



Firewater and Other Urban Fracing Legends

What Fox ignores is the fact that the landowner, Mike Markham, lodged a complaint with the Colorado Oil and Gas Conservation Commission (COGCC) in May of 2008, and while investigators did find methane in Markham's well water, they determined it to be strictly from natural sources. "There are no indications of oil and gas related impacts to [the] water well," reads the report, and the regulatory agency declared the issue resolved in September of the same year.



Gasland tells a similar story of another Colorado homeowner, Renee McClure, whose well-water faucet could also breathe flames. McClure brought up COGCC, opining, "They're not there to work for the people. They are there to work and help the oil and gas companies." But she failed to explain in her reference to COGCC its March 2009 investigation and the *independent analysis* the agency obtained on her well gas from Isotech Laboratories. Both studies agreed McClure's water contained only "naturally-occurring biogenic methane gas in [the] well" and found "no impact from oil and gas operations."

Fox's documentary caused such a stir among Colorado landowners that COGCC published a public rebuttal of the film. The agency is listed in *Gasland's* credits under "Interviews We Were Declined," and Fox shows clips of COGCC director Dave Neslin refusing an interview. But the agency's "Gasland Correction Document," says Neslin, put a condition on the interview: that he be allowed to review the final edited version. It was Fox who declined.

Even the *New York Times* couldn't take such sloppy journalism. It reprimanded Fox for this and similar snafus, saying he "capitalizes on people's refusals to be interviewed." The June 20, 2010 article objected that, "what we don't see with any real specificity is how these people were approached or what they were told about the film, leaving it difficult to make judgments about their refusals to appear on camera."

Why Did the Water Catch Fire?

What caused Colorado's flaming faucets? "You'll often find methane dissolved in groundwater," explains certified health physicist James Russell, P.E. "In fact, if you dig a hole in the ground, you're going to release methane." To humans it is non-toxic. It is physiologically inert and is a normal part of the



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atmosphere. People can breathe it and consume it without health risks. Humans even produce it, especially after eating beans.

The dangers of methane lie in its flammable properties. In high concentrations this colorless, odorless, tasteless gas displaces oxygen. The result is an explosive mixture of methane and air. That explains why coal miners used to bring caged canaries into their underground tunnels, long before the days of fracking. Canaries are extremely sensitive to dangerous levels of methane and can easily suffocate in the resulting oxygen-depleted environment. If the birds got sick or died, the miners knew to get out quickly.

Underground methane that reaches aquifers dissolves in the water. Russell compared it to a carbonated drink. The carbon makes cola fizz much the same way that methane makes groundwater bubble and hiss, and examples abound in *Gasland*. Public water supplies do not contain methane because the gas dissipates so quickly during normal water treatment processes. However, private wells, especially those that do not have venting systems, can contain large concentrations. Turning on a faucet immediately vents well gas into the room, making it possible for people like Markham and McClure to apparently ignite their tap water.

COGCC found the wells it investigated had high concentrations of natural gas and, despite McClure's claims to the contrary, did offer solutions. It recommended the owners vent their water systems to avoid explosions or, at the very least, pump problems caused by high vapor pressure. COGCC even offered information about water quality improvement, explaining "a simple well disinfection procedure to help control nuisance bacteria."

Fracing Not Faulty

Just how did all that methane build up if not from natural-gas drilling? The "Gasland Correction Document" describes how methane ends up in well water. Two processes create what scientists call "biogenic gas." One is the chemical reduction of carbon dioxide, and the other is breakdown of organic materials by bacteria. Biogenic gas contains "only methane and a very small amount of ethane." This is an important distinction, because there is one more source of subterranean methane, "thermogenic gas."

The latter requires heat and pressure only found in rock formations much deeper within the Earth. Thermogenic gas "contains not just methane and ethane but also heavier hydrocarbons such as propane, butane, pentane and hexanes." Fracing drills for thermogenic gas trapped in shale deposits located 5,000 or more feet below the surface, while water tables are rarely deeper than 400 feet. The document goes on to say: "*Gasland* incorrectly attributes several cases of water well contamination in Colorado to oil and gas development when our investigations determined that the wells in question contained biogenic methane that is not attributable to such development."

The errors in *Gasland* have spawned a significant backlog of gas-contamination cases at COGCC. On January 20, 2011, the *Durango Herald* quoted the executive director of La Plata Energy, Christi Zeller, who complained about the waste of tax dollars. "Money is getting eaten up that could be used for other important things, such as plugging old wells," said Zeller.

The old wells Zeller mentioned are not wells that were fraced. Wells drilled prior to COGCC's founding in 1951 were often abandoned without being properly plugged. These even include long forgotten water wells. It is from this type of source that groundwater contamination may actually occur. Zeller told *The New American* that the danger of the old wells is that "the plugging and abandoning method is not known, the well is probably not mapped, and that is where state money would be beneficial for locating



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and properly plugging those wells.” Sealing wells that have been fractured is, and has always been, tightly restricted.

Other Gasland Myths

Fox’s false information campaign is not limited to myths about groundwater contamination. *Gasland* asserts that “the 2005 energy bill pushed through Congress by Dick Cheney exempts the oil and natural gas industries from the Safe Drinking Water Act [SDWA] ... the Clean Water Act, the Clean Air Act, the Super Fund law, and about a dozen other environmental and Democratic regulations.”

U.S. Representative Glenn Thompson calls that contention “patently false.” The Pennsylvania Republican hails from Josh Fox’s home state. In an address to the House of Representatives on July 26, 2010, he defended hydraulic fracturing against many inaccuracies in the movie. He said eight federal laws regulate all aspects of drilling, along with various state regulations. Moreover, he pointed out that then-Senators Barack Obama and Ken Salazar supported the 2005 energy bill Fox finds so offensive. (Top Democrats on the Energy & Commerce and Resources Committees voted for it, too.)

In regard to SDWA, Thompson explained that it is inaccurate to say hydraulic fracturing is exempt. Fracing had been in use for more than two decades when the SDWA passed in 1974 and was never regulated under that act. Regardless, “fracking has been used for 100 years, hydro-fracking for 60 years,” said the Congressman. “The safety is documented with zero confirmed cases of groundwater contamination in 1 million applications over that 60 years.”

Pennsylvania sits atop one of the largest shale formations in the nation, the Marcellus Shale Play. Like other states where fracing takes place, Pennsylvania enforces numerous regulations to ensure safe drilling practices. *Gasland* informs viewers the Pennsylvania Department of Environmental Protection (DEP) “suffered the worst budget cuts in history” during the film’s production, cutting back 700 staff members. In reality, DEP announced the addition of 37 new inspectors and permitting staff in 2009 and 68 more the following year for the stated purpose of strengthening its enforcement capabilities in response to drilling operation expansion in the Marcellus Shale.

Clayton Schulze is a Pennsylvania resident who has worked in the oil and gas industry since 1954. He lives on the Marcellus Play, leases part of his land to a fracing company, and even heats his home using gas from a well on his property. The *New American* asked him if he or any of his neighbors have experienced problems like those depicted in *Gasland*. He answered, “I don’t know of anyone who has problems.” He went on to explain that companies are tightly regulated and must monitor all the private wells in areas of drilling before, during, and after operations. He knows of no cases of contamination.

Schulze said the impermeable casing of fracing wells prevents any leakage. Three separate casings are cemented together to completely isolate the drilling mechanism from aquifers. He also pointed out the depth of fracing — 5,000 feet or more — prevents contamination. “The gas trapped in that shale has been there for several million years. If it survived earthquakes all that time and never contaminated groundwater, fracing certainly isn’t going to do any worse.”

Fracing Fluid

Gasland also leads viewers to believe fluids used in the fracing process are exempt from regulations, so companies can use their secret lists of harmful ingredients without regard to public health. Fox says, “The only reason we know anything about the fracking chemicals is because of the work of Theo Colborn,” a noted environmentalist whose résumé includes work for the World Wildlife Fund and advisory roles for the U.S. Environmental Protection Agency (EPA). Fox makes the extraordinary claim



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that Colborn researched fracking fluid by “chasing down trucks, combing through material safety data sheets, and collecting samples.”

Poor thing. She could have saved herself the trouble and downloaded the information from the U.S. Department of Energy (DOE) website. Or she could have contacted a regulatory agency in any state where fracking takes place, because the fluids *are* well known and rigorously regulated. “Indeed, the drilling companies do have their ‘formulas’ for the best mix of chemical additives for particular sites,” wrote Ed Hiserodt in “The Coming Shale Gale” (The New American, June 20, 2011), “but the additives themselves are not secret.”

Nor have they ever been. EPA investigations of fracking in Alabama conducted between May 1989 and March 1993 “failed to show any chemicals that would indicate the presence of fracturing fluids” in drinking water. So said Obama’s former “energy czar,” Carol Browner, who was EPA administrator at the time she reported those results. She could not have eliminated the possibility of fracking fluids in the water had she not known what fluids were used.

DOE’s April 2009 document, “Modern Shale Gas Development in the United States: A Primer,” explains, “Water and sand make up over 98% of the fracture fluid, with the rest consisting of various chemical additives that improve the effectiveness of the fracture job.” And even though Fox claims fracking fluid is “a mix of over 596 chemicals,” DOE says that, in addition to the more than 98 percent water and sand mixture, a “typical fracture treatment will use very low concentrations of between 3 and 12 additive chemicals depending on the characteristics of the water and the shale formation being fractured.”

Fox also claims that companies will let the fluid evaporate and contaminate the air once they are done with it. He gives the impression that the Wyoming Department of Environmental Quality (DEQ) is at wit’s end dealing with fracking’s threat to air quality standards and soaring ozone levels that “burn holes in your lungs.” On the screen flash phrases from a February 26, 2008 news release: “Air Pollution Advisory in Sublette County,” and “Typically, higher ozone levels occur in large cities.” Then other lines from obviously different documents, with no identifying letterhead or signature, appear: “risk of breathing impairment, infection and even premature death” and “skyrocketed above 100 ppb.”

A better look at the February press release reveals it mentioned nothing about drilling operations at all. Three days later, DEQ lifted the pollution advisory, clarifying, “The ozone advisory was issued because forecasted weather conditions ... were favorable for ozone formation. Ozone formation appears to occur in the Basin when there are strong temperature inversions, low winds, snow cover, and bright sunlight. Ozone levels return to normal when any one of those conditions change.”

The Gasland Rage

The list of Fox’s myths and legends goes on and on. Here is a small sampling: He blames fracking for killing fish in a Pennsylvania river, for driving several endangered species in Wyoming to near extinction, and for contaminating some Texas residents’ blood with benzene. EPA research revealed in 2009 that the Pennsylvania fish died of chronic exposure to algae. None of the Wyoming species Fox mentioned are even listed as endangered, let alone close to extinction. And in May 2010, the Texas Department of State Health Services found high levels of benzene in only four residents, attributing it to the fact that those four smoke cigarettes.

“It’s maddening to see how easy he makes it for the film’s critics to attack him, and how difficult for sympathetic but objective viewers to wholly embrace him,” bemoaned the New York Times on June 20, 2010. “Mr. Fox shows a general preference for vivid images — bright red Halliburton trucks, beeping



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but unidentified scientific instruments — over the more mundane crossing the t's and dotting the i's of investigative journalism.”

Reminiscent of Al Gore's oft-debunked *An Inconvenient Truth*, and despite all its egregious errors, *Gasland* boasts a 2011 Academy Award nomination for Best Documentary Feature and a 2011 nomination by the Writer's Guild for Best Documentary Screenplay. It has already won several other awards, including the 2010 Sundance Film Festival Special Jury Prize. HBO has the film scheduled to run through 2012.

“They use false statements and their imaginations beyond reason,” said Schulze of the *Gasland* producers. “There is no scientific basis to what they're saying.” He is disgusted with people's credulity. “We have some people in Pennsylvania who say they should start taxing the Marcellus gas. Don't they realize if the government starts taxing gas, people will end up paying more for it?”

Schulze said new technology continues to make fracking more efficient and promises a bright future if government interference does not stand in the way. He warned, “They are trying to shut down our domestic energy operations,” leaving the nation dependent on foreign sources.



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