of precaution by emphasizing the need for ‘sound science’ and cost-effectiveness, and giving primacy to short-term economic gain” (David L. VanderZwaag, Susanna D. Fuller & Ransom A. Myers, “Canada and the Precautionary Principle/ Approach in Ocean and Coastal Management: Wading and Wandering in Tricky Currents” (2002-2003) 34 *Ottawa L. Rev.* 117 at 156 [VanderZwaag *et al.*, “Currents”]).

<sup>9</sup> The main international expression of the precautionary principle is found in principle 15 of the *Rio Declaration on Environment and Development*, which states that: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (*Rio Declaration on Environment and Development*, UN Conference on Environment and Development, UN Doc. A/CONF.151/26/Rev. 1 (1992), reprinted at 31 *I.L.M.* 874).

<sup>10</sup> See *An Act to Amend the Canadian Environmental Assessment Act*, S.C. 2003, c. 9, s. 2, amending S.C. 1992, c. 37, which received royal assent 11 June 2003.

<sup>11</sup> *CEAA*, *supra* note 5, s. 4(2) [emphasis added].

Although the precautionary principle has been part of international law for over fifteen years and is increasingly found in key pieces of environmental legislation,<sup>12</sup> including the *CEAA*, there is relatively little judicial interpretation of the principle. The Federal Court of Canada's decision in *Pembina Institute for Appropriate Development v. Canada (Attorney General)*<sup>13</sup> is important because it is the first case to offer judicial interpretation of the principle's application in environmental assessment since its inclusion in the *CEAA*.<sup>14</sup> The *Pembina* case was an application for judicial review of a Joint Panel report assessing the environmental impacts of the Kearl oil sands ("KOS") project under the *CEAA*.<sup>15</sup> The Joint Panel created under the *CEAA* to evaluate the project was mandated to assess the environmental effects of the project (including cumulative effects) and determine their significance, taking into account the possibility of measures that can mitigate the significance of the impacts.<sup>16</sup> The panel concluded that the project was not likely to cause significant adverse environmental effects ("SAEEs") – the language used in the *CEAA*<sup>17</sup> – as long as a series of mitigation measures and recommendations were undertaken, and pronounced the project to be in the public interest.<sup>18</sup>

---

<sup>12</sup> See e.g. *Canadian Environment Protection Act, 1999*, R.S.C. 1999, c. 33, preamble, ss. 2(1), 6(1.1), 76.1; *Oceans Act*, S.C. 1996, c. 31, preamble, s. 30.

<sup>13</sup> *Pembina*, *supra* note 1.

<sup>14</sup> There have been other cases of judicial review under the *CEAA* since the principle was added to the *CEAA*, but none of these decisions interpreted the meaning of the principle. See for example, *Miningwatch Canada v. Canada (Minister of Fisheries and Oceans)* 2008 FCA 209, [2009] F.C.R. 21, leave to appeal to S.C.C. granted, [2008] S.C.C.A. No. 393 [*Miningwatch*]. Although it deals with public consultation on scoping of projects and not the precautionary principle, the *Miningwatch* case will be the first opportunity for the Supreme Court to consider the *CEAA*. The *Oldman River* decision, *supra* note 4, dealt with environmental assessment under the precursor to the *CEAA*, the *Environmental Assessment and Review Process Guidelines Order*, S.O.R./84-467 [*EARPGO*].

<sup>15</sup> *CEAA*, *supra* note 5. The environmental assessment was conducted jointly with the province of Alberta following Imperial Oil's application for project approval. Imperial Oil's Kearl Lake undertaking is one of many bitumen extraction projects in the giant swath of oil sands in northeastern Alberta. Oil sand deposits cover 140,000 square kilometres of Alberta, almost twice the size of New Brunswick (Standing Committee on Natural Resources, *The Oil Sands: Toward Sustainable Development* (Ottawa: Communication Canada, 2007) at 4 (Chair: Lee Richardson) [Parliament, *Oil Sands*]. A recent article adds the following: "[t]he oil sands cover an area the size of North Carolina, and the provincial government has already leased around half that, including all 1,356 square miles that are minable. It has yet to turn down an application to develop one of those leases, on environmental or any other grounds" (Robert Kunzig, "The Canadian Oil Boom: Scraping Bottom" *National Geographic* (March 2009) 34 at 49, also available online: National Geographic <<http://ngm.nationalgeographic.com/2009/03/canadian-oil-sands/kunzig-text>>).

<sup>16</sup> *Imperial Oil Resource Ventures Limited: Application for an Oil Sands Mine and Bitumen Processing Facility (Kearl Oil Sands Project) Fort McMurray Area* (27 February 2007), Report of the Joint Review Panel Established by the Alberta Energy and Utilities Board and the Government of Canada, online: ERCB <<http://www.ercb.ca/docs/documents/decisions/2007/2007-013.pdf>> at 7 [*Kearl Joint Review Panel Report*].

<sup>17</sup> See e.g. *CEAA*, *supra* note 5, ss. 20, 37.

<sup>18</sup> *Kearl Joint Review Panel Report*, *supra* note 16 at 1. The public interest determination was made under the *Energy Resources Conservation Act*, R.S.A. 2000, c. E-10, s. 3, which states that the assessing body shall "give consideration to whether the project is in the public interest, having regard to the social and economic effects of the project and the effects of the project on the environment." The *CEAA* does not require reviewers to make a public interest determination.

The range of potential environmental impacts from the KOS project is vast. However, the application for judicial review focused on the panel's findings in three main areas of concern: water and reclamation of land,<sup>19</sup> endangered species, and greenhouse gas ("GHG") emissions. The application claimed that the panel had erred in determining that the various mitigation measures and recommendations would be successful in transforming serious environmental harms into insignificant ones in these three areas of concern, mainly because of the likelihood of implementation of the mitigation measures and recommendations, and uncertainty regarding their effectiveness.

While the court acknowledged the uncertainty surrounding some of the mitigation measures and recommendations, Justice Tremblay-Lamer upheld the panel's finding that these measures and recommendations would mitigate any serious environmental harm from the oil sands project.<sup>20</sup> She justified acceptance of the uncertainty on the basis of adaptive management. While the court acknowledged the newly-legislated obligation to apply the precautionary principle and characterized the principle as a guiding tenet of environmental assessment, Justice Tremblay-Lamer held that the principle of adaptive management is also a guiding tenet, even though adaptive management is only mentioned in the *CEAA* in the context of follow-up programs.<sup>21</sup> She used the concept of adaptive management to counteract the precautionary principle, thus essentially negating the latter's effect. By doing so, the court interpreted the precautionary principle in the *CEAA* in such a narrow way that the decision renders its inclusion virtually meaningless. It will be interesting to see whether future decisions uphold the court's approach, or whether the *Pembina* decision might be distinguished and the legislated obligation to apply the precautionary principle given more weight.

This paper critiques the *Pembina* decision, notably its application of (or failure to apply) the precautionary principle as legislated in the *CEAA*. Specifically, the paper examines the panel's and the court's approaches in dealing with uncertainty, including its interpretation of subsection 16(1)(d) of the *CEAA*, which requires that reviewers consider only mitigation measures that are technically and economically feasible. I argue that the panel erred in relying upon a series of measures and recommendations with uncertain outcomes to determine that the environmental impact would be insignificant. I suggest that the inclusion of the precautionary principle in subsection 4(2) of the *CEAA* required the panel to err on the side of caution in light of such uncertainty, and that the Federal Court should have reviewed the error relating to the precautionary principle on a standard of correctness and found the panel's decision incorrect in this regard. Further, I argue that the court's reliance upon the principle of adaptive management to justify its conclusions is not supportable with regard to subsection 4(2).

The paper is structured as follows. Section 2 summarizes the background and context of the case, including a brief description of the oil sands and their environmental impact,

---

<sup>19</sup> Reclamation refers to the restoration of land disturbed after a mining operation has been completed. It involves revegetating with trees, shrubs, and other plants indigenous to the region and is a process that can take many years (Parliament, *Oil Sands*, *supra* note 15 at 47-48).

<sup>20</sup> The only ground upon which the application succeeded was the panel's explanation for concluding that the project's anticipated GHG emissions would be insignificant. The court found that the panel had failed to provide an adequate explanation to justify its finding. The court's holding is discussed in greater detail in section 4 below.

<sup>21</sup> *CEAA*, *supra* note 5, s. 38(5).

the environmental assessment, and the judicial review application and decision. Section 3 critiques the court's approach to uncertainty and its treatment of the precautionary principle, including its promotion of adaptive management to the level of a guiding tenet of the *CEAA* alongside the precautionary principle. After summarizing the decision making process in the *CEAA*, the paper a) describes what I call the "effects, significance and mitigation" trilogy and analyzes the meaning of technically feasible mitigation measures; (b) discusses the meaning of the precautionary principle in the context of the *CEAA*; (c) critiques the court's use of adaptive management to digress from the precautionary approach; and, (d) concludes section 3 with three examples from the decision where I believe the court erred in its interpretation of the precautionary principle. Section 4 addresses the panel's duty to articulate its rationale and conclusion. I argue that the panel erred in its analysis by blending its conclusions relating to environmental impact, significance and mitigation and not articulating its conclusions clearly in this regard. I also argue that the precautionary principle adds to the obligations in paragraph 34(c), requiring the panel to clearly state its assumptions and findings in relation to all three parts of the trilogy. Section 5 offers some concluding remarks.

## 2. BACKGROUND AND CONTEXT

### 2.1 The Oil Sands

The KOS project is one of several in the Alberta oil sands, an area of oil deposits in north-eastern Alberta covering some 140 000 square kilometres of the province.<sup>22</sup> At the time of writing, there were ninety-one active oil sands projects<sup>23</sup> producing over 1 million barrels of oil each day.<sup>24</sup> This output is expected to triple within ten years, and possibly increase fivefold by 2030.<sup>25</sup> To extract the oil from the deposits, the mix of sand, silt, clay, water and bitumen must either be surface (strip) mined from open pits or heated so the bitumen can be pumped to the surface (*in situ* extraction).<sup>26</sup> The KOS project is an example of surface mining for bitumen.

### 2.2 The Environmental Impact of the Oil Sands

The environmental impact of oil sands extraction is wide-ranging and substantial.<sup>27</sup> With respect to climate change, the oil sands are a major contributor to GHG emissions, producing

---

<sup>22</sup> Parliament, *Oil Sands*, *supra* note 15 at 4.

<sup>23</sup> Government of Alberta, *Alberta's Oil Sands: Facts and Stats*, online: <<http://www.oilsands.alberta.ca/519.cfm>>.

<sup>24</sup> Parliament, *Oil Sands*, *supra* note 15 at 1.

<sup>25</sup> *Ibid.*

<sup>26</sup> "Approximately 80 per cent of Alberta's oil sands are recoverable through in-situ production, with only 20 per cent recoverable by mining. (Government of Alberta, *Alberta's Oil Sands: About the oil sands*, online: <<http://oilsands.alberta.ca/1.cfm>>).

<sup>27</sup> See Parliament, *Oil Sands*, *supra* note 15 at 34-50, describing a number of environmental challenges. See generally, Andrew Nikiforuk, *Tar Sands: Dirty Oil and the Future of a Continent* (Vancouver: Greystone Books for the David Suzuki Foundation, 2008). There are also many reports by environmental organizations concerned about the impacts of oil sands development. See e.g. Dan Woynillowicz, Chris Severson-Baker & Marlo Raynolds, *Oil Sands Fever: The Environmental Implications of Canada's Oil Sands Rush* (Pembina Institute, 2005), online: <<http://pubs.pembina.org/reports/OilSands72.pdf>> [Pembina, *Fever*].

an estimated 29.5 megatonnes annually as of 2008, which represents 12 per cent of Alberta's and 5 per cent of Canada's total GHG emissions.<sup>28</sup> This is estimated by rise up to 67 megatonnes per year by between 2010 and 2015.<sup>29</sup> Relying upon four different scenarios, taking into account improvements in intensity (energy efficiency) and the use of different energy sources, the Pembina Institute (one of the applicants in the case) estimates that the oil sands could produce between 83 and 175 megatonnes of annual GHG emissions by 2030.<sup>30</sup> Meanwhile, the gap between Canada's international Kyoto obligation and its increasing GHG emissions continues to widen.<sup>31</sup> The oil sands are also increasing the level of air pollutants emitted in the region. Ranging from nitrogen oxide ("NO<sub>x</sub>") and sulphur dioxide ("SO<sub>2</sub>") emissions to volatile organic compounds ("VOCs"), these pollutants cause a range of human health and environmental impacts.<sup>32</sup>

With respect to water, oil sands extraction poses further environmental concerns. Large volumes of fresh water, sourced from local ground and surface water, are required to extract the bitumen from the sand.<sup>33</sup> Imperial Oil estimates it will require up to 4.9 cubic meters of water per second for the KOS project, which represents 2.3 per cent of the average annual flow of the Athabasca River.<sup>34</sup> In terms of water quality, the concern is that much of the water used must be diverted into tailings ponds (perhaps better described as lakes due to their size) because they are contaminated with residual sand, bitumen and related contaminants, notably naphthenic acids.<sup>35</sup> One of the many concerns about these tailings holdings is that the contaminants can leach into the groundwater system and surrounding soil and surface water. Technologies to reduce water volume used in bitumen extraction and to treat composite tailings are still in development. For instance, the Parliamentary Report on Oil Sands notes that "[e]xperiments on consolidated tailing did succeed in the reclamation of approximately ten hectares on which a few plants are growing, but could not guarantee the rehabilitation of the boreal forest and natural peat bogs that were there prior to development."<sup>36</sup>

<sup>28</sup> *Canada's Oil Sands: Greenhouse Gas Emissions*, online: <[http://www.canadasoilsands.ca/en/issues/greenhouse\\_gas\\_emissions.aspx](http://www.canadasoilsands.ca/en/issues/greenhouse_gas_emissions.aspx)>.

<sup>29</sup> Parliament, *Oil Sands*, *supra*, note 15 at 38.

<sup>30</sup> Pembina, *Fever*, *supra* note 27 at 20.

<sup>31</sup> Canada's Kyoto target is to cut GHG emissions to 558.4 megatonnes by 2012, which would be six per cent below 1990 levels. In 2007 GHG emissions were 747 megatonnes, which is 26 per cent above 1990 levels (Environment Canada, *Information on Greenhouse Gas Sources and Sinks: Canada's 2006 Greenhouse Gas Inventory – A Summary of Trends*, online: <[http://www.ec.gc.ca/pdb/ghg/inventory\\_report/2007/som-sum\\_eng.pdf](http://www.ec.gc.ca/pdb/ghg/inventory_report/2007/som-sum_eng.pdf)>).

<sup>32</sup> "Why it's called 'dirty oil'", Feature, *CBC Edmonton*, online: CBC <<http://www.cbc.ca/edmonton/features/dirtyoil/dirtyoil.html>>; Dan Woynilowicz, "The Harm the Tar Sands Will Do" *The Tyee* (20 September 2007), online: The Tyee <<http://thetyee.ca/Views/2007/09/20/TarSands/>>. For a general discussion of the human health impacts of air pollution, see Health Canada, *Health Effects of Air Pollution*, online: <[http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/effe/health\\_effects-effets\\_sante-eng.php](http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/effe/health_effects-effets_sante-eng.php)>.

<sup>33</sup> Taking into account water recycling, between two and four and a half barrels of water are required to produce one barrel of synthetic crude oil. Parliament, *Oil Sands*, *supra* note 15 at 42.

<sup>34</sup> This works out to an average of 68 million cubic meters per year (*Kearl Joint Review Panel Report*, *supra* note 16 at 60).

<sup>35</sup> Parliament, *Oil Sands*, *supra* note 15 at 43-44.

<sup>36</sup> *Ibid.* at 44.



Another environmental concern of the oil sands is their impact on the local ecosystem as a result of direct and indirect disturbances. The oil sands projects join an existing patchwork of industrial ventures in the region, including conventional oil, gas, and forestry projects. The result is a fragmented landscape, with degradation of the boreal forest and its wetlands, and impacts on wildlife, including some species at risk such as the yellow rail. One Environment Canada report characterizes the oil sands projects as presenting “staggering challenges for forest conservation and reclamation.”<sup>37</sup> In a stark example of how the oil sands can impact upon biodiversity, some 1600 waterfowl died after landing in a Syncrude tailings pond in April 2008.<sup>38</sup>

Finally, there is a concern about cumulative impacts. The environmental impacts of the oil sands projects are most commonly assessed at a project level. The industrial activity taking place in northeastern Alberta is concentrated both geographically and temporally. The cumulative impact of these major industrial projects on the surrounding boreal forest, the aquifers, the airshed, the rivers, and the local communities’ health is largely unknown. While every environmental concern is important in and of itself, the cumulative impact of all the activity combined must be intelligently evaluated. While the *CEAA* requires reviewers to take into account cumulative effects,<sup>39</sup> there is a great deal of concern about the success of reviews in addressing cumulative impacts.<sup>40</sup>

### 2.3 Human Health Concerns

The oil sands developments have raised numerous human health concerns for nearby residents. The concerns are perhaps best exemplified by the story of Fort Chipewyan, a small community of mostly First Nations located downstream of the oil sands on Lake Athabasca. The community has become concerned about the impact of nearby industrial activity on the health of its residents over the last decade, given the high levels of cancer and other illnesses in the community.<sup>41</sup> In the words of one of the residents, “[i]t used to be that we buried our old people, but now we’re burying the young.”<sup>42</sup>

There is no known study concretely linking the cancer and illness rates in Fort Chipewyan to oil sands or other industrial activity. However, a 2008 study by Alberta Health Services

---

<sup>37</sup> Environment Canada, *Western Boreal Conservation Initiative – Background* (2004), at 2; cited in Pembina, *Fever*, *supra* note 27 at 36.

<sup>38</sup> Jeffery Jones, “Syncrude duck deaths now triple initial tally” *Reuters* (31 March 2009), online: Reuters <<http://www.reuters.com/article/environmentNews/idUSTRE52U6Q920090331>>.

<sup>39</sup> *CEAA*, *supra* note 5, s. 16(1)(a).

<sup>40</sup> The Cumulative Environmental Management Association (“CEMA”) was created as a multi-stakeholder group to help identify cumulative impacts of oil sands. The CEMA has been widely criticized for being ineffective, perhaps due to the fact that its members have varying perspectives and it works using a consensus-approach. Parliament, *Oil Sands*, *supra* note 15 at 35-36. See also CEMA, online: <<http://www.cemaonline.ca>>.

<sup>41</sup> Nearby industrial development includes Uranium City, source of the majority of the world’s enriched uranium, located on the shore of Lake Athabasca, pulp and paper mills, and, of course, the oil sands developments taking place upstream.

<sup>42</sup> Jasmine Budak, “The Sickness” *Up Here: Explore Canada’s Far North*, online: <<http://www.uphere.ca/node/254>>, quoting Fort Chipewyan resident Steve Courtoreille.

showed that the number of cancer cases observed in the community is indeed higher than expected for all cancers combined and for specific types of cancer.<sup>43</sup> Unfortunately, despite the very serious concerns voiced by the residents of Fort Chipewyan about the potentially life-threatening impacts of oil sands developments, the province has said that it will not examine the potential link between the pollution caused by the oil sands and other industrial activity and the health of these local citizens.<sup>44</sup>

## 2.4 Environmental Assessment of Kearn Oil Sands

In 2005, Imperial Oil applied to the *Alberta Energy and Utilities Board*<sup>45</sup> and the provincial environment department for approval of its proposed KOS project as per the *Oil Sands Conservation Act*.<sup>46</sup> Included with its application was an environmental impact statement as required by Alberta's *Environmental Protection and Enhancement Act*.<sup>47</sup> Because the KOS project required authorization under subsection 35(2) of the *Fisheries Act*<sup>48</sup> for causing harm to fish habitat, the *CEAA* was triggered.<sup>49</sup> Given the magnitude of the potential impacts, the federal government referred the environmental assessment to a review panel, which was conducted in collaboration with the province of Alberta.<sup>50</sup>

---

<sup>43</sup> Alberta Cancer Board, *Cancer Incidence in Fort Chipewyan, Alberta: 1995-2006* by Yiqun Chen, online: <<http://www.albertahealthservices.ca/files/rls-2009-02-06-fort-chipewyan-study.pdf>> at 8 [*Alberta Cancer Board Study*].

<sup>44</sup> After the findings of the *Alberta Cancer Board Study*, *ibid.* were released, Dr. Tony Fields, head of Alberta's cancer services, stated the following: "Can we rule out that environment is involved? No, we can't because there is nothing in our study that has gone that far that we can even examine the risk. I'm not saying the environment doesn't require study, but I'm saying that what we have seen so far would be insufficient evidence to launch a study on the environment based on cancer risk" (Jodie Sinnema & Hanneke Brooymans, "Alta. community near oilsands has elevated cancer rates: study" *Calgary Herald* (6 February 2009)), online: <[http://www.calgaryherald.com/story\\_print.html?id=126282](http://www.calgaryherald.com/story_print.html?id=126282)>).

<sup>45</sup> Now the Alberta Energy Resources Conservation Board.

<sup>46</sup> *Oil Sands Conservation Act*, R.S.A. 2000, c. O-7, ss. 10-11.

<sup>47</sup> Imperial Oil Resources Ventures Limited, *Kearn Oil Sands Project – Mine Development* (July 2005), online: CEAA <<http://www.ceaa-acee.gc.ca/050/Document-eng.cfm?DocumentID=18778>>. The environmental impact assessment was submitted as required under *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12, s. 44(1), 50.

<sup>48</sup> *Fisheries Act*, R.S.C. 1985, c. F-14, s. 35(2).

<sup>49</sup> *CEAA*, *supra* note 5, ss. 5, 59.

<sup>50</sup> Section 25 of the *CEAA*, *ibid.* governs the creation of review panels. The mechanisms for conducting joint environmental assessments are established by the *Canada-Alberta Agreement on Environmental Assessment Cooperation (2005)*, online: CEAA <[http://www.ceaa.gc.ca/010/0001/0003/0001/0001/2005agreement\\_e.htm](http://www.ceaa.gc.ca/010/0001/0003/0001/0001/2005agreement_e.htm)>.

The Joint Review Panel convened for this environmental assessment was comprised of three members: J.R. Nichol, T. McGee and L. Cooke.<sup>51</sup> The Panel considered an enormous amount of information, ranging from hundreds of pages of environmental impact statements, to the oral and written submissions of many stakeholder groups. After holding public hearings for a total of sixteen days in Fort McMurray, Nisku and Edmonton in November 2006, it issued its 116 page report in February 2007. The report concluded that “the KOS Project is not likely to cause significant adverse environmental effects, provided that the proposed mitigation measures and the recommendations of the Joint Panel are implemented.”<sup>52</sup> The Panel acknowledged a “lack of certainty related to the management of cumulative impacts for key environmental parameters” and noted that it was deeply concerned “by the inability to establish and maintain priority for critical issues such as the Watershed Management Framework for the Athabasca River ...” and “the capacity of CEMA to complete the management frameworks that have been assigned to it.” However, in what appears to be a leap of faith that uncertainty will resolve in favour of environmental protection and recommendations and mitigation measures will be implemented, the Panel concluded that the KOS Project was not likely to cause SAEEs.<sup>53</sup>

## 2.5 Judicial Review Application

In March 2007, four environmental groups<sup>54</sup> filed a Notice of Application for judicial review of the Joint Panel’s report.<sup>55</sup> The grounds for the application were numerous, but included

---

<sup>51</sup> John Nichol was a board member of the Alberta Energy and Utilities Board (“EUB”, precursor to the Energy Resources Conservation Board). He was the executive manager of the EUB’s Compliance and Operations Branch and had been with the EUB since 1970. Energy Resources Conservation Board, News Release, NR 2001-44 “Two New Board Members Appointed to the Alberta Energy and Utilities Board” (19 December 2001), online: ERCB <[http://www.ercb.ca/portal/server.pt/gateway/PTARGS\\_0\\_240\\_2546831\\_0\\_0\\_18/](http://www.ercb.ca/portal/server.pt/gateway/PTARGS_0_240_2546831_0_0_18/)>.

Tom McGee was also an EUB board member. He is now a commissioner with the Alberta Utilities Commission. National Association of Regulatory Utility Commissioners, *Alberta Utilities Commission*, online: <<http://www.naruc.org/commissions2.cfm?s=2>>.

Les Cook was the federal member of the panel. He has “more than 35 years of strategic policy and planning, program management and executive experience with the Governments of Saskatchewan and Alberta, and most recently, with provincial governments of South Africa. Mr. Cooke has held executive positions focused on economic development, strategic policy and planning and natural resources and environmental management.” Canadian Environmental Assessment Agency, *Background: The Kearl Oils Sands and the Muskeg River Mine Expansion Projects Joint Review Panel*, online: <[http://www.ceaa-acee.gc.ca/050/05/nominations-eng.cfm?cear\\_id=16237](http://www.ceaa-acee.gc.ca/050/05/nominations-eng.cfm?cear_id=16237)>.

<sup>52</sup> *Kearl Joint Review Panel Report*, *supra* note 16 at 1.

<sup>53</sup> *Ibid.* at 4-5.

<sup>54</sup> Namely, the Pembina Institute for Appropriate Development, Prairie Acid Rain Coalition, Sierra Club of Canada and Toxics Watch Society of Alberta. See *Pembina Institute for Appropriate Development et al v. AGC et al* Notice of Application, (March 29, 2007) FCC T-535-07, also available online: Ecojustice <[http://www.ecojustice.ca/media-centre/media-release-files/kearl\\_application\\_mar2907.pdf](http://www.ecojustice.ca/media-centre/media-release-files/kearl_application_mar2907.pdf)> [*Notice of Application*].

<sup>55</sup> *Notice of Application*, *ibid.* at paras. 1(a), 1(d). The application sought numerous orders, including a declaration that the panel’s report failed to comply with the *CEAA* and an order prohibiting the Minister of Fisheries and Oceans from issuing any authorizations for the project under the *Fisheries Act*.

alleged errors in law and/or jurisdiction for failing to meet the duties imposed by subsection 4(2) of the *CEAA* (the precautionary principle), failing to consider the factors listed in subsections 16(1) and 16(2) of the *CEAA* (for example by incorrectly interpreting the terms “mitigate” and “mitigation” as used in the *CEAA* and by incorrectly or unreasonably relying on uncertain future actions by the federal and provincial governments to mitigate the SAEs of the project).<sup>56</sup> At the heart of the complaint was a concern that the mitigation measures were insufficient and that the panel should have reasonably concluded that the project *would* cause SAEs, thus leaving the government to make the policy choice of whether to approve the decision regardless of its environmental impacts.

The Federal Court heard the application and issued its reasons a year later, on 5 March 2008.<sup>57</sup> Justice Tremblay-Lamer narrowed the applicants’ allegations to two possible errors: (1) failing to consider the factors in subsections 16(1) and (2) of the *CEAA* by relying on mitigation measures that were not technically and economically feasible and (2) failing to provide a rationale for its recommendations as per subparagraph 34(c)(i) of the *CEAA*.<sup>58</sup> In narrowing the issues this way, she decided not to directly address the alleged error in law claimed by the applicants under subsection 4(2) relating to the precautionary principle. This choice is very significant, given the mandatory language of subsection 4(2). By not choosing to treat subsection 4(2) as indicating a possible error which would have been reviewable on a standard of correctness,<sup>59</sup> she relegated the precautionary principle to a tool of statutory interpretation that lurks in the background of judicial analysis. She addressed the two remaining issues in the context of three substantive concerns: (a) watershed management, reclamation and cumulative effects; (b) endangered species; and (c) GHG emissions.<sup>60</sup>

Justice Tremblay-Lamer noted at the outset of the decision that all parties had agreed that the issues concerning the interpretation of *CEAA* were questions of law, and therefore reviewable on a standard of correctness, and that issues relating to “weighing the significance of the evidence and conclusions drawn from that evidence including the significance of an environmental effect are reviewed on a standard of reasonableness simpliciter.”<sup>61</sup> Therefore, the first ground of appeal was reviewable on a standard of reasonable simpliciter, while the second

---

<sup>56</sup> *Notice of Application, ibid.* at paras. 12-16.

<sup>57</sup> *Pembina, supra* note 1.

<sup>58</sup> *Ibid.* at para 35.

<sup>59</sup> Review of the application of a mandatory duty, such as that in s. 4(2), is considered a question of law and thus reviewable on a standard of correctness. *Friends of the West Country Assn. v. Canada (Minister of Fisheries and Oceans)* (F.C.A.) [2000] 2 F.C. 263, 248 N.R. 25 at paras. 9-10.

<sup>60</sup> *Ibid.* at para. 36.

<sup>61</sup> *Pembina, supra* note 1 at para. 37.

ground of appeal regarding the “question of providing a ‘rationale’ for the conclusions and recommendations of the Panel... is a question of law, reviewable on a standard of correctness.”<sup>62</sup>

Regarding the first alleged error, Justice Tremblay-Lamer held that the panel had not erred in concluding that the project would not have SAEs. She concluded that the panel’s assessment that the mitigation measures would render the SAEs insignificant in all three issue areas was reasonable. However, she allowed the second argument to succeed in part. Justice Tremblay-Lamer found that the panel erred by not sufficiently explaining the basis upon which it had held that the projected GHG emissions would be insignificant, stating that “... the Panel must, in my opinion, explain in a general way why the potential environmental effects, either with or without the implementation of mitigation measures, will be insignificant.”<sup>63</sup> She found the panel’s explanation of insignificance in the other two issue areas (water and reclamation, and endangered species) reasonable. In the end, the court remanded the decision to the panel so it could provide a rationale on the GHG issue.<sup>64</sup>

## 2.6 Response to the Judicial Review Decision

The panel reconvened and issued an addendum to its original report on 6 May 2008. In the addendum, the panel articulated its findings relating to air quality, including GHG emissions, without changing its conclusion that the project was not likely to cause SAEs provided the proposed mitigation measures were implemented.<sup>65</sup> The panel cited twelve mitigation measures proposed by Imperial Oil. While some of the measures seem substantial, such as the use of a cogeneration facility for steam and electricity production and selection of a low temperature process to extract bitumen, other measures did not appear at all in the original panel report,

---

<sup>62</sup> *Ibid.* at para. 41. Prior to the recent Supreme Court of Canada decision in *Dunsmuir (New Brunswick (Board of Management) v. Dunsmuir)*, 2008 SCC 9, [2008] 1 S.C.R. 190, there were three possible standards of review to be applied in judicial reviews. A court could review the decision of an administrative body based on a correctness standard, a standard of “patent unreasonableness” or a middle approach called “reasonableness simpliciter”. The standard of correctness, applied in cases of alleged errors of law, requires little deference to decision makers. The standard of patent unreasonableness requires great deference, particularly where the decision makers are experts. The reasonableness simpliciter standard falls between the other two more polar standards. In the *Dunsmuir* case, the court abandoned the patent unreasonableness and reasonableness simpliciter standard in favour of a single standard of “reasonableness”. It is unlikely that *Pembina* would have been decided any differently if brought following the decision in *Dunsmuir*.

<sup>63</sup> *Ibid.* at para. 73.

<sup>64</sup> Following the court’s decision to remit the report back to the review panel for a more complete explanation regarding GHG emissions, Fisheries and Oceans Canada (the responsible authority for the project), notified Imperial Oil that the permit it had granted to the applicant under the *Fisheries Act* was invalid as a result of the decision. Imperial Oil filed an application for judicial review of the ministry’s decision to revoke the permit. Justice Campbell dismissed the application, noting that the Federal Court’s order remanding an explanation rendered the panel report incomplete and that only completed reports may be placed before the Governor-in-Council for approval and subsequent authorization by the federal responsible authority. *Imperial Oil Resources Ventures Ltd. v. Canada (Minister of Fisheries & Oceans)*, 2008 FC 598, 36 C.E.L.R. (3d) 153 at para. 6.

<sup>65</sup> Kearn Oil Sands Project Joint Review Panel, *Addendum to EUB Decision 2007-013: Additional Rationale for the Joint Review Panel’s Conclusion on Air Emissions* (May 2008), online: CEAA <[http://www.ceaa.gc.ca/050/DocHTMLContainer\\_e.cfm?DocumentID=26766](http://www.ceaa.gc.ca/050/DocHTMLContainer_e.cfm?DocumentID=26766)> [*Kearn Joint Review Panel Addendum*].

suggesting they have been added to help justify the panel's findings.<sup>66</sup> Still, other measures seem to be part of good governance and legal requirements already imposed on resource extraction companies, for example, post start-up energy audits and reporting on GHG emissions.<sup>67</sup>

Despite the panel's elaboration of its reasons, it remains difficult to see how these measures will render the release of 3.7 million tonnes of GHG per year insignificant. The panel's addendum does not specify by how much the proposed measures will reduce overall NOx or GHG emissions. It would have been interesting to know what threshold of reduction would be needed to make the impacts insignificant in the panel's view.

The Panel also maintained its finding that Imperial Oil's lack of a GHG management plan for the project was appropriate as Imperial Oil would want to manage its GHG obligations on a corporate basis rather than an individual facility basis. However, by noting that "the impacts of this corporate policy on the Project are currently unknown and thus implementation cannot be considered a mitigation measure," the panel has assessed the mitigation measures and their impact in the absence of a project or corporate level GHG management plan.

The panel's ultimate conclusion in the addendum is that the implementation of the mitigation measures described "will likely mitigate any significant GHG effects of the Project."<sup>68</sup> Despite the equivocal nature of the panel's conclusions, the Government of Canada chose to authorize the project and, despite the economic downturn, Imperial Oil has announced its plans to proceed with the KOS project.<sup>69</sup>

### 3. THE ROLE OF PRECAUTION IN DEALING WITH UNCERTAINTY IN THE SIGNIFICANT ASSESSMENT

In this section, I evaluate the court's approach to (1) assessing the significance of potential environmental impacts, including requiring an explanation for this finding, (2) considering the potential for measures to mitigate SAEs, and (3) the role of the precautionary principle in this determination. After summarizing the decision making process within the *CEAA*, I describe the "effects, significance, mitigation" trilogy. I argue that the language of paragraph 16(1)(d) limiting mitigation measures to those that are technically and economically feasible requires a reasonable level of certainty with respect to the mitigation potential of the proposed measures.

Next, I discuss what the inclusion of the precautionary principle in the *CEAA* means for the environmental assessment process. I argue that the precautionary principle strengthens the need for certainty surrounding mitigation measures, thus requiring panels (and courts reviewing panel decisions) to err on the side of caution when judging the potential of measures to transform significant environmental impacts into insignificant ones. The precautionary principle may even warrant reversing the onus of proof, thus requiring proponents to show

<sup>66</sup> For example, measures 8 and 9: Optimization of ore loading on haul trucks to maximize efficiency and optimization of mine haul routes to minimize fuel consumption (*Kearl Joint Review Panel Addendum, ibid.*).

<sup>67</sup> *Kearl Joint Review Panel Addendum, ibid.*, measures 10 and 11.

<sup>68</sup> *Kearl Joint Review Panel Addendum, ibid.*

<sup>69</sup> CBC, "Imperial Oil gets green light to break ground on Kearl project" (6 June 2008), online: CBC News <<http://www.cbc.ca/canada/calgary/story/2008/06/06/kearl-approved.html>>.

convincingly that their project will not cause SAEs, which would likely require eliminating uncertainty surrounding mitigation measures. I then critique the court's application of adaptive management as a guiding tenet, rather than a principle to be applied in the context of follow-up measures and/or after mitigation measures have been identified and accepted as capable of mitigating SAEs. Finally, I illustrate these arguments using three examples from the panel report.

### 3.1 Decision Making Process Under the *CEAA*

Justice Tremblay-Lamer provides an excellent synopsis of the overall decision making process under the *CEAA*.<sup>70</sup> The first step involves the evaluation of potentially adverse effects. The second step involves the government deciding whether to authorize the project and what follow-up measures, if any, are required.<sup>71</sup> The environmental assessment produced in the first step informs the policy decision making in step two. As Justice Tremblay-Lamer points out, it is critical to distinguish these two steps, as the first is a science and fact-based assessment while the latter is a policy exercise.<sup>72</sup>

Justice Tremblay-Lamer also adeptly breaks down the steps involved in conducting an environmental assessment by review panels (step 1 above).<sup>73</sup> These steps break down as follows:

1. creating the review panel and articulating the terms of reference that will guide the panel's work;<sup>74</sup>
2. fulfilling the four duties outlined in section 34, which include:
  - a. ensuring the information for an assessment is obtained and made publicly available;
  - b. holding hearings in a manner that provides the opportunity for public participation;

---

<sup>70</sup> See also Doelle, *supra* note 3 at 93-95 for a description of the environmental assessment process.

<sup>71</sup> See *Pembina*, *supra* note 1 at para. 14. The government's "decision" powers in this second step are described in ss. 20 (for screenings) and 37 (for mediation or panel reviews) of the *CEAA*. Section 37 provides for three options, which may be paraphrased as follows: (1) where the project is not likely to cause SAEs, the responsible authority ("RA") may act to permit the project to be carried out; (2) where the project is likely to cause SAEs that can be justified, the RA *may* exercise its power or duty to permit the project to be carried out; and, (3) where the project is likely to cause SAEs that cannot be justified, the RA may not exercise any power or perform any duty that would permit the project to be carried out. The final decision is made by different parties depending on the type of assessment undertaken. Following a panel review, the responsible authority can only make the final decision with the approval of the Governor-in-Council. For an excellent discussion of the process of making an environmental assessment decision, see Doelle, *ibid.* at 136-146. See Doelle, *ibid.* at 224-228 for discussion of law reform options relating to the decision making process.

<sup>72</sup> See *Pembina*, *supra* note 1 at para. 72.

<sup>73</sup> See *Pembina*, *ibid.* at paras. 19-21.

<sup>74</sup> This process is guided by the *CEAA*, *supra* note 5, s. 40. See *Pembina*, *ibid.* at para. 19. The Kearl Panel's terms of reference are available on the CEAA Registry, see Canadian Environmental Assessment Agency, *Agreement To Establish a Joint Panel for the Kearl Lake Mine Development Project*, Appendix – Terms of Reference, online: CEAA <<http://www.ceaa.gc.ca/050/Document-eng.cfm?DocumentID=19274>> [*Kearl Terms of Reference*].

- c. preparing a report setting out the rationale, conclusions, and recommendations of the panel, including any mitigation measures and follow up, and a summary of public comments; and,
  - d. submitting the report to the minister and responsible authority.
3. considering the factors outlined in subsections 16(1) and (2) of the *CEAA*, in addition to any other factors included in the panel's terms of reference.<sup>75</sup> Subsections 16(1) and (2) require consideration of the following factors:
- 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, and the significance of these effects;
  - b. comments from the public that are received in accordance with the *CEAA* and its regulations;
  - c. measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
  - d. 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 Minister after consulting with the responsible authority, may require to be considered;
  - e. the purpose of the project;
  - f. alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;
  - g. the need for, and the requirements of, any follow-up program in respect of the project; and
  - h. 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.

---

<sup>75</sup> Justice Tremblay-Lamer notes that terms of reference may require a panel to examine factors in addition to those listed in subsections 16(1) and (2) of the *CEAA*. *Pembina, ibid.* at para. 19, and *Alberta Wilderness Assn. v. Cardinal River Coals Ltd. (T.D.)*, [1999] 3 F.C. 425 at para. 56 [*Cardinal River Coals*]. The *Kearl Terms of Reference* added certain additional factors. Notably, the requirement to determine significance was qualified with the proviso that “in examining whether any potential adverse effects associated with the project are significant, the Joint Panel must consider the magnitude, geographic extent, duration and frequency, degree to which they are reversible or irreversible, and ecological context of those effects”, *Kearl Joint Review Panel Report, supra* note 16 at 7. This passage is derived from a set of guidelines published by the Agency in 1994 to guide determinations of significance (Canadian Environmental Assessment Agency, “Reference Guide: Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects” (November 1994), online: <<http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=3939C665-1&offset=30&toc=hide>> [CEAA, “SAEE Reference Guide”]).



### 3.2 The “Effects, Significance and Mitigation” Trilogy

Three of the factors to be considered in environmental assessments, as per subsection 16(1), must be analyzed in a certain sequence in order for the assessment to be meaningful. Specifically, the following three factors need to be considered in the order presented:

1. What are the environmental effects (including cumulative ones) (paragraph 16(1)(a))?
2. Are those environmental effects significant (paragraph 16(1)(b))?
3. Are there technically and economically feasible measures that would mitigate any of the environmental effects deemed significant in step 2 (paragraph 16(1)(d))?<sup>76</sup>

The panel has a responsibility under paragraph 34(c) to articulate its rationale, conclusions and recommendations in its final report. I argue, for reasons elaborated upon below, that this duty requires panel reports to include a rationale and conclusion for each of these three steps, especially when there is uncertainty surrounding the mitigation measures in the third step.<sup>77</sup>

#### 3.2.1 Environmental Effects

The first step in determining the environmental effects is a broad, comprehensive exercise that in most cases will first be undertaken within the context of an environmental impact statement. Given the very broad definition of “environmental effect” in the *CEAA* (“... any change that the project may cause in the environment ...”) <sup>78</sup>, it is no wonder that these reports can be voluminous.<sup>79</sup> The inclusion of cumulative effects within this exercise is an important recognition of the fact that the environmental impacts of one project, which may not be significant

---

<sup>76</sup> The “significance-based assessment” approach, as it has been characterized, has come under criticism from many academics and environmentalists who propose that, instead, projects should be evaluated based on sustainability. They note that the “focus of significance-based assessments is on preventing and mitigating significant impacts on the biophysical environment” whereas “sustainability assessments seek an integrated assessment of the social, economic and environmental benefits and risks associated with a project.” Meinhard Doelle & Chris Tollefson, *Environmental Law – Cases and Materials* (Toronto: Thomson-Carswell, 2009) at 366 [Doelle & Tollefson]; See also Robert B. Gibson, “Favouring the Higher Test: Contribution to Sustainability as the Central Criterion for Reviews and Decisions under the Canadian Environmental Assessment Act” (2000) 10: 1 J. Evtl. L. & Prac. 39.

<sup>77</sup> There is a great deal of commentary and case law discussing each of these steps. I will provide a fairly brief synopsis here, focusing on what is essential to my argument about sequence, articulation of conclusion, and precaution. For more details, see Doelle, *supra* note 3; Wood, *supra* note 3; Tilleman, *supra* note 3; Doelle & Tollefson, *ibid.* at 315-372.

<sup>78</sup> *CEAA*, *supra* note 5, s. 2(1).

<sup>79</sup> For instance, the Kearl Joint Review Panel environmental impact statement is comprised of 9 volumes. See Canadian Environmental Assessment Agency, “Imperial Oil Environmental Impact Statement”, online: <<http://www.ceaa.gc.ca/050/Document-eng.cfm?DocumentID=18778>>.

in and of themselves, could become important when taken in the context of other impacts resulting from nearby projects.<sup>80</sup>

### 3.2.2 Significance

While the assessment of environmental effects can and should be a largely objective and science-based exercise, the determination of whether those effects are *significant* (step 2) is inherently a value-laden judgment. The legislation offers no definition of “significant”, although there is a dated policy guideline which offers some assistance.<sup>81</sup> A panel’s interpretation of significance will reflect the particular ideology, experience, and expertise of the individual panel members.<sup>82</sup> The integrity of the process thus depends largely upon the choice of reviewers who can adequately and fairly represent the broader public interest. But that is a topic for another paper.<sup>83</sup>

Judicial interpretation of the significance determination highlights the subjective nature of this process. For instance, in *Environmental Resource Centre v. Canada (Minister of the Environment)*, Justice Heneghan states that “[t]he assessment of significance in relation to environmental effects is a particular process involving the judgement and skill of those employees of the [responsible authority] engaged in carrying out that assessment.”<sup>84</sup> The reasons given in *Pembina* highlight the subjective nature of the significance assessment, and quote Justice

---

<sup>80</sup> There is a great deal of literature, including some operational guidance, relating to the consideration of cumulative effects under the *CEAA*, and so I will not elaborate further in this paper (See for example, Canadian Environmental Assessment Agency, “Reference Guide: Addressing Cumulative Environmental Effects” (November 1994), online: <<http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=3939C665-1&offset=28&toc=hide>> [CEAA, “Cumulative Effects Reference Guide”]; see also *Cardinal River Coals*, *supra* note 75, in which the court reviewed a determination of cumulative effects under the *CEAA*).

<sup>81</sup> See CEAA, *Cumulative Effects Reference Guide*, *ibid*. A great deal has been written about the need for clarifying significance in the legislation, but these recommendations have not yet been taken up. See for instance, Lawrence Environmental, “Significance in Environmental Assessment”, *Research and Development Monograph Series* (2000), online: <[http://www.ceaa.gc.ca/015/001/011/index\\_e.htm](http://www.ceaa.gc.ca/015/001/011/index_e.htm)>. For a thoughtful and comprehensive analysis of decision making within the *CEAA* and the significance threshold, see Robert B. Gibson, “Specification of sustainability-based environmental assessment decision criteria and implications for determining “significance” in environmental assessment”, *Research and Development Monograph Series* (2000) at Part 1 – Introduction, online: <[http://www.ceaa.gc.ca/015/001/009/index\\_e.htm](http://www.ceaa.gc.ca/015/001/009/index_e.htm)>.

<sup>82</sup> VanderZwaag *et al.* Highlight Stanley Fish’s observation that “legal principles are not neutral but provide catalytic sources for interpretive arguments.” VanderZwaag *et al.*, “Currents”, *supra* note 8 at 157.

<sup>83</sup> This is an important question that raises some critical social justice issues. For instance, are reviewers considering the significance of projects for all stakeholders equally? How are reviewers determining who are the stakeholders? By proximity to the project? Are they assigning equal value to everyone within the affected area, regardless of income, race, gender, and so on? Are they considering the significance of environmental effects for only current generations, or also future ones? I am exploring some of these complex, challenging questions in a paper in progress on social justice and the *CEAA*. Andrew Green provides some relevant and useful insights relating to the issue of discretionary power in the *CEAA*, noting that the “broad, unstructured discretion” in deciding whether to approve a project creates the danger that political or economic factors might unduly influence decision making in this sensitive area. Andrew Green, “Discretion, Judicial Review and the Canadian Environmental Assessment Act”, (2002) 27 *Queen’s L.J.* 785 at 799-800.

<sup>84</sup> *Environmental Resource Centre v. Canada (Minister of the Environment)*, 2001 FCT 1423, 214 F.T.R. 94, at para. 145 [*Environmental Resource Centre*].

Hugessen as saying that “reasonable people can and do disagree about the adequacy and completeness of evidence which forecasts future results and about the significance of such results”.<sup>85</sup> She concludes by stating that “the Panel’s assessment of significance does not extend to the elimination of uncertainty surrounding project effects.”<sup>86</sup> While this is undoubtedly true, it does not satisfactorily address the panel’s obligation to rely only upon technically and economically feasible measures to make a finding of insignificance. I argue below that when there is sufficient uncertainty surrounding the likelihood of measures to mitigate serious environmental harm, the precautionary principle requires panels to err on the side of caution when measuring the significance of environmental impacts

### 3.2.3 Mitigation by Technically and Economically Feasible Measures

Once significance is established, the panel must evaluate whether there are any technically and economically feasible measures that would mitigate any of these SAEs (step 3). Mitigation is defined in the *CEAA* as: “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.”<sup>87</sup>

While this definition is quite broad, mitigation measures are qualified in paragraph 16(1)(d) as having to be “technically and economically feasible.” There is very little judicial interpretation of this qualifier, even though the phrase is used in paragraph 16(2)(b) as well.<sup>88</sup> However, it seems fairly evident that requiring mitigation measures to be economically feasible means that they must be cost-effective for the project proponent. The Federal Court of Appeal confirms this interpretation in *Inverhuron & District Ratepayers’ Assn. v. Canada* when, in considering paragraph 16(2)(b), it states that “[t]here is no question that this provision mandates consideration of alternatives with respect to cost and environmental impact.”<sup>89</sup> The requirement for mitigation measures to be technically feasible seems to suggest that they be known technologies. In *Canadian Wildlife Federation Inc. v. Canada (Minister of the Environment)*, the Federal Court of Appeal describes mitigation measures in the context of the Environmental Assessment and Review Process Guidelines Order (“*EARPGO*”, the precursor to the *CEAA*) as follows: “If the initial assessment procedure reveals that the potential adverse environmental effects ... ‘are insignificant or mitigable with known technology’, the proposal ... may proceed or proceed with mitigation as the case may be.”<sup>90</sup> At the trial level in the same case, Justice Muldoon concluded that “vague hopes” for future technology do not constitute mitigation: “since the Minister did not identify any known technologies, but only vague hopes for future technology, it is not possible to consider that the recited adverse water quality effects are miti-

<sup>85</sup> *Pembina*, *supra* note 1 at para. 22, quoting *Alberta Wilderness Assn. v. Express Pipelines Ltd.* (1996), 137 D.L.R. (4th) 177, 201 N.R. 336, at para. 10 [*Express Pipelines*].

<sup>86</sup> *Pembina*, *ibid.* at para. 23.

<sup>87</sup> *CEAA*, *supra* note 5, s.2(1).

<sup>88</sup> Section 16(2)(b) requires consideration of technically and economically feasible alternatives to the project as proposed.

<sup>89</sup> *Inverhuron & District Ratepayers’ Assn. v. Canada (Minister of the Environment)*, 2001 FCA 203, 273 N.R. 62, at para. 50.

<sup>90</sup> *Canadian Wildlife Federation Inc. v. Canada (Minister of the Environment)*, [1991] 1 F.C. 641 at 657, 121 N.R. 385 (F.C.A.) at para. 26, quoting *EARPGO*, *supra* note 14.

gable in contemplation of para. 12(c) of the EARP Guidelines.”<sup>91</sup> Justice Campbell in *Cardinal River Coals* suggests that technically and economically feasible means practical when he refers to “mitigation of [environmental] effect[s] by practical means.”<sup>92</sup>

The plain language of paragraph 16(1)(d) and judicial interpretation of the phrase (albeit limited) suggest that technically and economically feasible measures means measures that are practical, affordable (cost-effective) and known technologies. In other words, the phrase “technically and economically feasible” in paragraph 16(1)(d) aims to protect against the risk of proponents claiming that environmental impacts will be rendered insignificant based on mitigation measures that stand little chance of being implemented either because the technology is too uncertain and/or too expensive.

The *Pembina* decision cites several of the cases noted above, and agrees that “the possibilities of future research and development do not constitute mitigation measures.”<sup>93</sup> However, Justice Tremblay-Lamer takes a much broader approach to the interpretation of technically feasible mitigation measures. She accents the dynamic aspect of assessment, including the significance and mitigation assessments, quoting *Union of Nova Scotia Indians v. Canada (Attorney General)*, where Justice Mackay suggests that the details of all mitigation measures do not need to be resolved before a screening report is accepted.<sup>94</sup> Then, when evaluating end pit technology (discussed below) as mitigation for water contamination, she states that “while there does exist some uncertainty with respect to end pit lake technology, the existing level of uncertainty is not such that it should paralyze the entire project.”<sup>95</sup> This statement leads us to the crux of the issue: what level of uncertainty is acceptable in assessing mitigation measures?

The plain language of paragraph 16(1)(d), requiring mitigation measures to be “technically feasible”, suggests that the measures should be “do-able” as per technical knowledge. Justice Iacobucci in *Tetzlaff* used the phrase “known technologies”<sup>96</sup> to describe mitigation measures. What does it mean that the technologies be known? I would suggest that it means the technologies must exist, either having been demonstrated in the past or having a sufficient basis in scientific research to make a convincing case that they will work, even if there may be some uncertainties with respect to their effectiveness. The *Pembina* case dealt with the environmental impacts of tailings, notably the potential of tailings technology, including thickeners and end pit lakes to mitigate their impacts.<sup>97</sup> While the basic tailings technology existed, a

---

<sup>91</sup> *Canadian Wildlife Federation Inc. v. Canada (Minister of Environment)* (1989), 31 F.T.R. 1 at 14, 4 C.E.L.R. (N.S.) 201 (F.C.T.D.). The *Environmental Assessment and Review Process Guidelines Order* was the precursor to the *CEAA*, and recognized that adverse environmental effects could be mitigated with known technologies (*EARPGO*, supra note 14, s. 12(c)). Section 16(1)(d) of the *CEAA*, supra note 5 is the evolution of this section, creating a higher standard by qualifying mitigation measures not only as technically, but also economically, feasible. See also *Pembina*, supra note 1 (Applicant’s Memorandum of Argument in Reply at paras. 24-39) for more elaboration of this argument.

<sup>92</sup> *Cardinal River Coals*, supra note 75 at para 56.

<sup>93</sup> *Pembina*, supra note 1 at para. 25.

<sup>94</sup> *Ibid.* at para. 24.

<sup>95</sup> *Ibid.* at para. 57.

<sup>96</sup> *Tetzlaff v. Canada (Minister of the Environment)*, [1991] 1 F.C. 641 (F.C.A.).

<sup>97</sup> See *Kearl Joint Review Panel Report*, supra note 16 at 41-45.

new technology to use thickeners had not been commercially demonstrated.<sup>98</sup> The technology for using end pit lakes, which are a form of reclamation for tailings ponds, has not yet been commercially demonstrated. Due to the “complexity and uncertainty about end pit lakes,” the panel urged ongoing, comprehensive research to begin immediately.<sup>99</sup>

The applicants claimed that these tailings technologies were too uncertain to qualify as technically feasible measures. However, Justice Tremblay-Lamer disagreed, stating that it was only an improvement upon existing tailings technology that was uncertain, and holding that if project proponents were to rely only upon technologies that have been used in the past, this could stifle innovation.<sup>100</sup> She further accepted the end pit lakes as a sufficiently certain mitigation measure, relying upon a recommendation to test the technology in future to validate the modeling predictions, characterizing these tests as precautionary.<sup>101</sup>

Nobody disagrees that there is uncertainty regarding the potential for the thickeners and end pit lakes to successfully reduce the environmental impact of tailings. The disagreement lies in the extent to which these technologies can be considered feasible within the meaning of the *CEAA*, given the uncertainty surrounding their effectiveness. The *Pembina* decision clearly grants a liberal interpretation to this adjective, perhaps lowering the bar to “technically possible” from “technically feasible”. The interesting question for the purposes of this paper is what impact subsection 4(2) has on the interpretation of paragraph 16(1)(d). I believe that the precautionary principle created a duty on the panel to err on the side of caution in light of uncertainty when evaluating the potential for the technology to reduce the seriousness of the environmental harm.<sup>102</sup> In other words, given the uncertainty surrounding end pit lake technology, the panel should not have assumed that the technology would be successful in removing the toxins from the water. Rather, it should have concluded that the environmental effects would remain significant, and let the government make an informed policy choice about whether to approve the project regardless of this risk. I elaborate further after providing a brief introduction to the precautionary principle in the context of the *CEAA*.

### 3.3 The Inclusion of the Precautionary Principle in the *CEAA*

As per its preamble, the *CEAA* is meant to provide “an effective means of integrating environmental factors into planning and decision-making processes in a manner that promotes sustainable development” and helps the Government of Canada “in anticipating and preventing the degradation of environmental quality and at the same time ensuring that economic development is compatible with the high value Canadians place on environmental quality.”<sup>103</sup> As legislation that requires proponents and decision makers to assess the environmental effects of projects *before* they are approved, the process of environmental assessment under the *CEAA*

---

<sup>98</sup> See *ibid.* at 43.

<sup>99</sup> See *ibid.* at 45.

<sup>100</sup> *Pembina*, *supra* note 1 at para. 54.

<sup>101</sup> *Ibid.* at para. 55.

<sup>102</sup> I return to this argument and discuss the precautionary principle in greater detail in section 3.3 below.

<sup>103</sup> *CEAA*, *supra* note 5, preamble.

is in and of itself an embodiment of the precautionary approach.<sup>104</sup> The addition of the precautionary principle to the *CEAA* in 2003 further anchors the principle in environmental assessment in Canada. Section 4(2) creates a mandatory duty on the government, the minister, the Canadian Environmental Assessment Agency, and all bodies subject to the act to administer the *CEAA* “in a manner that protects the environment and human health and *applies the precautionary principle*.”<sup>105</sup>

There is no shortage of discussion and debate about the meaning and interpretation of the precautionary principle, along with its cousin (or, as some would argue, its twin) the precautionary approach.<sup>106</sup> As Jacqueline Peel characterizes it, “[a]t its heart, precaution is a reminder of the limitations of scientific knowledge as a guide to decision-making, and a warning to heed the lessons of the past to prevent occurrence of environmental damage in the future.”<sup>107</sup> It is a principle designed to help guide decision making in the context of scientific uncertainty. The main Canadian government document on precaution confirms this, stating that governments “are traditionally called upon and continue to address new or emerging risks and potential opportunities, and to manage issues where there is significant scientific uncertainty.”<sup>108</sup> The document further notes that the application of the principle is “complicated by the inherent dynamics of science,” and that “decisions will still have to be made as society expects risks to be addressed and managed.”<sup>109</sup>

The main judicial expression of the precautionary principle is found in the Supreme Court of Canada’s 2001 *Spraytech* decision relating to cosmetic outdoor pesticide use, in which the Court cited the now famous definition of the precautionary principle:

In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must *anticipate, prevent and attack* the causes of environmental degradation. Where there are *threats of serious or irreversible*

<sup>104</sup> See e.g. VanderZwaag *et al.*, “Currents”, *supra* note 8 at 129, stating that “environmental impact assessment process may be viewed as inherently precautionary by supporting anticipatory and preventative planning”.

<sup>105</sup> *CEAA*, *supra* note 5, s. 4(2).

<sup>106</sup> The terms precautionary principle and precautionary approach are often used interchangeably, and yet may also connote different meanings. For instance, the principal Canadian government document relating to precaution uses the terms interchangeably. See Government of Canada, *A Framework for the Application of Precaution in Science-based Decision Making about Risk* (Ottawa: Privy Council Office, 2003) [Government of Canada, *Framework*]. When the terms are distinguished, the precautionary approach is often viewed as less strict than the principle, and possible more responsive to socio-economic factors. See David VanderZwaag, Gloria Chao & Mark Covan, “Canadian Aquaculture and the Principles of Sustainable Development: Gauging the Law and Policy Tides and Charting a Course” (2002) 28 *Queen’s L.J.* 279 at 288, n. 39 [VanderZwaag *et al.* “Tides”], citing Malcolm McGarvin, “Science, Precaution, Facts and Values” in Tim O’Riordan, James Cameron & Andrew Jordan eds., *Reinterpreting the Precautionary Principle* (London: Cameron May, 2001) at 44. For a comprehensive discussion of the terminology surrounding precaution, see Jacqueline Peel, “Precaution – A Matter of Principle, Approach or Process” (2004) 5 *Melbourne Journal of International Law* 483 [Peel].

<sup>107</sup> Peel, *ibid.* at 484.

<sup>108</sup> Government of Canada, *Framework*, *supra* note 106 at 3.

<sup>109</sup> *Ibid.*

*damage*, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.<sup>110</sup>

As evident from the definition, the precautionary principle embodies two aspects. First, it establishes an obligation to anticipate causes of environmental degradation and prevent them before they occur. Second, it provides an answer to the ongoing problem of implementing the first aspect by refusing to allow decision makers to postpone protection measures on the basis of scientific uncertainty about environmental degradation. Faced with a threat of serious or irreversible damage, the fact that science cannot predict with certainty when, whether, or how the damage will occur does not justify inaction. In other words, we must not use our ignorance of the environmental impacts of human activity (i.e. our uncertainty about these impacts) as a justification for forging blindly ahead.

The question of scientific uncertainty is a recurring theme in environmental assessment, where experts rely upon a broad range of scientific information to assess and evaluate potential environmental harms. Uncertainty was a theme present throughout the panel's report and the Federal Court's decision in *Pembina*, especially in the context of the ability of various proposed measures to mitigate the SAEs of the oil sands development. How does or should the inclusion of the precautionary principle in the *CEAA* affect the treatment of scientific uncertainty in environmental assessments?

In my view, in the context of environmental assessment, the precautionary principle requires reviewers to err on the side of caution when faced with scientific uncertainty about effects which would, if they transpired, lead to serious environmental harm. In the context of scientific uncertainty about whether given measures will, in fact, mitigate serious environmental impacts, or SAEs, the precautionary principle would argue for erring on the side of caution, which would mean not counting those measures as effective mitigation. Applying the precautionary principle might lead a panel to conclude SAEs could occur, but nonetheless give its approval to the project. Governments are permitted to approve projects, even if they may cause SAEs, if they believe the environmental impacts are justifiable.<sup>111</sup> The difference in applying the precautionary approach would be that the panel's report regarding SAEs would be more conservative in terms of predicting the environmental impacts of the given project.

Although the precautionary principle is now found in several environmental laws, such as the *CEAA* and the *CEPA*,<sup>112</sup> there is little judicial interpretation of the principle, and almost all of the judicial commentary is in the context of legislation that does not explicitly include the principle.<sup>113</sup> These cases suggest that the precautionary principle can be a useful statutory interpretation aid, and as such the principle has in some cases led courts to justify environmental action in the face of uncertain degrees of risk. For example, the tribunal in *Imperial Oil Ltd. v.*

<sup>110</sup> *114957 Canada Ltée (Spraytech, Société d'arrosage) v. Hudson (Town)*, 2001 SCC 40, [2001] 2 S.C.R. 241 at para. 31, quoting *Bergen Declaration on Sustainable Development in the ECE Region*, UN Doc. A/CONF.151/PC/10 (1990) at para. 7 [emphasis added].

<sup>111</sup> *CEAA*, *supra* note 5, s. 37(1)(a)(ii).

<sup>112</sup> *Canadian Environmental Protection Act, 1999*, S.C. 1999, c. 33, preamble, ss. 2(1), 6(1.1), 76.1; *Oceans Act*, S.C. 1996, c. 31, preamble, s. 30.

<sup>113</sup> See e.g. *R v. Kingston (City)* (2004), 70 O.R. (3d) 577 (C.A.) at para. 86, in which the Ontario Court of Appeal comments that the *Spraytech* decision "indicates that the values reflected by the 'precautionary principle' may help inform the contextual approach to statutory interpretation."

*Alberta*<sup>114</sup> ordered remediation of a contaminated site in spite of inconclusive evidence relating to potential health risks. The Alberta Environmental Appeal Board explicitly stated that its decision to order cleanup on the basis of potential health risks was taken in the context of the precautionary principle.<sup>115</sup>

What remains to be seen is how the principle will be interpreted when it is included in legislation. The *Pembina* decision is the first judicial interpretation of the principle since its inclusion in the *CEAA*, and may be the only substantial commentary on the principle in any major Canadian environmental legislation.<sup>116</sup> While current judicial interpretation of the precautionary principle is limited, there are a number of guideline documents emerging from panel review processes that offer context for interpreting the precautionary principle within the *CEAA*. For instance, the *Guidelines for the Preparation of the Environmental Impact Statement for the Deep Geologic Repository of Low- and Intermediate – Level Radioactive Wastes*, state that the precautionary approach requires project proponents to:

1. demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to ensure that they do not cause serious or irreversible damage to the environment and/or current or future human health;
2. outline and justify the assumptions made about the effects of all aspects of the project and the approaches to minimize these effects;
3. identify any proposed follow-up and monitoring activities, particularly in areas where scientific uncertainty exists in the prediction of effects; and,
4. present public views on the acceptability of all of the above.<sup>117</sup>

The *Guidelines for the Taseko Prosperity Gold-Copper Mine Project* include the above duties, and add the provisos that proponents should demonstrate that “all aspects of the Project have been examined *and planned* in a careful and precautionary manner in order to ensure that they do not cause serious or irreversible damage to the environment *and/or the human health of current or future generations*.”<sup>118</sup> These later guidelines also add that the “Precautionary Principle informs the decision-maker to take a cautionary approach, or to err on the side of caution, especially where there is a large degree of uncertainty or high risk” and also places an onus on project proponents to “indicate how the precautionary principle was considered in the design

<sup>114</sup> *Imperial Oil Ltd. v. Alberta (Director, Enforcement & Monitoring, Bow Region, Regional Services, Alberta Environment)* (2002), 47 C.E.L.R. (N.S.) 170 (Alta. Env. App. Bd.).

<sup>115</sup> *Ibid.* at para. 285.

<sup>116</sup> While there have been a number of judicial reviews relating to the *CEAA* since the inclusion of the precautionary principle, (for example, *Miningwatch, supra* note 14), they have not dealt directly with s. 4(2)).

<sup>117</sup> Canadian Environmental Assessment Agency and Canadian Nuclear Safety Commission, *Guidelines for the Preparation of the Environmental Impact Statement for the Deep Geologic Repository of Low- and Intermediate-Level Radioactive Wastes*, online: CEAA <<http://www.ceaa.gc.ca/050/documents/39323/39323E.pdf>> at 12.

<sup>118</sup> Canadian Environmental Assessment Agency, *Final Environmental Impact Statement Guidelines / Application Terms of Reference for Taseko Mines Limited's Prosperity Gold-Copper Mine Project*, online: CEAA <[http://www.ceaa.gc.ca/050/documents\\_staticpost/44811/0049-eng.pdf](http://www.ceaa.gc.ca/050/documents_staticpost/44811/0049-eng.pdf)> at vii [emphasis added].



of projects.<sup>119</sup> The terms of reference for the review panel relating to this mining development also include a definition of the precautionary principle as meaning “the application of prudent foresight, the recognition of uncertainty, and, when decisions must be taken, to err on the side of caution.”<sup>120</sup>

The *Whites Point Quarry and Marine Terminal Guidelines* are very clear that the duty to demonstrate is a reversal of the burden of proof, stating that “[t]he onus of proof shall lie with the Proponent to show that a proposed action will not lead to serious or irreversible environmental damage.”<sup>121</sup> In comments relating to these guidelines, Professor David VanderZwaag offers a broad range of support for this reverse onus interpretation, citing national legislation and guidelines, international guidelines, case law, and academic scholarship.<sup>122</sup> For instance, he cites the *Guidelines on Environmental Assessment for Wildlife at Risk in Canada*, which indicate that the onus of proof is on the proponent to demonstrate that adverse effects on wildlife at risk are not significant.<sup>123</sup> He also highlights two Ontario Environmental Review Tribunal Decisions which interpret the precautionary approach as reversing the burden of proof. For example, in *Davidson v. Ontario (Ministry of the Environment)* the tribunal states that “a precautionary approach presumes the existence of environmental risk in the absence of proof to the contrary.”<sup>124</sup> In *Dawber v. Ontario (Minister of the Environment)*, the tribunal applied the same interpretation, stating that the principle requires a presumption of risk in the absence of proof to the contrary, and finding the decision to grant a permit for the processing and incineration of tires in the absence of proof to show this activity would not harm the environment was unreasonable.<sup>125</sup>

These various guidelines thus confirm that in the context of environmental assessment, the precautionary principle requires project proponents to err on the side of caution, especially

<sup>119</sup> *Ibid.* at vi.

<sup>120</sup> Canadian Environmental Assessment Agency, *Terms of Reference: Panel Review of the Proposed Prosperity Gold-Copper Mine Project*, online: CEAA <<http://www.ceaa.gc.ca/050/documents/30840/30840E.PDF>>. Similar language can be found in other guideline documents, such as Government of Canada & Government of Newfoundland and Labrador, *Environmental Impact Statement Guidelines: Lower Churchill Hydroelectric Generation Project*, online: CEAA <<http://www.ceaa.gc.ca/050/documents/28050/28050E.pdf>>; and Canadian Environmental Assessment Agency & Canadian Nuclear Safety Commission, *Guidelines for the Preparation of the Environmental Impact Statement for Ontario Power Generation's Darlington New Nuclear Power Plant Project*, online: CEAA <<http://www.ceaa.gc.ca/050/documents/32057/32057E.pdf>> [*Darlington Guidelines*]. The *Kearl Terms of Reference*, *supra* note 74, contains no definition of the precautionary principle.

<sup>121</sup> Government of Canada and Government of Nova Scotia, *Environmental Impact Statement Guidelines for the Review of the Whites Point Quarry and Marine Terminal Project*, online: <<https://www.gov.ns.ca/nse/ea/whitespointquarry/WhitesPointQuarryGuidelines.pdf>>.

<sup>122</sup> David L. VanderZwaag, Comments, online: <<http://www.ceaa.gc.ca/010/0001/0001/0023/001/WP-1785-024.pdf>>.

<sup>123</sup> Pauline Lynch-Stewart, *Environmental Assessment Best Practice Guide for Wildlife At Risk in Canada*, 1<sup>st</sup> ed., online: Canadian Wildlife Service <[http://www.cws-scf.ec.gc.ca/publications/eval/guide/EA\\_Best\\_Practices\\_2004\\_e.pdf](http://www.cws-scf.ec.gc.ca/publications/eval/guide/EA_Best_Practices_2004_e.pdf)> at 24-26.

<sup>124</sup> 24 C.E.L.R. (3d) 165, [2006] O.E.R.T.D. No. 33 at para. 44.

<sup>125</sup> 28 C.E.L.R. (3d) 281, [2007] O.E.R.T.C. No. 25 at para. 58. The decision, including the application of the precautionary approach, was approved in an application for judicial review: *Lafarge Canada Inc. v. Ontario (Environmental Review Tribunal)*, 241 O.A.C. 156, 36 C.E.L.R. (3d) 191 (Ont. Sup. Ct.).

when there is a large degree of uncertainty or high risk. Requiring proponents to demonstrate that they have examined the proposed actions in a precautionary way requires them, at minimum, to articulate their findings relating to the principle in their environmental impact statement. It should also place the onus on them to demonstrate that the project will not have SAEs.

Interestingly, the terms of reference for the Kearsley panel<sup>126</sup> make no mention of the precautionary principle, and a survey of the Canadian Environmental Assessment Agency registry of documents suggests that no environmental impact statement guidelines were prepared for this project. However, the duty to apply the precautionary principle in the *CEAA* applies regardless of the presence or absence of such guidelines, and the consistent interpretation of the guidelines in other panel processes – both before and after the Kearsley panel – suggest that the principle should have been interpreted in a similar light by the Kearsley panel and by the Federal Court. I will examine what this interpretation of the principle would have meant for the Panel report in section 5 below. First, I will discuss the tool which the Court used to digress from applying the precautionary principle.

### 3.4 Using Adaptive Management to Digress from the *CEAA*'s Precautionary Mandate

The *Pembina* decision clearly acknowledges that there is a duty to apply the precautionary principle within the *CEAA*.<sup>127</sup> However, the court introduces the principle of “adaptive management” as a means of countering “the potentially paralyzing effects of the precautionary principle.”<sup>128</sup> Despite the fact that the *CEAA* mentions adaptive management only in the context of how to apply follow-up measures,<sup>129</sup> Justice Tremblay-Lamer concludes that:

adaptive management permits projects with uncertain, yet potentially adverse environmental impacts to proceed based on flexible management strategies capable of adjusting to new information regarding adverse environmental impacts where sufficient information regarding those impacts and potential mitigation measures already exists.<sup>130</sup>

This conclusion runs counter to the *CEAA*'s requirement to ensure that projects do not cause SAEs and its duty to apply the precautionary principle. Essentially, the panel and the court erred on the side of risk rather than precaution. The court appears to create a threshold when

<sup>126</sup> Alberta Environment, *Final Terms of Reference: Environmental Impact Assessment Report for the Proposed Imperial Oil Resources Kearsley Oil Sands Project*, online: CEAA <[http://www.ceaa.gc.ca/050/documents\\_staticpost/cearef\\_16237/KR-0006.pdf](http://www.ceaa.gc.ca/050/documents_staticpost/cearef_16237/KR-0006.pdf)>.

<sup>127</sup> *Pembina*, *supra* note 1 at paras. 29-30.

<sup>128</sup> *Ibid.* at para. 32. The Federal Court relies upon commentary by Evans J.A. in *Canadian Parks and Wilderness Society v. Canada (Minister of Canadian Heritage)*, 2003 FCA 197, [2003] 4 F.C. 672 at para. 24 [CPAWS], where he states that “adaptive management responds to the difficulty, or impossibility, of predicting all the environmental consequences of a project on the basis of existing knowledge.” This case is distinguishable as it was reviewing an environmental assessment made before the precautionary principle was incorporated into the *CEAA*.

<sup>129</sup> See *CEAA*, *supra* note 5, s. 38(5), which states that “the results of follow-up programs may be used for implementing adaptive management measures or for improving the quality of future environmental assessments.”

<sup>130</sup> *Pembina*, *supra* note 1 at para. 32.

stating that projects with uncertain yet potentially adverse environmental impacts can proceed when “sufficient information regarding those impacts and potential mitigation measures already exists.” It is difficult, however, to know what sufficient information means. To shed light on this, I will examine the meaning of adaptive management.

Adaptive management is an important tool that has evolved mainly within ecosystem management planning in order to ensure managers can be flexible in applying guidelines and improve as they learn how their interventions are working. According to a U.S.- based network of resource managers and stakeholders,

adaptive management is a systematic management paradigm that assumes natural resource management policies and actions are not static but are adjusted based on the combination of new scientific and socio-economic information in order to improve management by learning from the ecosystems being affected.<sup>131</sup>

Of relevance to the case at hand, the same network states that,

adaptive management is best suited for sustaining or restoring the resilience of natural ecosystems. Management actions should favour lower risk, reversible alternatives. Policies that encourage large-scale alteration of ecosystems that is likely to impair the resiliency of the system, or those that *require extensive mitigation*, are probably *not good candidates* for adaptive management.<sup>132</sup>

Canadian courts have had some occasion to comment on an adaptive management approach. The Ontario Environmental Review Tribunal describes it as “managing in the face of uncertainty with a focus on its reduction.”<sup>133</sup> A Newfoundland court quotes a set of forestry guidelines which state that adaptive management “assumes knowledge is provisional and focuses on management as a learning process or continuous experiment incorporating the results of previous actions and allows managers to remain flexible and adapt to uncertainty.”<sup>134</sup>

Justice Evans in *Canadian Parks & Wilderness Society v. Canada* juxtaposes adaptive management with the precautionary principle:

The concept of “adaptive management” responds to the difficulty, or impossibility, of predicting all the environmental consequences of a project on the basis of existing knowledge. It counters the potentially paralysing effects of the precautionary principle on otherwise socially and economically useful projects. The precautionary principle states that a project should not be undertaken if it may have serious adverse environmental consequences, even if it is not possible to prove with any degree of certainty that these consequences will in fact materialise. Adaptive management techniques and the precautionary principle are important tools for maintaining ecological integrity.<sup>135</sup>

<sup>131</sup> Collaborative Adaptive Management Network, online: <<http://www.adaptivemanagement.net>>.

<sup>132</sup> *Ibid.* [emphasis added].

<sup>133</sup> *Spellman v. Ontario (Ministry of the Environment)* (2007), 34 C.E.L.R. (3d) 83, [2007] O.E.R.T.D. No. 67 (Ontario Environmental Review Tribunal) at para. 66.

<sup>134</sup> *Newfoundland and Labrador Wildlife Federation v. Newfoundland (Minister of Environment and Labour)* (2001), 201 Nfld & P.E.I.R. 284 at para. 40, 33 Admin L.R. (3d) 68.

<sup>135</sup> *CPAWS*, *supra* note 128 at para. 24.

The court in *CPAWS* does not offer any further guidance as to what adaptive management techniques entail. Adaptive management is therefore given little concrete meaning, but is rather defined by comparison with what it is not, namely the precautionary principle. The Federal Court of Appeal's description gives the impression that adaptive management and the precautionary principle are two separate policy tools that nevertheless work in tandem. When strict adherence to the precautionary principle is perceived to be impossible or undesirable (perhaps because uncertainty regarding environmental effects would postpone or proscribe too much economic development), adaptive management offers an alternate route which allows immediate development while resources are used to monitor and mitigate any environmental problems which arise. In this light, adaptive management has been described by the Alberta Energy and Utilities Board as a technique to "balance resource development and environmental protection."<sup>136</sup>

Justice Tremblay-Lamer relied heavily upon the Federal Court of Appeal's decision in *CPAWS* to justify her use of adaptive management to accept mitigation measures with uncertain results. However, the *CPAWS* decision is distinguishable on a number of grounds. First, and most importantly, the case related to the interpretation of the *Canada National Parks Act*,<sup>137</sup> rather than *CEAA*, and did not involve a legislated requirement to apply the precautionary principle.<sup>138</sup> Second, the court relied upon adaptive management techniques to address the unforeseen effects of a winter road being built through a national park, not as a basis upon which to accept mitigation measures with uncertain results. While I do not wish to undermine the importance of the potential environmental impacts of the winter road, they are likely much more confined than the wide-ranging impacts of a large-scale oil sands strip mining project like the KOS.<sup>139</sup> In fact, the court notes that the environmental impact assessment report for the winter road had ranked most of the potential impacts of the road as low risk, irrespective of mitigation measures.<sup>140</sup> Regardless, what is clear is that the Federal Court of Appeal did not rely upon adaptive management to justify its reliance upon mitigation measures with uncertain outcomes as rendering otherwise significant impacts insignificant. Thus, Justice Tremblay-Lamer's use of adaptive management to justify mitigation measures with uncertain outcomes appears to be an unprecedented application of adaptive management within the *CEAA*, with important repercussions given the duty under subsection 4(2).

Interestingly, the Canadian Environmental Assessment Agency recently released an operational policy statement pertaining to adaptive management measures under the *CEAA*.<sup>141</sup>

<sup>136</sup> *Re PanCanadian Resources, Heavy Business Unit*, 2000 CarswellAlta 1845 (Alberta Energy and Utilities Board) at para. 133 (WL).

<sup>137</sup> S.C. 2000, c. 32.

<sup>138</sup> The case was review on the standard of patent unreasonableness, though the court notes that its decision would have been the same under the stricter reasonableness simpliciter standard. *CPAWS*, *supra* note 128 at para. 91

<sup>139</sup> This point is also reflected by the fact that the assessment for the road was conducted by screening, the least onerous of the review processes.

<sup>140</sup> *CPAWS*, *supra* note 128, at para. 105.

<sup>141</sup> Canadian Environmental Assessment Agency, *Operational Policy Statement: Adaptive Management Measures under the Canadian Environmental Assessment Act*, online: CEAA < [http://www.ceaa.gc.ca/Content/D/A/C/DACB19EE-468E-422F-8EF6-29A6D84695FC/Adaptive\\_Mangt-eng.pdf](http://www.ceaa.gc.ca/Content/D/A/C/DACB19EE-468E-422F-8EF6-29A6D84695FC/Adaptive_Mangt-eng.pdf) > [CEAA, *Operational Policy Statement*].

The statement defines adaptive management as a “planned and systemic process for continuously improving environmental management practices by learning about their outcomes.”<sup>142</sup> It notes that adaptive management is included in the *CEAA* in relation to follow-up programs of environmental assessments.<sup>143</sup> The statement also clarifies when it is and is not appropriate to incorporate adaptive management into environmental assessment. As such, the statement highlights a number of instances where adaptive management can be appropriate, such as where a mitigation measure may not function as intended or there is a likelihood of advances in scientific knowledge or technology over the life of the project which could enhance mitigation measures.<sup>144</sup>

The statement is clear about when adaptive management is not appropriate. First, adaptive management is not appropriate when mitigation measures are not identified: “[i]t is insufficient to assert that implementation of an unidentified future measure, developed as a result of adaptive management, constitutes mitigation of a predicted adverse environmental effect.”<sup>145</sup> Similarly, “commitment to adaptive management is not a substitute for committing to specific mitigation measures in the [environmental assessment].”<sup>146</sup> Second, it is inappropriate to rely upon adaptive management “if it is unlikely that the information necessary to support adaptive management will be collected through follow-up or monitoring.”<sup>147</sup> Third, and most importantly in the context of this case, adaptive management is not appropriate when there is uncertainty about SAEs. As the statement says, “if, taking into account the implementation of mitigation measures, there is uncertainty about whether the project is likely to cause SAEs, a commitment to monitor project effects and to manage adaptively is not sufficient.”<sup>148</sup>

The Federal Court did not have this statement at its disposal in rendering its decision, but I argue that the statement’s conclusions are simply a reflection of what the legislation requires. I will now examine these questions in light of the three issues in the case.

### 3.5 Three Illustrations

As I discuss below in section 4.2, in the absence of clarity from the panel, it is fair to assume that it deemed most of the environmental issues it discussed as having the potential for SAEs, but found that the various measures proposed by Imperial Oil, in combination with a variety of recommendations made by the panel, would be sufficient to mitigate those impacts (i.e. to make them minor). In several instances, the panel acknowledges that there is uncertainty regarding these measures, either because the technology is new or in development, or because their outcomes are dependent upon the actions of third parties, such as the Cumulative Environmental Management Association (“CEMA”), discussed momentarily. Using three

---

<sup>142</sup> *Ibid.* at 1.

<sup>143</sup> *Ibid.* at 2; *CEAA*, *supra* note 5, s. 38(5).

<sup>144</sup> *CEAA*, *Operational Policy Statement*, *ibid.*, at 3.

<sup>145</sup> *Ibid.* at 4.

<sup>146</sup> *Ibid.*

<sup>147</sup> *Ibid.* The Statement highlights a fourth example of when it is inappropriate to rely upon adaptive management, namely when a project is likely to cause SAEs that cannot be justified in the circumstances. In this case, a responsible authority should not enable the project to proceed based on a commitment to monitor project effects and manage adaptively.

<sup>148</sup> *Ibid.*

examples, I will examine what impact a more fulsome interpretation of the precautionary principle by the court in *Pembina* would have had on the panel's findings.

### 3.5.1 Reclamation

Reclamation is the main process by which the land disturbance created by mining is mitigated. The panel concludes in its report that "reclamation and reclamation performance are critical to returning mined lands to their end use capability" and that "the return of those lands to acceptable condition within established time frames is required in the public interest."<sup>149</sup> Yet, the panel accepts that reclamation is surrounded by uncertainty, stating that "reclamation is an important regional issue with uncertainties that require adaptive management for resolution."<sup>150</sup> In the forty years of oil sands mining in the Fort McMurray region, only one square kilometre of land has been certified as reclaimed by the provincial government.<sup>151</sup> One of the biggest challenges of reclamation is the need to incorporate the tailings into the landscape and the difficulty of using end pit lakes. As noted earlier, there is a great deal of complexity and uncertainty about end pit lakes.

With respect to the reclamation of peatlands, Environment Canada's submission for the panel hearings noted that the Kearl project would be responsible for the permanent loss of 7,028 hectares of peatlands and noted that "[p]eatlands cannot be reclaimed with current technology, and no other mitigation measures have been proposed to address this issue."<sup>152</sup> Despite the inability of current technology to reclaim peatlands, the Federal Court concluded that "while uncertainties with respect to reclamation of peat-accumulating wetlands remained, they could be addressed through adaptive management given the existence of generally known replacement measures contained in Imperial Oil's mine closure plan."<sup>153</sup>

In other words, the promise by Imperial Oil to rebuild some wetlands based on general knowledge upon which it would adaptively manage satisfied the court that this was a technically and economically feasible measure sufficient to mitigate SAEs. While the court's vote of goodwill towards Imperial Oil and the optimism that the mitigation technology will indeed materialize can be appreciated, this approach does not satisfy the CEAA. It renders the phrase "technically feasible mitigation measures" virtually meaningless. As discussed earlier, what else could technically feasible mean if not that techniques must exist and be affordable, even if they are imperfect?

More importantly, the precautionary principle required, in my view, the panel to err on the side of caution when addressing the uncertainty regarding the possibility of developing rec-

---

<sup>149</sup> *Kearl Joint Review Panel Report*, *supra* note 16 at 50.

<sup>150</sup> *Ibid.*

<sup>151</sup> The land subject to the reclamation approval had not been the site of a mine; rather it had previously been used as a soil dump. The area had once been low-lying wetlands and in its "reclaimed" state it is a forested hill with walking trails. Sara Shenker, "Canada's 'dirty oil' challenge" *BBC News* (11 December 2008), online: BBC <<http://news.bbc.co.uk/2/hi/americas/7763365.stm>>; CBC News, "Former oilsands site certified as reclaimed land" (20 March 2008), online: CBC <<http://www.cbc.ca/canada/calgary/story/2008/03/20/reclamation.html>>.

<sup>152</sup> Government of Canada, *Submissions of the Government of Canada*, online: CEAA <[http://www.ceaa.gc.ca/050/documents\\_staticpost/cearef\\_16237/KR-0029.pdf](http://www.ceaa.gc.ca/050/documents_staticpost/cearef_16237/KR-0029.pdf)> at para. 4.17.

<sup>153</sup> *Pembina*, *supra* note 1 at para. 62.

lamation technology that could reclaim the peatlands. This approach would mean not assuming the technology will materialize, but looking for clear evidence of such technology and its effectiveness. Following the spirit of the guidelines and case law discussed earlier, precaution presumes risk in the absence of proof to the contrary. A precautionary approach would place the onus on Imperial Oil to demonstrate that the reclamation technology relating to end pit lakes and peatlands was sufficient to ensure that they would not cause serious environmental impacts. In my view, the court erred in accepting the reasonableness of the panel's reliance upon uncertain technologies to justify a finding of insignificant environmental effects. Although the panel is comprised of members with expertise, the standard of review for a mandatory duty such as that in subsection 4(2) is correctness, and I believe the panel incorrectly interpreted the duty in subsection 4(2).

### 3.5.2 Endangered Species

The court's approach to endangered species follows similar logic. The applicants claimed that the panel had failed to consider the adverse environmental impacts on endangered species, notably the yellow rail, and failed to consider technically and economically feasible mitigation measures for any such impacts.<sup>154</sup> The panel expressed some concern for the species, given the negative effects on its habitat, and made a number of recommendations for further studies.<sup>155</sup> On this basis, and in spite of uncertainty surrounding the impacts of the Kearn project on the yellow rail, the panel concluded that the project was unlikely to have SAEs on endangered species. The court sanctioned this approach. Despite noting that suitable habitat for this species is found throughout the region, that the "habitat cannot be reclaimed with current technology",<sup>156</sup> and that there is uncertainty regarding the impacts of the project upon the species, the court finds the panel's assessment of the significance of environmental effects on the yellow rail to be reasonable.<sup>157</sup> Justice Tremblay-Lamer justifies her conclusion by noting the "dynamic nature of the assessment process."<sup>158</sup> While the assessment process is dynamic, and it is reasonable to expect proponents and related parties such as government to continue to study environment impacts and improve upon mitigation measures, is it reasonable for a panel to find that the project is unlikely to have SAEs on terrestrial resources (including the yellow rail) in a vacuum of information? On what basis does the panel draw its conclusion? It has stated that there is a lack of information – would not the reasonable conclusion be to suggest that the environmental impacts (and their significance) are simply unknown at this point?

Applying a precautionary approach would require erring on the side of caution in light of this uncertainty, and thus concluding that there may be SAEs. As noted earlier, the *Guidelines on Environmental Assessment for Wildlife at Risk in Canada* state that the onus of proof is on the proponent to demonstrate that adverse effects on wildlife at risk are not significant. Applying

---

<sup>154</sup> *Ibid.* at para. 63.

<sup>155</sup> For instance, the panel recommended that Alberta Environment in collaboration with Environment Canada coordinate a regional review of the cumulative impacts on the yellow rail and determine mitigation options to minimize the impacts on the species (*Kearn Joint Review Panel Report, supra* note 16 at 50).

<sup>156</sup> *Pembina, supra* note 1 at para. 67.

<sup>157</sup> *Ibid.*

<sup>158</sup> *Ibid.* at para. 69.

these guidelines and the precautionary principle would warrant a finding by the Federal Court that the panel's conclusion with regards to the yellow rail was unreasonable.

### 3.5.3 Cumulative Impacts

Evaluating the cumulative impacts of a project like the Kearl oil sands development, which is nested among a myriad of other similar developments, is complex. Despite the challenges, the *CEAA* requires consideration of cumulative impacts in environmental assessments.<sup>159</sup> In 1999, the Government of Alberta created a Regional Sustainable Development Strategy ("RSDS") for the Athabasca oil sands region, which is essentially the province's policy guidance document for managing the cumulative effects of the oil sands developments. The Cumulative Environmental Management Association ("CEMA") is a stakeholder group developed in 2000 to consider and find solutions to cumulative impacts of the oil sands. Unfortunately, in their near decade of existence, neither the RSDS nor the CEMA have (as of the time of writing) delivered management frameworks to define environmental thresholds for oil sands development and ensure environmental protection. The CEMA has been repeatedly criticized for being ineffective.<sup>160</sup> The Kearl panel acknowledged the inadequacy of regional management frameworks for cumulative effects, noting that it was "deeply concerned by the inability to establish and maintain priority for critical items such as the Water Management Framework for the Athabasca River, the Muskeg River Watershed Integrated Management Plan, and the Regional Terrestrial and Wildlife Management Framework."<sup>161</sup> The panel also expressed serious concerns about the CEMA's capacity to complete the management frameworks assigned to it.<sup>162</sup>

Despite this clear concern about the management of cumulative effects within oil sands developments, the panel recommended that the CEMA or Alberta Environment come up with a management plan for the Muskeg River watershed by the end of 2008. The panel then concluded that, conditional upon this and some other measures being implemented, the KOS will not cause SAEs in the Muskeg River basin.<sup>163</sup>

Justice Tremblay-Lamer acknowledges concerns with respect to the CEMA's effectiveness, but instead of evaluating whether the panel's reliance upon the CEMA for mitigation was reasonable, she comments that Alberta Environment would be available to backstop the CEMA's work should that group continue to fail to function in future. Justice Tremblay-Lamer states, "I find this to be consistent with the precautionary principle in that if CEMA is unable to complete a management plan by March 2008, the regulator should be engaged to prevent potentially adverse environmental consequences."<sup>164</sup> Ironically, the court uses the precautionary principle not to err on the side of caution in evaluating the effectiveness of relying upon

<sup>159</sup> *CEAA*, *supra* note 5 s.16(1)(a).

<sup>160</sup> See *Notice of Application*, *supra* note 54 at paras. 52-54 for details. See also Steven A. Kennett, "Closing the Performance Gap: The Challenge for Cumulative Effects Management in Alberta's Athabasca Oil Sands Region" Occasional Paper #18, *Canadian Institute of Resources Law* (2007), online <<http://dspace.ualgary.ca/bitstream/1880/47191/1/OP18Athabasca.pdf>>.

<sup>161</sup> *Kearl Joint Review Panel Report*, *supra* note 16 at 4.

<sup>162</sup> See e.g., *ibid.* at 92-93.

<sup>163</sup> *Ibid.* at 77-78.

<sup>164</sup> *Pembina*, *supra* note 1 at para. 45.



the CEMA as part of a mitigation strategy, but to justify a mitigation strategy with uncertain outcomes. This is the opposite of what the precautionary principle requires.

In sum, these three examples show that the panel repeatedly used measures and future actions with uncertain outcomes as bases upon which to determine that environmental impacts would not be significant. This runs counter to the *CEAA*, which only allows reviewers to rely upon *technically and economically feasible* measures to mitigate SAEs. In the event of uncertainty, the *CEAA*'s duty to apply the precautionary principle should require reviewers to err on the side of caution by judging uncertain (and thus not technically feasible) measures insufficient to mitigate SAEs. The court should have allowed the application for judicial review based on this error of law. Instead, the court not only failed to overturn the error, but justified the approach by relying upon a principle of adaptive management, which it placed on equal footing with the precautionary principle. While it is reasonable to expect project proponents to adapt their mitigation strategies as they learn about the effectiveness of those strategies, it is unreasonable (and indeed counter to the very clear language of the *CEAA*) to substitute adaptive management for the precautionary. The recent operational guidelines on adaptive management confirm this interpretation.

#### 4. SECTION 34(C) - DUTY TO ARTICULATE CONCLUSION AND RATIONALE

In this section, I argue that the *CEAA* requires panels to articulate their findings relating to environmental impacts, including whether or not they are significant, and whether and how the proposed measures could mitigate those serious impacts. After suggesting that assessments of environmental effects, significance and mitigation must be made in a particular order and the findings for each articulated separately, I argue that the court should have required the panel to better articulate its explanations for finding the impacts insignificant with respect to water, reclamation, and endangered species, not only GHG emissions.

##### 4.1 Sequence of Analysis

Earlier, I identified three key steps in the environmental assessment process, namely the identification of environmental effects, determining whether those are significant, and deciding whether there are measures that can mitigate the significance of those effects. The reason that the three steps identified as the trilogy must ensue in the order presented is self-evident. It is not possible to assess the significance of environmental effects that have not been identified, nor is it possible to determine whether certain measures would mitigate the significance of those effects if those effects have not been identified as significant. Justice Campbell summarizes this process in the *Cardinal River Coals* decision, stating that a "Joint Review Panel is first required to define and describe the environmental effects, and then to make a finding respecting the weight to be placed on each effect, or in the words of the provision, to consider the 'significance' of each effect."<sup>165</sup> Justice Campbell then notes that the consideration of mitigation measures takes place in the context of the weighing of significance. In other words, "if a defined and described environmental effect is considered 'adverse' and 'significant'" (steps 1 and 2 above), then "mitigation of this effect by practical means is important to consider."<sup>166</sup>

---

<sup>165</sup> *Cardinal River Coals*, *supra* note 75, at para. 55.

<sup>166</sup> *Ibid.* at para. 56.

I believe that the Court in *Pembina* erred in assessing the reasonableness of the panel's decision based on the panel's consideration of these three factors merged as one. In other words, the merging of the three issues made it impossible to judge the reasonability of each independent finding in the trilogy, particularly the role of mitigation measures. I argue that the panel failed to articulate its reasons for how and why the measures mitigated SAEs for all three issues, not just GHG emissions, and that the court thus erred in deferring to the panel's expertise.

#### 4.2 Articulation of Conclusion and Rationale

Paragraph 34(c) of the *CEAA* requires a panel to articulate its findings, which I believe includes stating which of the environmental effects under consideration it judges to be significant and, if it relies upon mitigation measures to make a finding of insignificance, explaining how measures will mitigate those serious impacts.<sup>167</sup> Surprisingly, the Kearsley panel does not once articulate in its 116 page report whether the environmental effects under discussion throughout the report are determined to be significant. Rather, it skips what I have called "step 2" in the trilogy above, and concludes for each issue that, taking into account mitigation measures, the environmental impacts will be insignificant. Without an articulation of its findings according to the three steps identified above, one can only imply that the effects were held to be significant, but that the panel found the impacts to be mitigated by the measures proposed.

Why does the panel never directly state that the environmental impacts would be significant? The reason for this is not that the panel shies away from using the qualifier "significant." On the contrary, the panel uses the word significant to describe a number of proposed economic benefits in the report.<sup>168</sup> Three factors may explain the omission. First, the panel may have proceeded on the assumption that all the environmental impacts discussed in the report are significant since the review was referred to a panel.<sup>169</sup> Second, the panel concludes each section of its report with a statement that the project is not likely to cause SAEs as long as the proposed mitigation measures and recommendations are implemented. Since the measures discussed in paragraph 16(1)(d) are only relevant to mitigate *significant* environmental effects, one could assume that the panel treated all environmental effects as significant.

---

<sup>167</sup> *CEAA*, *supra* note 5, s. 34(c) requires the panel's report to include a "rationale" for its conclusions and recommendations, which in my opinion necessitates an articulation of whether the environmental effects are significant.

<sup>168</sup> For example, the panel describes the economic benefits and local business opportunities expected to be generated by the project as significant, and the net benefits from taxes and royalties to be significant (*Kearsley Joint Review Panel Report*, *supra* note 16 at 15, 20).

<sup>169</sup> The Kearsley Panel was created by the Minister of Environment in response to the Department of Fisheries and Oceans' request under s. 25 of the *CEAA*, *supra* note 5 (Canadian Environmental Assessment Agency, News Release "The Proposed Kearsley Lake Oil Sands Development Project Referred to an Environmental Assessment Review Panel" (June 14, 2006), online: <[http://www.ceaa-acee.gc.ca/050/DocHTMLContainer\\_e.cfm?DocumentID=14940](http://www.ceaa-acee.gc.ca/050/DocHTMLContainer_e.cfm?DocumentID=14940)>). Section 25 allows the responsible authorities to request the creation of a panel when it is of the opinion that the project may cause significant adverse environmental effects even taking into account the implementation of mitigation measures, or because of public concerns. The minister's referral to create a panel does not specify which of these reasons inspired the request, but it is fair to say that most panel reviews are dealing with projects in which the environmental effects are likely to be found significant.

Third, the case law interpreting the significance assessment suggests that consideration of mitigation measures (step 3) can be integrated into the significance determination. For example, one of the applicants' arguments in *Express Pipelines*<sup>170</sup> was that the panel had erred in not considering the possible environmental effects of the project before considering mitigation. The Federal Court of Appeal dismissed the application, holding that the panel had no duty to consider the factors of environmental effect, significance and mitigation sequentially. However, the *Express Pipelines* case is distinguishable on the basis that the mitigation measures in that case were known technologies. With confidence about the mitigation measures, the court concludes that "there can be no purpose whatever in considering purely hypothetical environmental effects when it is *known and proposed* that such effects can and will be mitigated by appropriate measures."<sup>171</sup> Although I disagree with the court's sweeping statement that the *CEAA* does not require the sequential consideration of the subsection 16(1) factors (I think logic requires it), one can appreciate the court's reluctance to require detailed examination of environmental effects if they will simply never occur because it is *known* that they will be mitigated. The circumstances of the *Pembina* case, which involve a host of mitigation measures based on unknown technologies or technologies with unknown outcomes, are different.

In a similar vein, Justice Campbell concludes in a decision following *Express Pipelines* that once mitigation measures have been considered, the conclusion reached about their potential for mitigating serious environmental harm can become a feature of the environmental effect.<sup>172</sup> However, the language of this decision clearly suggests that the consideration of significance and mitigation measures are separate undertakings, which can be integrated in the decision making process after all three steps have been done.<sup>173</sup>

Based on the language of the *CEAA* and these cases, I suggest that it is incumbent upon panels to articulate their findings of environmental effect, the significance of such effects, and the potential for mitigation measures to make those effects insignificant. When it is known (i.e. certain) that proposed measures will mitigate the significance of environmental effects, *Express Pipelines* would allow a panel to communicate its findings in a way that blends the three part test. However, when there is uncertainty surrounding the mitigation measures, a panel is responsible under paragraph 34(c) for articulating its conclusions separately so that the reasonableness of the panel's findings can be evaluated by the public, by the government in making its decision about whether to allow the project, and by a court on review.

In *Pembina*, the court held that the panel failed to provide a rationale for its decision that the GHG emissions from the KOS project would not likely cause SAEs to air quality. Justice Tremblay-Lamer was convinced, if not about the unreasonableness of concluding that GHG emissions of that magnitude could be insignificant, at least of the need to explain the reasoning behind the conclusion. While not requiring an "in-depth explanation of the scientific data for all of its conclusions and recommendations", she states that the panel must "explain in a general way why the potential environmental effects, either with or without the imple-

---

<sup>170</sup> *Express Pipelines*, *supra* note 85 at para. 13. The case was a judicial review of a joint panel report that had considered the impacts of a proposed underground crude oil pipeline in Alberta.

<sup>171</sup> *Ibid.*

<sup>172</sup> *Cardinal River Coals*, *supra* note 75 at para. 56.

<sup>173</sup> *Ibid.*

mentation of mitigation measures, will be insignificant.”<sup>174</sup> With respect to the deference that must be shown to the expertise of panel members, Justice Tremblay-Lamer underlined that the deference is only triggered when the experts have cogently articulated a rational basis for conclusions reached.<sup>175</sup>

The duty to apply the precautionary principle strengthens the argument that panels need to clearly articulate their assumptions and conclusions relating to the effects, significance and mitigation determinations. As the various interpretative guidelines indicate, the precautionary principle requires proponents to “outline and justify the assumptions made about the effects of all aspects of the project and the approaches to minimize these effects.”<sup>176</sup> In my view, this supports an interpretation of paragraph 34(c) that requires a clear explanation in its report of the Panel’s findings in relation to each factor considered in subsection 16(1), and any assumptions being made. While the court found the lack of explanation with regards to GHG emissions to be a reviewable error, I believe it should have also held the lack of articulation of findings and assumptions with respect to the other issues reviewable, given the application of the precautionary principle.

## 5. CONCLUSION

I have argued in this article that the Federal Court’s decision in *Pembina* represents a setback in the evolution of environmental assessment in Canada. The court’s decision to require the

---

<sup>174</sup> *Ibid.* at para. 73.

<sup>175</sup> *Ibid.* at para. 75. The question of why the court decided that the GHG emissions issue warranted further explanation by the panel, when the other two issues did not, is interesting. What distinguished the GHG question? There are numerous possibilities, including that the panel report provided very little discussion of GHG emissions and did not make any mention of the potential impacts of these emissions on the climate, instead lumping GHG emissions in with air quality issues. While there is overlap between the two, they remain distinct issues. Air quality problems, such as ground level ozone, particulate matter and acid rain occur in the lowest part of the atmosphere and are localized or regional in nature. Although the causes are similar, climate change occurs on a global level. For example, see British Columbia, “BC Air Quality – Air Quality and Climate Change”, online: <<http://www.bcairquality.ca/climate-change/index.html>>. While GHG emissions impact upon air quality, they are also the cause of human induced climate change, which is arguably the most significant environmental issue of the century. Another possibility is that the threshold of environmental impact was rendered measurable for the court with quantifiable data (for instance, the project’s proposed GHG emissions were calculated as a percentage of the province’s (1.7 per cent) and country’s (0.51 per cent) overall GHG emissions, and translated into the equivalent number of cars added to Canadian roads (800,000). Providing data about environmental impact in a highly measurable, tangible format may help reveal the trade-offs of the decision, and perhaps inspired the court to require a better articulation of the justification for finding these impacts – so easy to appreciate and measure given the way the data is communicated – not serious. In contrast, the impacts on water quality of the project are described in much less tangible terms. *Kearl Joint Panel Report*, *supra* note 16 at 78. For example, what is a “small change” to water quality? What if a small change meant that 5 per cent of the local peoples’ food was unhealthy as measured by accepted guidelines? What if it meant 25 per cent or 50 per cent? In another example, the panel acknowledged that over 7000 hectares of peatland would be destroyed by the project. While 7000 hectares seems like a large number, is it significant? Would it help if the loss was explained in terms of the loss of the ecosystem services provided by peatlands? For example, peatlands play critical roles in the provision of water quality as well as the sequestration of carbon. For a description of many ecosystem services, see Gretchen Daily, ed., *Nature’s Services: Societal Dependence on Natural Ecosystems* (Washington: Island Press, 1997).

<sup>176</sup> *Darlington Guidelines*, *supra* note 120 at 7.

panel to explain its findings of insignificance in relation to GHG emissions is laudable, as it gives meaning to paragraph 34(c) of the *CEAA*. However, I believe that the court should have required the panel to articulate its findings relating to effects, significance and mitigation with respect to the other issues as well. The standard of correctness applicable to this part of the decision, combined with the precautionary principle, requires the panel to provide a clear and defensible explanation of the basis upon which it held the impacts on water, land and endangered species to be insignificant, and how it justified the uncertainty relating to the mitigation measures.

Further, I have argued that the *Pembina* decision represents a setback in environmental assessment by applying a very weak interpretation of the precautionary principle in the *CEAA*, and mistakenly elevating the principle of adaptive management to the level of a guiding tenet. Using the adaptive management principle to justify its findings, the court condoned the panel's reliance upon measures and recommendations with uncertain outcomes to mitigate the significance of environmental effects caused by the oil sands project. By accepting the panel's approach to mitigation as reasonable, the court in essence fails to apply the precautionary principle and inappropriately uses adaptive management to justify the divergence from precaution.

The *CEAA*'s fundamental purpose is to ensure that governments make informed decisions. Part of making informed decisions means governments need to understand the anticipated environmental impacts from proposed developments, including the significance of those impacts, taking into account any mitigation measures. The recent inclusion of the precautionary principle in the *CEAA* makes it clear that reviewers have a duty to err on the side of caution when making these assessments, so that decision makers are sure to know whether a project risks having SAEs. This duty reduces the threshold of uncertainty that panels may tolerate in assessing environmental impacts. The duty may even justify reversing the onus of proof, requiring project proponents to demonstrate that their proposed actions will not have SAEs. The government may choose to authorize a project that risks creating SAEs, but that is an open-eyed decision that can be scrutinized by the public and acted upon at election time, if desired.

Unfortunately, the court's derogation of the precautionary principle in the *Pembina* decision risks weakening one of the most important tenets of environmental assessment, letting governments forge ahead protected by a false shield of wilful blindness. It is now up to the courts to distinguish *Pembina* and follow the momentum of progress toward sustainable development in applying the precautionary principle in environmental assessment.