



Tap Water Taste, Odor and Appearance: Why They Matter

Part 1 of a Series of Articles on Tap Water

By The Water Quality & Health Council

We instinctively use our senses to evaluate tap water. The best rated water looks crystal-clear, and tastes and smells refreshing. Appearance, taste and odor are not necessarily indicative of actual water quality, however, because water *contaminants* may be clear, tasteless and odorless. Case in point: the small Canadian city of Chilliwack, British Columbia.



In 2013, the mayor, city council and many of Chilliwack's residents expressed outrage when the local health authority recommended adding chlorine to the city's award-winning drinking water. The recommendation was prompted when *E. coli* bacteria was detected during routine water sampling. At a dramatic public event, a local medical health officer declared he was willing to take a big sip of Chilliwack tap water, but he would never let his young daughter drink it. Chilliwack's tap water, the city's pride and joy, was under attack. The controversy brewed for months during which voices asserted publicly that chlorine treatment was unnecessary and sure to spoil the great-tasting drinking water enjoyed by city residents. In the end, supporters of public health and great-tasting water both won out as the [chlorinators were turned on full-time in Chilliwack](#).

Water Quality

Tap water has properties that are both perceptible and imperceptible. It should meet all federal and state regulatory standards for chemical and biological contaminants. For this, consumers of municipal water rely on the science underlying drinking water regulations and the treatment technologies implemented by water treatment professionals to meet those regulations.

It is important that water be pleasing to the senses so that consumers will drink it. Water that is perceived to be objectionable could be rejected in favor of water that looks, tastes and smells *better*

You, the Consumer

How do you receive your household water? Does it come from a municipal water system, or are you on a private well? Under the Safe Drinking Water Act, all US residents served by municipal water systems are entitled to information on the quality of their drinking water. An annual consumer confidence report must be delivered by hard copy or electronic mailing each year by July 1. Private well owners, on the other hand, are themselves responsible for ensuring their water is safe from contaminants. The [US Centers for Disease Control and Prevention](#) recommends annual basic testing of well water for total coliform bacteria, nitrates, total dissolved solids, and pH levels.*

but may in fact be less safe. That very real risk is the reason why water treatment operators care about the aesthetic properties of water.

**Total coliforms bacteria are a group of bacteria found in plant material, water and soil and in the digestive tracts and feces of humans and animals. Water systems test for total coliforms to monitor water quality. A positive test for total coliforms could indicate recent contamination with soil or human feces.*

Anatomy of a Great Drink of Water

Unless you are drinking distilled water (relatively pure H₂O, which tastes rather flat to most people), your tap water is a complex blend of flavors that reflects both the nature of the water source and the

Food for Thought...and Taste

Chefs say that we first eat a meal with our eyes; that goes for a drink of water too. Anything less than crystal-clear water would be unpalatable to most of us. People with an acute sense of smell taste food and water differently from others. Taste gets very complicated when we consider all of relevant sensory factors.

treatment it has undergone. The local geology—the rocks and minerals in contact with the natural water source—determines the mineral content of raw water. Surface water tends to have more organic constituents than groundwater, which may be more mineral rich.

Treatment chemicals are added to raw water to help remove particles of matter and destroy potentially dangerous pathogens, like *E. coli*. These additions often remove offensive odors in a water supply, but may overlay a chemical taste or odor to tap water. In the case of Chilliwack, when all was said and done, adding chlorine clearly did not detract from the aesthetic qualities of the city’s water. How can we say that? In a May, 2015 taste test pitting 15 British

Columbian communities against one other¹, one of which, Clearbrook, is unchlorinated, [Chilliwack tap water was voted “Best of the Best” in British Columbia!](#)

Next week: Handy information you can use to help evaluate issues that may arise with the appearance, taste and odor of drinking water.

¹British Columbia communities competing with Chilliwack for best-tasting tap water were: Prince George, Furry Creek, Radium Hot Springs, Kamloops, Harrison Hot Springs, Penticton, Lillooet Lake, Bralorne, Gold Bridge, Squamish, Clearbrook, Rutland, Nelson and the Regional District of North Okanagan—Greater Vernon.