Mike Doyle is the President of the CAGC – the Canadian Association of Geophysical Contractors - representing the business interests of the seismic industry within Canada. The CAGC website may be found at www.cagc.ca.

The BC Oil and Gas Commission (OGC) recently released a report detailing its investigation into hydraulic fracturing and seismic activity in northeast British Columbia. The Commission initiated the investigation after anomalous seismic activity was recorded in a remote area of the Horn River Basin between April 2009 and December 2011. The report, Investigation of Observed Seismicity in the Horn River Basin, shows that the seismicity observed in the study area was induced by fault movement resulting from the injection of fluids during hydraulic fracturing. The investigation determined that movement associated with the events was confined to the targeted gas bearing shales. No injuries or property damage were reported as a result of the induced seismicity, and only one event was reported by Natural Resources Canada to have been felt at the surface.

The Commission's report includes seven findings and recommendations, which include plans to upgrade the seismic monitoring network in northeast B.C., the establishment of monitoring and reporting procedures, geological assessments to identify pre-existing faulting, and further analysis and research into prediction and mitigation.

The full report can be viewed on the Commission website at

http://www.bcogc.ca/document.aspx?documentID=1270&type=.pdf

CAPP put out the following key messages:

Safety is First Priority:

• The OGC report is an objective, constructive report that examines the link between hydraulic fracturing and seismic activity in the Horn River Basin.
• We fully support the report's conclusions, and we are in the process of finalizing operator guidelines and increasing financial support for more seismic monitoring in the region.
• Industry takes the issue of induced seismicity very seriously, and we understand the public has concerns regarding this issue.
• The safety of our workers and the people near whose homes we operate is our first priority.
• Natural gas companies played a key role in providing the OGC with data to complete this study.
• Collecting more complete data allows our industry to better understand the relationship between hydraulic fracturing and anomalous seismicity, and will make our industry more transparent.
• The natural gas industry has operated safely for many decades in Western Canada.
• Hydraulic fracturing can be done safely within the framework of science-based regulation and the use of industry best practices.
• Like similar research on the link between hydraulic fracturing and seismicity, the OGC report concludes hydraulic fracturing can proceed if the process is carefully monitored and appropriate precautions are taken.

Perspective on Seismic Events:

• The OGC report states that no one was injured as the result of the seismic events included in the report.
• The OGC report represents new learnings about the Horn River Basin which, compared to other Canadian shale plays, has a unique geology and therefore cannot necessarily be directly compared to these other plays.
• The OGC report indicates that none of the seismic events recorded in the Horn River Basin caused any injury, property damage or posed any risk to public safety or the environment.
• The report points out: "More than 8,000 high-volume hydraulic fracturing completions have been performed in northeast British Columbia with no associated anomalous seismicity."
• Slight seismic activity is a normal part of hydraulic fracturing: hydraulic fracturing cracks open the shale rock to free natural gas. The energy released in this process causes seismic activity.
• Seismic activity related to hydraulic fracturing is rarely felt on the surface and usually occurs near where the rock is being fractured (or 2,000 to 3,000 metres below ground).
• Our objective is to continue the safe and responsible development of shale gas resources in British Columbia.

Induced Seismicity Management Guidelines for Hydraulic Fracturing

• Natural gas production companies are finalizing guidelines that will establish monitoring protocols and practices to further mitigate the unlikely impact of an induced seismic event.
• These guidelines will apply across Canada and will build on the guidelines and operating practices for hydraulic fracturing developed by CAPP over the past year.
• The new guidelines will enable more consistent application of industry best practices and encourage transparent performance reporting.
• Developing the guidelines demonstrates our member companies' continued dedication to safe and responsible resource development in all our operating areas.
• Shale gas can and is produced responsibly every day across Canada, with about 175,000 wells fractured safely in B.C. and Alberta without an incident of harm to groundwater, according to regulators in both provinces.
• Robust regulations and industry best practices are key to maintaining the confidence of the public in regions where we operate.

This may not become an issue in the public eye in the same manner the issue of water did in relation to fracturing. Other studies have been done worldwide and released with little public fanfare. The seismic events tend to be virtually undetectable without instrumentation however it will be incumbent upon Industry to monitor and adjust its practices to ensure this remains the case.

From the Thursday Files

To know that we know what we know, and that we do not know what we do not know, that is true knowledge.
- Thoreau