

NATURAL GAS DRILLING RELEASES URANIUM, STUDY REVEALS¹

Leah Zerbe[©]

Like "clean coal," natural gas drilling in deep shale formations may go down in history as one of the biggest greenwashing campaigns the world has ever seen. This novel type of drilling, called hydraulic fracturing, or "fracking," has never been proven safe, although the U.S. Environmental Protection Agency (EPA) recently announced a two-year study to investigate its effect on water. As contamination incidents are surfacing in drilling areas, the industry is rushing to install wells before regulation is put in place. A scientific study released this week has added to the evidence that fracking is releasing more than natural gas. Researcher Tracy Bank, PhD, assistant professor of geology at the University of Buffalo in New York, has discovered that the fracking process is also unleashing toxic uranium from the shale formations, creating hazardous waste in the water that comes back to the surface. The mobilized uranium threatens to contaminate groundwater. The new independent research will be presented next week at the annual meeting of the Geological Society of America in Denver.

THE DETAILS: To find out whether the uranium naturally trapped in the Marcellus Shale formation that stretches from New York through Pennsylvania, Ohio, and West Virginia is released during fracking, Bank and colleagues used instruments to map the precise location of the hydrocarbons underground that contain natural gas. "We found that the uranium and the hydrocarbons are in the same physical space," says Bank. "We found that they are not just physically—but also chemically—bound."

When the millions of gallons of water used in hydraulic fracturing come back to the surface, she says, they could contain uranium contaminants, potentially polluting streams and other ecosystems and generating hazardous waste. "Even though at these levels, uranium is not a radioactive risk, it is still a toxic, deadly metal," Bank explains. "We need a fundamental understanding of how uranium exists in shale. The more we understand about how it exists, the more we can better predict how it will react to fracking."

WHAT IT MEANS: Bank says the new research suggests that "any liquid or solid that results from drilling in the shale should be considered hazardous waste because of the metal concentrations." The uranium will likely be in flowback water—that is, the thousands of gallons of water that come back up to the surface after being mixed with toxic chemicals and injected deep into the earth. "The uranium concentration is higher than drinking-water standards and therefore should be considered hazardous," Bank says.

Along with contamination of surface water by the flowback, treatment of the flowback water itself is also a concern. There aren't nearly enough specialized treatment plants available to handle the 200-plus chemicals (some carcinogens, neurotoxins, and hormone disruptors), so frack water has been treated in regular municipal treatment plants, where the water is released into streams and, ultimately, back into the community's water supply.

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Here's how to take a stand against fracking:

Share the facts. Reach out to your neighbors, township supervisors, county commissioners, and other elected officials and educate them about the harmful effects of natural gas drilling (this type of drilling is being done in 34 states). But even if you don't live over the shale, you could still be affected by contaminated waste transport (trucks hauling the waste have crashed in the past, leaking thousands of gallons of frack fluid), air contamination, or even ruined favorite vacation spots. The first step may be to dispel the common myth that natural gas is a cleaner energy. When you look at the process of extracting natural gas from shale—including the uranium and other contaminants released by the process—it's actually anything but clean.

Life-cycle analysis expert Robert Howarth, PhD, professor of ecology and environmental biology at Cornell University, has said that a national shift to natural gas would be "disastrous." His research is finding that natural gas is actually as energy-intensive as coal, long regarded as the dirtiest form of energy. Howarth spoke to Rodale.com several months ago, voicing his concerns: "There is no national reporting or monitoring system," he says. "Houses are blowing up in Pennsylvania. That's probably the tip of the iceberg in terms of methane leaking into the atmosphere." Howarth's research has found that a 5 percent leakage rate over a 20-year period equates to methane being 72-fold more potent a greenhouse gas than carbon dioxide, the greenhouse gas released when we drive cars and burn coal for electricity. In terms of energy, he contends, "It's a lousy alternative. "It's being sold as something that's good for the fight against global warming. That's not true," Howarth adds. "Instead, we're flooding the market with cheap gas that is every bit as bad [as coal and oil] and could be aggravating global warming." Earlier this year, Food & Water Watch, a consumer-watchdog organization, concluded that natural gas drilling threatens the national water supply and human health. (Read the report.)

Apply pressure on politicians. Urge your federal official to support the FRAC Act which would force natural gas drilling companies to fall under Safe Drinking Water Act laws from which they are currently exempt.

Show a film. To educate your neighbors and friends—especially if you live near a shale deposit—consider showing an educational documentary like *Split Estate*, from Bullfrog Films. It chronicles the ills of natural gas drilling in the Rocky Mountain West, where drilling has been going on longer than it has in the East. By renting the film, you also receive licensing rights to show the film publicly. You can also contact the producers of the award-winning documentary *Gasland* to request a screening in your area.

Wash your hands clean of dirty energy. Ultimately, we need to move away from polluting, nonrenewable energy sources. Clean energy is now within reach for most people, at least for some energy needs. Solar hot water, for example, costs the typical family about US\$3,000 to US\$3,500 after rebates, and a system pays for itself generally within six years. Choosing a hybrid or high-mileage vehicle next time you car-shop, monitoring your home energy use with a smart meter, and getting rid of energy vampires can help you depend less on untenable energy sources—and save money, too.