

Direct Potable Reuse Pilot

Through partnership with the Southwest Florida Water Management District, Polk constructed a \$2.5 million pilot facility on the campus of the Cherry Hill Water Production Facility in the Northwest Regional Utility Service Area. The northwest region's reclaimed water availability and existing infrastructure made for a logistical, cost-effective and viable choice for the DPR pilot.

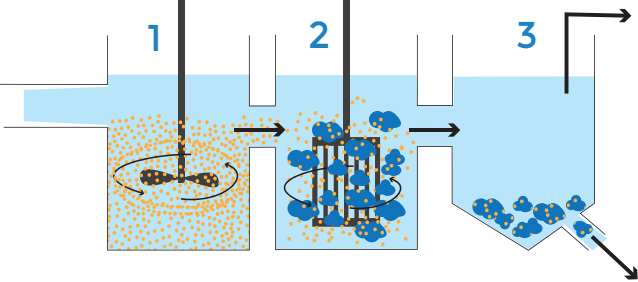
At the DPR facility, the pilot project will further treat the reclaimed water from the Northwest Wastewater Treatment Facility through a series of processes, utilizing a multi-barrier treatment approach that can run at a flow rate of 10-20 gallons per minute. These technologies are designed to do what the aquifer naturally does – purify the water and scrub it of contaminants.

The Processes

The following six processes make up the direct potable reuse treatment. While some processes are redundant, each serves to address any remaining contaminants and remove them.

Enhanced Coagulation and Sedimentation

The beginning process separates suspended solids in the water, including carbon containing compounds (chemical pollutants and pathogens).

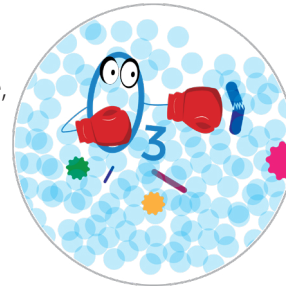


(1) A chemical or "coagulant" is blended with the reclaimed water at a high speed. (2) As the coagulant circulates with the suspended solids, the unwanted

particles stick or "floc" together as the paddles rotate at a medium to low speed. The act of sticking together is called flocculation. (3) In the final stage of the process, coagulant bonded, solids settle at the bottom of the tank and are removed to the waste stream. No coagulant remains and the clarified water then moves on to the next step of treatment.

Ozone

Water is injected with ozone, which is a powerful gas comprised of three oxygen molecules (O_3). The oxidant destroys pathogens and breaks apart contaminants (complex organic molecules and trace chemicals).



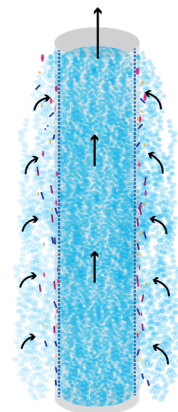
Biologically Activated Carbon (BAC) Filtration

As the ozonated water moves through the BAC filtration system, pollutants stick to a special filter made from sand-like pieces of carbon. Beneficial bacteria, purposely grown on filter media, "eat" excess organic carbon and trace chemicals.



Ultrafiltration

Pressure forces water through a membrane filter. The filter looks like a tube full of straws with very tiny pores that pollutants cannot fit through. As water is forced through the pores, the contaminants are removed from the water and stick to the ultrafiltration membrane wall. Each membrane pore is more than 300x narrower than a strand of human hair.



Granular Activated Carbon Filters

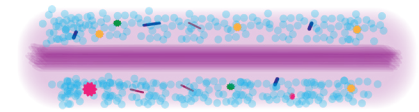
As water is pushed through the tank, contaminants stick to the activated carbon filter, removing natural, synthetic and volatile organic compounds, as well as taste- and odor-producing compounds. Harmful compounds like PFAS are removed from water during this process.

Ultraviolet Disinfection

As water passes through the steel cylinder, it flows as a thin film over a lamp.



Ultraviolet light penetrates and destroys any remaining pathogens, like bacteria, viruses or parasites.



The UV light inactivates any remaining cell by destroying the double stranded DNA and preventing growth and reproduction.

The Pilot Outcome

If the pilot proves to be a sustainable and viable option, the future may hold the opportunity for a full-scale facility. In that case, treated water from a full-scale facility would be blended with water from the aquifer to supplement the drinking water supply in the northwest utility area.

Event	Duration	Completion
DPR Pilot Study	1 Year	August 2024
DPR Full-Scale Project Construction*	24 months	June 2026
DPR Full-Scale Demonstration*	1 Year	June 2027
Permitting*	6 months	January 2028

*Pending Board direction

One Water Polk

One Water Polk is a comprehensive approach to managing water resources that includes securing alternative water supplies to meet Polk County's growing demand for water while protecting our lakes, springs, and wetlands from harm.

Polk is Running Out of Affordable Drinking Water

Polk County is one of the fastest-growing counties in the nation, and with growth comes an even greater demand for water. The Upper Floridan aquifer that supplies water to Polk, and four other areas in Central Florida, is under tremendous strain. The water supply does not meet the population's need, and the lack of available groundwater threatens natural resources (rivers, lakes, etc.). Alternative water supplies (AWS) are sustainable sources of potable water other than the Upper Floridan aquifer. There are limited options in Central Florida and the options that are available are extremely expensive to develop and operate.

For more information or to
schedule a tour

(863) 298-4198

www.polk-county.net/services/utilities



One Water Polk
Just flow with it



www.polk-county.net