

POTABLE REUSE PILOT TESTING RESULTS: UF/RO/AOP VS. OZONE/BAF/AOP

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JEA is the water, sewer and electric utility provider for the greater Jacksonville, Florida area. Currently, groundwater is the only source for drinking water. Although JEA has significant conservation and reclaimed water programs, as the population continues to grow alternative source water will be needed to meet potable demands. One potential source is potable reuse.

JEA owns and operates 11 water reclamation facilities (WRF) with a range of influent characteristics. In order to identify the best opportunities for potable reuse, JEA began work on a multi-step project. First, pilot testing was performed with two different industry leading treatment technologies on two different source waters. After piloting, the optimal process was selected for demonstration scale testing which is fully expandable for implementation.

In the piloting step, the two treatment trains pilot tested side-by-side were: a) coagulation/flocculation/sedimentation, ozone, biological active filtration, advanced oxidation, (Ozone/BAF/AOP) vs. b) ultrafiltration, reverse osmosis, advanced oxidation (UF/RO/AOP). The treatment trains were tested at two different WRFs with significantly different water quality: one with a predominantly domestic/commercial customer base, and the other which has a significant industrial component.

Due to the characteristics of the source waters tested, the UF/RO/AOP process produced higher quality water compared to Ozone/BAF/AOP, exhibited more reliable operation and was less subject to variations in source water quality. Based the water quality results, as well as factors including operational flexibility at all 11 WRFs and lifecycle cost estimates, UF/RO/AOP was selected for demonstration and implementation.

The purpose of the 1.0 mgd demonstration scale facility is to confirm performance at a larger scale and further public education and acceptance. Public acceptance is a critical component that will ultimately determine the success of the program. By demonstrating that potable reuse is safe, reliable and economical, it can provide a long term sustainable water supply for Northeast Florida.

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