

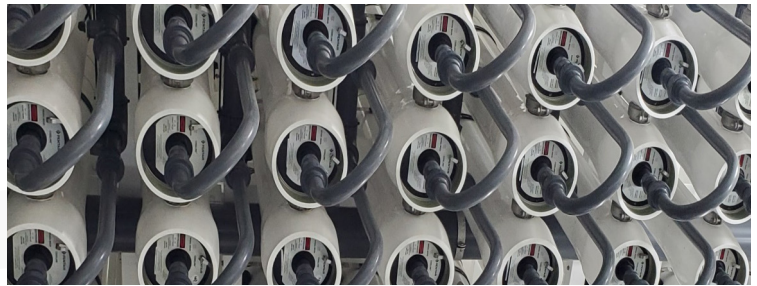
CASE STUDY

AWC helps Florida Municipal RO Save \$150,000 Per Year by Eliminating Dosing of Hazardous Sulfuric Acid

The Facility

The municipal potable water RO plant is on the west coast of Florida and has a design capacity of 20 MGD. It receives water from brackish wells supplied by the Hawthorn Aquifer. There are a total of 10 trains. Four trains have Dow Filmtec BW30-400 membranes with a (40X6) → (20X6) configuration running at 75% recovery. The other 6 trains have Toray TM720-400 membranes with a (42X6) → (18X6) configuration running at 75% recovery.

RO Model	FilmTec BW30-400 & Toray TM720-400
Membrane Type	High Rejection Brackish Water RO
FilmTec Train Configuration	40x6 → 20x6
Toray Train Configuration	42x6 → 18x6



The Problem

The Plant had long been specifying the use of a polyacrylic acid-based antiscalant dose in conjunction with 93% H₂SO₄ to inhibit scale formation. The pH was adjusted from 7.4 down to 6.5 and the antiscalant was dosed at 2ppm.

The plant was consuming approximately 2,371,200 lbs of sulfuric acid annually in order to maintain its target feedwater pH. This amounted to \$163,800 per year. The Plant was looking for ways to reduce operating costs.

	Before AWC Antiscalant
Raw water pH	7.4
Feed water pH	6.5
Antiscalant dosage	2ppm of polyacrylic-based antiscalant
H ₂ SO ₄ Feed Consumption	2,371,200 lbs

The Solution

American Water Chemicals (AWC) performed a water analysis, and after running Proton Software® projections, determined that scaling could be controlled using 2ppm AWC A-102 Plus without any acid dosing.

However, projections also determined that the resulting higher permeate pH would interfere with

efficient H₂S removal in the post-treatment degasifier. AWC recommended sulfuric acid injection into the permeate line ahead of the degasifier. Since the permeate water had very low alkalinity, and therefore little buffering capacity, only minimal sulfuric acid dosing was required.

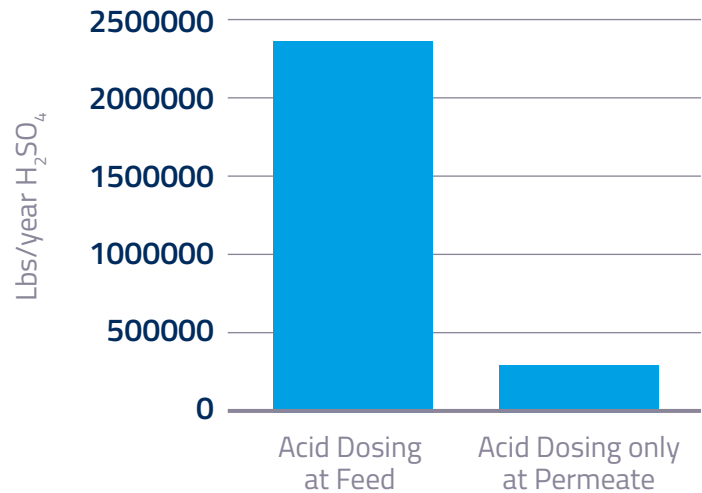
	Before AWC Antiscalant	With AWC Antiscalant
Feed water pH	6.5	7.4
Antiscalant dosage	2ppm of polyacrylic-based antiscalant	2 ppm of A-102 Plus
H ₂ SO ₄ Feed Consumption	2,371,200 lbs	---

The Results

The plant has now been operating for 5 years with only antiscalant dosing in the feed. By implementing all of the AWC recommendations, the plant's sulfuric acid requirement decreased from 52 to just 6 tanker loads per year, saving them approximately \$150,000 annually.

At the same time, their degasifiers were now operating optimally as the permeate pH could be directly adjusted.

Reduction in Acid Cost using AWC A-102 Plus



About AWC®

AWC is a solutions provider for the water treatment industry. The company offers an extensive portfolio of membrane chemicals specifically targeted to the needs of its global clients. Some of these chemicals include antiscalants and cleaning chemicals for Reverse Osmosis (RO), Nanofiltration (NF), Ultrafiltration (UF) and Microfiltration (MF). In addition, the company provides a broad range of analytical services including membrane performance testing, cleaning studies and membrane autopsies. The company's service offerings complement the chemical product line and offer unique tools for identifying the exact nature of a scale or foulant. Lab scale simulations are conducted to insure successful scale inhibition and optimal performance of RO/NF membrane systems during full scale operation or piloting.