

## **“What’s the Difference” – Village Water Quality vs Water Taste (2021 Village Water Consumer Confidence Report)**

Water Quality and Water Taste are not the same thing and often confuse people. The Village of Armada has very good water quality. Of Course, you the user pay for that but you are definitely getting what you pay for.

Water Taste, however, is quite subjective. While the water in the Village is very safe to drink, not everyone likes the taste of it and may question whether they are getting their monies worth from the stand point of drinkability.

The information below explores the difference between Water Quality and Water Taste.

### **Water Quality**

The United States has one of the safest water supplies in the world. Over 90 percent of Americans get their tap water from community water systems, which are subject to safe drinking water standards.

Drinking water quality varies from place to place, depending on the condition of the source water from which it is drawn and the treatment it receives, but it must meet Federal Environmental Protection Agency (EPA) regulations. Community water systems follow the rules set forth by the Safe Drinking Water Act (SDWA).

Many states also enforce their own drinking water standards that are at least as protective as EPA’s national standards and often more. Michigan’ Department of Environment, Great Lakes, and Energy (EGLE) provides additional standards and guidelines for drinking water quality, water testing schedules, and water testing methods.

Even though U.S. tap water supplies are considered to be among the safest in the world, water contamination can still occur. There are many possible sources of contamination, including:

- Naturally occurring chemicals and minerals in the water (for example, arsenic, radon, uranium)
- Local land use practices (for example, fertilizers, pesticides, livestock, concentrated feeding operations)
- Manufacturing processes (for example, heavy metals, cyanide)
- Malfunctioning on-site wastewater treatment systems (for example, septic systems) or sewage releases

In addition, drinking water that is not properly treated or that travels through an improperly maintained distribution system (pipes) may also create conditions that increase risk of contamination.

The presence of certain contaminants in our water can lead to health issues, including gastrointestinal illness, reproductive problems, and neurological disorders. Infants, young children, pregnant women, the elderly, and people with weakened immune systems may be especially at risk for illness.

It's important to note that private wells are not regulated by the EPA. Well owners are responsible for keeping their water clean and safe. The Village has no private wells connected to the water system.

The EPA sets standards and regulations for the presence and levels of over 90 contaminants in public drinking water, including *E. coli*, *Salmonella*, *Cryptosporidium*, metals such as lead, chemicals like PFAS, and minerals such as arsenic. The Village must follow a yearly monitoring schedule that is sent to it by EGLE. The Village is currently following the *Drinking Water Monitoring Schedule and Annual Report Requirement for 2022* (dated February 18, 2022).

As required by the EGLE *Drinking Water Monitoring Schedule and Annual Report Requirement*, every community water supplier must provide an annual water quality report, sometimes called a Consumer Confidence Report, or “CCR” to its customers. The report provides information on local drinking water quality, including the water’s source, contaminants found in the water, and how consumers can get involved in protecting drinking water. System Users received a copy of the 2021 CCR in their May Water/Sewer Bill. The 2021 CCR is also attached for reference.

### Water Taste

Many of us believe that water is tasteless, however, Scientists have determined water does have a general taste and that not all water tastes the same. Water Taste is in fact highly subjective and influenced by both your own biology and the water source. There are a number of interesting studies on water taste and why certain people like certain types of water. Often it simply comes down to a preference for the taste of the water you grew up with, the general taste of the water in the region where you now live, or the taste you acquired from drinking certain types of bottled water.

The most important dimension of a water source’s effect on how it tastes has to do with the minerals that are dissolved in the water. Mineral content in water is characterized by a measurement called total dissolved solids (TDS). This TDS measurement is basically means for telling you that your water contains naturally occurring minerals like calcium, phosphorous, sodium, and numerous others and in what quantities.

Before you think that bottled water is better than tap water, taste tests between the two are often split down the middle. This makes sense when you consider the fact that about 52 percent of bottled water is actually just purified tap water! If you still like bottled water more,

what you may actually prefer are the extra amenities that bottling companies can provide such as water that's been injected with carbon dioxide (fizzy or sparkling water), or water from a mineral spring that contains various minerals such as salts and sulfur compounds, or even Alkaline water which has naturally occurring, ionized minerals that raise its pH level, making it less acidic and giving it a "smoother" taste. Others have a particular preference for spring water, mountain water, well water, or even distilled (or purified) water.

The taste of water can also vary from sweet & salty to bitter & sour or even metallic? These tastes can provide a clue about whether you should be concerned about what's in your water. Here's some reasons for specific tastes:

Sweet: If your water tastes sweet, it shouldn't. A sweet aftertaste in your tap water can signal elevated levels of minerals like calcium. The presence of trace minerals such as iron can be causing a sweet aftertaste. Corroded plumbing pipes may be the reason for your sweet-tasting water because they can release iron into your water supply. Some types of plastic pipes can also give water a fruity, plastic taste.

A far more dangerous chemical that can cause your water to taste sweet is lead. Lead is, of course, highly toxic to humans.

Sour: If your water makes your lips pucker, you likely have a pH problem. The optimal pH level in water is between 6.5 and 8.5, while anything lower can make the water acidic and sour-tasting. The Villages water is between ~6.8 and 7.2.

Acidic water can occur naturally, or it can be due to excessive levels of dissolved oxygen and carbon dioxide.

Low pH levels also make water corrosive, which can damage your pipes and fixtures and cause them to leach out copper, zinc, or worse, lead.

*Bitter*: There are a number of possible sources behind a bitter taste in water. Bitter-tasting water can signal a high pH level. Water that passes through carbonate-rich soils like limestone can have a higher alkalinity and pH level. Photosynthesis of algae and plants also increases pH levels.

Bitterness aside, elevated pH in your water doesn't have negative health effects, although it can cause skin itchiness and dryness in more sensitive folks.

Another source of bitterness is the presence of copper, which often results from corroded copper plumbing.

In humans, copper in water within or less than 1.3 parts per million has no known negative effects. A higher level, though, can cause copper toxicity.

High levels of TDS or Total Dissolved Solids can also make your water taste like bitter medicine. And it's not only the taste, there can also be a laxative effect, especially in those not used to drinking the water.

Too much zinc in your water can also be the culprit behind that bitter taste. Although zinc in water isn't normally a cause of concern, exposure to large doses can cause stomach issues and nausea.

*Salty*: Does your tap water remind you of the last time you took an ocean swim? If so, there are a few reasons for the salty taste.

Chloride compounds in water can come from underground aquifers that contain high amounts of groundwater. Sea spray and saltwater aquifers can also bring chloride ions into freshwater systems and make your tap water taste salty.

As gross as it sounds, sewage leaks can happen and send small amounts of sewage into your water supply. If this happens, water saltiness is probably the least of your problems.

Sewage water contains a plethora of toxic materials, nitrates, and potentially life-threatening bacteria such as E. coli and hepatitis A. Any sewage leak should be immediately reported to your local government and health department.

*Metallic:* High levels of metals such as iron, zinc, and manganese can give water a metallic taste.

If your water contains both high amounts of iron and manganese, your coffee may appear darker and your water can be harder. Also, these metals can leave deposits in your plumbing pipes, fixtures, and appliances.

*Musty Taste Reminiscent of Moldy Bread:* Algal blooms are often the reason behind musty, moldy, or dirt-like taste in water. Don't worry though, as they aren't toxic, and most water treatments get rid of them. Unfortunately, the smell and taste may linger even after the water is treated.

*Rotten Eggs:* Hydrogen sulfide is the most likely reason behind the smell and taste of rotten eggs in your water. This chemical can occur when organic matter mixes with the water. There are also some types of minerals, including pyrite, that can also create this foul taste and odor.

Despite the attack on your taste buds and olfactory sense, this rotten-egg taste doesn't often pose a health concern, although it makes drinking a lot less pleasant.

*Swimming Pool:* If your water reminds you of those times, you've accidentally gulped in pool water, don't panic. That bleach-like taste is

likely chlorine, used by 98% of water treatment systems in the U.S. Chlorine is one of the most effective ways to disinfect water, which is why it's used in swimming pools and why we can drink water straight from the tap.

In small amounts, chlorine in water is safe and poses no health risk. However, studies found that too much chlorine in the long run can cause cancers. The Village uses low levels of chlorine in its water system to ensure any bacteria in the system is killed and the water safe to drink.

*Bottled vs Tap:* Finally, one of the biggest differences between tap water and bottled water isn't actually the quality or taste of the water, but rather how much it costs. Bottled water is typically about 300 times more expensive than tap water. Whereas bottled water costs approximately \$1.22 per gallon, the average cost of tap water is \$0.004 per gallon! In the Village, our current cost due to the smaller number of customers that support (pay into) the system, is \$0.0128 per gallon.

The bottom line here is Water Taste is personal, subjective, and really up to the preferences of the water "drinker". You may hate the taste, your neighbor may love the taste, and the guy down the street can "take it or leave it".

Taste aside, the Village has excellent water quality with no detectible contaminants. The Village goes to great lengths to ensure the quality of the water is top notch and stays that way. Our water is very safe to drink and use for personal hygiene.

**For Further Information, Contact: Ross Boelke, Water Commissioner, 586-784-9151**