

## Members of the Review Panel:

When you have reviewed all of the evidence, it is my belief that you will come to the following conclusions on the basis of peer reviewed science and the particulars of this unique situation:

- There is very low risk posed to surface and subsurface sources of drinking water in western Newfoundland by exploration and development of the shale play beneath Port au Port Bay and further up the west coast. The small risk that exists is normal to oil and gas activities and is not particular to hydraulic fracturing.
- The unconventional play is very large and, if successful, will result in significant economic benefits for the province and for the local communities and their residents.
- On balance, the socio-economic impacts will be overwhelmingly positive.
- Use of directional drilling and multi-well drill pads will minimize surface disturbance.
- Development will pose very low risk to public health.
- There is an extremely low risk of hydraulic fracturing causing seismic events, even those too small to feel at the surface.
- Disposal of flow-back water can be minimized by reconditioning the water on site and re-using it in the next well from the same pad.
- Well bore integrity is a small risk to oil and gas development in both conventional plays and unconventional plays such as the Green Point Shale. This issue is not specific to unconventional plays. Well bore integrity should be a focus for regulators and regulations in all forms of oil and gas development, and it already is in Newfoundland and Labrador.

However I believe that, due to the early stage of development of our play, your review will be unable to answer some important questions:

- **Is the project commercially viable?** Shale plays have to be hydraulically fractured to produce hydrocarbons in commercial quantities, and we have never had an opportunity to perform this type of near wellbore stimulation in the Green Point play in western Newfoundland.
- **Can seawater be used instead of fresh water for frac fluid?** We think it is likely that it can be, and that would be our first choice because obviously there are almost limitless

supplies and, if this solution works, it would minimize the competition for local fresh water supplies.

- **What infrastructure changes will be required to support development?** That depends how successful the project is. The logical way to proceed would be to perform an evaluation program to assess whether the project is economic and, if so, then what would be involved for full scale development.

**We propose:**

- That the Province adopts a set of regulatory guidelines for the development of tight reservoirs based on best practice developed in jurisdictions with extensive experience in this type of resource.
- In the alternative, we propose a measured, closely monitored evaluation of the Port au Port Bay tight play. This would involve collecting baseline environmental data and then drilling and completing up to 20 wells, with ongoing monitoring of the baseline data points during the evaluation. This evaluation program would adhere to an already approved set of regulatory guidelines from another Canadian province.

Based on our extensive data set, which includes seismic imaging, surface geology, 100 year old shallow oil wells, and six more modern bore holes, we have excellent cause to believe that this is a world class unconventional resource. The potential recoverable oil is on a similar scale to any of the large offshore discoveries off the East Coast. However, we cannot prove that the resource is commercially viable because we have never had the opportunity to perform hydraulic fracture stimulation.

Evaluation of the economics of tight plays generally requires multiple wells. It is unusual for the first well, or even the first few wells, to be commercial successes. However, with each attempt something is learned and, if the results are encouraging enough, further attempts are made until economic success is achieved. If results are not encouraging, then no further attempts are made.

The learning falls into two broad categories: geology and engineering.

Tight plays, also known as resource plays, are generally very large geological features extending over a large area. The Humber Arm shale play is no different. However, resource plays are only somewhat homogenous. Some areas, and some depths, will be “sweet” and some will be less productive. Seismic imaging helps, but only drill holes can really tell you where these sweet spots are.

As to the engineering, it usually takes multiple wells to work out the optimal completion methods in a new tight play. How large a fracture stimulation is required? Can sea water be used for the frac fluid? Are there parts of the formation that can flow with no stimulation required?

We'll never know unless we have the opportunity to try.

We share the public's desire for transparency and knowledge. It is our wish to work closely with government regulators and citizens to safely develop this remarkable resource.

Respectfully yours,

Mark Jarvis  
CEO  
Shoal Point Energy

**Panel Presentation**

<http://nlhfrp.ca/wp-content/uploads/2015/01/M.-Jarvis-panel-presentation.pdf>

**Induced Seismicity**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Induced-Seismicity-Letter.pdf>

**Fracking and Drinking Water**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Fracking-and-Drinking-Water-Submission.pdf>

**Well Bore Integrity**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Well-Bore-Integrity-Submission.pdf>

**Compensation Plan**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Compensation-Plan1.pdf>

**Environmental Impacts**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Environmental-Impacts1.pdf>

## **Biased Science**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Biased-Science.pdf>

## **Just the Facts**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Just-the-Facts.pdf>

## **Worker Safety**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Worker-Safety.pdf>

## **Emission Issues**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Papers-Addressing-Emission-Issues.pdf>

## **Additional Websites of Interest**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Websites-of-Interest.pdf>

## **Public Health**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Public-Health-Reports.pdf>

## **Socio Economic Impacts**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Socio-Economic-Impacts.pdf>

## **NI 51-101 Resource Evaluation West Coast NL Exploration Licenses 1070 & 1120**

<http://nlhfrp.ca/wp-content/uploads/2015/01/NI-51-101-Resource-Evaluation-West-Coast-NL-Exploration-Licenses-1070-1120.pdf>

## **Regulatory Jurisdiction**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Regulatory-Jurisdiction.pdf>

## **The Quebec Government Highlights the Technical and Economic Viability of the Anticosti Project**

<http://nlhfrp.ca/wp-content/uploads/2015/01/The-Quebec-Government-Highlights-the-Technical-and-Economic-Viability-of-the-Anticosti-Project.pdf>

## **Misconceptions about Oil Seeps around Port au Port Bay**

<http://nlhfrp.ca/wp-content/uploads/2015/01/Misconceptions-about-Oil-Seeps-around-Port-au-Port-Bay.pdf>

**Proposed Exploration and Evaluation Program**

<http://nhfrp.ca/wp-content/uploads/2015/01/Proposed-Exploration-and-Evaluation-Program.pdf>

**What is Social License**

<http://nhfrp.ca/wp-content/uploads/2015/01/What-is-Social-Licence.pdf>

**Original Submission:**

<http://nhfrp.ca/wp-content/uploads/2015/01/Letter-from-Shoal-Point-Energy.pdf>