

## The Dangers Of Fracking To Water Supplies

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In the 1980s, oil companies developed the drilling procedure we today call "fracking." It is more correctly known as hydraulic fracturing. It is designed to extract oil or natural gas from coal seams, shale or other deposits. Worldwide, to date, the fracturing industry has drilled an estimated 1.2 million wells. So far, the economic impact, especially for Israelite nations, has been substantial. For example, the price of natural gas in the United States has fallen from 12 dollars per million BTUs in 2008 to 4 dollars per million BTUs in 2012, just four years later. The technology is credited with ending America's dependence on imported gas and oil—and jump-starting America's economy.

But, brethren, at what cost? Well, actually, there are many costs, and today we are simply going to look at one of them, the specter of groundwater contamination. First, some background.

Surface groundwater sources are typically 200 to 400 feet deep. The average fracking target is much, much deeper: 7,700 feet. To dig a fracking well, drillers bore down, vertically, to a level just *above* the coal seam or shale deposit. Then, they use horizontal drilling technology, making a 90-degree angle turn, to drill along the *top* of the seam, parallel to the surface of the ground. They drill that way for another 5,000-6,000 feet. Then, they make another 90-degree turn, this time drilling vertically again, up, back to the surface. This second vertical tube is called the recovery well. So, they have basically a "U." (You people out there in cyber-land can't see my hands, by they are busily working.)

Next, they pump water, sand and a brew of lubricants, solvents and propellants into the initial well, under very, very high pressure. How much water? On average, 3.5 million gallons per well, but as many as 10 million gallons per well. The effect is to cause the strata around the horizontal well—that part of the well which runs parallel to the surface, just above the deposits—causes that strata to break up, that is, to fracture. Hence, the name nickname "frack." The sand serves to keep the fractures open, keep them from collapsing. Oil and gas, depending on the type of target, begins to flow into these fissures and finally into the well itself.

At this point, the operators pump the water, sand and chemicals out of the well, up the recovery well. The well is now more or less empty. The oil or gas now flows from the target deposit through the fissures, into the well. It is pumped to the surface through the

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recovery well, collected, and shipped for processing and sale.

In all this process, there are any number of opportunities for things to go wrong. And, as you know, when something can go wrong, it will. One such problem is very well-documented. Remember, both of those vertical wells that I have been talking about run right through the groundwater source, at about the 200- to 400-foot level. Operators are careful to line both vertical tubes with steel and concrete for the first 1,000 feet or so in order to protect the potable water supply from various pollutants. But remember also, the water, sand and chemicals are pumped under really very high pressure. And, in its lifetime, a well may be fracked four or more times. Eventually, the concrete separating the well from the groundwater source gives way; the chemicals find their way into groundwater, either as they descend into the well, or rise from it in the recovery tube. The purity of the groundwater becomes jeopardized at these two points, ascending and descending, at about the 200-to 400-foot level below the surface.

Further, once crews pump out the water, sand and chemicals, the oil or gas begins to flow. Some gets into the groundwater source from the recovery well. So, farmers run into the phenomenon of “inflammable water,” water actually with enough methane gas in it to burn. The danger to rural water supplies, both for domestic use and for irrigation, is indeed quite real.

Different companies have different proprietary formulas for the chemicals they introduce into these wells. In total, there are more than 1,100 chemicals commonly in use. What are these chemicals? Well, guess! When Dick Chaney was vice-president, he pushed through what is called the “Halliburton loophole” in Federal legislation. Basically, this provision forces the EPA to turn a blind eye to the presence of some chemicals in the water supply. Through its testing, the EPA knows these chemicals are there—it knows where they are, it knows what they are there—but the law forbids it to report their names or their presence to the public. Further, the fracking companies are not required to reveal *all* the chemicals they use because of exemptions they have received from Freedom of Information legislation. A firm can simply classify a chemical as a trade secret. When reported that way, the law forbids the EPA from releasing its name, or its presence, to the public. So much for transparency.

Available lists of chemicals, though partial, indicate the use of any number of toxic and cancer-causing agents. How much of this goop gets into the groundwater? Well, by volume, the chemicals make up about 2% of the “stuff” that is pumped down the well (the sand, water, and so on). That may not seem like much, but these are pretty potent chemicals in some cases. And remember, just one fracking of one well can require up to 10 million gallons of water, into which the toxins are added at the rate of 2%. And,

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35,000 new wells are generated, worldwide, annually. One report to congress, issued in 2011, indicates that the various American fracking firms used a total of 780 million gallons of chemicals—*before* mixing them with water—between the five years from 2005 through 2009. I suggest to you, brethren, that we are drinking a whole lot of this gunk, especially in rural areas!

At Jeremiah 30:6, God says,

**Jeremiah 30:6** Ask now, and see, whether a man is ever in labor with child?  
So why do I see every man with his hands on his loins like a woman in labor  
... ?

In interpreting this end-time prophecy about “the time of Jacob’s Trouble,” mentioned in verse 7, we often focus on the noun *fear* in verse 5, concluding that God is saying that men are reacting in dread. But if you take a look at the passage at large—verses 12-17, for instance—it becomes clear that the stress is not so much on fear or dread as it is on *sickness*. Notice the wording:

**Jeremiah 30:12-13** For thus says the Lord: "Your affliction is incurable, your wound is severe. There is no one to plead your cause, that you may be bound up; you have no healing medicines.

**Jeremiah 30:15** Why do you cry about your affliction? Your sorrow is incurable.

**Jeremiah 30:17** For I will restore health to you and heal you of your wounds, " says the Lord. Because they called you an outcast saying: "This is Zion; no one seeks her."

Incidentally, the noun *wounds*, appearing three times in the Hebrew in this passage, means “plague,” and can refer to the results of sickness, not just to the injuries associated with war. Jeremiah 30 may well refer, at least in part, to the diseases Israelites bring upon themselves by degrading their environment, including the water supply.

Now, that word *outcast* in verse 17 often carries the notion of violence and ill-will, one person driving out another. It brings to mind God’s words at Deuteronomy 28:68, the cursing and blessing chapter:

**Deuteronomy 28:68** And the Lord will take you back to Egypt in ships, by

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the way of which I said to you, “You shall never see it again.” And there you shall be offered for sale to your enemies as male and female slaves, but no one will buy you.

The pandemic sickness of Israelites, the result of destroying their food supply through genetic modification, their soil through fertilizers and pesticides, their water supply, their air quality, might render them unemployable on the world labor market during the time of Jacob’s Trouble. They are just too sick to work efficiently! Rightly or wrongly, the people of the world might consider the Israelites’ widespread sicknesses to be contagious and therefore quarantine them, seeking to limit the risk associated with contact with them. Other people in the world might take the action of simply forcing these people into concentration camps, that is, quarantining them so they do not spread disease. Other people would simply kill Israelites *en masse*. Such a turn of events, should it eventuate, would surely add to the burden of scattered, dispersed—and sick—Israel during her impending national calamity.