Case Study

American Canyon, CA, finished the second phase for its MBR Plant: 3 SAVI® Flo-Drum Screens replaced the old screens

OVERVIEW

The City of American Canyon is located in Napa County between the Cities of Vallejo and Napa. Prior to incorporation as a City in 1992, sewer collection and wastewater treatment for the area was provided by the American Canyon County Water District with the wastewater treatment taking place at a facility located at the current Main Basin Pump Station. In 1975, the City began sending its treated and untreated wastewater to the Napa Sanitation District's wastewater treatment plant. In 2002, the City completed construction of a new water reclamation facility to treat all sewer flows from the City's sewer service area, which is the same basic system layout as today.

The City experienced rapid growth between 2000 and 2008, a 66.7% increase; the 2017 census reported the city's population at 20,250.

The City of American Canyon depends on recycled water as an integral piece of its overall water supply portfolio. Since the Water Reclamation Facility (WRF) was constructed in 2000 the City has been focused on building its recycled water distribution infrastructure. Over the past 15 years, the City has made significant strides in constructing the primary components of a distribution system including a pump station at the WRF, a 1.0 million gallon (mg) elevated storage tank and 13 miles of distribution pipelines. The City currently has 8 private recycled water customers and 12 public recycled water customers.

American Canyon, CA

The WRF is designed to treat a buildout flow rate of 2.5 MGD at average dry weather flow conditions and 5.0 MGD at peak wet weather flow conditions. The WRF process train includes an emergency overflow basin, headworks, anoxic basins, aeration tanks with membranes, metering, and disinfection. In order to meet the projected buildout demands, the City will need to reuse 100 percent of its treated water during peak demand in the summer months.

PROBLEM

Since membranes first appeared as part of the wastewater process, there has been significant development in pretreatment systems to increase the protection of the membrane and provide greater debris capture. Traditional screw screens were not able to guarantee the high levels of debris capture that are necessary for the efficient operation of MBR systems. The lower capture screens increased the need for daily maintenances and debris that bypassed the screens fouled and clogged the membranes. Membrane cleaning and replacement significantly increased the plant's maintenance and operating costs.

SOLUTION

In 2016 the City decided to protect the MBR system from debris build-up and replaced two of its old traditional screw screens with one SAVI Flo-Drum 1400. Since the Flo-Drum was installed, random sampling of the screened effluent has shown that nothing larger than a 2mm particle has been found flowing into the membrane basins.

In 2018 they replaced the last 2 old screw screens with 2 SAVI Flo-Drum 800. All the Flo-Drums are perforated-plates, in channel, rotating drum screen with 2mm openings and independently verified debris capture of 86%.

RESULTS

The new screening system can capture and convey approximately 3 – 5 times more debris than the old screw screens. Improving the level of pretreatment screening allowed The City to save on maintenance and increased the MBR system efficiency.

Enviro-Care
A WAMGROUP® Company
1570 St. Paul Avenue
Gurnee, IL 60031 U.S.A.
P. 815.636.8306 • F: 847.672.7968

SAVECO
Member of WAMGROUP®