

## THE ENVIRONMENTAL HOME

# You should be asking if your water is safe

**By Dan Howard**

FOR TRIB TOTAL MEDIA

If you listen to the news, Americans care more than ever about what we put in our bodies. Fats, additives, cholesterol, too much sugar, and on and on have become big media and legislative issues. We are paying a lot of attention to what is eaten.

On the other hand, we don't spend much time thinking about the water we drink. Make no mistake about it, we are way ahead of previous generations and past civilizations in the safety of our water. History is full of whole armies, societies and populations that have been decimated or even ended by drinking water contaminants and diseases. We are a far cry from that state of affairs, but not completely safe.

If you think about it, the amazing and at the same time disgusting fact is that the water in your spigot may contain water treated by an upstream sewage plant, and yet we drink it.

America has one of the safest water systems in the world. On the other hand, we have seen serious brain damage and other health problems can occur in places like Flint Michigan. The scary part is that the damage to many lead poisoned children is now a health and developmental problem that will live with them and those around them all of their lives.

The rest of the story in Flint Michigan is that even if the water quality is corrected, the pipes themselves are now chemically damaged and will continue to leech lead into the drinking and cooking water of the residents. Digging up and replacing the underground main service line pipes, hot water tanks and damaged pipes in homes has been estimated to have a cost of between 20 and 200 million dollars in that city of 100,000 residents. Many of those residents can simply not afford to do the needed work in their individual homes. Cost of replac-



ing the damaged underground municipal system is claimed to be 1.5 billion dollars.

If the water of Flint was properly treated, the poisoning and permanent physical damage to the people drinking the water would have never occurred. The big question to ask as you stare at your own glass of water from your tap should be: Is my water safe?

The EPA requires that each municipal water treatment system provide an annual "Consumer Confidence Report" (abbreviated CCR) and make that report available to the consumers of the water. It only took minutes for me to look up the report for the local water authority that supplies our home. The good news is that the water was pretty good.....in this case. The bad news is that I had never checked that information on the water we drink before today. All of us need to take a look at the report for our homes.

The CDC (Center for Disease Control) tells us that the presence of contaminants in water can lead

to adverse health effects. These illnesses include gastrointestinal illness, reproductive problems, and neurological disorders. They further say that infants, young children, pregnant women, the elderly, and people whose immune systems are compromised because of AIDS, chemotherapy, or transplant medications, may be especially susceptible to illness from some contaminants.

### The Economic, Chemical and Political Challenges of Providing Safe Water

The process of treating water differs across the country depending upon the source of the water, the contaminants found in the water and the chemistry required to make the water safe. The problem is that the source water chemistry can change or become intermittently contaminated by industrial discharges and events such as floods, algae and other contaminations that can occur from time to time.

The nature of many water au-

thorities is that they work with serious budget and staff constraints that often make monitoring and identification of problems difficult. That in turn makes response and solution of problems economically and politically difficult.

### Stages of Water Treatment

**Pre-Treatment:** Water enters the system. Depending upon the source, dirt or sand may be removed from the water. If subject to algae growth, some chemicals may be needed.

**Coagulation:** Chemicals are added so that smaller suspended particles clump together and fall to the bottom of a settling tank. That coagulated junk is called floc. The water has to settle for a longer time in this step than in the pre-treatment stage.

**Clarification or Sedimentation:** Water slowly flows through the next step. This results in sludge at the bottom of the basin. That material will be removed and then disposed.

**Softening or Stabilization:** Minerals such as magnesium and calcium need removed from the water to avoid damage to the municipal system and residential pipes and fixtures.

**Filtration:** This is the step where the suspended materials are removed. The remaining products can make the water look cloudy. Cloudy appearance is referred to as "turbidity". These small particles can include microorganisms, protozoa cysts, algae, silt, iron and other organic and mineral products. Yummy! Sand, gravel, garnet or similar materials are used for this step.

**Fluoridation and disinfection:** This is the important last step before water is pumped to a holding tank. The most common disinfectants are chlorine based chemicals.

Water is pumped up to the holding tank: Water pressure is the result of gravity. The difference in elevation between the level of water in the tank and the open spigot in your home determines the pressure of the water. The pressure is ½

### Top 10

The CDC Top 10 List of Diseases Caused by Outbreaks in Public Water Systems:

- Giardia
- Legionella
- Norovirus
- Shigella
- Campylobacter
- Copper (<http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=205&tid=37>)
- Salmonella
- Hepatitis A
- Cryptosporidium
- E. coli, excess fluoride (tie)

PSI for every foot of difference in that height.

### Minimizing the Chance of Lead Poisoning from Drinking Water

Lead is the most common problem in municipal water systems. The EPA recommends drawing drinking and cooking water from your spigot for 2 minutes before taking any water for use.

We can be grateful for the overall safety of water in our nation, but need to diligently "trust but verify" that the water for each of our families is safe.

For links and additional information about safe drinking water, go to: [www.PittsburghMoldTesting.com/safewater](http://www.PittsburghMoldTesting.com/safewater)

Dan Howard is the owner of EnviroSpect. For environmental consultation call 724 443-6653. For more information visit their website at [www.EnviroSpect.info](http://www.EnviroSpect.info). Email questions to: [Dan@EnviroSpectofWesternPA.com](mailto:Dan@EnviroSpectofWesternPA.com). Like us on Facebook or connect @ [DanHoward251](https://www.facebook.com/DanHoward251).