

## CASE STUDY

# Paper Mill Reduces Caustic Usage and CO<sub>2</sub> Emissions with ChemTreat Reverse Osmosis Solutions

### Background

A paper mill in the Southeastern US uses water from several wells with high silica and total alkalinity. The well water is treated with a demineralizer system consisting of a cation unit, degasifier, and an anion unit. The anion unit required 15,000 pounds of caustic per day for regeneration. As the cost of caustic increased, the plant was looking for ways to economize.

### Solution

In addition to the demineralizer, the mill has a two-pass reverse osmosis (RO) unit capable of producing 500 gpm of permeate. The unit had been shut down because of fouling issues.

After surveying the RO and analyzing the well water, ChemTreat proposed a cost savings project to reduce caustic usage by 26%.

### Results

Reactivating the RO system and changing it from a two-pass setup to two separate units allowed the plant to produce 950 gpm of permeate to blend with the well water. Having two ROs in operation also extended the demineralizer's throughput from 1.2 to 1.62 million gallons, reducing the number of daily regenerations from 4.32 to 3.2. This resulted in a daily savings of 3,920 pounds of caustic, or 1.43 million pounds per year.

Reactivating the RO units also reduced the total alkalinity in the degasifier, eliminating 1,311 pounds of carbon dioxide per day, contributing to the plant's environmental stewardship goals.

- 450 gpm increase in permeate produced per day
- 420,000 gallons of demineralizer throughput added per day
- 1.43 million pounds of caustic saved per year
- 1,311 pounds of CO<sub>2</sub> emissions eliminated per day



Results are examples only. They are not guaranteed. Actual results may vary.