# 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 Hawthorne 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.

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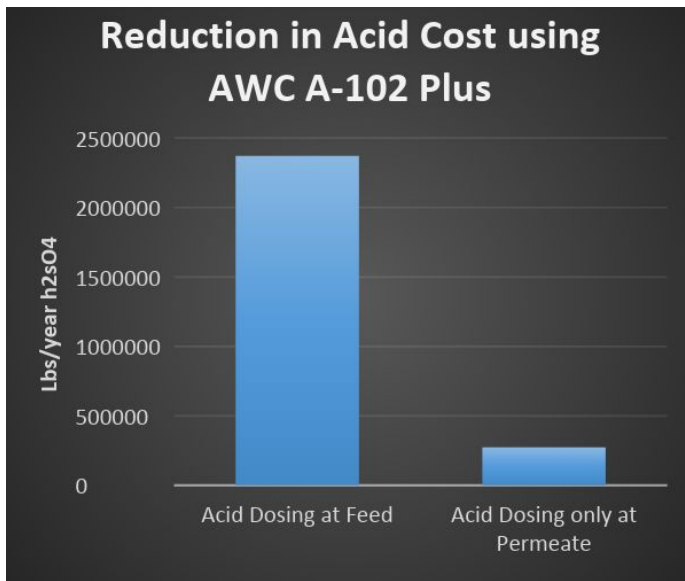
The plant was consuming approximately 2,371,200 lbs of sulfuric acid annually in order to maintain its target feedwater pH. This amounted to $163,800 per year. The Plant was looking for ways to reduce operating costs.

### THE SOLUTION

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

However, projections also determined that the resulting higher permeate pH would interfere with efficient $H_2S$ 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.

**Reduction in Acid Cost using AWC A-102 Plus**

A bar chart titled "Reduction in Acid Cost using AWC A-102 Plus" with y-axis labeled "Lbs/year h2sO4" ranging from 0 to 2500000. The "Acid Dosing at Feed" bar is approximately 2370000 and the "Acid Dosing only at Permeate" bar is approximately 270000.

## THE CONCLUSION

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.