

Reverse Osmosis Pilot Testing



Uniquely situated between Clearwater and Largo on the intercoastal waterway, The Town of Belleair, Florida is a small, mostly residential community of Pinellas County. In spite of its size, the Town of Belleair is a full-service community directly providing municipal services to its 4,100 residents. These services include its own utilities such as water generation and distribution, storm-water and solid waste; a full service police department; a parks and recreation department which also services residents of the surrounding communities of Belleair Bluffs, Largo and Clearwater; community development, building permitting and inspection services; and a streets department which builds and maintains *all* of the 44 curb miles of roadways and bridges within its boundaries. Belleair is somewhat unique in that all but three-quarter of a mile of its roadway infrastructure is solely the responsibility of the town as there are no federal, state or county roads or bridges with its jurisdiction.

The Town of Belleair currently meets its water demands through the operation and management of a local groundwater wellfield and associated Water Treatment Plant. These facilities currently meet the Town's demand of approximately one million gallons per day for both potable and irrigation needs, with the exception of two golf courses that utilize reclaimed water supplied by Pinellas County.

Because of the Town's close proximity to Clearwater Bay and the Gulf of Mexico, chloride concentrations (saltwater intrusion) in groundwater in the wellfield have been steadily increasing over time and it is likely that at some point in the near future, water quality will deteriorate to the degree where it no longer meets potable standards. To ensure that water demands can continue to be met, the Town wishes to initiate a study to evaluate the feasibility of developing a brackish groundwater wellfield/reverse osmosis treatment system.



Due to the high level of total dissolved solids, the town will be unable to continue treating water with the current methodology. In order to increase the quality of potable water for residents, Belleair is seeking grant funding to fund a pilot test of a reverse osmosis system. This testing is an essential part of improving the water and also understanding the true cost of operating a reverse osmosis treatment system. A pilot study will accurately identify considerations to construct an efficient design, as well as operational requirements that will be reproduced in a full-scale process. Ultimately, the findings of this study will enable the town of Belleair to implement a production system that will operate at the maximum efficiency with the lowest costs.

When the town moves forward with the reverse osmosis pilot testing, this will result in an increase in the quality of groundwater recharge. The aquifer will replace fresh groundwater with saltwater as more water is drawn from the well. Because of the town's rate of utilization, the total dissolved solids in water samples have increased as the groundwater recharge is not able to replenish fast enough. In addition to stabilizing and increasing the groundwater recharge, reverse osmosis will result in the highest quality drinking water available, all while utilizing a degraded freshwater source. The average cost of three quotes received for the pilot testing of pre-filtration and reverse osmosis system is approximately \$117,000.00. In order to continue utilizing diminishing fresh water sources, this study is critical to meet the town's drinking water needs.

For more information, including technical details, please contact JP Murphy, Town Manager, at (727)647-7483 or at jmurphy@townofbelleair.net. Thank you for your consideration.

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