

by MARITA NOON 16 Sep 2016



People in seven states, from South Dakota to Texas, were awakened Saturday morning, September 3, by Oklahoma's most powerful earthquake in recorded history. The 5.8 tremor was centered near Pawnee, Oklahoma. Several buildings sustained minor damage and there were no serious injuries.

That we know.

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What we don't know is what caused the quake—but that didn't stop the alarmist headlines from quickly blaming it on "fracking."

Green Party candidate Dr. Jill Stein promptly tweeted: "Fracking causes polluted drinking water + earthquakes. The #GreenNewDeal comes with none of these side effects, Oklahoma. #BanFracking"

Citing a March 2016 report from the U.S. Geological Survey (USGS) on "induced earthquakes," *CNN* says: "The report found that oil and gas drilling activity, particularly practices like hydraulic fracturing or fracking, is at issue. Saturday's earthquake spurred state regulators in Oklahoma to order 37 disposal wells, which are used by frackers, to shut down over a 725-square mile area."

Despite these dramatic accusations, the science doesn't support them. The USGS website clearly states: "Fracking is NOT causing most of the induced earthquakes."



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An important study from Stanford School of Earth, Energy & Environmental Sciences on the Oklahoma earthquakes, which I wrote about last year, makes clear that they are "unrelated to hydraulic fracturing."

While the exact cause of the September 3 quake is still undetermined, geologists close to the research do not believe it is fracking related. (Realize 5.5 El Reno earthquake, centered near the western edge of Oklahoma City, in 1952 was from natural causes.) At a September 8 meeting on Seismicity in Oklahoma, according to Rex Buchanan, Interim director of the Kansas Geological Survey: "There was relatively little conversation about fracking and far more conversation about wastewater."

The error in the reporting occurs, I believe, because people don't generally understand the difference between drilling and hydraulic fracturing, and produced water and flowback water, and, therefore, merge them all into one package.

Yes, it does appear that the increase in induced earthquakes may be the result of oil-and-gas development, yet totally banning fracking, as Stein and Hillary Clinton support, would not diminish the tremors.

First, not every oil or gas well is drilled using hydraulic fracturing. Fracking is a part of the process used on some wells. However, much of the drilling done in the part of Oklahoma where the seismic activity first occurred is conventional and doesn't involve fracking.

When a well uses hydraulic fracturing, millions of gallons of water, plus sand and chemicals, are pumped into the well at high pressure to release the resource. When the oil or gas comes up from deep underground, the liquids injected come back to the surface too. This is called flowback water. That water is separated from the oil and/or gas and may be reused, recycled (as I wrote about in December), or disposed of in deep wells known as injection wells—which are believed to be the source of the induced seismic activity.

Produced water is a byproduct of nearly every oil and gas extraction well—whether or not it is fracked. The water, oil, and gas are all "remnants of ancient seas that heat, pressure and time transformed," explains Scott Tinker, Texas' state geologist and director of the University of Texas at Austin's Bureau of Economic Geology. He continues: "Although the water is natural, it can be several orders of magnitude more saline than seawater and is often laced with naturally occurring radioactive material. It is toxic to plants and animals, so operators bury it deep underground to protect drinking-water supplies closer to the surface."

While the hydraulic fracturing process is typically only a few days, the produced water can be brought to the surface with the oil and/or gas for years. With the increased oil and gas extraction in the past several years—before the 2014 bust, the volumes of wastewater also soared. In parts of Oklahoma, ten barrels of wastewater are produced with every barrel of oil. *Scientific American* reports that some of those high-volume injection wells "absorbed more than 300,000 barrels of water per month."

The authors of the Stanford study were "able to review data about the amount of wastewater injected at the wells as well as the total amount of hydraulic fracturing happening in each study area, they were able to conclude that the bulk of the injected water was produced water generated using conventional oil extraction techniques, not during hydraulic fracturing," writes Ker Than for Stanford. Professor Mark Zoback, lead author of the study states: "We know that some of the produced water came from wells that were hydraulically fractured, but in the three areas of most seismicity, over 95 percent of the wastewater disposal is produced water, not hydraulic flowback water."

So, if banning fracking won't stop the shaking, what will? The geologists contacted for this coverage agree that more work is needed. While the quakes seem to be connected to the wastewater injection wells, there are thousands of such wells where no discernable seismic activity has occurred. Oklahoma has been putting new restrictions on some of its thousands of disposal wells for more than a year to curb seismic activity and that, combined with reduced drilling activity due to low prices, has reduced the rate of the tremors. Other mitigation strategies are being explored.

When you hear claims that hydraulic fracturing causes earthquakes, remember the facts don't support the accusations. Fracking isn't causing Oklahoma's increased earthquakes.

The author of **Energy Freedom**, Marita Noon serves as the executive director for *Energy Makes America Great Inc.*, and the companion educational organization, the *Citizens' Alliance for Responsible Energy (CARE)*. She hosts a weekly radio program: America's Voice for Energy—which expands on the content of her weekly column. Follow her @EnergyRabbit.

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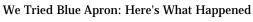




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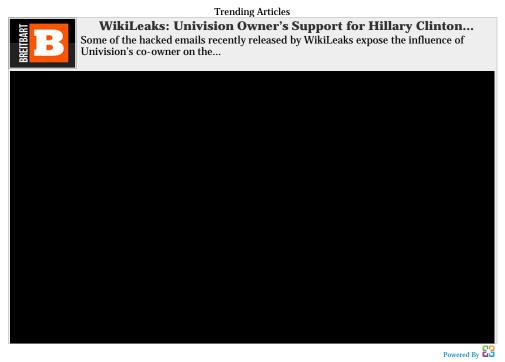
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Björn Deplorable • a month ago

Climate Change was once calledwait for it; The Four Seasons.

(not the singing group with Frankie Valli, not the hotel chain, not the violin concerti by Italian composer Antonio Vivaldi,......)

Global Warming is a HOAX.

14 🗌 🗎 🕤 • Reply • Share ›



Wayne Ville ... a Deplorable > Björn Deplorable • a month ago

Global warming is nothing but a tax plan. The uneducated fall for this completely.

6 | Reply • Share >



Doc Nova > Björn Deplorable • a month ago

Warm or cold, Franki Valli was/still is great! As an old fart, I especially like "Who Loves You" (1975) and "Let's Hang On!" (1965). As far as I can tell, the climate models don't sound at all like this.

4 | Reply • Share



Paul • a month ago

The Earth is 4.5 BILLION years old and has been in a Constant State of Change Since Day 1. And will Continue to Remain in a Constant State of Change until ...The ...Very... End..

Get over it, Climate Freaks .. 'Mother Nature' Is Still Very Much In THE DRIVERS SEAT..

21 🗌 🗎 • Reply • Share ›



bevus > Paul • a month ago

4.5 Billion years , and 150 years of data! and 200000 years ago there was 5000 ft of ice over Michigan and Cleveland, so THat would be global warming for 200000 years and progressives contend 0.5 degree increase in the last 70 years! OMG.

10 🗌 🗎 • Reply • Share ›



KJinAZ > bevus • a month ago

The problem with all of the warming theories is that they all forgot to include the output of the Sun in their models. That's like forgetting to include 95,000,000 Americans in the unemployment data.

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IMME > KJinAZ • a month ago

Oh, they do that, too. That's how they get to 4.9% unemployment figures. Libs live in a world of complete fantasy.

3 🔲 🗎 • Reply • Share ›



Space Cowboy > bevus • a month ago

Man...the Left hates science with a passion, but they love pseudo science that they can use to bolster their global warming

scam. 6 🗌 🗎 • Reply • Share › Mark > Space Cowboy • a month ago Remember. With the Left all that matters is the narrative. Fact has zero to do with it. It's really a kind of religious cult. 4 🗌 🗎 • Reply • Share > porchhound > bevus • a month ago Robert Mercer (previous Cruz supporter and fracking magnate) is a MAJOR financial force behind Breitbart. Now, I had to get that out there because this writer sure wasn't going to mention it! Regarding fracking...the issue is still related to the millions of gallons of wastewater they are pumping underground. To say one has nothing to do with the other is disingenuous unless they have another plan for getting rid of the polluted water! 3 🗌 🗎 • Reply • Share › FoundersSon > Paul • a month ago Bingo! 2 - Reply • Share bem > Paul • a month ago https://earthquakes.ok.gov/wha... "While we understand that Oklahoma has historically experienced some level of seismicity, we know that the recent rise in earthquakes cannot be entirely attributed to natural causes." "The Oklahoma Geological Survey has determined that the majority of recent earthquakes in central and north-central Oklahoma are very likely triggered by the injection of produced water in disposal wells." 2 - Reply • Share Heather Knife Chief > bem • a month ago Thank you 1 - Reply • Share bem > Heather Knife Chief • 25 days ago sure! bem > Paul • a month ago At the very least a weird coincidence though no?

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1 - Reply • Share
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NewbieJames > bem • a month ago

No. Most likely the earth quakes ARE caused by salt water disposal. What the eco-freaks are trying to do is confuse people and tie it into fracking. It has nothing to do with fracking, which is a process that is 75 years old. It is salt water disposal. The answer is to drill new disposal wells where there aren't any faults. Salt water disposal wells have been around since oil drilling began, by the way.

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5 🗌 🗎 • Reply • Share ›
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cholmberg > NewbieJames • a month ago

A question that isn't being asked, is this: *if* the injection wells are instigating (more) frequent smaller quakes, is is possible that the smaller quakes are reliving stress along these fault lines that would otherwise build to a major quake, and thus avoiding a major damaging quake? OK is not far from the major caldera volcano in Colorado, which is "overdue" for a major blow-out. Hypothesis: allowing multiple, smaller slippages reduces the pressure and avoids or delays a major earthquake or the caldera finally letting loose.

Frankly, since the Yellowstone caldera is apparently bulging, having someone drill release valves into the underlying magma, super-heated water and gas pockets, would be BENEFICIAL to us, and therefore anathema to these anti-fracking leftists.

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Scott > cholmberg • a month ago

The calderas are relatively independent of fault lines.

They are created by plumes of lava rising to the surface of the earth.

Sometimes explosively. Through cracks in the mantel. Associated with faults but not dependent upon them.

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cholmberg > Scott • a month ago

agreed. This one is likely a plume associated with the Pacific plate being forced under the N.American plate. My hypothesis is simply that *if* the waste water is instigating quakes, it could so instigate only if the quake would happen at some point; what is the possibility that the violence of that quake is mitigated because we (caused? enabled?) a smaller slippage, relieving some of the pressure.

Any connection to the caldera is coincidental to the fault's location.

Geologists indicated that these quakes were from "new" faults (new as in just identified or new as in not there yesterday was not stated). if the lattter, a hypothesis: was this new fault introduced due to adjacent land rising, shifting the shape of the plate?

I'm not a geologist, but it seems to me that there are other possibilities for the cause of the quakes, rather than jumping to the conclusion that this is due to the evil "fracking", which as become a leftist canard and cause du jour like tilting their windmill of "carbon pollution" - side note: it is notable and curious how they used to specify carbon dioxide in their propaganda, and now just vilify carbon, a base element in organic chemistry. Just what is it that they really want to control?

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Scott > NewbieJames • a month ago

There is no part of the earth where there are no faults.

If you do not understand that then you do not have a clue about basic techtonic plate geology.



Paul O'Brien • a month ago

The words science and truth do not compute in the liberal brain

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Stu • a month ago

At present, these idiots have almost shut the production of electricity generated with coal. Next on these idiot's agenda is natural gas. The eviro-nazis are going to start launching their campaigns that natural gas is no better than coal.

Part of their strategy with coal was to artificially raise the price of it through over-regulation such as MACT rules, haze rules, Then they promoted the subsidization of renewables to give the illusion that they are a cheap alternative.

Buckle you seat-belt, this anti-fracking is just the beginning.

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John Irwin > Stu • a month ago

Once again.....fracking does not create this problems, but you are right. By the way they act you'd think these dick heads would like to shut down all energy production businesses and make everyone live in a hut, burning firewood for heat and fuel. Heck, that might even be their true agenda as long as they themselves don't have to participate.

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John Irwin • a month ago

These idiots who are so obsessed with "fracking" and who are running around proclaiming that the process causes earthquakes are poster children for the IDIOT LEFT.

Fracking does not cause earthquakes in oil and gas exploration areas but here is what contributes to fault slips:

Every well that is drilled in search of hydrocarbons drills through formations that produce water and when water, typically saltwater, is encountered it is either produced and stored in saltwater pits or tanks and when those holding facilities are full the water is removed from the pit or tanks and it is trucked or transported by pipeline to a salt water disposal well.

A SW disposal well is usually an old unproductive well that is drilled deep enough so that when the salt water is injected back into the earth via a surface pump, the salt water does not intrude into fresh water aquifers. When the salt water is injected into the deeper formations via surface pump pressure, the liquid migrates and over time, just like oil and gas, it will wind up in some sort of stratigraphic trap, typically a trap created by a fault.

The injected salt water adds to the volumes of water already in the formation, lubricating the fault beyond what is normally there, and once it has spread along the length of the already broken facies of the fault and the natural pressures of the earth build, the fault will slip and you have an earthquake.

Fracking is a well completion technique that involves the introduction of fracking fluids, under pressure, into a newly drilled target formation to

see more

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Robust Platters > John Irwin • a month ago

Fracking on its own is not immediately responsible for the earthquakes, but the earthquakes are indisputably man-made.

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Scott > Robust Platters • a month ago

Of course the earthquakes are man made.

Because global warming is man made.

And everybody knows that the hotter it gets the more earthquakes there are. (SARC)

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Robust Platters > Scott • a month ago

No, but seriously. The earthquakes are man-made due to the disposal of waste water. This is a fact.

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NewbieJames > Robust Platters • a month ago

Yeah, but disposal wells are needed for oil PRODUCTION, whatever the well type or how it was completed.

1 🗌 🗎 • Reply • Share ›



John Irwin > NewbieJames • a month ago

Absolutely and for gas production too. Salt water and formations fluids have been being injected into deep disposal wells since the oil and gas business began finding the stuff in their returns. In the old days, the drillers just dumped it into a creek or let it flood the ground and disposing of it in a disposal well is far better for the environment and far more cost effective.

It's kind of funny in a way. For multiple decades this practice has been going on and not one liberal mf'er said a word about any of it until the earth groans a little and scares the crap out of them.

Suddenly the sobs come crawling out of the woodwork, yelling and screaming like the Devil Himself has crawled out of their toilet.

Let energy prices go sky high and they bitch about that, let them drop so that it doesn't cost quite so much to fill their tanks and suddenly they believe that those very exploration ventures that created a glut deserved to be attacked and that oil companies make too much money and don't care about the environment.

I swear, you could hang every damned one of them with a brand new rope and they'd bitch about that, too.

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Robust Platters > NewbieJames • a month ago

Right, so then it's a trade off. Either it's earthquakes and oil production or less oil production and fewer earthquakes. Presented with that choice, people will choose fewer earthquakes.

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bob > Robust Platters • a month ago

So the damage thus far from 5 years of earthquakes has been a few damaged homes. Big deal. Have the oil industry fund repair the homes and drill baby drill.

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Robust Platters > NewbieJames • a month ago

Ok, so the earthquakes are manmade and the result of oil production

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Jimilee > Robust Platters • a month ago

Not even the USGS has gone as far as saying that.

They say it's "most likely." It's certainly not a definitive.



occams_razor Deplorable • a month ago

Bit contradictory, this article:

"Oklahoma has been putting new restrictions on some of its thousands of disposal wells for more than a year to curb seismic activity and that, combined with reduced drilling activity due to low prices, has reduced the rate of the tremors."

"When you hear claims that hydraulic fracturing causes earthquakes, remember the facts don't support the accusations. Fracking isn't causing Oklahoma's increased earthquakes."

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NewbieJames > occams_razor Deplorable • a month ago

That's because there is a big difference between flow back water and produced water. I don't give my opinion on the best way to do brain surgery. Why do people who have no idea what they are talking about giving their opinion on this?

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occams_razor Deplorable > NewbieJames • a month ago

This isn't brain surgery:)

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Archie Bunker • a month ago

Everyone knows Earthquakes are caused by Michael Moore.

4 | Reply • Share



Ohio_patriot31 > Archie Bunker • a month ago

Yup! Every time he takes a step.

3 🗌 🗎 • Reply • Share ›



gdrake5 > Archie Bunker • a month ago

Lol

1 🗌 🗎 • Reply • Share ›



Gregg K • a month ago

OMG facts are being used in an argument. Holy Neptune. You just cannot do that.

I read once, and will try to find more, that the earth has been in a 10 thousand yr 'calm' cycle, as activity on this earth is defined. Unlike any other cycle in millions of years. Which is allegedly what has allowed weak and fragile mankind to thrive and dominate. Our modern day

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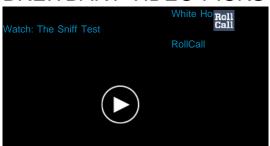
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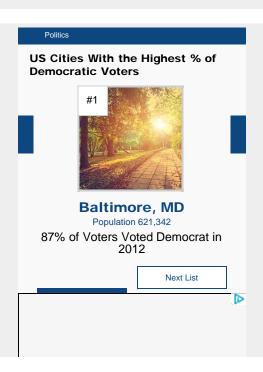
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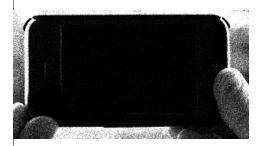


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