KEMCO SYSTEMS

HOLIDAY BEACH WATER SUPPLY CASE STUDY

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Holiday Beach is a small coastal community consisting of approximately 850 homes located in Rockport, TX. The community possesses two deep wells, but a salt intrusion has rendered the well water unfit for public consumption with total dissolved solids counts ranging from 2600 to 3000 PPM. In 2002, the town incorporated its water supply and established the Holiday Beach Water Supply Corporation (HBWSC), purchasing two commercial reverse osmosis (RO) systems to produce 140 GPM of clean, treated water to sustain 20 years of community growth.

Project Overview

As Holiday Beach grew, the public demand for water increased; soon the existing treatment facility struggled to keep up, especially during long holiday weekends. HBWSC recognized the need to replace their aging RO systems with systems that could accommodate even more growth. Projections spanning the next 20 years placed buildout for the community at 2,300 possible homes. Thus, HBWSC contacted four companies to design and manufacture two new RO systems with four-times the processing capacity of the town's existing systems.

Recent Concerns

After decades of operating their old RO systems, HBWSC had a precise vision for how the new systems could eliminate previous process shortcomings and design flaws. HBWSC wanted the new systems to be constructed with all-stainless-steel frames and control systems. The previous systems featured two-part epoxy paint over carbon steel and over the course of 20 years, high humidity and condensation in the equipment room rusted the frames wherever the paint had been chipped or removed. Furthermore, the systems' bolts were rusted and no longer removable during routine maintenance. The systems had two skids but only one control panel to operate them both; meaning if the main RO went down, the second unit would be nonoperational. In order to operate both units simultaneously, HBWSC had to manually initiate them to maintain tank levels on high-demand days.

Solution

After reviewing the companies' proposals, HBWSC selected Kemco Systems to design and construct their new RO systems. Kemco's flexibility in the design, utilization of all-stainless materials, ability to double the capacities of each skid while still meeting the very tight footprint of the facility greatly informed HBWSC's decision. Kemco also included a controls package that allowed for the RO skids to operate individually; the controls package would automatically alternate the operation of each skid and allow them to both come online automatically when storage tank levels dropped below a critical level.

Results

Kemco provided a turn-key system which included the removal of old equipment, installation of the new RO skids and full electronic instrumentation to allow HBWSC the ability to extrapolate data such as flow, pressures and water quality from one HMI screen. A separate dashboard on the HMI provides real-time data and trending for system normalization.

As a critical element, Kemco had to keep one of the previous RO units online during the new unit installation so water supply could be maintained. To achieve this, replacement headers and piping were prefabricated for a seamless transition during change-out, ensuring the community experienced no interruptions.

Complete installation took four days from delivery to producing water. After three days of testing and commissioning, the new RO systems were online just in time for a busy Fourth of July weekend.