

Wedeco UV for Reuse in San Jose, CA

Wedeco UV disinfection produces highly purified water in Silicon Valley

With diminished rainfall, a depleted aquifer basin, near-empty recharge ponds, and an earthquake-vulnerable aqueduct system, the Santa Clara Valley Water District (SCVWD) in San Jose, CA, required additional water supplies to maintain regional economic vitality for its growing community.

Scope

The SCVWD Board of Directors determined that water reuse - taking treated wastewater, purifying it through an advanced treatment process, and distributing it for non-drinking purposes - would be critical to establishing a drought-proof, sustainable water supply for the region.

The SCVWD built the eight-million gallon per day (mgd) Silicon Valley Advanced Water Purification Center (AWPC), the first of its kind in northern California, to free up drinking water resources used for irrigation and non-potable uses and reduce dependency on imported water. The advanced treatment process receives treated secondary effluent from the adjacent San Jose-Santa Clara Regional Wastewater facility and applies a multi-barrier treatment process including microfiltration, reverse osmosis filtration, and ultraviolet (UV) disinfection.

Solution

In designing the state-of-the-art facility, engineering firm Black & Veatch focused on technologies that would treat the water to California's stringent Title 22 unrestricted water reuse standards while paving the way for the future with potable reuse. Key to the high-quality water output at Silicon Valley AWPC is the final step in the treatment process, UV disinfection.

Black & Veatch project director Sanjay Reddy noted, "We didn't have any specific ideas for which technologies to use when we started; once we decided on microfiltration and reverse osmosis, it just didn't



Silicon Valley Advanced Water Purification Center

CLIENT:	Santa Clara Valley Water District
STARTUP:	2014
FLOW RATE:	8 MGD
UV MODEL:	LBX 1000 (closed-vessel)
QUANTITY:	12
UV DOSE:	80 mJ/cm ² (5-log virus per NWRI/T22)



Xylem's Wedeco LBX 1000 UV Reactor

make sense to chlorinate and degrade the water, so ultraviolet disinfection made perfect sense.”

Xylem’s Wedeco LBX Series is a closed-vessel UV disinfection system designed for energy-efficient disinfection of wastewater, water reuse, surface water, and process water. With more than 1,000 installations worldwide, LBX UV systems have been tested extensively to meet the U.S. Environmental Protection Agency’s UV Disinfection Guidance Manual and the National Water Research Institute’s UV Disinfection Guidelines for Water Reuse, including complying with California’s stringent Title 22 unrestricted water reuse standards for disinfection.

Design engineers considered different UV disinfection systems to provide the critical final disinfection step. Wedeco, a Xylem brand, was found to be uniquely qualified, with more experience in wastewater treatment than other systems on the market.

Result

The new system disinfects potentially harmful pathogens and produces an exceptionally high quality of purified water using a patented dosing control method to monitor operating conditions, including flow, UV transmittance, and UV intensity.

The UV system at the facility is “very, very simple and works well,” said Silicon Valley AWPC plant supervisor Sam Bogale. “Manual maintenance is not required, and technical support from the group has been excellent; they are very responsive.” Operation of the entire system is automatic, with minimal input from operators.

The highly purified reuse water is blended with conventionally treated recycled water from the San Jose-Santa Clara Regional Wastewater Facility, which previously produced water with average total dissolved solids (TDS) of 750 ppm. By blending the water produced from each facility, TDS levels are reduced to 500 parts per million (ppm) – a higher quality water preferred by many industrial and irrigation customers.

Wedeco’s twelve LBX 1000 UV reactors, commissioned in 2014, are delivering a safe and reliable water supply for SCVWD.

For more information on Xylem’s treatment products visit www.xylem.com/treatment or call 1-855-XYL-H2O1.



Xylem’s Wedeco LBX 1000 UV Disinfection System at Silicon Valley AWPC



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