

# CASE STUDY

## COMMERCIAL LAUNDRY

### INDUSTRY

### COMMERCIAL LAUNDRY

### APPLICATION

### HOT WATER RECYCLE

### WATER SOURCE

### FILTERED WASTEWATER

### YEAR INSTALLED

2014



## INTRODUCTION & PROCESS DESCRIPTION

Commercial laundries consume and discharge large volumes of water. Due to the nature of this water, many regulatory authorities enforce stringent water quality standards and regulate discharge volumes. As a result, commercial laundry operations are under ever increasing pressure to reduce water consumption and minimize discharge volumes, all while delivering whiter, brighter linens.

It is generally accepted that TDS (Total Dissolved Solids) above 750 – 1,000 ppm causes dull linens; TDS includes iron, manganese, calcium, alkalinity, and other dissolved salts, all of which are known to cause linens to gray. Consequently, effective use of recycled laundry water has been limited by the inability to affordably and reliably remove TDS at high temperatures.

Due to the local regulations, this specific site was limited to an 8 hour work shift due to discharge limits.

## VOLTEA'S CAPDI SOLUTION

Voltea's CapDI technology cost-effectively removes dissolved salts from recycled laundry water resulting not only in white linens and water savings, but also significantly reduces heating costs. Traditional desalination technologies require the water to be cooled before TDS removal, which means it must be reheated for laundering. This is expensive, time consuming, and now unnecessary.

CapDI removes TDS at high laundering water temperatures and recovers up to 90% of the treated water.

## PROVEN RESULTS

Voltea closely monitored the laundry facility installation for a period of 6 months. This laundry facility achieved significant cost savings and could double their daily throughput without exceeding daily discharge permit limits. This was attained because of the ability to utilize recycled water more effectively.

The addition of CapDI to the laundry wastewater treatment system delivered TDS removal at laundering temperatures, high water recovery, and enabled efficient recycling of spent laundry water.



## ABOUT VOLTEA

Voltea's award-winning tunable desalination technology, CapDI® (Membrane Capacitive Deionization), desalinates brackish water at a lower economic and environmental cost than any other available technology. CapDI is a simple and innovative way to remove dissolved salts from water.

Voltea's CapDI technology is scalable and helps consumers and industry reduce water usage and save money.



Without CapDI, this laundry only ran 8 hours before reaching a TDS limit of 1,000 ppm, as shown in the adjacent graph. The water was drained, refilled and reheated before continuing operation.

Notably, Voltea's original forecast model was remarkably in line with the actual 100 data sets run over the 6-month operational time period. The data in the adjacent graph shows that CapDI allows the laundry reuse process to run for longer since the daily discharge limit of 1,000 ppm was not reached. As a consequence, multiple shifts can operate, allowing the laundry to be more efficient and cost effective. Of critical importance is that this is all achieved at laundering temperatures, meaning there are no additional energy costs as there is no additional cooling necessary.

## CAPDI PERFORMANCE RESULT

