Potable Reuse:
Rethinking Wastewater for a Thirsty World

As climate change and population growth put increasing pressure on our water supplies, innovative solutions like potable reuse are becoming essential. From sci-fi scenes to real-world applications, turning wastewater into drinking water might be key to securing our future.

CCWSA
Cherokeee County Water & Sewerage Authority

Water — arguably the most important resource required to sustain life. Over 70% of the Earth is covered in it and yet only 0.003% is available for human consumption. Without this invaluable resource, we can only survive 3 days. Some of you may be familiar with the 90's film *Waterworld*, starring Kevin Costner, depicting a dystopian future where the polar ice caps had melted, submerging the world under water. One of the movie's opening scenes shows Mariner (Costner) peeing into a plastic cup, pouring the urine into a purification machine, and then drinking the purified water. I'm sure this scene elicited the "ick" factor in many movie watchers. It is common knowledge that water exists as a cycle, so all the water we drink has been used by other organisms before us, but many people prefer a lot more time and distance between the exit and intake. In our community of Cherokee County, that process plays out like this: The CCWSA withdraws water from the Etowah River in Ball Ground, and we clean it up and send it to our customers. Our customers use the water, where it then goes down the drain and flows to one of our wastewater treatment facilities. Here it is cleaned up again and discharged into surface water leading to Lake Allatoona. Water is then withdrawn by water providers in Cobb County, cleaned, and sent to their customers. This process of using treated wastewater for drinking water (also referred to as "potable water") is called potable water reuse and can either be direct or indirect. The example I gave is of indirect potable reuse, and is commonly found all over the United States. Direct potable reuse is more like Mariner's (Costner) method of wastewater-to-water treatment, which is less common, but has proven to be very helpful - especially in areas where water is scarce. The main difference between the two is indirect potable reuse has an environmental buffer (stream, river, lake), and direct potable reuse does not have a buffer between the wastewater discharge and water intake. Economic and water scarcity are two main factors that have caused water providers to consider moving from indirect to direct potable reuse. To better understand this line of thinking, you first must understand two things: One, the water being discharged from the wastewater plant (effluent) is cleaner than the water it is going into. Two, climate change has and will continue to affect the reliability of our water supply. Drought, changes in precipitation patterns, and other stressors to water supply have caused many water providers in the western United States to find creative solutions to solve their increasing water demands. In the past, effluent has been viewed as the byproduct of treating wastewater, with no value as a resource. This viewpoint has started to shift as effluent restrictions get tighter and water supply becomes more limited. In more recent years, effluent has been seen as having an economic value due to the extensive resources used in its treatment and conveyance. Expelling this resource into surface water that is heavily influenced by nonpoint sources of pollution just seems wasteful. Looking to the future, as our population continues to grow and our demand for water does too, we all must have an open mind about where that water may come from. We have seen the challenges water providers in the Western United States have faced and the decisions they have made to make themselves more resilient for the future. Currently, we haven't faced challenges as severe in Georgia, but it is necessary to consider lessons learned to meet the needs of our customers in an ever-changing environment.

Just as a reminder, if you have a particular topic or question you would like us to address, please send it to - ccwsaea@gmail.com