



CASE STUDY

FLORIDA KEYS AQUEDUCT AUTHORITY REMOVES PFAS COMPOUNDS IN ITS RAW WATER SUPPLY



The Problem: Recently, there has been more attention paid to the potential impacts of trace per- and polyfluoroalkyl substances (PFAS) in drinking water due to studies suggesting adverse health effects.

PFAS chemicals have useful properties not found in other substances.

However, they **are persistent in the environment and not easily removed by conventional water treatment technologies**. To solve this problem, some municipalities have decided to add PFAS removal processes to their water treatment plants. Two common methods of treatment are granular activated carbon (GAC) and reverse osmosis (RO).



The Challenge: The primary water supply for the Florida Keys is freshwater from the Biscayne Aquifer. The location of the wellfield near Everglades National Park, along with **restrictions enforced by state and local regulatory agencies**, contribute to the unusually high quality of the raw water. Even though this wellfield contains some of the highest quality groundwater in the country, the Florida Keys Aqueduct Authority (FKAA) detected PFAS compounds in the Biscayne groundwater. The measured values for combined PFOS and PFOA ranged between 45 and 54 ppt or ng/L, which is below the current health advisory limit (70 ppt combined) but higher than the proposed limits being considered by some states.



The Solution: FKAA originally planned to use finished water for the pilot study but decided to use its raw water source because the water treatment plant adds chlorine upstream of the gravity filters. FKAA did not want to dechlorinate the water entering the pilot unit but was concerned that the chlorine would interfere with the efficacy of the GAC. The pilot unit was designed with (3) three feet of Calgon's Filtrasorb 400 GAC to provide 15 minutes of empty bed contact time (EBCT) at a flow rate of 0.86 gpm. The water leaving the pilot unit was measured using both an ultrasonic flow meter for observations/adjustments and a water meter to measure the total volume of water through the filter. The pilot was made of a 12-inch diameter schedule 40 clear PVC pipe so the water level could be observed.

Since August 2019 FKAA has been collecting influent and effluent samples every month from each individual well. Based on the results of the eleven months of data collection, **the pilot unit has removed all PFAS compounds and total organic carbon (TOC) to non-detectable levels**. FKAA plans to continue to run the pilot until the GAC is no longer effective.

This is just one of the ways we advance science.
Contact us to find your solution.



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