FAQS ABOUT WATER CONVERSION

What is chloramine?
Chloramine is a disinfectant used in drinking water to inactivate bacteria and viruses. It is typically used for water systems sourced from surface water. Keokuk Municipal Waterworks uses chloramine as a disinfectant in its main water system.

What is free chlorine?
Free chlorine is a disinfectant used in drinking water to inactivate bacteria and viruses. It is typically used for water systems sourced from groundwater.

What is a free chlorine conversion?
A free chlorine conversion is a process by which a water system temporarily switches its disinfection process from chloramines (a combination of chlorine and ammonia) to free chlorine (chlorine only) in order to improve the long-term quality of its drinking water.

What is the purpose and/or benefit of a free chlorine conversion?
Keokuk Municipal Waterworks' main water system uses chloramines for disinfection. Chloramines are a better long-term choice for systems on surface water because they produce lower levels of disinfectant byproducts like trihalomethanes when chlorine mixes with natural organic substances in water. However, prolonged use of chloramine coupled with other factors that can affect water quality, such as high temperatures, may result in the growth and/or persistence of organic matter within the pipes of the distribution system.

Though harmless when consumed by humans, this organic matter can introduce unwanted taste and odor, and hinder the ability to maintain an adequate disinfectant residual. A temporary conversion to free chlorine, partnered with flushing activities, clears distribution pipes of this organic matter and improves the quality of your water overall.

Are free chlorine conversions a common practice among water systems?
Yes. Free chlorine conversions are a common industry practice for preventive maintenance in drinking water distribution systems. Many utilities throughout the state and country that use chloramines for their primary distribution disinfectant periodically convert back to free chlorine to improve and maintain the highest water quality standards. The Environmental Protection Agency (EPA) endorses and supports this procedure.

How long will the free chlorine conversion last?
The duration of the free chlorine conversion will be around 30 days. It will take about 1-1/2 weeks to establish free chlorine in our system, 2 weeks of "soak time," and about a week to restore chloramine.

Does the free chlorine conversion pose any health risks? Will the water be safe to drink and use?
The process is entirely safe and poses no health risks to customers. The water is safe for people and animals to drink, for cooking and bathing, watering the garden, and for all other common uses.

Will my water taste or smell different during the free chlorine conversion?
A chlorine smell is very normal during the conversion period, as the disinfectant is transitioning from chloramines to free chlorine.

Free chlorine may have a bit of a chemical odor or smell slightly like water in a swimming pool. Each individual customer has his or her own sensitivity level to the taste and/or odor of free chlorine, though many detect no change at all.

Regardless of the form of chlorine in use, concentrations maintained during the conversion will be well within KMW and EPA standards and will be entirely safe to consume and use as normal.

Will I notice a change in my water?
Some people may notice a change in the taste or odor of the drinking water during this time, but the change to free chlorination does not have any adverse health effects.

Why does my water taste/smell different?
Your water may taste or smell different because the conversion process temporarily changes the type of disinfection used in the water. In conversions chloramines (a combination of chlorine and ammonia) is changed to chlorine only.

Water systems using chloramines periodically change to chlorine as part of a maintenance program within the water distribution system. During this temporary change to chlorine, you may notice a slight difference in the taste or smell of your tap water.

What can I do to improve the water taste/smell?
We suggest storing water in an open pitcher and placing it in your refrigerator. The chlorine will naturally dissipate from the water and will become less noticeable.

Are free chlorine and chloramines harmful for dialysis patients?
Both free chlorine and chloramines may harm kidney dialysis patients during the dialysis process if it is not removed from water before passing into the bloodstream. The Waterworks will inform dialysis centers about the temporary switch from chloramine to free chlorine prior to the conversion. Dialysis patients may drink water treated with either free chlorine or chloramines because the digestive process neutralizes these chemicals before they can enter the bloodstream.

Why all the flushing?
Keokuk Municipal Waterworks will directional flush to help maintain clear water for our residents and to ensure the free chlorine has made it to the far reaches of our distribution system. We will repeat the process when we convert back to chloramine. Flushing should significantly subside after the conversion.

Could I see a drop in water pressure due to hydrant flushing in my area?
Most customers will not see a drop in water pressure. If a change in pressure does occur, it is usually momentary.

Can hydrant flushing in my area cause cloudiness or sediment in my water?
The flushing process can stir up sediments and minerals in water mains that may make it into customer service lines, resulting in some short-term cloudiness or discoloration. If you encounter this condition, flush outside spigots and tubs with cold water thirty minutes after flushing in your area is completed until the water clears. Clothing should not be washed during times of discoloration to reduce the possibility of staining. Prior to washing clothing, customers may want to run a little water in a bathtub to check for discoloration.

Will pool owners need to treat water differently?
Pool owners must maintain the same chlorine level in water treated with either free chlorine or chloramines to prevent algae and bacterial growth. Pool supply stores can provide pool owners with more information.

What does this mean for aquarium and pond owners?
While free chlorine and chloramine are safe for most pets, they must be removed from tap water used for aquatic life (including fish and amphibians) in aquariums and ponds. For businesses and customers who own fish aquariums or ponds, continue to treat the tap water with a water conditioner when making water changes. Read the product label on the water conditioner that you use. Most conditioners neutralize both chlorine and chloramines, and no change will be required.

How can I remove chlorine from my water?
Free chlorine can be removed by boiling water, filling a container with water and leaving it to vent, or adding a bit of lemon juice (ascorbic acid neutralizes the chlorine). Note that these methods will not remove chloramine. Water purification and filtration devices to reduce chlorine levels also exist.

Is this the first time that the city has implemented a free chlorine conversion?
No. Keokuk did this in spring of 2025. Burlington performs a free chlorine conversion annually, Rathbun Rural Water does so every 2-3 years, and Hamilton did a conversion for the first time last year. The conversion was effective, but we still see reduction in chlorine residuals. Therefore, we are repeating the process. This may become part of the city's distribution system routine maintenance strategy.

Where can I learn more about drinking water disinfection and free chlorine conversions?
An internet search for "free chlorine conversion" will provide numerous websites that describe the process in detail.