U.S. WATER
The future of water™

CASE STUDY

Integrated Offering Achieves High Recovery and Low Discharge Rates in Food and Beverage Plant

As a Midwestern food and beverage plant expanded, they found themselves outgrowing their previous water treatment footprint. While their production had significantally increased, their discharge permits did not. The Reverse Osmosis (RO) and Clean-in-Place (CIP) systems were approximately ten years old and built for smaller demand and production output. The controls and analytics had become antiquated and required significant manual operation on a regular basis. The plant looked to U.S. Water to develop an integrated solution for their growing needs.

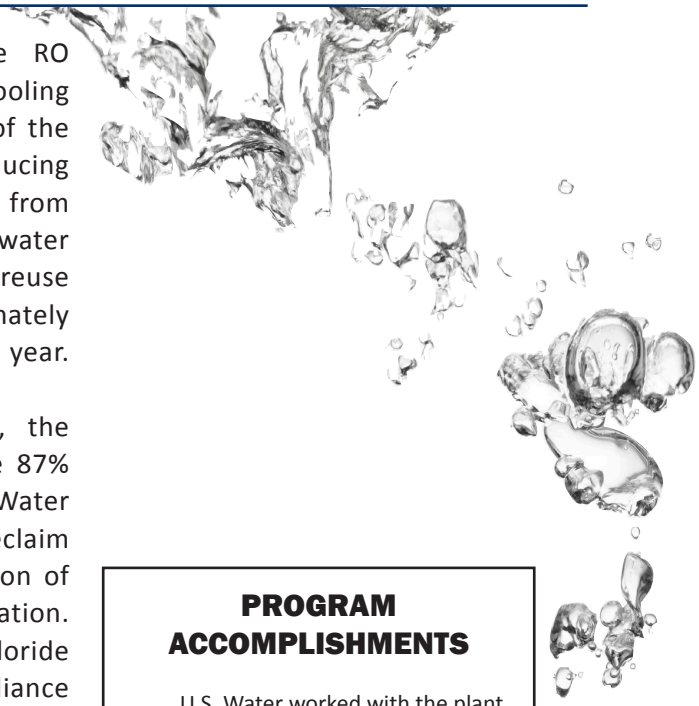
After an initial plant survey, U.S. Water worked with the plant to ensure they were meeting production, maintenance, and regulatory specifications when designing a new system. The plant awarded the project to U.S. Water. Instead of using U.S. Water's typical procedure of the customer overseeing the mechanical contractor, the customer chose to have U.S. Water hire and oversee the mechanical contractor. The plant purchased new, larger RO and CIP systems with more sophisticated automation, eliminating the need for the current manual operating system.

To maximize recovery rates, the city water was fed to a softener and polisher system, before moving to a single carbon filter that provided chlorine destruct without the need of consumable chemicals. The RO was placed downstream of the carbon filter and in this application the RO permeate was used both for boiler makeup and plant process water. A larger portion of permeate was fed to two storage tanks along with sodium hypochlorite, an important step to control bacteria in water used in food and beverage facilities.

The concentrate from the RO system was sent to the cooling towers to create a portion of the cooling tower makeup, reducing the amount of water demand from the city and the amount of water discharged to the sewer. This reuse solution is saving approximately 144,400 gallons of water per year.

With the new RO system, the plant reached an impressive 87% permeate recovery rate. U.S. Water also implemented a brine reclaim system that reclaims a portion of brine during softener regeneration. This helps reduce chloride discharge, regulatory compliance concerns, and salt usage per year.

The success of the project lead the company to hire U.S. Water for two additional projects in other parts of the United States.



PROGRAM ACCOMPLISHMENTS

- U.S. Water worked with the plant to meet increasingly stringent regulations as well as production and maintenance specifications.
- An impressive 87% recovery rate in the RO was achieved, and the remaining concentrate was then fed to the cooling towers as makeup water.
- A brine reclaim system was implemented, which led to reduced salt and chlorine usage as well as fewer regulatory compliance concerns.
- U.S. Water implemented a solution to reuse the RO concentrate as cooling tower make-up, resulting in savings of approximately 144,000 gallons of water per year.

U.S. Water 12270 43rd Street NE St. Michael, MN 55376
(P) 1-866-663-7633 (F) 763-553-0613 www.uswaterservices.com