



# Fracking Blamed as Cause of Ohio's Recent String of Earthquakes

January 11, 2012

An earthquake with a 4.0 magnitude shook eastern Ohio, outside of Youngstown, on Saturday afternoon, December 31, 2011. The latest earthquake was the 11th earthquake in Ohio since March 2011.<sup>[1]</sup> This earthquake, like the others, has been centered around an injection well that has been used for the disposal of millions of gallons of brine and other waste liquids that are produced at a natural-gas well, mostly in Pennsylvania.<sup>[2]</sup>

Northstar Disposal Services LLC, the owner of the injection well, has agreed to halt injecting brine as a precaution while authorities assess any potential links between injecting wastewater into the wells and the recent series of quakes in Ohio.<sup>[3]</sup>

There are 177 similar injection wells throughout Ohio but the Youngstown-area has been the only site with seismic activity.<sup>[4]</sup> The waste produced from hydraulic fracturing has been injected under pressure into the wells which are 9,200 feet deep.<sup>[5]</sup> Some have speculated that the wastewater may have caused an ancient fault to slip if some of the wastewater migrated into deeper rock formations.<sup>[6]</sup> Michael Hansen of the Ohio Seismic Network believes more quakes are possible until the pressure of the fault line has been completely relieved.<sup>[7]</sup> On the other hand, Jim Zehringer of the Ohio Department of Natural Resources Director maintains that "the seismic events are not the direct result of fracking."<sup>[8]</sup>

Although the earthquake data is still being reviewed to determine what might have caused the string of earthquakes in Ohio in 2011, many have made the leap in their minds that hydraulic fracturing may lead, directly or indirectly, to earthquakes. John Armbruster, a seismologist from the Lamont-Doherty Earth Observatory, a part of Columbia University stated, "In our minds, we were already pretty convinced that these events were connected to the well. Having that many earthquakes fairly close to a well in Ohio, where there aren't a lot of earthquakes, was suspicious."<sup>[9]</sup>

Seismologists have pointed out that deeper, older rock formations below the shale, referred to as the "basement" are full of faults that, although under stress, have reached equilibrium over hundreds of millions of years. Leonardo Seeber of Lamont has indicated that "there are plenty of faults. Conservatively, one should assume that no matter where you drill, the basement is going to have faults that could rupture."<sup>[10]</sup> The recent regulations for disposal wells are concerned with protecting aquifers, not about seismic risk, but the recent chain of earthquakes in Ohio may change that.

1. <sup>[1]</sup> Henry Fountain, *Disposal Halted at Well After New Quake in Ohio* (January 2, 2012), <http://www.nytimes.com/2012/01/02/science/earth/youngstown-injection-well-stays-shut-after-earthquake.html>

2. [2] *Id.*
3. [3] The Associated Press via Time.com, *4.0 Earthquake Strikes Northeast Ohio* (December 31, 2011), <http://www.time.com/time/nation/article/0,8599,2103456,00.html>
4. [4] *Id.*
5. [5] Henry Fountain, *Disposal Halted at Well After New Quake in Ohio* (January 2, 2012), <http://www.nytimes.com/2012/01/02/science/earth/youngstown-injection-well-stays-shut-after-earthquake.html>
6. [6] *Id.*
7. [7] The Associated Press via Time.com, *4.0 Earthquake Strikes Northeast Ohio* (December 31, 2011), <http://www.time.com/time/nation/article/0,8599,2103456,00.html>
8. [8] *Id.*
9. [9] *Id.*
10. [10] Henry Fountain, *Add Quakes to Rumbling Over Gas Rush* (December 12, 2011), <http://www.nytimes.com/2011/12/13/science/some-blame-hydraulic-fracturing-for-earthquake-epidemic.html>