KEMCO SYSTEMS

EXCEL LINEN SUPPLY CASE STUDY

WATER & ENERGY SOLUTIONS

redefining efficiency since 1969

Project Overview

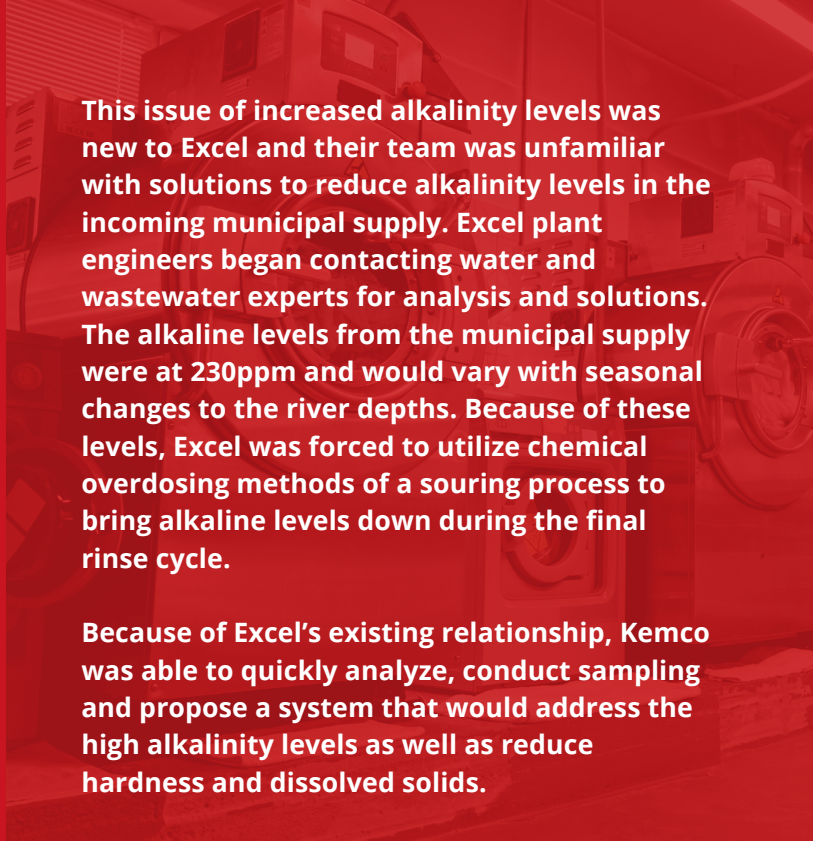
Excel Linen Supply (Excel) of Kansas City, Kansas, is a commercial linen laundry facility that utilizes approximately 9,520-11,875 gallons of water per hour (76,160-95,000 gal/8hr day). Family-owned and operated since 1931, Excel is the largest supplier of linens to the hospitality industry in Kansas City and surrounding areas, specializing in servicing restaurants, country clubs, high-end hotels and casinos. Excel has utilized Kemco equipment and services in the past and the companies have established a beneficial relationship of trust and service.

EXCEL LINEN SUPPLY
Excellence in Linen Supply Since 1931

Excel first installed a Kemco water recycling system in 2015. This system consisted of Kemco's patented ceramic membrane filtration (CMF) unit and a reverse osmosis (RO) unit, recovering approximately 51,160-70,000 gal/8-hour day for reuse in the facility. Reducing the daily municipal usage to 22,000-25,000 gal/8-hour day.

Recent Issues

Excel's facility was formerly located on the Missouri side of the Missouri River and relocated to the Kansas side. Outgrowing the 50,000 square-foot facility in Missouri, Excel relocated to a 135,000 square-foot facility in Kansas increasing their customer base 40 percent overnight. Due to the move, Excel began receiving freshwater water from a different water supply. As a result of this change, an increase in water alkalinity levels was noticed. This rise of alkalinity began creating problems with linens during the drying and ironing stages, ultimately causing the need for more rinse water to be used to prevent staining and wrinkling.



This issue of increased alkalinity levels was new to Excel and their team was unfamiliar with solutions to reduce alkalinity levels in the incoming municipal supply. Excel plant engineers began contacting water and wastewater experts for analysis and solutions. The alkaline levels from the municipal supply were at 230ppm and would vary with seasonal changes to the river depths. Because of these levels, Excel was forced to utilize chemical overdosing methods of a souring process to bring alkaline levels down during the final rinse cycle.

Because of Excel's existing relationship, Kemco was able to quickly analyze, conduct sampling and propose a system that would address the high alkalinity levels as well as reduce hardness and dissolved solids.

Solution Overview

Kemco installed a reverse osmosis system to pretreat the incoming municipal water. The RO system would not only reduce the level of alkalinity to below 100ppm, but also reduce the chemical usage on the wash flow due to the lower dissolved solids in the water supply. Due to the semi-aggressive nature of RO water on the existing copper pipes, Kemco blended a small portion of the municipal supply with the high-quality RO permeate lowering the potential for pipe corrosion while still keeping the alkalinity and dissolved solids below 100 and 200ppm. Excel also installed additional tankage to ensure there would not be a shortage of water supplied.

Additionally, Kemco reconditioned the seven-year-old existing water recycling system by replacing old membranes, bringing the recycled flow up to original capacities while reusing 75 percent of wastewater and requiring only 25 percent of new water from the newly installed RO system.

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Results

Kemco was chosen for this installation compared to competitors because of Kemco's added value to Excel. Kemco's equipment will reduce chemical use throughout the entire facility because overall water quality is cleaner and safer. The RO system installed on the water feed system for the entire facility's water supply reduced alkaline from 230ppm to 59ppm. Analysis and adjustments in chemicals were also made to help resolve alkalinity levels, which reduced souring chemicals by almost 50 percent and other detergents by 25 percent.