Toxic Chemicals, Carcinogens Skyrocket Near Fracking Sites

The spikes almost certainly will lead to a cancer increase in surrounding areas, a study author says.

Alan Neuhauser, U.S. News & World Report, 10-30-14

Oil and gas wells across the country are spewing “dangerous" cancer-causing chemicals into the air, according to a new study that further corroborates reports of health problems around hydraulic fracturing sites.

“This is a significant public health risk,” says Dr. David Carpenter, director of the Institute for Health and the Environment at the University at Albany-State University of New York and lead author of the study, which was published Thursday in the journal Environmental Health. “Cancer has a long latency, so you’re not seeing an elevation in cancer in these communities. But five, 10, 15 years from now, elevation in cancer is almost certain to happen.”

Eight poisonous chemicals were found near wells and fracking sites in Arkansas, Colorado, Pennsylvania, Ohio and Wyoming at levels that far exceeded recommended federal limits. Benzene, a carcinogen, was the most common, as was formaldehyde, which also has been linked to cancer. Hydrogen sulfide, which smells like rotten eggs and can affect the brain and upper-respiratory system, also was found.

“I was amazed,” Carpenter says. “Five orders of magnitude over federal limits for benzene at one site – that’s just incredible. You could practically just light a match and have an explosion with that concentration.

“It’s an indication of how leaky these systems are.”

The health effects of living near a fracking site have been felt elsewhere, according to separate research. A study published last month by researchers from the University of Washington and Yale University found residents within a kilometer of a well had up to twice the number of health problems as those living at least 2 kilometers away.

“The way fracking’s being done in these five states, it’s not being done safely,” Carpenter says.

For Carpenter's study, trained volunteers living near the wells conducted air measurements, taking 35 “grab air” samples during heavy industrial activity or when they felt symptoms such as dizziness, nausea or headaches. Another 41 “passive” tests – meaning samples were taken during a designated period, not merely when levels spiked – were conducted to monitor for formaldehyde. The tests were then sent to accredited labs.

Not every sample exceeded the recommended limits. But in those that did – slightly less than half the samples taken – benzene levels were 35 to 770,000 times greater than normal concentrations, or up to 33 times the exposure a driver might get while fueling his or her car. Similarly, hydrogen sulfide levels above federal standards were 90 to 60,000 times higher than normal – enough to cause eye and respiratory irritation, fatigue, irritability, poor memory and dizziness after just one hour of exposure.

Excessive formaldehyde levels were 30 to 240 times higher than normal, which a statement on the study described as “more than twice the formaldehyde concentration that occurs in rooms where medical students are dissecting human cadavers, and where most students report respiratory irritation.”

A law passed in 2005 by Congress included what's commonly known as the "Halliburton loophole," which exempts oil and gas companies from federal regulations involving the monitoring and disclosure of fracking chemicals.

“It’s the gift that keeps on giving, the longer you’re exposed to these things,” says Wyoming resident Deb Thomas, who saw a well open across the road from her in 1999 and helped collect air samples for Carpenter’s study. “I had an asthmatic episode – I’ve never had any asthma, I don’t have a history of asthma. I ended up at the hospital where they gave me breathing treatments. I’ve had really bad rashes.”

Thomas has come across similar symptoms at other unconventional oil and gas sites across the country, where as executive director of the nonprofit group ShaleTest, she’s helped take air samples for low-income families and communities affected by fracking.

We see a lot of cognitive difficulties,” she says. “People get asthma or breathing difficulty or nose polyps or something with their eyes or their ears ring – the sorts of things that come on very subtly, but you start to notice them.”

However, it’s difficult to determine which health issues are a result of oil and gas operations and which stem from other factors, because symptoms often start only gradually and government air quality studies have proved limited in scope.

“It’s really hard to say what’s from the actual exposure,” Thomas says. “It’s very scary. It’s very hard to get information about what the development is. One minute you’re living your normal life, the next, people start to get really sick and they can’t get any answers.”

The chemicals may pose major risks to oil and gas workers, too.

“The occupational exposures we’re not even talking about,” Carpenter says. “If anybody is exposed at the levels our results show, these workers are exposed at tremendous levels.”

The American Petroleum Institute, the oil and gas industry’s largest trade and lobbying group, and America’s Natural Gas Alliance, which represents independent gas exploration and production companies, both declined to comment Wednesday ahead of the study’s release. Spokesmen at each group referred questions to another industry organization, Energy In Depth, which dismissed the study's methods and conclusions as "dubious."

"Their commitment to banning oil and gas development, and their ideological position that fracking can never be adequately regulated, is clearly why this report comes to such harsh conclusions," says Energy In Depth spokeswoman Katie Brown, referring to the group that trained the volunteers, Global Community Monitor. "They were probably determined before the project ever began."

The study's findings come as New York Gov. Andrew Cuomo weighs whether to end a state moratorium on fracking. Cuomo, a Democrat, has delayed the release of a state health department study on the industry until after elections Tuesday.

As a professor and researcher in the New York state capital, Carpenter says he hopes his study “does influence the debate.”

“There’s certainly economic reasons to explore fracking,” he says. “I’m not religiously opposed to fracking. While I prefer renewable fuels, we’re a long way from that. I just want it done safely. There’s been debate about how safe or unsafe it is, and our results say there is a problem.”