

Westfield Topanga Canyon Case Study

Cooling water conservation project – July 10, 2016

Project Description

Capture H2O, Inc.'s Zero Bleed Cooling Tower Water Treatment Technology was installed at the Westfield Topanga Canyon shopping center as part of Westfield's water conservation and sustainability efforts. The technology is a proven, sustainable treatment system that eliminates the need for chemicals and reduces cooling tower water usage up to 40%. The system eliminates the need to blow down the cooling water while providing world-class scale, corrosion and bacteria control throughout the HVAC water system. The system was installed on March 23, 2015 and commissioned during the first week of April. It took 1 month for the system to be fully transitioned and has resulted in total elimination of the water treatment chemicals, 28% reduction in tower water usage, 95% reduction in sewer discharge, reduction in steel and copper corrosion rates and improve heat transfer energy efficiency through the removal of scale and biofilms. The system was received a rebate for \$30,043 from LADWP's TAP water conservation program and SoCalWaterSmart.com.

Project Components

The Capture H2O technology replaces the commonly used scale, corrosion and bacteria control chemicals with a pre-treatment system that provides softened water to the cooling towers. The system comes with dual high efficiency water softeners, water meters and two controllers to wirelessly monitor the tower conductivity, pH, water usage, corrosion rates and the softener regeneration process. The total cost of the equipment and installation for this 3000-ton chiller plant was \$54,000. Capture H2O provides ongoing maintenance, training and remote monitoring through an annual service contract (\$18,000 per year).

How it Works

Water treatment is designed to provide scale, corrosion and bacteria control to protect the metal surfaces and energy efficiency of the heat exchangers; towers, chillers and piping. Traditional approaches require 2-5 hazardous chemicals to be added in conjunction with a lot of water and chemicals to be dumped continuously into the sewer. The Capture H2O patented technology use water softeners to pre-treat the makeup water and remove all the scaling minerals. By removing the scaling minerals, we are now able to concentrate the remaining minerals at the cooling tower through evaporation. This concentration naturally increases the pH and silica in the tower water. When the pH rises above 9.5, bacteria can no longer survive, and the control chemicals are no longer needed. When the concentrated silica and is exposed to the high pH water, it converts to a polymeric corrosion inhibitor which protects all the metals in the system. The results are water, sewer, bacteria and corrosion rate reduction as well as elimination of existing scale and the need for water treatment chemicals. This program essentially creates an environment where scale, corrosion and bacteria control occur naturally. This makes it the most sustainable water treatment system in the marketplace.

Results

The Capture H2O system has successfully reduced the water usage to the cooling towers by 4,382,555 gallons (36%) or \$57,090 per year. The water to the sewer has been reduced by 4,382,555 gallons per year. The copper and steel corrosion rates have dropped to levels that are considered world class protection by industry standards. This means the chillers, towers and associated piping will have a longer life. The system is providing total scale and bacteria control, meaning the heat transfer efficiency is maximized and the chillers will no longer need to be de-scaled. The removal of scale resulted in an energy savings of \$82,000 per year. The system also has eliminated 3 hazardous liquid chemicals including concentrated sulfuric acid and the associated pumps, tanks and feed systems. The return of investment for this system is 4 months. You can find more info about Capture H2O, Inc and our technologies at www.captureh2o.com



Less Blue More Green