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Dear sir,

The Gros Morne Coastal Alliance is a group comprised of residents of the Gros Morne area with backgrounds that include geology, ecology, chemistry, health sciences, education, tourism, and environmental policy. With both active and retired professionals in these fields, we are pleased to have this opportunity to submit comments on the Western Newfoundland and Labrador Offshore Area Strategic Environmental Assessment Update Draft Report (SEA) prepared by AMEC.

Our understanding is that the SEA report will be a tool for the C-NLOPB to evaluate whether or not to go ahead with issuing offshore exploration licenses in the Gulf of St. Lawrence (including the offshore portion of onshore-to-offshore drilling operations) and if so, what should be required conditions and mitigations. While there are weaknesses and omissions in this report which we will point out below, this report still contains enough documentation to demonstrate that oil and gas activities should not be allowed in Newfoundland's part of the Gulf of St. Lawrence at this time:

- The consultation program reveals that there is considerable concern and a lack of social acceptability in all five Gulf provinces;
- Western Newfoundland's part of the Gulf has many sensitive habitats, vital to the Gulf ecosystem's health;
- Significant knowledge gaps remain;
- Fisheries and tourism are very important and their co-existence with oil and gas activities would be very difficult; and
- Effectiveness of "standard" mitigation measures is not proven.

Some of our specific comments on the report include the following:

### **1. Onshore to Offshore Drilling and Fracking**

Knowing that a number of proposals are for onshore to offshore drilling, for the SEA to fail to acknowledge the potential for onshore spills (during drilling as well as during transport and waste disposal) is incomplete.



We commend that hydraulic fracturing was included in the draft SEA (3.2.4). However the report states that fracking has been conducted since the 1950s. It is misleading to not clarify this statement. For example:

- It should also be noted that the earliest stimulation was done on conventional wells (vertical, in porous reservoir rock, extending only a few feet from the borehole).<sup>1</sup>
- The high-volume (or massive) slick-water fracturing of low-permeability shales that we speak of today arose recently, after several decades of low-volume hydraulic fracturing of permeable reservoir rocks.
- Horizontal wells were unusual until the 1980s.<sup>2</sup>
- It was as recently as 1996 that slick-water fracturing treatments, which involve adding chemicals to water, were introduced.<sup>3</sup>
- Fracking is still an emerging and changing technology, for example the length of horizontal wells and the number of wells per wellpad continues to increase. Also experimentation with fracking fluids based on propane or saltwater, as concern mounts about the massive consumption of freshwater used in the process.

The SEA omits that it is the recent combination of high-pressure fracking, directional drilling, and slick-water hydraulic treatments to release shale oil and gas from tight source rocks that has become controversial across North America, Europe, Australia and parts of Africa.

An objective discussions of risks associated with fracking is lacking – especially with regard to what chemicals may be present in produced water, flowback fluid, or gas migration.

- Because methane migration has been identified as the source of contamination of water supplies in a number of instances across North America, this issue requires broader consideration.<sup>4</sup>
- The report fails to mention the release of naturally-occurring heavy metals and radioactive elements in the produced water and flowback.
- Brine, which is naturally occurring in deep rock layers, often at high concentrations, is not mentioned. This has recently been implicated in a toxic spill from the Apache pipeline in NW Alberta.

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<sup>1</sup> A. J. Stark, A. Settari, J. R. Jones, [Analysis of Hydraulic Fracturing of High Permeability Gas Wells to Reduce Non-darcy Skin Effects](#), Petroleum Society of Canada, Annual Technical Meeting, Jun 8 - 10, 1998, Calgary, Alberta.

<sup>2</sup> Robbins K. (2013). [Awakening the Slumbering Giant: How Horizontal Drilling Technology Brought the Endangered Species Act to Bear on Hydraulic Fracturing](#). *Case Western Reserve Law Review*.

<sup>3</sup> [The Breakthrough Institute. Interview with Dan Steward, former Mitchell Energy Vice President. December 2011.](#)

<sup>4</sup> <http://theyee.ca/News/2011/12/19/Fracking-Contamination/>



While the spill history of offshore petroleum industry is reviewed, there is no comparable analysis of accidents related to fracking – which is one of the extraction methods being considered in western Newfoundland.

Notwithstanding the very short review of fracking and potential impacts, AMEC concludes that public concerns are sufficiently high in Newfoundland to justify more consultations and discussions before allowing this activity.

## 2. Risks Due to Physical Environment

**Geology** - p. 98, section 4.1.1.2, 2<sup>nd</sup> paragraph. “The Humber Zone is part of a large **autochthonous** ...” should read “*allochthonous*” – these are transported and deformed rocks! The Humber Arm Allochthon is composed of transported structural slices. The rocks layers within each thrust slice are relatively undisturbed, but narrow zones between each low-angle thrust fault have been crushed and sheared into tectonic *mélange*. The result is fractured and disturbed strata, which would provide numerous routes for uncontrolled perpendicular leakage. There is no way to know how the fracking process will affect this rock, for example, how far fractures would go, and whether hydraulic fracturing would enlarge existing fractures or increase the connectivity of the fracture system. Our concern is that there could be a risk of hydrocarbons, or fracking fluids, migrating up through naturally occurring fractures and possibly into the ocean.

**Petroleum Vulnerability index** – It is of biological significance that many of the identified areas of relatively high sensitivity are located at or near the mouths of rivers and streams. Furthermore, of the target drill sites that have been identified by exploration license holders (Shoal Point, Sally’s Cove, Trout River, Lark Harbour), many are situated on coasts with a moderate index. In assessing the impact of potential spills, we recommend that this PVI be considered. While the probability of spills may be low (based on historic records), the potential impacts are high. This has implications for risk assessment, and contingency planning.

## 3. Recognizing the biological importance of offshore areas in the Gulf

A major portion of the report is devoted to identifying sensitive or biologically important zones within the Newfoundland part of the Gulf. A careful reading of the report makes one realize that all of the Newfoundland part of the Gulf should be given a level of protection in order to ensure the sustainability of fisheries, and ecological processes.

- Huge areas of importance for marine mammals (sect. 5.3.3.2)
- Critical areas for cod, redfish, plaice (spawning, juveniles, migration) (sect. 4.2.1.7)
- Unique winter refuges for herring and capelin (sect. 4.2.1.7)
- Important sites for lobster, krill, etc. (sect. 4.2.1.8)
- West Coast Atlas of sensitive zones shows that the major part of the Newfoundland West Coast could be designated as sensitive (sect. 4.2.1.1).
- Important bird areas (4.2.2.7).





Unfortunately, no synthesis map of all the sensitive or biologically important zones is presented in the report. Such a map would have helped to show how much of the Western Newfoundland coast could be qualified as important or sensitive. The detailed documentation of resources and seasonal use is remarkable. However, by dissecting out the components of the ecosystem, it is easy to miss the holistic interaction between resident and migratory species, between seasonal productivity and species distribution, and the seasonal relationship to ice, currents, and nutrients. While this may seem like a tall expectation – to be able to model the dynamics of this portion of the Gulf of St. Lawrence ecosystem — it is precisely the inability to grasp all this complexity that makes any assumptions about the impacts of oil and gas development so risky.

*A few omissions:* figure 4.108 Fishing locations by season - lobster (2011) – the fishing locations for April to June for the West Coast are incomplete. This entire coast has an active lobster fishery. In addition this coast has a spring fishery for herring and summer fishery for mackerel.

#### **4. Buffering Protected Areas**

The lack of specific recommendations with respect to protected areas is particularly disturbing, given the level of concern that was expressed during public consultation. The statement on p. 428 of the SEA “The potential for, and pro-active management of any potential interactions between on-going and possible offshore oil and gas activities and protected and sensitive areas in the region and beyond is therefore a key consideration in future planning and decision-making (for) offshore petroleum activities in the region” is ambiguous and fails to provide strategic direction.

With nationally and even internationally recognized protected areas that have been established through broad consultation, why is it necessary to keep revisiting the commitment made to protect them in perpetuity? Despite being enshrined in legislation (national park) and international conventions (World Heritage Site), it is incompatible industrial development of the surrounding landscape that threatens them. We recommend that avoidance, combined with generous geographic and temporal buffer zones would be truly pro-active.

#### **5. Importance of tourism**

Tourism, which is worth \$1 billion annually in the province, \$229 million in Western Newfoundland and in Gros Morne alone is worth \$37 million annually, appears in a list of activities AFTER military activities! While the SEA quotes all the pertinent figures (p. 377-381), this ordering of tourism at the very bottom of a list before “Others” tends to down-play the importance of an industry that rivals the fishery in economic value. (According to figures in the SEA, fisheries landed value for the province totaled nearly \$570 million in 2011, and for NAFO areas 4Rb, 4Rc and 4Rd of the West Coast, \$39.3 million).



Similar to the many different fisheries, the tourism industry is seasonal and employs over 19,000 people<sup>5</sup>. The peak of the tourism business occurs during a 4 month period, but the tourism “industry” operates year-round. There is cruise tourism, convention tourism, hunting tourism, winter tourism, culinary tourism, nature tourism, adventure tourism, festival tourism, visiting friends and family tourism, etc., and operators may specialize or diversify, just as fishermen do.

According to provincial research, the primary resources that attract non-resident visitors are coastal and marine (whales, icebergs, coastal scenery). It is worth noting the extent to which images of these are also featured in the province’s tourism ads, designed to lure visitors to the province for an idyllic get-away from the industrialized world. What we are selling – very successfully – is the experience of being in an enduring, naturally-beautiful, and unspoiled coastal landscape. Protecting the tangible and intangible assets upon which this renewable industry is based, will be critical to achieving the province’s 2020 Vision for tourism<sup>6</sup>.

Therefore, the lack of conclusions and specific recommendations in the SEA with respect to the incompatibility of tourism with oil and gas development is disturbing.

## **6. Mitigation measures**

It is interesting to read in the report that many of the standard mitigation measures have uncertain effectiveness. Two in particular stand out as problematic - spill response capability and waste disposal, especially if high-volume fracking is used. The first was flagged by Canada’s Commissioner of Environment and Sustainable Development – and we understand that CNLOPB is in the process of undertaking a review of the spill response capability of operators.

- But will small junior companies like Black Spruce Exploration have the capability of adequately responding to spills? Will they have the technical and financial capability?
- We are concerned that spill response back-up will fall to local volunteers who are unprepared, and to professional agencies that are not located on the west coast (such as Coast Guard).
- We are concerned that lack of regulations (especially in the use of fracking) and environmental oversight will allow practices that are not environmentally-responsible.
- We are concerned that the responsibility for detailed spill trajectory modeling is being passed to companies (during project-based EA process).

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<sup>5</sup> <http://hnl.ca/resources/research/#reports>

<sup>6</sup> [http://www.tcr.gov.nl.ca/tcr/publications/2009/Vision\\_2020\\_Print\\_Text.pdf](http://www.tcr.gov.nl.ca/tcr/publications/2009/Vision_2020_Print_Text.pdf)



## 7. Conclusions and Recommendations

Apart from the proposed mitigation measures, the AMEC report does not contain any recommendations or conclusions, for example, on the issuing of new exploration licenses or on sensitive zones to protect. Before the final SEA report is released, the public should have an opportunity to comment on these recommendations, potentially very important for the future of the Gulf.

We offer the following recommendations:

That the C-NLOPB

- Defer issuing any new exploration licenses in the western Newfoundland offshore area;
- Cancel the call for bids issued on May 16th 2013 for four parcels in the Newfoundland offshore area;
- Recommend a terrestrial and marine buffer zone for oil and gas exploration around Gros Morne National Park;
- Refrain from giving further authorizations to projects currently submitted in the Gulf of St. Lawrence, including Corridor Resources' Old Harry project or Shoal Point Energy and Black Spruce Exploration's Western Newfoundland drilling program; and
- Submit to public review their recommendations and conclusions prior to the release of the final SEA report.

Anne Marceau

On behalf of the Gros Morne Coastal Alliance

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