

New Mexico works 'proactively' with oil and gas after earthquakes tied to fracking in West Texas

Adrian C Hedden, Carlsbad Current-Argus Published 9:00 a.m. MT Oct. 21, 2019

Study of West Texas earthquakes caused by fracking could have implications for New Mexico side of Permian Basin.

Hydraulic fracturing could be responsible for an increase in earthquakes in the Permian Basin in West Texas, as oil and gas operations increase during a boom in the region.

A study published Tuesday by the University of Texas at Austin suggested the practice, known as fracking, could be linked to earthquakes in the region just across the state border to southeast New Mexico where oil and gas operations also increased dramatically in recent years.

Research targeted the Delaware Basin, on the western side of the Permian in Texas and New Mexico which now produces more than 5 million barrels of oil per day.

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Fracking is a process that sees oil and gas producers injecting a combination of water, chemicals and sand into underground rock formations to break up shale and gain access to deeper deposits of crude oil and natural gas.

It produces large quantities of salt water, which is usually reinjected underground via disposal wells.

That practice, used in virtually every new well in New Mexico and Texas, was typically tied to seismicity in some oil and gas regions across the country such as in Colorado and Oklahoma and Canada.

More: [Does fracking cause earthquakes? Studies show link to oil and gas waste water wells](https://www.currentargus.com/story/news/local/2019/09/03/fracking-oil-and-gas-waste-water-wells-linked-earthquakes-studies/2139927001/) ([/story/news/local/2019/09/03/fracking-oil-and-gas-waste-water-wells-linked-earthquakes-studies/2139927001/](https://www.currentargus.com/story/news/local/2019/09/03/fracking-oil-and-gas-waste-water-wells-linked-earthquakes-studies/2139927001/))

But the recent study, conducted by earthquake monitoring system TexNet and the Center for Integrated Seismicity (CISR) at the UTAUS Jackson School of Geosciences, suggested for the first time that fracking could be directly tied to the quakes based on their proximity to and timing of fracking operations.

The University conducted a series of studies on induced seismicity or earthquakes potentially caused by human activities to support the conclusion, read an UTAUS news release.

Researchers also developed what they called a better system for understanding earthquakes in the context of local geology and human activities.

More: [New Mexico Gov. Michelle Lujan Grisham's oil and gas waste water plan panned by enviros](https://www.currentargus.com/story/news/local/2019/10/16/governor-lujan-grisham-new-mexico-oil-gas-water-plan-environment/2085446002/) ([/story/news/local/2019/10/16/governor-lujan-grisham-new-mexico-oil-gas-water-plan-environment/2085446002/](https://www.currentargus.com/story/news/local/2019/10/16/governor-lujan-grisham-new-mexico-oil-gas-water-plan-environment/2085446002/))

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cturing in the study area, we statistically associate earthquakes in space and time to

fracturing activity," read a summary of the study published by the American Geological Union.

"We then use the known locations of this associated activity as proxy ground-truth to calibrate the seismic network. Our results suggest some earthquakes in west Texas are more likely due to hydraulic-fracturing than salt-water disposal."

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The research was troubling to Camilla Feibelman, director of the Sierra Club Rio Grande Chapter, an environmentalist group based in Albuquerque.

More: ["After the rigs came." EPA hears testimony from locals impacted by oil and gas emissions \(/story/news/local/2019/10/18/epa-hears-testimony-locals-impacted-oil-and-gas-emissions/4009782002/\)](#)

She said the suggested link between fracking and earthquakes in West Texas warranted further research in New Mexico, where seismicity was traditionally associated with waste water injection.

"This study and multiple other studies on injection wells really shows the risk extraction can have on local communities," she said. "I think industry, if they are going to be operating here, needs to do more to be good neighbors."

Feibelman called on the State of New Mexico and its Oil Conservation Division – and arm of the New Mexico Energy, Minerals and Natural Resources Department – to adopt stricter regulations for well density in hopes of preventing seismic events.

More: [Permian Basin oil and gas companies merge to grow profits amid slumping prices \(/story/news/local/2019/10/16/permian-basin-oil-and-gas-companies-merge-amid-slumping-prices/3985207002/\)](#)

She said state regulators also need more staff to oversee the industry, and steeper fines to discourage violations of state law.

"These are risks that aren't unknown to us," she said. "We want a set of ground rules for industry that is respectful of our communities. We think it's reasonable to expect a set of rules based on science, when it comes to extracting a public resource on public land, for the public good."



Adrienne Sandoval was hired in April as the director of New Mexico's Oil Conservation Division. (Photo: Oil Conservation Division)

OCD Director Adrienne Sandoval said the agency hasn't yet seen any indication of seismic events caused by oil and gas in New Mexico in its data.

But the State is working "proactively" she said, to monitor for such incidents from both fracking operations and waste water injection, as oil and gas production in the state increased by about 400 percent in recent years.

More: [New Mexico land to be leased to oil and gas industry, while Democrats call for drilling ban \(/story/news/local/2019/10/14/new-mexico-land-sale-oil-and-gas-industry-moves-forward/3975223002/\)](#)

"We've had quite the increase in fracking and injection," Sandoval said. "It can have impacts on seismicity. As of now, there's nothing in the data that gives us concern. We want to be proactive, but we haven't seen the same impacts as in Texas or Oklahoma."

Seismicity was also not caused by salt water injection, Sandoval said, as those wells were required by the State to target Devonian rock formations more than 10,000 feet underground.

Salt water disposal (SWD) wells were also required to be spaced out by a mile and a half radius, she said, to cut down on risks.

More: [Oil and gas methane emissions to be tracked via satellite in outer space \(/story/news/local/2019/10/08/oil-gas-methane-emissions-tracked-sat\)](#)

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edly saw seismic events potentially caused by fracking, inject their waste water in

shallower formations.

"We're not doing the same thing (as other states)," she said. "The Devonian appears to be the safest. That's what we've been requiring."

Despite a lack of incidents, Sandoval said the State is actively monitoring for earthquakes either caused by SWDs or fracking.

More: [Oil and gas pipeline giant pays millions to small Texas town for pipeline running through city \(/story/news/local/2019/10/10/why-oil-and-gas-giant-paid-millions-small-texas-town/3920610002/\)](#)

She said as production continues to grow, monitoring and proactive measures become more essential.

"From what we've seen, production numbers continue to grow," Sandoval said. "With increased activity we have to be mindful that we're seeing new dynamics at play."

Oil and gas industry guided by research

Alexandros Savvaidis, a research scientist who co-authored the study said the data showed seismic events were more likely related to fracking itself than subsequent saltwater disposal.

"The research done through this new study in West Texas, using a statistical approach to associate seismicity with oil and gas operations, suggests that some seismicity is more likely related to hydraulic fracturing than saltwater disposal," he said in a statement.

Texnet was created in 2015 by the State of Texas in response to an increase in low-level earthquake activity throughout the Lone Star State.

More: [Permian Basin oil and gas pollution to be tracked by environmentalists \(/story/news/local/2019/10/04/permian-basin-oil-and-gas-pollution-tracked-environmentalists/3843032002/\)](#)

It consists of 82 broadband seismometer stations, supplementing 18 stations that previously existed in the state.

Michael Young, associate director of environmental research at the UTAUS Bureau of Economic Geology said the project could help inform the oil and gas industry on ways to safely produced oil and natural gas while avoid damages to the environment or property.

"TexNet and CISR will continue to work very closely with Texas state agencies, especially the Railroad Commission of Texas, which regulates oil and gas activities, the state's oil and gas industry and many of the state's universities, to share data and information about earthquakes," he said.

"These collaborations help to jointly develop best practices to mitigate potential danger from earthquake activity to citizens or property."

More: [Environmentalists demand lizard protection from NM oil and gas in federal lawsuit \(/story/news/local/2019/10/02/lizard-protection-new-mexico-oil-gas-industry-federal-lawsuit/3842818002/\)](#)

He said the research would continue to be used to assist the public in learning about earthquakes, whether natural or manmade.

"The bureau collects high-quality data on earthquakes in Texas, makes all of that data available to the public, and conducts fundamental and applied research to better understand naturally occurring and potentially induced earthquakes and any associated risks," Young said.

"This study is an important step in that process."

More: [New Mexico oil and gas industry creates grant funding for local communities \(/story/news/local/2019/09/26/oil-and-gas-industry-creates-grant-funding-local-communities/2444637001/\)](#)

Todd Staples, president of the Texas Oil and Gas Association said the industry works closely with academic research to ensure safe operations and avoid negative impacts on the environment and public health.

"The oil and natural gas industry continues to work collaboratively and extensively with industry peers, TexNet and CISR to monitor and share data, and gather information that guides industry practices," Staples said.

"We will continue to work with academia and others to ensure continued safe operations."

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