Guide to Common Water Quality Concerns

The City of LaGrange understands the importance of delivering safe and aesthetically pleasing drinking water to its customers. Occasionally, water quality is adversely impacted by poor source water in West Point Lake, weather related events, pressure drops within the distribution system, and internal plumbing issues inside a customer’s premises. In these situations, you may notice unusual taste, odor, or coloration in your water. The information below is designed to assist you in identifying common water quality problems so that they can be properly addressed:

Which of the following best describes your water quality concerns?

- **THERE ARE COLORED PARTICLES IN MY WATER**

  Which of the following best describes the particles in your water?

  1. **Black Particles:**

     If the particles are **hard and similar to large coffee grounds**, they are probably granular activated carbon from the inside of your water filter. To correct this problem, replace the filter cartridge or consult with the manufacturer of the unit.

     If the particles are **solid yet rubbery in texture**, they could be pieces of an old disintegrating faucet washer or gasket. If this is the problem, the particles would likely only be present only at one faucet and that faucet might be leaking. To fix this problem, replace the faucet washers and the packing at the ends of the supply lines.

     If the particles are **very small in size and oily or sooty in texture**, they are probably from the inside of a flexible hose. These hoses are made of black rubber but they may be covered with a braided stainless steel mesh. Over time, the chlorine in the water can cause the rubber to break down. These hoses are located under the sink connecting the water supply to the faucet, or at the water heater connecting it to the water supply. To stop this problem replace the hose with one of the new styles with a disinfection resistant lining or change to a different style of hose that is not made of black rubber.

     If the particles are **small, irregular in size and shape, very hard, and possibly includes particles of different colors**, this is most likely iron and not a health hazard but, they can be a nuisance by clogging washing machine screens, shower heads, and the screens at the ends of faucets (called aerators). If the water is clear with these particles in it, they probably originated inside of your pipes.
2. Orange or Brown Particles:

If the particles are very hard and irregular in size and shape, usually this indicates small pieces of rusted steel that have broken off inside of your water pipes or city water mains. These particles are not a health hazard but they can be a nuisance if they clog your washing machine screens, shower heads, or screens at the ends of your faucets. If the water is clear with these particles in it, they probably came from the inside of your pipes.

If the particles are small, round beads that are uniform in size, shape, and color and the size of fish eggs, the cause might be a broken water softener. Inside a water softener are many small, round beads. The mechanism that keeps these beads in the tank can break, releasing them into your water piping. These beads vary in size and color depending on the manufacturer. Call your service agent for repairs.

3. White or Tan Particles:

If the particles are flake-like, very thin, and irregular in shape, the source could be a combination of calcium carbonate and magnesium carbonate often referred to as pipe scale. Calcium and magnesium carbonates are naturally occurring minerals and are found in varying concentrations in most waters around the world. These minerals are not a health threat, and in fact, they can be beneficial to human health. Over time, these minerals can deposit on the inside of your pipes and begin to flake off. Although this process usually occurs slowly over a long period of time, there are circumstances that can cause it to happen rapidly. If your water was turned off for repair work, the pressure and turbulence created when it is turned back on can dislodge the minerals from the pipes. If you add a water softener to your plumbing system, the softer water can dissolve the minerals from the pipes and also cause pieces to break loose. If you have galvanized steel pipes, they will corrode over time, begin to swell, and cause the minerals to flake off. There is no practical way to remove pipe scale from the inside of your pipes. For severe problems, you may want to consider re-plumbing your home.

If the particles are round and sand-like, this could indicate the accumulation of minerals in your water heater. As water is heated, minerals begin to precipitate out forming white or tan sand-like deposits. These minerals are carried out of the tank as hot water is used and can clog the inlet screen in your washing machine, shower heads, and faucet aerators. To keep mineral deposits from accumulating in the water heater, flush it at least once a year. Flushing regularly also extends the life of the heater and makes it operate more efficiently.

If the particles float, are flaky and irregular in shape, very small, can break apart easily, and may have a faint bluish-green tint, they could be from the plastic dip tube located on the inside of your water heater. This tube allows cold incoming
water to enter the tank at the bottom. As the tube gets old, it begins to disintegrate and show up as white particles in the hot water. These particles vary in size, break apart fairly easily, and do not dissolve in vinegar as minerals do. To correct the problem, you must replace the dip tube or water heater.

The particles are **small, round beads that are uniform in size, shape and color**. Inside a water softener are many small, round beads. The mechanism that keeps the beads in the tank can break, releasing them into your water. These beads vary in size and color depending on the manufacturer; however, two commonly used beads are very small and are white or tan in color. If you see that the particles are uniform in size, shape, and color and you have a water softener; call your service agent for repairs.

**MY WATER IS DISCOLORATED**

Which of the following best describes the discoloration in your water?

1. **Brown, Red, Orange, or Yellow color:**

   Brown, red, orange, and yellow water are all caused by rust in the water originating from either your pipes or the city’s pipes. There is fine brown sediment that accumulates at the bottom of water mains over the years and may contain small amounts of silt and organic material. However, most is rust comes from water main walls. When water flows rapidly through piping, sediment can become disturbed and suspended in the water staining it brown, red, orange, or yellow. This problem can occur following main breaks, firefighting events, hydrant testing, street sweeping, and routine flushing. After a few hours, the sediment will settle back out and the water will clear. The discolored water is thoroughly disinfected and not a health threat but is often very unpleasant, so it is best to wait several hours for the water to clear before using it. Do not wash laundry during this time, as the rust can stain clothing; and do not use any hot water, or you will draw this rusty water into your hot water tank. If you were doing laundry when the water became discolored, rewash it later when the water clears using a rust stain remover, or regular detergent. Do not use chlorine bleach because chlorine reacts with the iron and can form a permanent stain.

   The other major cause of brown, red, orange, or yellow water is rusty water pipes in your house or between your house and the meter. In this situation, the only permanent solution is to replace the piping. Replacing only some of the pipes can improve the problem, or it can actually make it worse. If part of old steel pipes are replaced with new copper pipes and the two different metals are connected directly together, the copper can cause the steel to rust more rapidly due to a galvanic reaction. This process can be stopped with the use of a proper dielectric coupling between the two dissimilar pipes, so consult with an experienced plumber.
Some common symptoms indicating a corrosion problem on your property include:

- The water is discolored every morning or when first used after several hours of disuse.
- The water clears after it has run for a few minutes.
- The discoloration is only at one or several faucets, but not all of them.
- The discoloration is only in the hot water.

If you are still not sure if the discolored water is due to your pipes or our water mains, check the water supply.

- Take a clean glass or a white bowl and go to the water faucet (hose bib) at the front of your house, apartment, or business.
- Turn the spigot wide-open and run it for a full two minutes.
- After two minutes, fill the glass or bowl with water.
- If the water is clear faucet, the problem is likely in your plumbing.
- If the water at the front tap is discolored after running for two minutes, the problem is likely coming from our water main. If the water does not clear within 24 hours, contact the city at 706-883-2130.

2. **Milky White:**

   Milky white water, also commonly described as cloudy, hazy, soapy, or foamy, is almost always caused by air in the water. One of the many properties of water is its ability to dissolve gases including air. Sometimes the air comes back out of the water in the form of tiny bubbles giving the water a milky white appearance. To see if the white color in the water is air, fill a clear glass with water and set it on the counter. If the white color is due to air, the water will begin to clear at the bottom of the glass first and then gradually will clear all the way to the top. This is a natural phenomenon and is completely normal; the water is safe to use.

3. **Green:**

   Green water is usually due to copper plumbing corrosion. If this is happening, the water will have a bluish-green tint and will leave a bluish-green stain. Copper corrosion can be caused by your electrical system being grounded to your water pipes, especially if you have a mixture of pipe material. If the green color is only in the hot water, it may be due to the temperature on the water heater being set too high. For hot water circulating systems, the return line may be too small or the water may be pumped too fast for your pipe size. Green water can also be caused by dezincification of cheap bronze alloys found in valves, water pumps, and water pump parts. This problem can occur in high-rise buildings and large industrial properties where the water is pumped to storage tanks.
MY WATER HAS A TASTE OR ODOR

Which of the following best describes the taste or odor in your water?

1. **A Rotten Egg smell:**

   There are two common causes of a sulfur rotten egg smell or taste in the water. The first is bacteria growth in your drain pipes. As bacteria accumulate and feed, they produce gases that smell like rotten eggs. It is natural to assume the bad odor is coming from the water because you only smell it when you turn the water on. However there is nothing wrong with the water, you just need to disinfect the drain. Another cause of a rotten egg smell or taste in the water is bacteria growing in the water heater. This is most likely to occur if the hot water has been unused for a significant period of time or if the thermostat on the heater is set too low. The bacteria that produce this problem are not a health threat; however, the taste and odor can be very unpleasant. This problem can be solved by flushing and disinfecting your water heater.

2. **A Musty, Moldy, or Earthy taste and smell:**

   Algae grows prolifically in West Point Lake during the hot and dry summer months. As algae dies, it releases a chemical called geosmin that produces a strong earthy taste and smell. It’s been estimated that humans can detect geosmin at concentrations as low as 5 parts per trillion, which is roughly equivalent to a teaspoon of geosmin in 200 Olympic swimming pools. The city uses chlorine dioxide and carbon in the treatment process to control geosmin, but during severe algae blooms it becomes increasingly difficult to completely remove all geosmin from the water supply. Another common cause of earthy smells is bacteria growing in the drains of your home. This is a similar problem to the rotten egg smell described above, and the solution is to disinfect your drain piping.

3. **A Bleach-like, Chemical, or Medicinal smell:**

   There are two common causes for this chemical odor in the water; the addition of chlorine by the city, or the interaction of chlorine with a build-up of organic material in your plumbing system. The first step to solving the problem is to determine if the problem exists in the city's water supply or in your plumbing system. If the problem occurs in only one or several - but not all - of the water faucets inside your home and the problem goes away after running your water for several minutes, the cause is somewhere in your plumbing system. If this is the case, you can eliminate the problem by disinfecting your drains and aerators with bleach to kill any odor-causing bacteria. If the problem is in the city water supply, it will occur at every water faucet on the property and it will not disappear after a few minutes of running the water. If
the problem is at every faucet on the property and does not disappear after running the water for a few minutes, call the city at 706-883-2130 to report the problem.

4. Salty:

A salty taste in the water is usually caused by naturally occurring sodium, magnesium, or potassium. The salty taste will often be very mild and diluted if present. It is not harmful to your health to drink this water. In fact, many dissolved solids are beneficial to your health. Another possible cause of salty water is a water softener. This taste will be much more salty than the natural salt compounds dissolved in the source water. When the internal seals of the valve in your water softener leak, salty water can enter the cold water lines during the regeneration cycle of the softener.

5. A kerosene or cat urine smell:

Chlorine dioxide is a powerful oxidant applied in the city's treatment process to control odor, disinfect harmful substances, oxidize dissolved metals, and minimize the formation of harmful byproducts. Unfortunately, chlorine dioxide reacts with organic chemicals in household air, particularly those emitted by new carpet, to produce a kerosene or cat urine smell. This unpleasant odor will eventually fade as the new carpet smell diminishes.