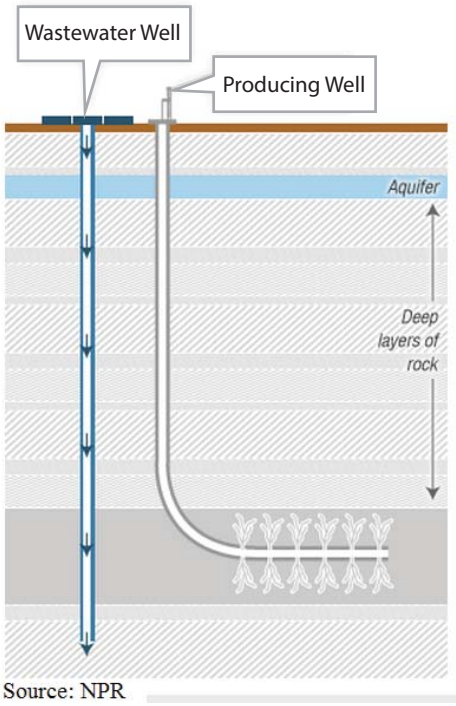
Hydraulic Fracturing and Seismicity: Myth vs. Fact

ENERGYINDEPTH

Despite what you may have heard, hydraulic fracturing does NOT pose a major risk of causing earthquakes. In fact, most of the concern over earthquakes relates to wastewater disposal, specifically "Class II" wells used for oil and gas wastewater – not the process of hydraulic fracturing. Here's what actual experts – geologists, geophysicists, and engineers – have stated on "fracking", wastewater injection, and earthquakes.



Source: NPR

On Hydraulic Fracturing

National Research Council

"Hydraulic fracturing a well as presently implemented for shale gas recovery does not pose a high risk for inducing felt seismic events." (Link)

Mark Zoback, Geophysicist, Stanford University

"It is important to note that the extremely small microseismic events occur during hydraulic fracturing operations. These microseismic events affect a very small volume of rock and release, on average, about the same amount of energy as a gallon of milk falling off a kitchen counter." (Link)

David Hayes, Former Interior Department Deputy Secretary

"We also find that there is no evidence to suggest that hydraulic fracturing itself is the cause of the increased rate of earthquakes." (Link)

Cliff Frohlich, Geophysicist, University of Texas at Austin

"Although there is a considerable amount of hydraulic fracturing activity in the Eagle Ford, we don't see a strong signal associated with that and earthquakes." (Link)

2012 Inglewood Oil Field Study

"High-volume hydraulic fracturing…had no detectable effects on vibration, and did not induce seismicity (earthquakes)." (Link)

Durham University Study

"…after hundreds of thousands of fracturing operations, only three examples of felt seismicity have been documented. The likelihood of inducing felt seismicity by hydraulic fracturing is thus extremely small but cannot be ruled out." (Link)

On Injection Wells

National Research Council

"Injection for disposal of wastewater derived from energy technologies into the subsurface does pose some risk for induced seismicity, but very few events have been documented over the past several decades relative to the large number of disposal wells in operation." (Link)

California Department of Conservation

"In California, Class II injection wells have an outstanding record for environmental protection." (Link)

Bill Ellsworth, U.S. Geological Survey

"What we've found is there is a link between disposal of waste water and earthquakes. And in many of these cases, it's been fixed by either shutting down the offending well or reducing the volume that's being produced. So there are really straight-forward fixes to the problem when earthquakes begin to occur." (Link)

U.S. Geological Survey

"Although the disposal process has the potential to trigger earthquakes, not every wastewater disposal well produces earthquakes. In fact, very few of the more than 30,000 wells designed for this purpose appear to cause earthquakes." (Link)