Railroad Commission to allow controversial north Texas injection well to stay open

By Mark Passwaters

Examiners for the Railroad Commission of Texas have concluded that an injection well owned by EnerVest Ltd. in north Texas can remain in operation after finding insufficient evidence linking the well to seismic activity in the area.

The injection well, located near Azle, Texas, is in a region that has seen a spurt of earthquakes as powerful as magnitude 3.0 since December of 2013. In a report released in May, researchers from Southern Methodist University said the well was injecting liquids into the ground at a depth of 3 kilometers, just 2 kilometers from the source of the earthquake.

During testimony before the Texas House of Representatives' Energy Resources Committee, SMU professor Matthew Hornbach said there have been 50 earthquakes of magnitude 2 or higher in Texas since the start of 2015, with the vast majority in north Texas. The number of significant earthquakes of magnitude 3.0 or greater, he said, has skyrocketed in recent years.

"The state used to average 1.7 earthquakes per year of magnitude 3.0 or greater — until 2009," Hornbach explained. "The number has increased by a magnitude of 10 times since."

During a show cause hearing on whether the well should be allowed to continue operating and a separate technical meeting chaired by Railroad Commissioner Ryan Sitton, EnerVest presented its own data contradicting the SMU findings. While the Southern Methodist study said the injection wells, which were about 7,000 feet deep, triggered the quakes, EnerVest said it had data indicating that the seismic activity began in the "basement," or approximately 20,000 feet below the surface.

"The study focused on pressure building up in the Ellenburger at a depth significantly shallower than the depth of the recorded earthquakes in the basement. The researchers hypothesize that the deeper earthquakes are due to downward pressure transfer within the fault system," the Railroad Commission said in its notes of the meeting.

"EnerVest produced a document showing that the early sequence of events occurred in the basement along the primary fault at around a depth of 20,000 feet. The Ellenburger depth quakes were around 10,000 feet deep."

In an interview with SNL Energy, Sitton said the findings of the hearing, the later meeting and the examiners' report indicated that there was not enough clear information linking the injection well to increased seismic activity.

"When you think back to the hearing we had, which looked at the SMU study, we heard, 'we need more data,'” he said. "We heard it dozens of times as we talked to the SMU professors and we heard that over and over."

When similar comments were made at the show cause hearing, Sitton said, the argument for shutting the well down fell apart.

"We ask operators at a show cause hearing to prove that there is not sufficient cause to make a change or we shut you down. And if the SMU researchers keep on saying, 'we need more data,' it sets up the question, 'Do we have enough information to make a change?'” he said. "That research paper was the primary driver for the show cause hearings."

Sitton said the state Legislature had added $5 million to the 2015-16 budget during the most recent legislative session to allow for groups, including the Bureau of Economic Geology at the University of Texas, to measure seismic activity in north Texas to find a cause for the earthquakes.

"We at the Railroad Commission … have to take a more proactive step in seeing what data's out there and bring it together. What's next? For us to gather that data and start spearheading or being part of investigations into seismic data around the state," Sitton said. "We need to figure out whether this is natural, from tectonic plates moving. Is it caused by the drought? Is it caused by oil and gas activity? These are good questions and we need to find the answers."
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