



**ALBERTA WILDERNESS ASSOCIATION**

*"Defending Wild Alberta through Awareness and Action"*

February 5, 2015

Hon. Jim Prentice  
Premier of Alberta  
Room 307, Legislature Building  
10800 – 97th Avenue  
Edmonton, AB T5K 2B6  
Via e-mail: [Premier@gov.ab.ca](mailto:Premier@gov.ab.ca)

Mr. Jim Ellis  
President & CEO  
Alberta Energy Regulator  
Suite 1000, 250 – 5th Street SW  
Calgary, Alberta T2P 0R4  
Via e-mail: [Jim.Ellis@aer.ca](mailto:Jim.Ellis@aer.ca)

**Re: Fracking Earthquake and Ecological Risks - West Central Alberta**

Dear Premier Prentice and Mr. Ellis:

Alberta Wilderness Association (AWA) is writing to ask for effective cumulative effects management of serious and growing risks to water and land from fracking activities in west central Alberta. Two significant earthquakes in Fox Creek vicinity point to the need to reduce these seismic risks. In addition, our longstanding concerns about excessive surface disturbance in caribou ranges and unsustainable fresh surface water and shallow groundwater extraction have gone unanswered to date. Reducing these risks is essential to help establish Alberta as a responsible developer of energy resources.

AWA was founded in 1965 and has over 7,000 members and supporters in Alberta and across Canada. AWA works throughout Alberta towards the completion of a wilderness protected areas network, and for good stewardship of all lands that are the source of our clean water, clean air and wildlife habitat.

**Earthquake Risk**

The January 14<sup>th</sup> and 22<sup>nd</sup>, 2015 earthquakes 35 kilometers west of Fox Creek, of magnitude 3.8 and 4.4 respectively, suggest that people, infrastructure, water resources and wildlife are at risk. Stronger management, monitoring and transparency on earthquake risks is needed. Using public data from Natural Resources Canada, a Fox Creek resident estimates there have been over 70 small quakes around Fox Creek since Dec. 2013. AWA is also concerned about insufficiently monitored earthquake risk in more remote areas affecting pipelines, wellbore integrity, important river corridors and caribou ranges.

The recent study by Alberta Geological Society and University of Alberta experts (Schultz et al., 2014) concluded that ‘Brazeau Cluster’ earthquakes in the Blackstone-Brazeau Rivers area northeast of the Bighorn were caused by wastewater injection into a 4 km deep disposal well. The quakes were centred about 3.5 km away from the well, along fault lines. The study noted that the density of the current AGS seismic monitoring network is insufficient to consistently detect and analyze seismic events.

We note that the BC Oil and Gas Commission (BCOGC) required the installation of several dense seismic arrays in the Montney formation to offer the detailed information that a regional array cannot, and mandates the suspension of operations triggering seismic events of magnitude 4.0 or greater. BCOGC also published a Dec. 2014 report of Montney Trend seismic events including findings to date, uncertainties, and further mitigation options under consideration. We request that AER commit to better transparency about earthquake risks.

We request the AER adopt the basic safeguards recommended in the 2014 Annual Review of Environmental Costs and Benefits of Fracking by leading US scientific experts. To reduce earthquakes caused by fracking, wastewater injection, or any other process where fluids are pumped underground at high volumes and pressures, they recommended: “(a) avoid injection into active faults or faults in brittle rock, (b) limit injection rates and formation types to minimize increases in pore pressure, (c) install local seismic monitoring arrays when there is seismicity potential, (d) establish protocols in advance to modify operations if seismicity is triggered, and (e) reduce injection rates or abandon wells if seismicity is triggered.” (Jackson et al., 2014, p. 346)

As further recommended by these experts, we request that AGS conduct research to better predict large earthquake potential, including:

1. potential routes for injection-induced pressure pulses;
2. aspects of the injection process that determine earthquake size;
3. faults most likely to reactivate during fracking or wastewater injection;
4. accurately mapping faults, stress fields, and historical seismicity; and
5. improving real-time monitoring methods (Jackson et al., 2014, p. 346).

### **Unsustainable Water Use**

The large and growing regional use of fresh surface and groundwater for fracking is still not informed by ecosystem requirements for water quantity and quality. Water issues considered in the creation of AER’s Duvernay pilot play-based regulation seemed confined to coordinating industry resource requirements. In September 2014, we urged AER to work with ESRD to fill a policy gap on Duvernay region ecological water requirements, and to date have received no response that this is occurring. The Little Smoky, Cutbank, Kakwa and other sub-watersheds heavily affected by fracking water withdrawals require a water management plan that ensures there is adequate water for ecosystem needs, including in sensitive low flow winter periods.

### **Excessive Land Disturbance**

Land issues considered in the creation of AER’s Duvernay pilot play-based regulation had no direction on reducing net surface disturbance in caribou ranges, as required by the federal woodland caribou recovery strategy. In September 2014, we urged AER to work with ESRD to fill a policy gap on Duvernay region caribou range surface disturbance. We know that Little Smoky-A La Peche range plans are under development, but we have received no indication that rules to reduce disturbance are impending for endangered Redrock-Prairie Creek or Narraway Alberta mountain caribou populations.

Recovery of Alberta’s caribou populations is still viable, though stronger government leadership is urgently needed. We request Alberta adopt comprehensive surface disturbance limits within caribou range and enable alternatives to proving tenure, in order to motivate longer-distance directional drilling and pooling of leases. In this way, CAPP and EPAC members could still extract significant resources, yet

could aggregate and reduce their surface footprint. Large-scale habitat restoration that energy companies could finance under a 'pay-to-stay in endangered species habitat' program could support forestry silviculture jobs, further cushioning municipality impacts. Such an approach would greatly enhance the environmental reputation of Alberta's energy industry and the Alberta government.

We look forward to your response on this matter at your earliest convenience.

Sincerely,

ALBERTA WILDERNESS ASSOCIATION

A handwritten signature in black ink that reads "Carolyn Campbell". The signature is written in a cursive style and is underlined with a single horizontal line.

Carolyn Campbell  
Conservation Specialist