

WILLISTON REGIONAL WATER TREATMENT PLANT SWITCHES FROM CHLORINE TO CHLORAMINE

CHLORAMINATION FREQUENTLY ASKED QUESTIONS

Why is Williston making the change to chloramines? The reason is to provide water to our customers with the lowest possible levels of trihalomethanes (THMs).

Are chloramines new? No. Many cities in the US and Canada have used chloramines for decades.

What are trihalomethanes (THMs)? THMs are chemical compounds that are formed when chlorine mixes with naturally occurring organics in water. The US Environmental Protection Agency (EPA) conducted tests which determined that chloroform (one of the THMs) is carcinogenic when consumed by laboratory animals in large quantities over a prolonged period of time and is a suspected carcinogen for people. EPA set a standard of 80 parts per billion (ppb) as the maximum level of THMs in drinking water.

Does Williston's water meet the standard? Yes, right now we meet the standard but we have exceeded the standard of 80 ppb (parts per billion) three times in the past year. Our last samples of February 28, 2006 tested at 85 ppb. Historically, our levels of THMs are the highest in the summer months. This health standard is one of the major reasons that we are making improvements at the water treatment plant.

Are Chloramines Safe? Yes. Chloramines have been used safely in the US and Canada for many years. EPA accepts chloramines as a disinfectant and as a way to avoid THM formations. Were it not for some kind of disinfectant in drinking water, disease causing organisms such as typhoid and cholera could be carried in your drinking water. Chloraminated water is safe for bathing, drinking, cooking and all uses we have for water every day. However, there are two groups of people who need to take special care with chloraminated water: **kidney dialysis patients and fish owners.**

Why do kidney dialysis patients have to take special precautions? In the dialysis process, water comes in contact with the blood across a permeable membrane. Chloramines in that water would be toxic, just as chlorine is toxic, and must be removed from water used in kidney dialysis machines. There are two ways to do that, either by adding ascorbic acid or using granular activated carbon (GAC) treatment. Medical centers that perform dialysis are responsible for purifying the water that enters the dialysis machines.

Do medical centers, hospitals and clinics that perform kidney dialysis know about the change to chloramines? Yes. All medical facilities have been notified of the change. If you have any doubt, please ask your physician.

What should people with home dialysis machines do to remove chloramines? You should first check with your physician, who will probably recommend the appropriate type of water treatment. Often home dialysis service companies can make the needed modifications but you should check with your physicians to be certain.

If chloramines are toxic, won't they harm people and pets? Chloramines are harmful when they go directly into the bloodstream as happens in kidney dialysis. Fish also take chloramines directly into their bloodstream. That's why chloramines must be removed from water that goes into kidney dialysis machines or is used in fish tanks and ponds.

If chloramines shouldn't mix with blood, is it safe to drink water containing them? Yes. Everyone can drink water that is chloraminated because the digestive process neutralizes the chloramines before they reach the bloodstream. Even kidney dialysis patients can drink, cook and bathe in chloraminated water. It's only when water interacts directly with the bloodstream as in dialysis or in a fish's gill structure that chloramines must be removed.

How about washing an open wound, such as a cut, with chloraminated water? Certainly. Even large amounts of water used in cleaning a cut would have no effect because virtually no water actually enters the bloodstream that way.

Can people with kidney ailments, low sodium diets, or with diabetes use chloraminated water? Yes. People with those medical problems can use chloraminated water for all purposes.

What about people who are sensitive to chemicals? The amount of chloramines will be extremely small, no more than 2.0 parts per million parts of water. That is the maximum amount in the water as it leaves the Williston Water Treatment Plant. If you are concerned that even this low concentration might cause problems for you, check with your physician. The predominant type of chloramines in the water will be monochloramine (NH₂C1) and will be in the ratio of three parts chlorine to one part ammonia-nitrogen.

Will chloramines change the pH of water? No. It will remain the same (pH = 8.9 to 9.2).

What will water taste like with chloramines? If you notice any change at all, you may find the water has less of a chlorine odor or taste.

Will changing to chloramines increase the cost of water? No. The cost of using chloramines is about the same as using chlorine.

Do home water softeners remove chloramines? Most water softeners are not designed to remove chloramines.

If chloramines are such effective disinfectants, why haven't they been used more? Given enough contact time, chloramines are just as effective as chlorine at doing their job - killing bacteria. However, chlorine while it works more quickly doesn't last as long as chloramines. Both disinfectants have advantages and disadvantages, which one is used depends on local water conditions.

How about using chloraminated water on plants? Will beneficial soil bacteria be harmed? The small amount of chloramines should have no effect on plants of any type. Beneficial bacteria will generally be protected by the soil in which they live. Chloramines will be removed by the high chlorine demand in the soil.

How do chloramines affect fish? Chloramines are toxic to fish and must be removed from water, just as chlorine is toxic and must be removed. You may not have had to remove chlorine from your aquarium water because it disappears rapidly on its own. This is *not* the case with

chloramines and steps should be taken to remove chloramines. Most pet stores have sold dechlorinating agents for years and generally have been recommending using them. The chemicals used to remove chlorine should work just as well for chloramines.

Won't letting water sit for a few days remove chloramines from tank or pond water? No. Unlike chlorine, which dissipates when water sits for a few days, chloramines may take weeks to disappear. If you don't want to use a dechlorinating chemical, the next best solution is to install a granular activated carbon filter and allow sufficient contact time.

If only a small amount of water is added to an aquarium or pond to make up for evaporation loss, do chloramines still have to be removed? This will depend on the amount of water added in relation to the size of the aquarium or pond and the time period over which it's added. An alternative is to monitor for total chlorine residual in the aquarium or pond water while adding the chloraminated water. Chloramines residuals in water used to keep fish should be kept below 0.1 mg/L. Total chlorine test kits are available from pet stores, pool supply stores and chemical supply houses.

Are both salt and fresh water fish affected by chloramines? Chloramines will have to be removed if the water used to make the salt water solution comes from an agency receiving water from Williston. Chloramines affect salt water fish just as they affect fresh water fish.

Will a carbon filter remove chloramines? Yes. However, it must contain high quality granular activated carbon and you must permit sufficient contact time.

Will reverse osmosis remove chloramines? No. Salts can be caught by the permeable membranes but chloramines pass through easily.

How much of a dechlorinating agent or what type of GAC filter should be used? Ask your pet supplier or read the instructions on the container or equipment.

What are the effects of ammonia on fish? Ammonia can be toxic to fish, although all fish produce some ammonia as a natural by-product. Ammonia is also released when chloramines are chemically removed. Although ammonia levels may be tolerable in individual tanks or ponds, commercial products are available at pet supply stores to remove excess ammonia. Also, biological filters, natural zeolites and pH control methods are effective in reducing the toxic effects of ammonia.