

## How Safe is Our Water Really?

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m.cameron

We have the safest drinking water in the world—except for the pesticides that sometimes sneak in. And the rocket fuel. And the antibiotics ...

### Sparkling, flat, or flaming?

We've been flooded with scary information lately about the water we drink. Newspaper stories have pointed out that more than 60,000 chemicals are used across the country— and can get into our drinking water—though the EPA enforces limits on fewer than 100. Other reports have warned of perchlorate, an ingredient in rocket fuel, which has been found in water systems in 26 states. And then there are the stories of families who can actually light their water on fire as it comes from the tap, not something you generally look for in your liquid refreshment.

We had questions. We wanted answers. What's risky, what's not, and what's just plain hooey? Is bottled water really any better than tap? How can you make water safer in your home—and around the world? And how does water burn, anyway?

### “Our Water Was Spurting and Bubbling Like Alka-Seltzer”

Jimmy and Victoria Switzer's dream home has a nightmarish problem: They can't drink or cook with the water that comes out of its taps.

Jimmy built the house in Dimock, a small town in northern Pennsylvania, from timber he split himself. “We wanted it to be the place for our daughters to come with their families,” says Victoria, 59. But a couple of years ago, they began noticing that their water seemed ... strange. At first, there was just an orange tint and sediment in the bottom of a glass. Then, periodically, the washing machine would fill up with black sludge. Soon, Victoria says, “our water was spurting and bubbling like Alka-Seltzer.”

On New Year's Day, 2009, a neighbour's water well exploded. The Pennsylvania department of environmental protection determined that methane from a natural gas well had seeped into the water supplies of several Dimock families, including the Switzers'. A spark from a motorized pump is thought to have set off the blast. Several of the Switzers' neighbors had so much gas in their water, they could actually light it on fire.

Dimock sits atop a rock formation called the Marcellus Shale, which stretches from New York State to West Virginia and contains huge amounts of natural gas. Gas companies have long known about the deposits, but only in the past couple of decades have improvements in a drilling method called hydraulic fracturing—or fracking—allowed them to tap these reserves. Fracking involves drilling a deep hole and then injecting about a million gallons of water, sand, and chemicals under high pressure. The jet of material breaks up rock, releasing gas that’s captured at the well head.

Environmental groups worry that toxic chemicals used in fracking (often a trade secret), along with the potential migration of methane gas, pose a threat not only to private water supplies but also to rivers and other sources of drinking water. Yet fracking has its share of fans in high places, including Pennsylvania governor Tom Corbett, who argues that with the right environmental protections, it can provide jobs and clean energy. Cabot Oil & Gas Corporation, which owns the wells on the Switzers’ property, says the process is safe and that water in the area naturally contains methane.

Nevertheless, the Switzers and other families with contaminated wells now receive free weekly water deliveries courtesy of Cabot. And the state of Pennsylvania has ordered the company to pay \$4.1 million to the families with methane in their water. However, several of them, including the Switzers, refused the pay-out and are suing Cabot. “We have been living a nightmare,” says a defiant Victoria. “I will not let the gas company destroy my dreams.”

## **An Imperfect Safety Net**

Should reports of purity problems make you feel good? (“Somebody’s paying attention!”) Or worried? (“What else is out there?”) Here’s what the experts say about the fear factor.

## **We used to have rivers of fire**

“Back in the 1970s, contamination came out of the end of a pipe. You could see it—we actually had the Cuyahoga River on fire. We’ve made progress on that, but now we have to worry about what happens when it rains. Water runs over city streets, suburban lawns treated with fertilizer and pesticides, and agricultural lands that may also have been treated or have animal feeding operations, and into our rivers and streams. Runoff is now thought by most folks to be the biggest source of water pollution.” — **Lisa Jackson**

## **We’ve been playing whack-a-mole**

“We’re trying to figure out whether we can address contaminants as groups rather than one at a time. Can we look at perchlorate together with other solvents that might act like it? That might help us

break the cycle where every time we decide we need to regulate a chemical, we find out there's a different one we need to worry about." — **Lisa Jackson**

## Worry uncaps the water bottle

"Sales of bottled water have skyrocketed from around a gallon per person per year in the early 1970s to over 30 gallons today. There are four main reasons: We've become increasingly fearful of tap water, we don't like the taste, and it's become easier to find bottled water at the same time that it's become harder to find water fountains. A football stadium in Florida was built with no water fountains—the day it opened, 60 people got heat stroke because they ran out of bottled water. The fourth reason is that we've been bombarded with ad campaigns telling us that bottled water will make us skinnier or sexier or healthier. But no one should assume that bottled water is better than tap water. Some bottled water isn't monitored at all." — **Peter Gleick**

## Our drinking water system helped make this country great

"Building a good tap water system is how we got rid of cholera, typhoid, and dysentery in the early 1900s." — **Peter Gleick**

## But it needs help

"A lot of the infrastructure for drinking water is very old. In the District of Columbia, some of it predates the Civil War. Lead pipes used to be standard back then! But updating it is expensive, and nobody is sure how we're going to pay the bill." — **Olga Naidenko**

## There are a lot of known unknowns

"We know perchlorate is out there. Now we need to know how much or how little is acceptable. Detection methods for contaminants are progressing really fast. But toxicology tests, which tell us how dangerous a contaminant is, take years to develop." — **Olga Naidenko**

## The Reader's Digest Version

"If you live in a big city in the United States, you should be confident of your tap water. If you live in a small rural community with a little water system, you're much more likely to be at risk. These small systems are more vulnerable to things like agricultural runoff and septic tank leakage." — **Peter Gleick**

"Almost 290 million people in this country depend on 50,000 water systems for safe water. We don't pay attention to this system, because it works—about 92 percent of Americans drink water that meets

federal safety standards. Where we don't meet the standards, we know what we have to do to get there." — **Lisa Jackson**

## **The Experts**

Head of the Environmental Protection Agency, Lisa Jackson is charged with keeping the nation's public water systems safe.

Peter Gleick, PhD, is president of the Pacific Institute, which analyses environmental issues, and the author of *Bottled and Sold: The Story Behind Our Obsession with Bottled Water*.

Olga Naidenko, PhD, is a staff scientist at the Environmental Working Group, an activist research organization.

*For more information, please contact your Water Specialist:*

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