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Experts see gains in addressing area's seismicity

By **Mella McEwen**, *Oil Editor*

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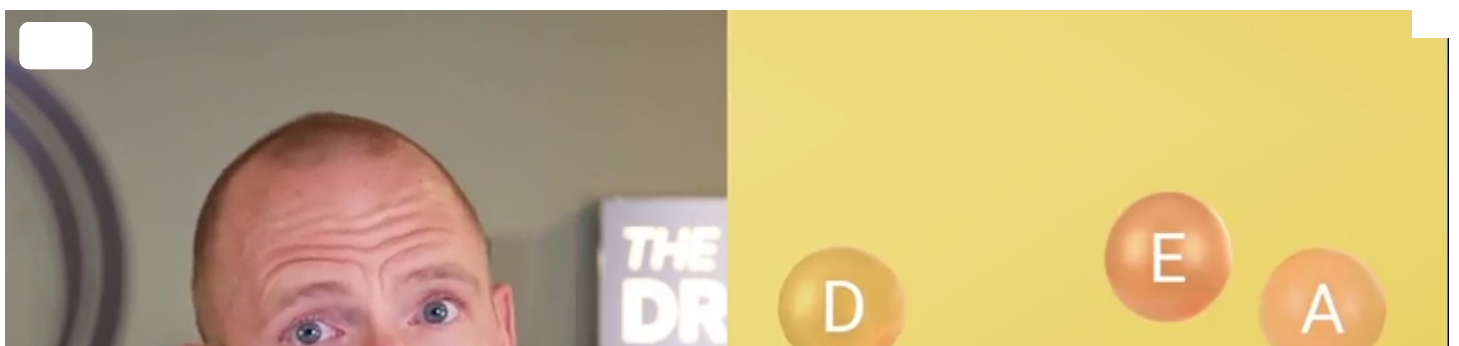
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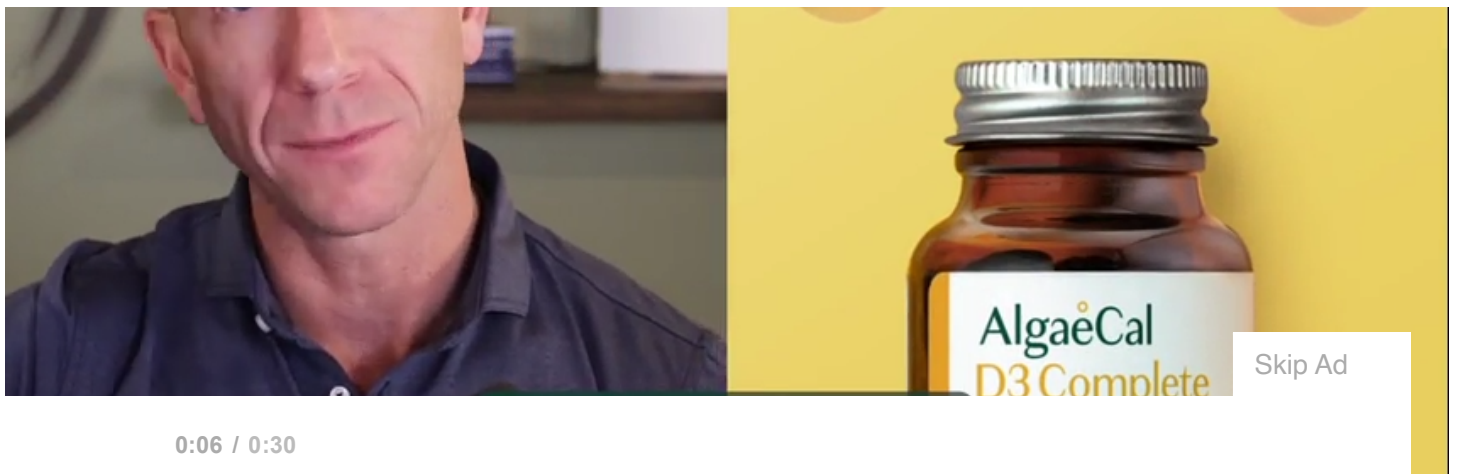


From left, Brian Maxson, B3 Insight, Cody Comiskey, Chevron, Annan Pascoe, Deep Blue, Katie Smye, Bureau of Economic Geology, Jeffrey Thompson, Occidental, Ted Wooten, Railroad Commission, and Hannah Chittenden, Diamondback Energy hold a panel discussion on seismicity and injection pressures at the SPE Permian Basin Energy Conference.

Mella McEwen/Reporter-Telegram

Earthquakes continue to shake up the Permian Basin, with two 3-magnitude events felt in Midland last week. Ted Wooten, chief engineer with the Railroad Commission, stressed that his agency is taking the issue seriously.





“Collaboration between the Railroad Commission and industry is deeper than you realize,” he told attendees at the Permian Basin chapter of the Society of Petroleum Engineers’ Permian Basin Energy Conference on Wednesday.

Part of a panel discussing the issue, Wooten predicted his department will be making recommendations for changes to water injection rules, including injection volume reporting, in the near future.

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The region is seeing some success in reducing seismicity, said Katie Smye, associate research professor at the Bureau of Economic Geology at the University of Texas Austin and co-principal investigator at CISR, the Center for Injection and Seismicity Research.

“The rate of 3-plus-magnitude earthquakes has fallen from a peak of 40 per month in 2021-22 to 20 per month in 2024,” she told the audience.

“This success is due to changes in regulations and operations” as operators have switched from deep water injection to shallow water injection, shut in some injection wells and reduced pressures and volumes in others, she said. But she cautioned that

earthquakes of 5-plus magnitude still occur and have increased in some areas of the Midland Basin.

Researchers have also observed increases in pore pressures, by up to 1,000 psi in shallow injection strata in the Delaware Basin, Smye said.

To address the issue, “We need more data,” said Cody Comiskey, an earth science advisor within Chevron's Mid-Con business unit’s applied reservoir management team. Policy and regulatory changes and operational changes will also be needed to address seismicity issues.

In addition, “We need to think of the scale of the solution. It’s all-of-the-above approach. Some options will be better than others, but we need to look at all options,” Comiskey said.

“I do believe we can solve the seismicity issue with collaboration,” stated Jeffrey Thompson, senior director, geophysics at Oxy USA.

Thompson listed three proposals to address seismicity. Short-term, he said recycling should be emphasized where feasible. Intermediate solutions include moving injection wells away from high-pressure areas. The long-term solution is promoting beneficial reuse, he said.

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“We will be producing 20 million barrels of water per day for the next couple of decades,” he said. “I do think we can do it. It will take effort, but it is something we can achieve.”

Midstream companies are part of the mix, said Annan Pascoe, vice president, subsurface at Deep Blue. She said reservoirs need to be better understood so the industry can make good decisions. Some midstream companies are pushing technological advancements, she added.

As of 5 p.m. Wednesday, the U.S. Geological Survey had reported 11 earthquakes of all magnitudes in West Texas that day. The largest was a 2.5-magnitude quake about 60 miles east of Midland and 25 miles southeast of Big Spring.

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Mella McEwen is the oil editor for the Midland Reporter-Telegram.

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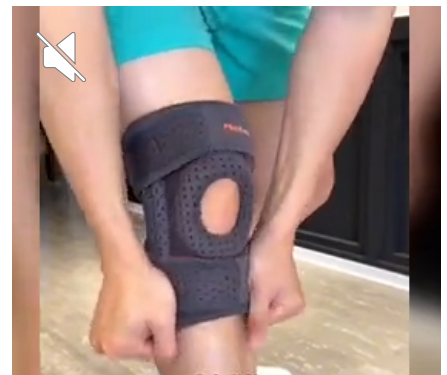
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