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LOCAL NEWS

Did you feel that? Probably not

18 quakes in Peace Region since September, one felt on surface Matt Lamers

There have been 18 earthquakes between Fort St. John and Dawson Creek since the beginning of September, but only one was felt on the surface, according to data collected by the newly established Induced Seismicity Monitoring Project.

The seismic activity ranged in magnitude from 1.6 to 2.8. The only seismic event that was felt on the surface took place on Oct. 28, when a 2.7 magnitude earthquake took place 15 km north-northwest of Dawson Creek at a depth of five kilometres. However, no damage was reported and no one was injured.

The B.C. Oil and Gas Commission (OGC) is currently reviewing data from industry operators in that area to determine if the event was caused by hydraulic fracturing.

All 18 seismic events happened in the vicinity of Dawson Creek. However, on May 28, a magnitude 4.2 quake occurred 11 km south of Fort St. John that was felt on the surface.

The project, also known as the seismic array network, went live in March and was fully incorporated into the Canadian National Seismograph Network in August.

It is managed by GeoScience B.C., operated by Natural Resources Canada and was financed by the Science, Community, Environment, Knowledge (SCEK) Fund, which gets its money from levies on oil and gas activity and overseen by the B.C. Oil and Gas Commission.

"Since Sept. 1, the Commission has taken measures to respond to any correlation between seismicity and industry activity in those areas, and we're currently conducting a thorough assessment of recent reported seismicity now," said Hardy Friedrich, OGC communications manager.

"To ensure we're aware of industry's impact on the landscape, the Commission works with Natural Resource Canada to monitor seismicity across the northeast. When monitoring shows anything unusual, the Commission works with industry to adjust its business practises to prevent any adverse effects on the environment."

It was initiated after the OGC's 2012 report "Investigation of Observed Seismicity in the Horn River Basin" concluded that seismic activity was synchronous with hydraulic fracturing operations that had taken place between April 2009 and December 2011 in the Horn River Basin.

Carlos Salas, vice president of GeoScience B.C.'s Oil & Gas unit, said that it is still too early to draw any conclusions from the initial batch of data.

"What we've noticed since we've put it up, there must be in excess of 40 induced seismic events. All except one are all below 4 [magnitude]," he said. "It's too early to draw conclusions. Certainly the regulator, the [B.C. Oil and Gas Commission], is using the information to monitor what's going on."

The new network consists of six new seismograph stations that complement two pre-existing ones. A ninth is planned for the Buick Creek area. Industry put up \$500,000 to expand the network.

Fort St. John rests on what geologists term the Fort St. John-Blueberry graben. It trends southeast. A graben is a block of the earth's crust that lies between two faults.

The network was established to help industry determine what constitutes safe fracking activities when it comes to public health, property and the environment.

"In part, that's why we're funding this broader array, the study that was done by the [OGC]," said Geoff Morrison, B.C. manager for the Canadian Association of Petroleum Producers.

"That's part of the study," he added. "What is a normal or acceptable amount of [induced seismicity]. And that's something we're working with the regulator on to understand just if there is any risk to public health, property or environment."

Another purpose of the array is to determine how much seismic activity in the Peace River Region is natural, and how much is caused by hydraulic fracturing.

"That's why we're gathering this information," said Salas. "Certainly from the work that the OGC did and their study that came out last year, there is a link. Some of these completions are creating some of this induced seismicity, which is generally speaking below anything that is noticeable at the surface.

"Nevertheless, the reason for monitoring is that we want to make sure it is not felt on the surface," he continued. "I think that is the crux of this whole thing."

The 2012 study outlined seven recommendations. Friedrich said the OGC began implementing the recommendations from the report immediately, "and as a result seismic monitoring in Northeast B.C. has improved in the past year."

One of the key recommendations involved expanding the seismic monitoring network.

As a result of the report, Friedrich said that new wells in the Horn River Basin, where the investigation took place, are being permitted with the requirement to cease operations if a magnitude 4.0 or higher disturbance is detected.

Natural Resources Canada is providing the commission with a ground monitoring sensor for its building in Fort St. John. It will both monitor seismic activity and provide an educational display for visitors.

The commission said it is working to acquire sensors for other communities.

Friedrich said that the OGC is undertaking studies with UBC and working with operators and GeoScience B.C. to develop a research project centered around the deployment of dense arrays, which are used to study seismicity in greater detail.

Salas said the next step is to study the data to determine cause and effect.

"That's part two, he said. "We're starting to talk to academia. We're starting to talk to industry. We're talking to the regulators. Now that we're getting some information back, we want to start working on part two, which is looking for the cause and effect of seismicity."

Morrison would not comment on what a safe level of induced seismicity from hydraulic fracturing would be, but he said safety is a top priority.

"Obviously we want to make sure that any industrial activity is done in a safe and sound way in that we minimize the impact or the risk to property, people and the environment," he said.

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