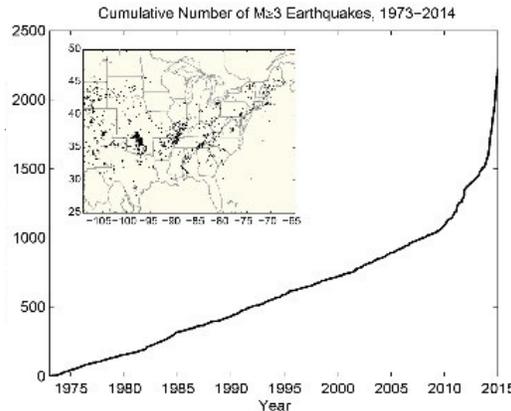


June 2015
Volume 6,
Issue 3

A publication of American Structures, Inc. ~

“Dedicated to being the trusted supplier of Bolted Stainless Steel Storage Tanks.”

New Insight on Ground Shaking from Fracking?



keep communities safe from ground shaking.”

In 2014, the USGS released updated National Seismic Hazard Maps, which describe hazard levels for natural earthquakes. Those maps are used in building codes, insurance rates, emergency preparedness plans, and other applications. The maps forecast the likelihood of earthquake shaking within a 50-year period, which is the average lifetime of a building. However, these new induced seismicity products display intensity of potential ground shaking from induced earthquakes in a one-year period. This shorter timeframe is appropriate because the induced activity can vary rapidly with time and is subject to commercial and policy decisions that could change at any point.

The U. S. Geological Survey (USGS) released a report in April 2015 that outlines a preliminary set of models to forecast how hazardous ground shaking could be in the areas where sharp increases in seismicity have been recorded. The models ultimately aim to calculate how often earthquakes are expected to occur in the next year and how hard the ground will likely shake as a result. This report looked at the central and eastern United States; future research will incorporate data from the western states as well.

These new methods and products result in part from a workshop hosted by the USGS and the Oklahoma Geological Survey. The workshop, described in the new report, brought together a broad group of experts from government, industry and academic communities to discuss the hazards from induced earthquakes.

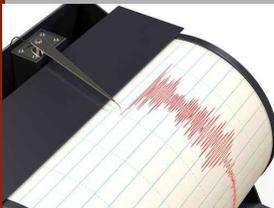
USGS scientists identified 17 areas within eight states with increased rates of induced seismicity. Since 2000, several of these areas have experienced high levels of seismicity, with substantial increases since 2009 that continue today. This is the first comprehensive assessment of the hazard levels associated with induced earthquakes in these areas.

Wastewater that is salty or polluted by chemicals needs to be disposed of in a manner that prevents contaminating freshwater sources. Large volumes of wastewater can result from a variety of processes, such as a byproduct from energy production. Wastewater injection increases the underground pore pressure, which may lubricate nearby faults thereby making earthquakes more likely to occur. Although the disposal process has the potential to trigger earthquakes, **most wastewater disposal wells do not produce felt earthquakes.**

Scientists developed the models by analyzing earthquakes in these zones and considering their rates, locations, maximum magnitude, and ground motions. “This new report describes for the first time how injection-induced earthquakes can be incorporated into U.S. seismic hazard maps,” said Mark Petersen, Chief of the USGS National Seismic Hazard Modeling Project. “These earthquakes are occurring at a higher rate than ever before and pose a much greater risk to people living nearby. The USGS is developing methods that overcome the challenges in assessing seismic hazards in these regions in order to support decisions that help

Many questions have been raised about whether hydraulic fracturing—commonly referred to as “fracking”—is responsible for the recent increase of earthquakes. USGS’s studies suggest that the **actual hydraulic fracturing process is only occasionally the direct cause of felt earthquakes.**

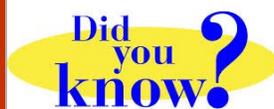
Read the newly published USGS report, “Incorporating Induced Seismicity in the 2014 United States National Seismic Hazard



Correlation Between
Frack Mining
and Earthquakes?
~ Page 1-2 ~



Things That Make You
Go, “Hmmmmm.”
~ Page 2 ~



Little known facts and
trivia information
about water. . .

Model—Results of 2014 Workshop and Sensitivity Studies.” in order to developed a more informed opinion. Try to read as many articles as you can on the subject, as opinions vary and many media articles on the subject can be skewed to support the author’s own point of view.

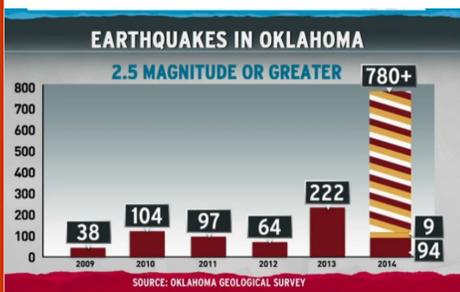
The report seems to want to make a connection between fracking and ground shakes. However, it essentially says that it is **NOT** the practice of fracking itself that may be linked to man-made earthquakes, but the resultant fracking wastewater injection that may trigger adverse affects upon nearby faults.

It is logical to conclude that if there were no fracking operations producing wastewater that necessitated disposal by injecting it into deep wells in the Earth, that these occurrences of ground shaking would be reduced? When Oklahoma (which is home to over 4,400 frack mining disposal wells) surpasses California in the number of felt Earth shakes (as it did in 2014) one has to start to wonder just what **IS** causing all this seismic activity? If not frack mining operations and the resultant waste water disposal injections, what **IS** the cause?

Sources: http://www.wateronline.com/doc/new-insight-on-ground-shaking-from-man-made-earthquakes-0001?sectionCode=NewsFeaturedItem&templateCode=Single&user=3056297&source=nl:42871&utm_source=et_10759433&utm_medium=email&utm_campaign=WOL_2015-04-28&utm_term=93a0bba4-ce25-4143-9be6-6335691cf0db&utm_content=New%2Insight%2bOn%2bGround%2bShaking%2bFrom%2bMan-Made%2bEarthquakes

<http://reason.com/blog/2014/07/14/does-fracking-cause-big-earthquakes-in-o#.xs6yv9:0zhg>

<http://www.thenation.com/blog/178449/whats-causing-huge-spike-earthquakes-oklahoma>



Coincidentally, within days of the previously mentioned USGS Report release, The Oklahoma House of Representatives passed a number of bills prohibiting localities from restricting or placing outright bans on a long list of oil and gas activities. The justification of the legislation’s approval cited that such regulations are the dominion of the Oklahoma Corporation Commission (OCC). The bills now head to the state Senate for consideration of three amendments tacked on by the House; an earlier version of which passed the Senate, 36-7, on March 11.

The mission of the OCC is stated on their homepage as: “to provide information, permitting, investigation, and compliance services to the oil and gas industry, mineral interests, landowners, and the general public so together we can develop the oil and gas resources of the state in a fair and orderly manner while protecting the environment and ensuring public safety.”

Hopefully, the OCC will take note of the reports findings and ensure that regulations are enacted that guarantee a fair and reasonable compromise between ensuring the environment’s and public’s safety and allowing opportunities to maximize our natural resources in a safe and environmentally responsible Manner—a tough balancing act.

Sources: <http://www.occeweb.com/og/oghome.htm>

<http://www.naturalgasintel.com/articles/102086-oklahoma-house-passes-bills-limiting-local-control-of-oilgas-activities>



DID YOU KNOW...

- Nearly 70% of the Earth’s fresh water supply is contained in the icecaps of Antarctica and Greenland. The remaining fresh-water supply exists in the atmosphere, streams, lakes, or groundwater - a mere 1% of the Earth’s total.
- Groundwater comprises 30 times greater volume than all freshwater lakes, more than 3,000 times what’s in the world’s streams and rivers at any given time.
- More than 2 million cubic miles of fresh water is stored on Earth, nearly half of it within a half-mile of the surface.
- The total water supply of the world is 344 million cubic miles (1 cubic mile of water equals more than 1 trillion gallons), of which:
 - 315 million cubic miles (93%) is sea water
 - 9 million cubic miles (2.5%) is in aquifers deep below the earth’s surface
 - 7 million cubic miles (2%) is frozen polar ice caps
 - 53,000 cubic miles of water pass through the planet’s lakes and streams
 - 4,000 cubic miles of water is atmospheric moisture
 - 3,400 cubic miles of water are locked within the bodies of living things
- On average 400 billion gallons of water is used each day worldwide
- About 70% of the world’s fresh water is stored as glacial ice. To replace it all it would take 60 years of the entire globe’s rainfall, and then you’d have to figure out a way to freeze it!
- If all the water in the world were to fit into a gallon jug, the fresh water available for us to use would equal only about one tablespoon!!

Source: <http://www.coloradowater.org/Colorado%20Water%20Facts>