The BC Oil and Gas Commission (Commission) has determined a Magnitude 4.6 seismic event on Aug. 17, 2015 in northeast B.C. was caused by fluid injection during hydraulic fracturing from an operator in the area. The investigation included a review of operational and seismological data, including all active oil and gas operations within the 10-kilometre radius of the epicentre determined by Natural Resources Canada (NRCan). A Magnitude 4.6 event generally will cause brief shaking felt at the surface, but is not a risk to public or environmental safety.

The event occurred at 1:15 p.m. Pacific Standard Time. It was first reported to the Commission by NRCan at 1:50 p.m. The operator at a nearby wellsite immediately suspended operations and reported the event at 2:03 p.m. After collecting available data and discussing with the operator, a mitigation plan was approved by the Commission at 3:45 p.m. There were no reports of injury or damage at the surface. Felt reports indicate intensity was weak to light on the Modified Mercalli Scale.

Factors leading to this determination include:

- The absence of seismic events before and after hydraulic fracturing operations. Hydraulic fracture operations were ongoing from Aug. 11 to Sept. 2, 2015.
- The epicentre of the event was located to within one kilometre of the operator’s wellbore (A-99-J/94-B-16) using detailed data from a dense array and the Canadian National Seismograph Network.
- At the time of the event, the fracturing operation at this wellbore was being completed.
- Based on “felt” reports, ground motion appears to have been strongest in the vicinity of the this wellbore.

The Commission has taken a leadership role in the detection and mitigation of induced seismicity associated with unconventional gas development. Commission studies in 2012 and 2014, available online, led to enhancements such as increased seismic monitoring in northeast B.C. and stricter requirements around hydraulic fracturing. Stronger mitigation measures are now in place, through updates to the Drilling and Production Regulation, including the requirement that operations are shut down if seismic activity reaches Magnitude 4.0 or greater.

Should you have any questions regarding this Industry Bulletin, please contact:

Alan Clay
Manager, Communications
BC Oil and Gas Commission
Alan.Clay@bcogc.ca
250-794-5214