The New York Times

May 13, 2011

Baffled About Fracking? You're Not Alone

By MIKE SORAGHAN of

Hydraulic fracturing, or "fracking," got a clean bill of health this week in the first scientific look at the safety of the oil and production practice.

But the headlines about the study did not always reflect that. Many, such as "Scientific Study Links Flammable Drinking Water to Fracking," pointed toward the fracturing process as a culprit. Even the press release accompanying the study was titled "Hydrofracking Changes Water Wells."

Confused? Many people are, even some in the thick of the debate.

The problem is that "fracking" means different things to different people.

People in the oil and gas industry commonly say "fracking" to describe just one part of the whole gas exploration and production process. Chemical-laced water and sand are blasted underground to break apart rock and release gas. Purists would say it is not really even part of "drilling" but actually the "completion" phase.

"Fracking and drilling are not the same thing," said University of Houston engineering professor Michael Economides, who consults for drillers on fracturing. "We drill wells. Then we frack."

But to many outsiders, particularly industry critics, fracking and drilling are the same thing. Advances in fracturing technology made possible the current shale gas drilling boom, so they have taken to lumping all shale gas production under the banner "fracking," deeming it a new form of natural gas drilling.

The study released this week, done by scientists at Duke University, suggested that gas drilling causes methane gas to leak into people's water and sometimes their homes (*Greenwire*, May 9). But methane contamination is not caused by injecting chemicals down

the well. It is caused by bad well construction during drilling.

"The hot-button issue is fracking," said Robert Jackson, the Duke professor who authored the study, in an interview. But, he said, "I believe it's more about the drilling than the fracking."

Both drilling critics and supporters use the confusion to their advantage. The result is that the two sides often talk past one another when discussing the environmental consequences of oil and gas production from shale formations.

Drilling companies have repeatedly assured Congress, and whoever else asks, that there has never been a "proven" instance of hydraulic fracturing contaminating groundwater (*E&ENews PM*, May 6).

That denial infuriates critics who can point to numerous fines and penalties issued by regulators against shale drilling companies for contaminating drinking water with methane and for spilling toxic fracturing chemicals into streams near drill sites.

But by the definition of industry, along with most everyone who followed oil and gas issues before the current shale drilling boom, fracturing didn't cause those problems.

That is because the companies are saying, specifically, that no one has ever proven that hydraulic fracturing fluid rises up a mile or so from the production zone, through layers of rock, to pollute drinking water aquifers.

They rarely, if ever, clarify that regulators have repeatedly linked water contamination and other environmental problems to other aspects of drilling.

For example, a well blowout during fracturing last month in Pennsylvania, sent fluid to a nearby stream, threatening surface water, not groundwater (*Greenwire*, May 4). And a well-known contamination case in Dimock, Pa., involved methane -- not fracturing fluid -- in local water wells (*Greenwire*, Dec. 16, 2010).

Environmentalists and other industry critics consider this distinction to be nothing more than word games concocted by oil and gas lobbyists. Whatever you call it, they say, gas production is fouling air and water.

"When they confine their definition to the single moment of the underground fracturing -- a part of the process that has never been investigated -- they can legally deny the obvious," wrote Josh Fox, director of the anti-drilling documentary "Gasland," in a rebuttal to

industry criticism of his film.

"Very tricky wording," Fox wrote, "which belies the real truth. Quite deliberately."

Federal exemption

Spills and methane contamination fall under existing state and federal regulations. Fracturing, by contrast, received a specific exemption from the Safe Drinking Water Act from a Republican Congress and then-President George W. Bush in the 2005 energy bill.

Environmentalists and some congressional Democrats want to reverse that exemption under legislation called the "Fracturing Responsibility and Awareness of Chemicals Act," or FRAC Act.

The safety of the fracturing process itself has been challenged. But industry and regulators have dismissed them as unsubstantiated.

The additives in fracturing fluids can contain toxins like benzene or 2-Butoxyethanol, commonly called 2-BE, a toxic solvent. They are a tiny fraction of the mix, but human exposure to some of them is measured in parts per million.

Laura Amos of Silt, Colo., blamed 2-BE in fracturing fluid for the rare tumor she developed after a well near her home blew out in 2001 during the fracturing process. State regulators fined the operator, EnCana Corp., $99,400 because gas was found in Amos' water well. EnCana disputed their finding, though the company did not fight it.

But state regulators concluded that hydraulic fracturing was not to blame for the problems with Amos' water well. They suggested that if Amos had been exposed to 2-BE it may have come from household cleaning fluids, such as Windex, rather than her groundwater.

The case was essentially closed in 2006 when Amos accepted a reported multimillion-dollar settlement from EnCana, which also bought her family's property. Amos no longer discusses the matter publicly.

A 2004 EPA study found that fracturing posed "little or no threat" of groundwater contamination, except perhaps when diesel is used. But the agency never tested the water itself. Instead it relied on a survey of state regulators. Critics like Fox rejoin that it is hard to prove the absence of something without looking for it.

Jackson and his fellow researchers at Duke do not completely exonerate fracturing from

problems, either. He said more research is needed into whether the intense pressure used to crack open shales, much higher than in conventional drilling, might be the cause of those leaky pipes allowing methane into well water.

And industry is criticizing the sample size of the study as too small to prove methane contamination. That could cast similar doubts on any conclusions about the safety of fracturing.

"It surprised me that there was so little systemic work on this," Jackson said. "We don't know much about the fracking."

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