Addendum

Alder Institute Merits Review Submission to the Hebron Public Review

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The Alder Institute Inc. is a non-profit collective dedicated to representing an ecological point of view in public discourse, and to translating science into common language. Alder's mandate focuses on, but is not limited to, the natural history of Newfoundland and Labrador. Founded in 1998, Alder has participated in earlier environmental assessment reviews of offshore oil and gas projects in Newfoundland and Labrador (i.e. Terra Nova, White Rose). On August 11, 2010 Alder responded to the invitation for public comment on the draft *Comprehensive Study Report (CSR) for the Hebron Development Project*. On September 23, 2011 Alder responded to the invitation for public submissions of requests for further information to the Hebron Public Review. On November 14, 2011 Alder submitted its Merits Review and on December 6, 2011 made a presentation to the Hebron Public Review Hearing in St. John's, Newfoundland. The contact person for the purpose of the Hebron Public Review is Janet Russell.

The Hebron project is located in an offshore area noted for the presence of high densities of marine birds. Many of these birds are international migratory species subject to our protection when in Canadian waters (Government of Canada 1994). Marine birds are attracted to offshore oil and gas platforms (Tasker et al. 1986, Baird 1990, Wiese et al. 2001). Marine birds in the vicinity of offshore oil and gas platforms risk death (Tasker et al. 1986, Baird 1990, Wiese et al. 2001).

> Hebron CSR Section 9.5.4.3 Potential Mortality
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> *Exposure to oil causes thermal and buoyancy deficiencies that typically lead to the deaths of affected marine birds. Although some may survive these immediate effects, long-term physiological changes may eventually result in death (Ainley et al. 1981; Williams 1985; Frink and White 1990; Fry 1990).*

Exposure to Produced water and synthetic based drilling muds is also potentially lethal for marine birds (O'Hara and Morandin, 2010).

With the exception of wastes that are re-injected or transported to shore, the offshore oil and gas industry uses the ocean as a waste treatment facility. There is authorized, long term, chronic disposal of waste streams (i.e. produced water). These chronic waste streams kill marine birds. The Hebron CSR presents no quantified estimate of how often events potentially lethal to birds occur. The Hebron CSR presents no estimate of how

many birds potentially encounter these events and there is no estimate of resulting marine bird mortality.

In addition to the lethal threat from authorized discharges marine birds near offshore oil and gas platforms risk mortality from encountering accidental spills of deleterious substances. While hydrocarbons are the usual suspect, synthetic based drilling muds are another example of oil and gas byproduct that poses a threat to marine birds.

The attraction of marine birds into waters known to pose lethal risks increases the likelihood that marine birds will encounter these risks. The attractant effect of the Hebron oil and gas platform has not been estimated by the Hebron CSR.

Chapter 14 of the CSR discusses the risk of oil spills at Hebron. A review of local information summarizes the number of hydrocarbon spills separately from synthetic based drilling muds. They are not given equal treatment. There is no overall summary for spills of known deleterious substances spilled in the offshore or predicted to be spilled by Hebron.

For birds attracted to an oil and gas site the size of a spill is not the biggest influence on the likelihood that they will encounter the spilled substance. Spills of **all** sizes have the potential to kill marine birds that encounter them. It is the encounter that is lethal, not the size of the spill. Therefore to properly assess the risks to marine birds **all** spill sizes of **all** deleterious substances need to be considered. The CSR has not done this. Even though they do acknowledge (in a different section) the risk posed by even small spills.

> Hebron CSR Section 9.5.4.3 Potential Mortality
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> *Oil spills at sea have the potential to kill tens of thousands of birds (Clark 1984; Piatt et al. 1990). However, it is difficult to estimate how many marine birds are oiled during any particular oil-spill, because some birds may not reach shore (dead or alive), and beached carcasses may be scavenged or washed out to sea before being counted (Ford et al. 1987). There is also no clear correlation between the size of an oil spill and numbers of marine birds killed, because the density of birds in a spill area, wind velocity and direction, wave action, and distance to shore can have a greater bearing on mortality than the size of the spill (Burger 1993). Accordingly, even small spills can cause cumulative mass mortality of marine birds (Joensen 1972; Carter et al. 2003; Hampton et al. 2003). In contrast, relatively low mortalities have been recorded from some huge spills. For example, the Amoco Cadiz spilled 230,000 tonnes of crude oil along the French coast, causing the recorded deaths of 4,572 birds (Clark 1984). A major spill that persists for several days near a nesting colony could kill a high proportion of pursuit-diving birds (e.g., murres) within the colony (Cairns and Elliot 1987).*

The CSR summarizes a portion of the local history of hydrocarbon spills in our waters. They report some 378 hydrocarbon spill events from production platforms in our offshore between 1997 and 2010. Exploration spills are not included. To assess the cumulative

effect of adding a new development project to the offshore here one needs to first consider the existing risks from all sources, not just production facilities. There is however, no transparent assessment of the cumulative mortality imposed on marine birds by offshore oil and gas here in any case.

The treatment of synthetic based drilling muds is not summarized in the same way as the hydrocarbon spills. While hydrocarbon spills have been reported for all sizes of spill i.e. down to and including spills of less than 1 litre, reported spills of synthetic drilling muds do not include spills of less than 1 litre. Spills of less than 1 litre have the ability to kill large numbers of birds if they encounter them. Spills of less than 1 litre are no less dangerous to marine birds who contact the spill than larger spills. The critical aspect for a marine bird is not the size of a spill or whether it is hydrocarbon or sythethetic based mud. The critical aspects for a marine bird are whether a substance is deleterious to its health and whether or not it actually encounters the substance. The lethal threat posed by a spill for a marine bird only exists when the bird and the spill meet. The Hebron CSR makes no estimates of this risk. Nor does it sufficiently acknowledge the risks posed by Synthetic Based Drilling Muds. Nonetheless the Hebron CSR concludes that the residual risks to marine birds of accidental spills are not significant. They do so despite acknowledging that bird carcasses from offshore oiling are unlikely to be detected. How we are left to wonder, do they plan to follow up on their predictions of no significant effects?

The Hebron CSR acknowledges on the one hand that mitigating the effects of spill encounters on birds by cleaning them is unlikely to work.

> Hebron CSR Section 9.5.4.3 Potential Mortality
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> *Oiled birds that are cleaned and released might not have high survival rates. Pooling across the three species with the most band recovery data between 1969 and 1994 (Western Grebe (Aechmophorus occidentalis), White-winged Scoter (Melanitta fusca) and Common Murre), the median days that cleaned birds survived were 4 to 11 days, or a mean of four days (Sharp 1996).*

On the other hand further along in the Chapter on Marine Birds the Hebron CSR concludes something quite different.

> Hebron CSR Section 9.5.4.3 Potential Mortality
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> *Spill countermeasures and marine bird rehabilitation would additionally reduce potential cumulative environmental effects.*

Despite citing evidence from the literature that birds are at risk of death from various threats posed by offshore oil and gas platforms and the irreversibility at the individual level of these effects the Hebron CSR manages to conclude that there will be no significant residual environmental effects on marine birds from the project. See below, bolding emphasis has been added here to highlight conclusions.

Hebron CSR Section 9.5.6 Determination of Significance

The determination of significance is based on the definition provided in Section 9.2. It considers the magnitude, geographic extent, duration, frequency, reversibility and ecological context of each environmental effect with the Study Area, and their interactions, as presented in the preceding analysis. Significance is determined at the population level within the Study Area.

Adverse environmental effects of attraction to illumination on structures and vessels on Marine Birds during the construction / installation phase of the Project are predicted to be low in magnitude, geographic extent, duration and frequency when mitigation measures are practiced. ***Although significant at the individual level, these environmental effects are predicted to be reversible at the population level. These environmental effects are therefore predicted to be not significant.***

Adverse environmental effects of attraction to illumination on structures and vessels on Marine Birds during the operation and maintenance phase are predicted to be low in magnitude, geographic extent, duration and frequency when mitigation measures are practiced. Adverse environmental effects of produced water on Marine Birds during the operation and maintenance phase are predicted to be low in magnitude, geographic extent, duration and frequency when mitigation measures are practiced. ***Although potentially significant at the individual level, these environmental effects are predicted to be reversible at the population level. Therefore, these environmental effects are predicted to be not significant.***

Adverse environmental effects of attraction to illumination on structures and vessels on Marine Birds during the decommissioning and abandonment phase of the project are predicted to be low in magnitude, geographic extent, duration and frequency when mitigation measures are practiced. ***Although significant at the individual level, these environmental effects are predicted to be reversible at the population level. These environmental effects are therefore predicted to be not significant.***

Adverse environmental effects of accidents, malfunctions and unplanned events (i.e., hydrocarbon and other chemical spills due to collisions, failure of OLS manifolds or risers, subsea blowouts, batch spills or marine vessel incidents) are predicted to be low to high in magnitude, low to high in geographic extent, low to moderate in duration and low in frequency. ***Although significant at the individual level, these environmental effects are predicted to be reversible at the population level. Nevertheless, these environmental effects are predicted to be significant.*** *Smaller scale spills and blowouts in calm conditions may be mitigated via oil spill response measures and marine bird rehabilitation; however, these mitigations are recognized to be limited. ExxonMobil's philosophy is focused on prevention using safety and risk management systems, management of change procedures, and global standards. There will be an emphasis on accident prevention at all phases of*

the Project.

The significance of potential residual environmental effects, including cumulative environmental effects, resulting from the interaction between Project-related activities and Marine Birds, after taking into account any proposed mitigation, is summarized in Table 9-14.

Because the adverse environmental effects of each Project phase are predicted to be not significant, the adverse environmental effects of the Project overall is predicted to be not significant.

The Hebron CSR's conclusion that the residual effects on marine birds from flaring, chronic discharges and spills are not significant is not supported by evidence. The populations within the Study Area referred to in the Proponent's determination of significance have not been clearly defined nor their size estimated. The assumption of reversibility at the population level of all significant effects that is relied on to support the final conclusion of no significant residual effects has not been substantiated. The mortality of marine birds from existing local oil and gas operations has not been estimated. Despite reporting a history of numerous spills in Newfoundland and Labrador's offshore the CSR does not report on historical follow up efforts to quantify the effects on marine birds. There is no information presented on the monitoring of past events i.e. the fate and behaviour of spills and resulting effects on wildlife. Neither have the risks to marine birds from spills at Hebron been estimated. Quantified predictions of future mortality have not been estimated.

There is no clear line of evidence-based logic to lead one from the CSR's consideration of the literature to the CSR's final conclusions of no significant residual effects. The prediction of no residual significant effects is simply an exercise in wishful thinking.

A proponent of a project can be expected to suffer from optimism-induced delusion. Such wishful thinking must be countered by insisting on the rigorous application of a scientific approach tempered by the Precautionary Principle. We call on the Commisioner of the Hebron Public Review to do everything within his power to see that this is done.

Newfoundland and Labrador's marine environment has been host to oil and gas activity for decades. Untold cumulative effects on marine species and habitat have been proceeding without bringing the regulator(s) and operators to account. We ask that the persistence of this situation be arrested at this juncture. If it is not we risk setting in motion yet another commitment to carry on as usual without the benefit of corrective measures that could be taken at this juncture.

The Hebron CSR is not acceptable. Its conclusions are not believable. Those of us familiar with earlier Environmental Assessment exercises have already lost faith in the process. We ask that the imbalance between fact and fiction be addressed. Approval of the Hebron Development Application cannot be justified on the basis of the CSR before us.

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