Is America's Drinking Water Safe?

We often take the purity of our drinking water for granted. Every four years, the American Society of Civil Engineers (ASCE) issues a report card for the nation's infrastructure. Letter grades are issued based on physical performance and needed investments for improvement. The 2013 report card states, "we have a significant backlog of overdue maintenance across our infrastructure systems, [and] a pressing a need for modernization." A "D" grade was issued on the report card for "Drinking Water," echoing previous concerns by the Natural Resources Defense Council's (NRDC) report in 2003.

When we turn on the tap, we expect our water to be safe. However, this isn't the case for many Americans. Many of the contaminants found in drinking water are odorless, colorless, and have no scent making it difficult for anyone to detect.

Although the United States is considered to have one of the safest drinking supplies in the world, it is still important to know where your water comes from, how it was treated, and if it is safe to drink. The quality of drinking water will vary depending on its source. Community systems found out of compliance are usually located in small towns and rural areas. Enforcement of drinking water standards in small water systems are less consistent than enforcement in larger ones.

Water Pollution in America

Lethal contaminants may be in the water in which we drink and bathe. This toxic concoction may contain parasites, cleaning chemicals, and feces, and we wouldn't even know it.

Research by the New York Times shows that an estimated one in ten Americans have been exposed to drinking water that contains

"The EPA regulates about 200 different chemicals in our water. But remember we use chemicals for everything so there are about 84 thousand chemicals in industrial and agricultural use in the United States and many of them are soluble in water. So if they are soluble in water that means they have the potential to contaminate our water supplies. These chemicals are colorless frequently, odorless and tasteless so you may not have any indication that your water has been contaminated until you have been exposed to it for many, many years." - Dr. Patricia Meinhardt, author of Recognizing Waterborne Disease and the Health Effects of Water Pollution: A Physician On-Line Reference Guide

dangerous chemicals or fails to meet federal health benchmarks in other ways.

The town of Flint, Michigan is emblematic of our current national water woes. Two years ago, in an attempt to cut costs, city officials switched Flint's water supply from Lake Huron to the highly corrosive Flint River.

Soon after the switch, residents noticed the water started to look, smell and taste funny. The water was brown because it was not being treated with an anti-corrosive agent against federal guidelines.

What's worse is, in Flint, many of the service lines to homes are made of lead. Since the water was not treated properly, lead began to leach into the water supply.

In an interview with Lee Cowan of CBS Sunday Morning, President Obama called Flint's water crisis "inexplicable and inexcusable" and was dissappointed that the bureaucracy in place clearly broke down.

Despite this, his administration continued to slash funding to the Environmental Protection Agency's (EPA) water infrastructure budget by over a quarter billion dollars. Loans by the EPA are the primary source of federal funding for state and local water infrastructure improvements.

It Goes Beyond Flint

Flint is not the only American city with water problems, and it will take a massive investment in infrastructure to protect citizens from serious health dangers. Although the Safe Drinking Water Act requires the EPA to regulate drinking water, the agency's enforcement has been lax.

A study by the NRDC was conducted on 19 cities. It found that "pollution and deteriorating, out-of-date plumbing are sometimes delivering drinking water that may pose a health risk." They say many cities rely on "pre-World War 1 era water delivery systems and treatment technology."

Recently reported by the media:

Sebring, Ohio - A small town of 4,300 people. Local officials issued a statement earlier this year that said water was unsafe for children and pregnant women to drink.

Alabama and 26 other states - The EPA found perfluorooctanoic acid (PFOA) in 103 public water systems in 27 states. PFOA was instrumental in the manufacture of Teflon pans, carpets, and microwave popcorn bags for making things slick.

Maryland, Ohio, Washington, New York and California - Some cities reported elevated lead levels found in school water.

New Jersey - Almost half of Newark's public schools were found to have elevated levels of lead. Governor Chris Christie has ordered mandatory testing for all New Jersey public schools.

Louisiana, Kentucky, Tennessee and Mississippi- Some cities reported dark brown water from aging water systems.

Wisconsin - Ranked as the state with the highest levels of strontium, a naturally occuring heavy metal, in its drinking water. This unregulated contaminant is a public health mystery. Limited studies suggest elevated levels could affect infants and children, as strontium mimics calcium and is absorbed by their developing bones.

Pennsylvania - A peer reviewed study published in the Proceedings of the National Academy of Sciences has confirmed fracking can contaminate groundwater. The researchers found traces of drilling fluids in the water sampled.

Arizona- The small town of Sanders, near the New Mexico border has been drinking water contaminated with high levels of uranium for over a decade. Documented violations for uranium levels date back to 2003. The town has been approved to receive water from a new provider, but transfer of service will not likely take place for up to a year.

Where is the pollution coming from?

Contaminants can get into the water system from many sources. Sewage systems can overflow, roads and highways leach pollutants during rain runoff, pesticide and fertilizer enter from farms, animal waste from feedlots, chemicals used in hydraulic fracking leech into ground water, and the deterioration of aging pipes are just a few of the sources which make their way into the system. Although Congress passed laws to protect our water sources, these laws are only good if they are enforced.

In 2009, the New York Times reported that "violations of the Clean Water Act have risen steadily across the nation" and the act has "been violated more than 506,000 times since 2004." The violations range from "failing to report emissions to dumping toxins," and the article makes clear the vast majority of those polluters have escaped punishment.

Clean Water Act of 1972

The Clean Water Act (CWA) is administered by the EPA. The law aims to protect the nation's waters from pollutants and has set water quality standards for all contaminants in surface waters. The CWA made it unlawful to discharge any pollutant into navigable waters unless a permit was obtained.

Safe Drinking Water Act (SDWA)

The SDWA was last amended in 1996 and is supposed to protect America's drinking water and its sources (rivers, lakes, reservoirs, springs, and ground water wells). The act authorizes the EPA to set national standards to protect against natural and man-made contaminants found in drinking water. Currently, there are more than 170,000 public water systems in the United States.

What contaminants are found in tap water?

The nation's water does not meet our health goals, and the Safe Drinking Water Act is so out of date, that the water we drink today is legal but potenitally unhealthy.

Former EPA administrator Lisa P. Jackson expressed in a speech at the annual Association Metropolitan Water Agencies conference that "in the vast majority of communities, we have met the goals for safe water that were set in the 1970's." However, she says the pollutants go further than the "visible oil slicks and industrial waste" but to the "invisible pollutants that have only recently been able to be seen thanks to advanced science." These new chemicals have become much more prevalent in our water and bodies over the last 50 years.

Charles Duhigg, who wrote the Toxic Water series for the New York Times said "...for a large portion of the population there are thousands of chemicals in drinking water that are unregulated" and "even for those that are regulated, we have learned things in the past decade that those chemicals are more dangerous but none of the rules have changed since 2000 for the Safe Drinking Water Act."

According to the Environmental Working Group's (EWG) drinking water analysis of water quality tests performed by state water officials between 2004 to 2009, it was found that water suppliers had detected a total of 316 contaminants in water delivered to the public.

Tap water can contain a variety of contaminants. In the three year investigation conducted by the EWG, 60 percent of the contaminants were found to have no safety standards and no reputation by the EPA.

Some of the contaminants found to be of most concern include:

Heavy Metals

Lead
Lead can enter drinking water when service pipes that contain lead corrode. This toxic metal is harmful even at low doses.

Mercury
Refinery discharges and runoff from landfills are just a few of the ways that mercury can get into the public drinking water. Being exposed to high levels of mercury over time can cause kidney damage.

Industrial Chemicals
Chlorine is a powerful oxidant added to water to kill disease causing micro-organisms. When chlorine reacts with rotting organic matter, a new family of chemicals are created called Trihalomethanes.

Many industrial solvents and chemical compounds have made the news for contaminating drinking water. Tetrachloroethylene (PERC), a dry cleaning solvent, can cause liver problems.

Microbial Hazards
Coliforms are bacteria that are present in the digestive tract of animals, including humans and can be found in their waste.

Fecal coliform can enter rivers from animal waste or through human sewage. E.coli, a type of fecal coliform, has been found in tap and bottled water.

Having clean and safe drinking water isn't a privilege, it's a right!

"Scientist and regulators within the EPA, for over a decade now, have been pushing for tougher rules on drinking water and new laws that empower them. But very often when they try to do that, industry has pushed back very successfully because if the rules got tighter, a lot of companies would have to pay a lot more in clean up costs" said Duhigg.

Until the law is updated, people around the country remain at risk and cannot be sure their water is safe. According to the Water Quality Association, a trade organization that tests water treatment equipment, more than four out of ten Americans use a water filter.

Should you test your water?

If your tap water doesn't taste good, smell good, or look good, consider having your water tested. These are signs of possible water quality problems. Other things to think about include the nearness of your water well to septic systems, and the composition of your home's plumbing materials.

Download EPA Home Water Testing guide here.

Check your CCR
A Consumer Confidence Report (CCR) is an annual water quality report issued by community water systems to their customers. This report is required by the EPA and contains information on source water, the levels of detected contaminants, and compliance with drinking water rules.

The CCR tells you about the water in your municipality, but not what's coming out of your faucet. Only private testing of your home supply can do that. Homeowners with well water face even greater uncertainty, because such water isn't surveyed or reported on in CCRs.

Finding clarity amidst a murky predicament

Safe drinking water is essential for our health, and if you are drinking straight from the tap, you may be getting more than you expected.

From the source to your tap, the water you drink has picked up trace amounts of pesticides, contaminants and industrial run off. This concoction could contain hundreds of chemicals which are not regulated by the EPA, and no one knows the long term effects of drinking these contaminants even in small amounts.

There is no choice, everyone should filter their water. Filtering your tap water will not only improve the taste of your water, but it is the only way to be sure that the water you drink is free from harmful contaminants. There are hundreds of brands of filters on the market; the best ones use a combination of different technologies to filter your water.

Alkal-Life 7000sL™

For over ten years, the Alkal-Life™ brand has been providing users all over the world with the best ionized water on the market. However, did you know if you want the best ionized water, you need the best and cleanest water possible? Yes, it's true, and the Alkal-Life 7000sL™ works behind the scenes by removing waterborne contaminants, so you can rest assured what you are drinking is safe and clean.

The Alkal-Life 7000sL™ serves two functions. It is an effective water filtration device, and it can produce -838 ORP ionized water. The Alkal-life 7000sL™ contains the Active Carbon Filter. This filter scrubs your water clean as it passes through four layers of filter technology.

Active Carbon Filter

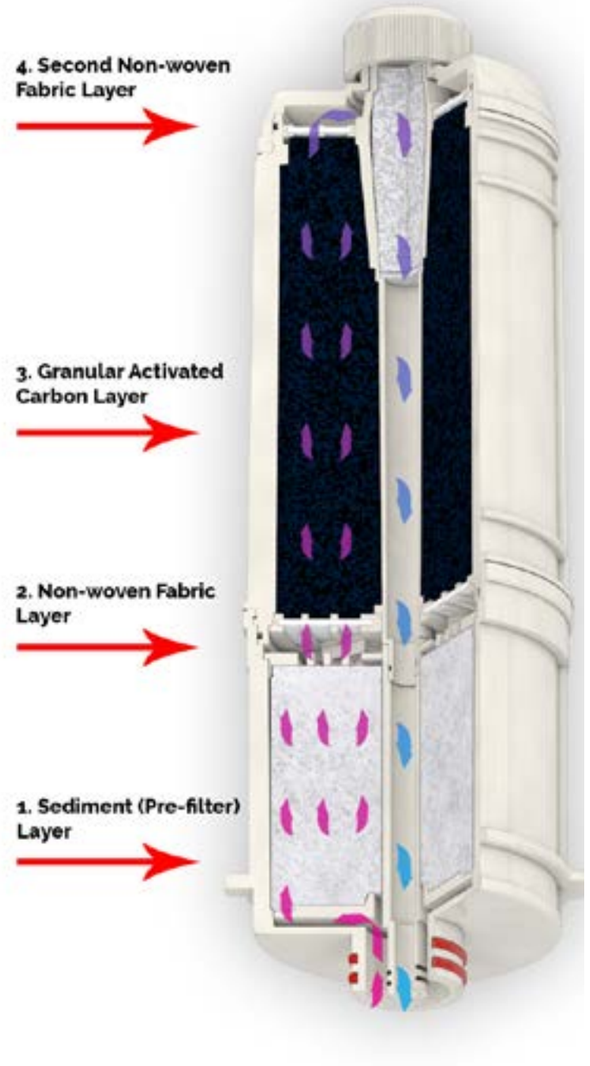
Tap water flows through the filter from the bottom up. Follow the arrows and read the description to learn how tap water becomes filtered.

1. Sediment (Pre-filter) Layer
Fine particles of five microns or more are easily trapped in the sediment filter. Made from 100 percent polypropylene microfibers, the sediment filter has exceptional holding capacity. The mechanical filtering process eliminates a variety of impurities such as dirt, dust, and rust. This initiates the purification process and prolongs the life of the filter. As water passes through this filter, taste and odor is improved.

2. Non-woven Fabric Layer
Non-woven fabrics are engineered for a variety of uses and have wide ranging applications. Due to its excellent filtration properties and durability, non-woven fabrics are being used in surgical and industrial applications. The Alkal-Life 7000sL™ employs a non-woven fabric specifically designed to filter out particles as the next line of defense.

3. Granular Activated Carbon Layer
The extremely fine cavities in the granular activated carbon filter trap the tiniest contaminants. The highly absorbent filter is made from coconut peels that have been processed at high temperatures, making it suitable for removing and absorbing organic (i.e. trihalomethanes and bacteria) and non-organic (i.e. chlorine and arsenic) compounds, odors and gaseous substances.

4. Second Non-woven Fabric Layer
As a final step, water passes through another layer of this special filter to trap any remaining particles. This ensures the purest, cleanest, and clearest drinking water.



Test results for the Active Carbon Filter

Test	Unit	Result
Total colony counts	CFU/mL	Not Detected
Total coliforms	-/100ml	Not Detected
E. Coli	-/100ml	Not Detected
Lead	mg/L	Not Detected
Fluoride	mg/L	Not Detected
Arsenic	mg/L	Not Detected
Selenium	mg/L	Not Detected
Mercury	mg/L	Not Detected
Cyanide	mg/L	Not Detected
Chromium	mg/L	Not Detected
Ammonia Nitrogen	mg/L	Not Detected
Nitrogen	mg/L	1.2
Cadmium	mg/L	Not Detected
Boron	mg/L	Not Detected
Phenols	mg/L	Not Detected
Diazinon	mg/L	Not Detected
Parathion	mg/L	Not Detected
Fenitrothion	mg/L	Not Detected
Carbaryl	mg/L	Not Detected
Trihalomethane	mg/L	Not Detected
Chloroform	mg/L	Not Detected
1.1.1.-Trichloroethane	mg/L	Not Detected
Tetrachloroethylene	mg/L	Not Detected
Trichloroethylene	mg/L	Not Detected
Dichloromethane	mg/L	Not Detected
Benzene	mg/L	Not Detected
Toluene	mg/L	Not Detected
Ethylbenzene	mg/L	Not Detected
Xylene	mg/L	.001
1,1-Dichloroethylene	mg/L	Not Detected
Carbon Tetrachloride	mg/L	Not Detected
Residual chlorine	mg/L	Not Detected
Chloral hydrate	mg/L	Not Detected
Dibromoacetonitrile	mg/L	Not Detected
Dichloroacetonitrile	mg/L	Not Detected
Trichloroacetonitrile	mg/L	Not Detected
1,2-dibromo-3-chloropropane	mg/L	Not Detected
Haloacetic acids	mg/L	Not Detected
Copper	mg/L	Not Detected
Zinc	mg/L	Not Detected
Chlorine ion	mg/L	13
Total Solids	mg/L	88
Iron	mg/L	Not Detected
Manganese	mg/L	Not Detected
Aluminum	mg/L	Not Detected
Turbidity	NTU	.31
Sulfuric Acid	mg/L	14
Bromodichloromethane	mg/L	Not Detected
Dibromochloromethane	mg/L	Not Detected

Download Active Carbon Filter information here.