AROUND THE NATION

Texas, Oklahoma Divided Over How To Handle Earthquakes Linked To Oil Drilling

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JOHN BURNETT

Oklahoma and Texas have been experiencing a rash of human-caused earthquakes. It happens when oil and gas wastewater gets pumped underground in the wrong places and disrupts faults. Oklahoma officials have cracked down on wastewater injection; Texas is apparently uninterested in doing much. That could mean a lot more quakes given that the country's biggest oil reservoir has just been discovered in west Texas.

Transcript

AUDIE CORNISH, HOST:

There's been a rash of small earthquakes in Oklahoma and Texas in recent years. Scientists say many of these earthquakes are caused by oil and gas operators pumping their wastewater underground. In Texas, a new oil discovery could mean even more drilling wastewater to dispose of. The two states have very different views on how to deal with the quake problem. We're going to hear from two reporters now, one in each state, starting with Joe Wertz from StateImpact Oklahoma.

JOE WERTZ, BYLINE: The 5.8 magnitude earthquake that struck northeastern Oklahoma in early September was the strongest ever recorded in the state. Scientists suspect this quake, like many others rattling Oklahoma, was caused by oil companies injecting toxic, salty wastewater into underground wells. Matt Skinner with the Oklahoma Corporation Commission says, in the past, regulators have asked the industry to shut down wells and limit injection in quake-prone areas.

MATT SKINNER: Technically, it's been a voluntary response.

WERTZ: Things have changed. Authorities started by focusing on individual disposal wells. Now disposal well shutdowns and volume limits are more widespread and, since the September quake, mandatory.

SKINNER: What's happened is we've gone from a micro approach - which, while it did have some good results, they were limited in terms of the size of the area that they helped - to a macro approach.

WERTZ: Seismologists say the process of injecting that wastewater underground, often more than a billion barrels of it statewide annually, is disrupting faults and triggering quakes. For more than a year, officials have been asking companies to reduce wastewater injection in hundreds of wells over more than 10,000 square miles, and it's working. Here's Oklahoma State University professor and hydrogeologist Todd Halihan talking to lawmakers at a recent earthquake hearing at the state capitol.

(SOUNDBITE OF ARCHIVED RECORDING)

TODD HALIHAN: And another piece of really distinct evidence is that in places where you've decreased injection rates, you have less earthquakes.

WERTZ: The first research linking the state's most important industry to the earthquake surge came out in 2013, though leaders like Governor Mary Fallin did not embrace the science until 2015. Earlier this year, Fallin signed legislation clarifying that state oil and gas regulators had the authority to act on earthquake concerns. But by and large, Oklahoma has chosen to respond to the quakes by using current oil and gas rules, not by enacting new regulations or laws. Officials say this is a more nimble approach that allows them to be flexible as new science comes out. Again, Matt Skinner with the corporation commission.

SKINNER: If you make a rule that turns out to be inadequate or maybe even misguided, you can't change it in a heartbeat. It may suddenly come back to bite you.

WERTZ: Many residents living with crumbling foundations and cracked sewer lines, as well as lawmakers from both parties, think the state could do more. They want Oklahoma to get tougher, to impose disposal well moratoriums or charge the industry fees to pay for quake-related damage. Scientists and officials were cautiously optimistic that an apparent slowdown in earthquake activity meant the regulations were having a lasting effect. But the state was recently rocked by a 5.0 magnitude quake that caused one minor injury, damaged dozens of buildings and caused a temporary shutdown at one of the country's

largest crude oil storage terminals.

CORNISH: That's Joe Wertz with StateImpact Oklahoma. Now - the view from Texas.

JOHN BURNETT, BYLINE: I'm John Burnett in Austin. As a headline in The Dallas Morning News declares "Oklahoma Shakes, Texas Waits." The Texas Railroad Commission, which regulates oil and gas activities - not trains - has been much slower than Oklahoma authorities to acknowledge a clear link between earthquakes and disposal injection wells. The town of Azle northwest of Fort Worth was shaken repeatedly in the second half of 2013. Mayor Alan Brundrett remembers.

ALAN BRUNDRETT: And then I jumped up out of the chair, you know, and run out to the back window to see what happened. And then you stop for a second. You think about it, and you're like, oh, that was an earthquake.

BURNETT: Since 2008, North Texas has experienced more than 250 quakes of 2.5 magnitude or greater. Masonry has tumbled, and Sheetrock has cracked, though not much major damage like in Oklahoma. Texas does have natural earthquakes, but the U.S. Geological Survey concludes the recent North Texas temblors, at least those that have been studied by scientists, are the result of induced seismicity. That is, they're man-made.

Last year, scientists at Southern Methodist University and the University of Texas at Austin published a paper about a swarm of 27 earthquakes that happened near Azle. Heather DeShon, a geophysicist at SMU, is a co-author.

HEATHER DESHON: We concluded that there was most likely a link between the earthquakes occurring in Azle and two nearby wastewater injection wells.

BURNETT: The Barnett Shale, which underlies the Dallas-Fort Worth metroplex, was the site of the nation's first big fracking boom. By the time of the study, workers had injected 1.7 billion barrels of wastewater and brine from oil and gas wells into the earth. Researchers believe the underground pressure woke up a dormant fault. And before the oil and gas boom, DeShon points out...

DESHON: There's no record of historical felt earthquakes.

BURNETT: Despite widespread acceptance of the Azle study, the Texas Railroad Commission remains skeptical. Indeed, the commission's own staff seismologist declared there was, quote, "no substantial proof of man-made earthquakes in Texas," even though a new research paper documents how oil and gas operations have caused tremors in Texas since the 1920s. Railroad Commissioner Ryan Sitton says the Azle study is too narrow.

RYAN SITTON: All those pertain to was one set of earthquakes in one concentrated area and two disposal wells. That's it. That doesn't tell us anything about the other earthquakes going on in the state. So that's why we have to do so much more research.

BURNETT: In its quest for more science, the state has funded the deployment of 22 seismic sensors across Texas. The new earthquake-detection network is being managed by the respected Bureau of Economic Geology at the University of Texas. Azle Mayor Alan Brundrett is impatient.

BRUNDRETT: I mean, I would like to just see the Railroad Commission say, it is the most likely reason that you had earthquakes in your area, and so we need to be more careful about where we put injection wells.

BURNETT: The Railroad Commission now requires additional information if operators want to put a disposal well in a quake zone. As a partial result, 12 out of 61 well permits have not gone through. Again, commissioner Ryan Sitton.

SITTON: And it is none of our interests to have oil and gas activities causing earthquakes. So if it is, we're going to take regulatory action to minimize those risks.

BURNETT: Exasperated residents say if you need any more proof, notice how North Texas earthquakes have all but gone away now that low oil and gas prices have slowed activity in the oil patch.

John Burnett, NPR News, Austin.

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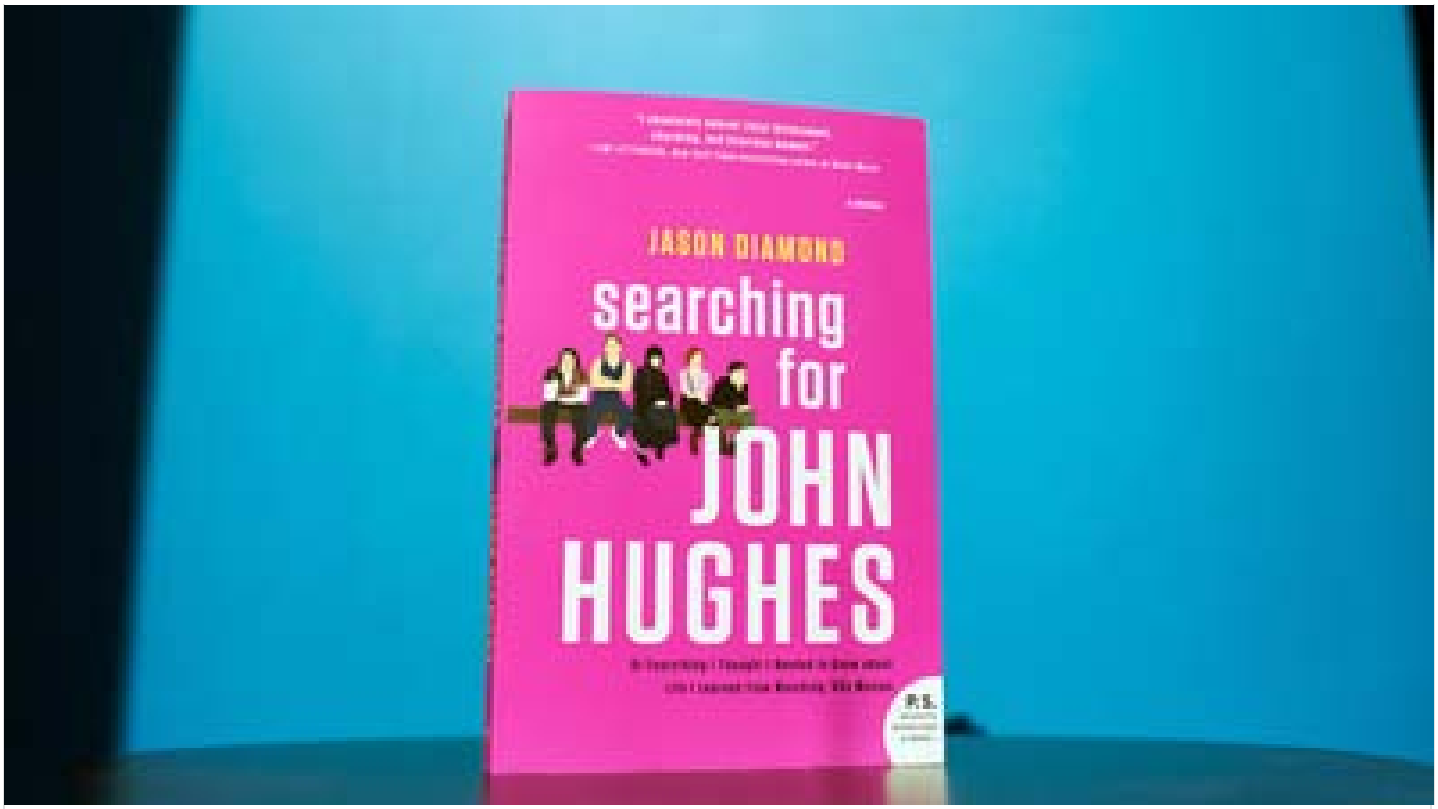

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