

# TEAM VEOLIA IMPROVES DAIRY UTILITIES

CASE STUDY | Food & Beverage

## | The client's needs

The facility was running near capacity, and its utility systems were in need of attention.

Inconsistent steam and cooling demand, coupled with rising water treatment costs and poorly operating water treatment equipment were creating problems.



Plant engineering and maintenance were running lean with responsibility for the reliability and efficiency of both production and utility equipment.

Returning condensate was contributing to a very high feedwater iron level and resulted in a significant amount of iron deposit in the plant's steam boilers. The Sodium Zeolite softeners used for boiler make-up were not operating correctly and the plant's Reverse Osmosis unit was not operating near its design capacity. The plant's cooling systems were also experiencing higher than acceptable corrosion and microbiological fouling rates.

## | The solution

After a series of plant visits to complete a comprehensive water audit and gain an understanding of the water problems and their impact on plant operations, Veolia Water Technologies proposed a comprehensive water management program that was designed to target:



- Escalating water related costs
- Reducing maintenance demand by improving reliability
- Improving:
  - Boiler feedwater quality
  - Condensate quality
  - Boiler cleanliness
  - Cooling system corrosion rates
  - Equipment reliability



USA

## | The client

**A large regional dairy serving over 50% of the US population through three facilities strategically located within the Midwest.**

A leading producer of Ultra Pasteurized Dairy products, Ultra Pasteurized Ice Creams & Milk Shakes, as well as Non-Dairy alternative beverages.

## Key Figures

Over 100 years of operation

**> 100,000 gal**  
of milk annually

**> 4 Million gal**  
of ice cream  
annually

Industry leader in Automation & Packaging innovation

## | Process description

Immediately after taking over as the primary water treatment supplier at the plant, the Veolia Water Technologies team focused their efforts on a list of water related projects that the client had agreed were the highest priority to achieving the plant's overall production and budgetary goals. Over the first six months, the areas of focus included:

- Veolia's Team Service began to improve make-up water quality by rebuilding the water softeners and establishing a Preventative Maintenance program for the plant's Reverse Osmosis unit, Filters and Softeners.
- The Boiler and Cooling water systems were automated with Veolia controllers and drumless Hydrex™ feed & storage systems were added.
- Veolia's Hydrex™ Boiler and Cooling water treatment chemistries were introduced, along with more frequent service and Key Performance Indicators (KPIs) established.
- Daily testing protocols were upgraded, and Veolia's cloud based data management software (Veolia VisionNA) was instituted for proactive water management & control.



Veolia Team Service performing a Membrane Cleaning on an RO

## | Results

Due to the changes made by the Veolia team working with the client, immediate improvements are being seen in both the boiler and cooling systems:

- Make-up water quality has improved substantially due to the Softener rebuild, removing hardness more effectively and consistently.
- The Reverse Osmosis unit is operating more efficiently, with output increasing back to within original design flow rate specification.
- Cooling water system corrosion rates are all now < 1 MPY on Mild Steel and < 0.5 MPY on Copper. (Below Right). The Bacterial slimes that were prevalent in the systems are also now under control.
- Boiler inspection has revealed the removal of old iron deposits and re establishment of a gun-black magnetite iron surface. (Below left)
- Plant Maintenance has reduced their number of water related vendors from 3 to 1 with the Veolia team, and they now focus more of their time on production related issues.



Veolia Team Service performing a Membrane Cleaning on an RO

## | Performance



Annual boiler inspection reveals deposit removal on tube surface & presence of Magnetite surfaces

System	Coupon Type	Spec Number	Date In	Weight In (grams)	Date Out	Weight Out (grams)	Days Exp	Corrosion Rate (mpy)
Cooling Tower	Copper	C2002	06-Apr-17	13.0778	22-Aug-18	12.7464	503	0.49
Cooling Tower	Mild Steel	A3292	06-Apr-17	11.4136	22-Aug-18	10.8837	503	0.88

Corrosion Coupon results show dramatically lower corrosion rates on the Veolia Hydrex™ program

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