Experts: Some fracking critics use bad science

KEVIN BEGOS - Associated Press - Associated Press

In the debate over natural gas drilling, the companies are often the ones accused of twisting the facts. But scientists say opponents sometimes mislead the public, too.

Critics of fracking often raise alarms about groundwater pollution, air pollution, and cancer risks, and there are still many uncertainties. But some of the claims have little — or nothing— to back them.

For example, reports that breast cancer rates rose in a region with heavy gas drilling are false, researchers told The Associated Press.

Fears that natural radioactivity in drilling waste could contaminate drinking water aren't being confirmed by monitoring, either.

And concerns about air pollution from the industry often don't acknowledge that natural gas is a far cleaner burning fuel than coal.

"The debate is becoming very emotional. And basically not using science" on either side, said Avner Vengosh, a Duke University professor studying groundwater contamination who has been praised and criticized by both sides.

Shale gas drilling has attracted national attention because advances in technology have unlocked billions of dollars of gas reserves, leading to a boom in production, jobs, and profits, as well as concerns about pollution and public health. Shale is a gas-rich rock formation thousands of feet underground, and the gas is freed through a process called hydraulic fracturing, or fracking, in which large volumes of water, plus sand and chemicals, are injected to break the rock apart.

The Marcellus Shale covers large parts of Pennsylvania, New York, Ohio and West Virginia, while the Barnett Shale is in north Texas. Many other shale deposits have been discovered.

One of the clearest examples of a misleading claim comes from north Texas, where gas drilling began in the Barnett Shale about 10 years ago.

Opponents of fracking say breast cancer rates have spiked exactly where intensive drilling is taking place — and nowhere else in the state. The claim is used in a letter that was sent to New York's Gov. Andrew Cuomo by environmental groups and by Josh Fox, the Oscar-nominated director of "Gasland," a film that criticizes the industry. Fox, who lives in Brooklyn, has a new short film called "The Sky is Pink."

But researchers haven't seen a spike in breast cancer rates in the area, said David Lee, a professor of medical anthropology at the University of Texas Southwestern Medical Center in Dallas.

David Risser, an epidemiologist with the Texas Cancer Registry, said in an email that researchers checked state health data and found no evidence of an increase in the counties where the spike supposedly occurred.

And Susan G. Komen for the Cure, a major cancer advocacy group based in Dallas, said it sees no evidence of a spike, either.

"We don't," said Chandini Portteus, Komen's vice president of research, adding that they sympathize with people's fears and concerns, but "what we do know is a little bit, and what we don't know is a lot" about breast cancer and the environment.

Yet Fox tells viewers in an ominous voice that "In Texas, as throughout the United States, cancer rates fell — except in one place— in the Barnett Shale."

Lee called the claims of an increase "a classic case of the ecological fallacy" because they falsely suggest that breast cancer is linked to just one factor. In fact, diet, lifestyle and access to health care also play key roles.

Fox responded to questions by citing a press release from the Centers for Disease Control and Prevention that doesn't support his claim, and a newspaper story that Risser said is "not based on a careful statistical analysis of the data."

When Fox was told that Texas cancer researchers said rates didn't increase, he replied in an email that the claim of unusually high breast cancer rates was "widely reported" and said there is "more than enough evidence to warrant much deeper study."

Another instance where fears haven't been confirmed by science is the concern that radioactivity in drilling fluids could threaten drinking water supplies.

Critics of fracking note the deep underground water that comes up along with gas has high levels of natural radioactivity. Since much of that water, called flowback, was once being discharged into municipal sewage treatment plants and then rivers in Pennsylvania, there was concern about public water supplies.

But in western Pennsylvania, the Pittsburgh Water and Sewer Authority did extensive tests and didn't find a problem in area rivers. State environmental officials said monitoring at public water supply intakes across the state showed non-detectable levels of radiation, and the two cases that showed anything were at background levels.

Concerns about the potential problem also led to regulatory changes. An analysis by The Associated Press of data from Pennsylvania found that of the 10.1 million barrels of shale wastewater generated in the last half of 2011, about 97 percent was either recycled, sent to deep-injection wells, or sent to a treatment plant that doesn't discharge into waterways.

Critics of fracking also repeat claims of extreme air pollution threats, even as

evidence mounts that the natural gas boom is in some ways contributing to cleaner air.

Marcellus air pollution "will cause a massive public health crisis," claims a section of the Marcellus Shale Protest website.

Yet data from the U.S. Energy Information Administration show that the shale gas boom is helping to turn many large power plants away from coal, which emits far more pollution. And the U.S. Environmental Protection Agency passed new rules to force drillers to limit releases of methane from wells and pumping stations.

Some environmental groups now say that natural gas is having a positive effect on air quality.

Earlier this year, the group PennFuture said gas is a much cleaner burning fuel, and it called gas-fired power plants "orders of magnitude cleaner" than coal plants.

Marcellus Shale Protest said in response to a question about its claims that "any possible benefit in electric generation must be weighed against the direct harm from the industrial processes of gas extraction."

One expert said there's an actual psychological process at work that sometimes blinds people to science, on the fracking debate and many others.

"You can literally put facts in front of people, and they will just ignore them," said Mark Lubell, the director of the Center for Environmental Policy and Behavior at the University of California, Davis.

Lubell said the situation, which happens on both sides of a debate, is called "motivated reasoning." Rational people insist on believing things that aren't true, in part because of feedback from other people who share their views, he said.

Vengosh noted the problem of spinning science isn't new, or limited to one side in the gas drilling controversy. For example, industry supporters have claimed that drilling never pollutes water wells, when state regulators have confirmed cases where it has. He says the key point is that science is slow, and research into gas drilling's many possible effects are in the early stages, and much more work remains to be done.

"Everyone takes what they want to see," Vengosh said, adding that he hopes that the fracking debate will become more civilized as scientists obtain more hard data.

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