cleanwater1

CASE STUDY

WALNUT VALLEY, CA

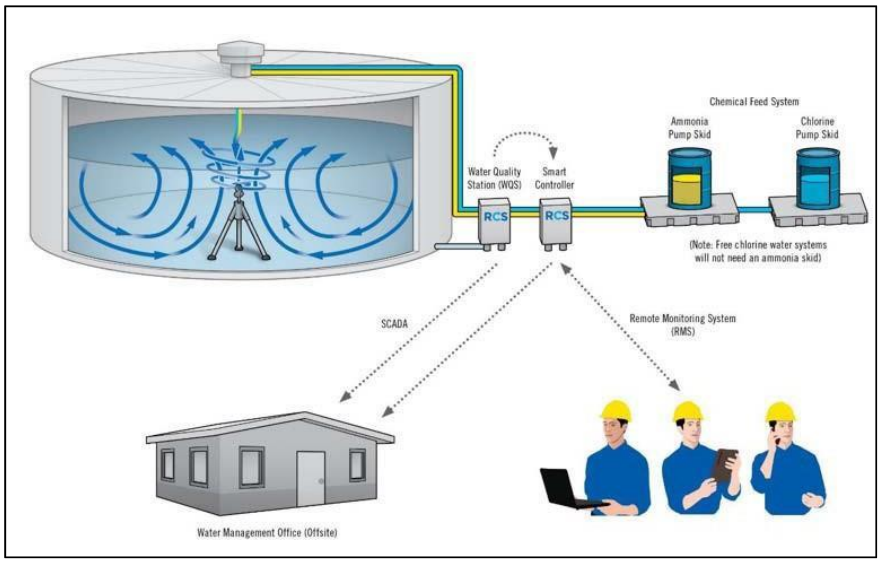
Disinfectant Residual Control System Eliminates Need for Deep Cycling, Breakpoint Chlorination and Improves Pressure Zone Water Quality in Walnut Valley, California

OVERVIEW

Walnut Valley Water District spans a 29 square mile area in semi-arid southern California about 20 miles east of Los Angeles. Like many water districts planning for growth amid periodic droughts is challenging and compounded by the need to deliver high quality water throughout the district of over 100,000 people and more than 26,000 service connections.

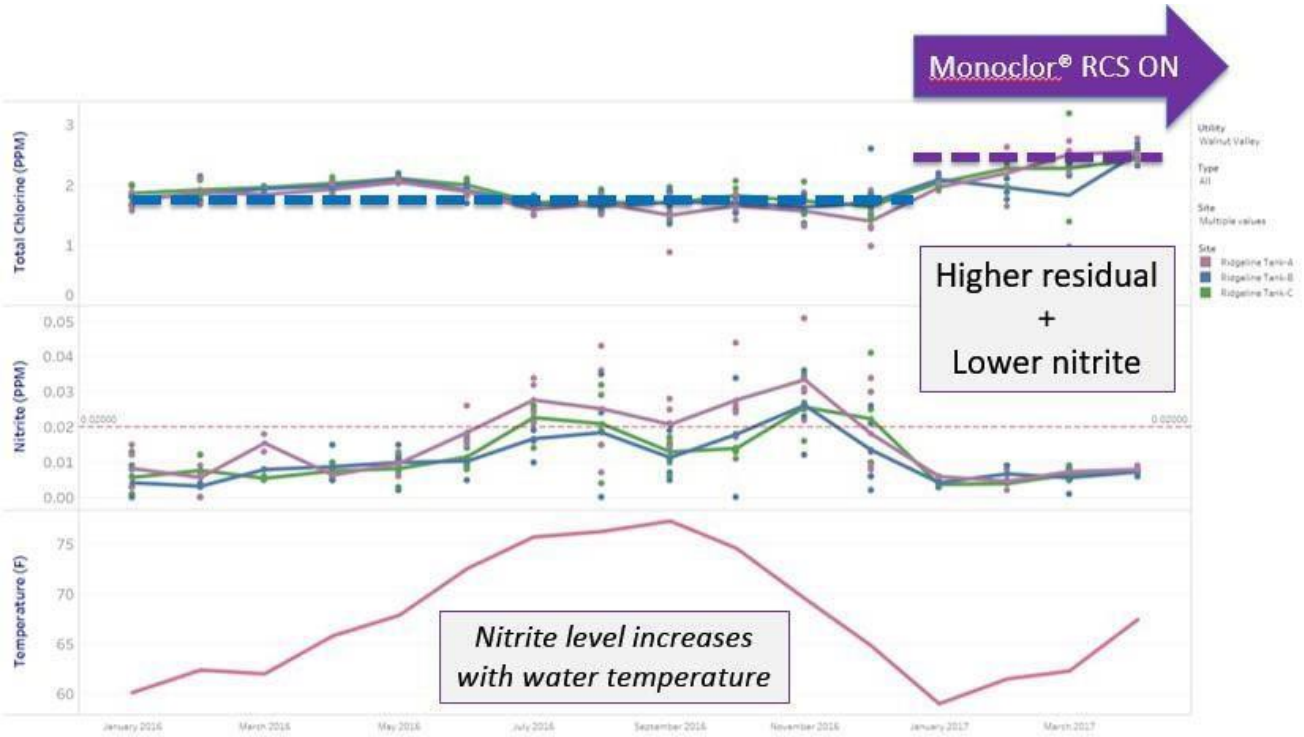
Walnut Valley relies primarily on imported water from wholesalers and manages that chloraminated supply with the aid of 28 water storage tanks located throughout the service area. While monochloramine provides excellent disinfectant persistence and a decreased risk for THM production as compared to free chlorine, it naturally decomposes and generates ammonia. Ammonia becomes a food source for naturally occurring ammonia/nitrite oxidizing bacteria (AOB/NOB) and can ultimately lead to nitrification. Aware of this risk, Walnut Valley aggressively pursued operational strategies in their water storage tanks to limit nitrification risk.

These strategies included deep tank cycling to fill tanks with "fresh" water in order to counteract water-aging that might lead to further chloramine decomposition as well as limiting actual water storage. For example, some 30 foot tanks were routinely only filled to the 6 foot level. Additionally, as conditions worsened in the warmer summer months, operators would often valve-off tanks and carry-out breakpoint chlorination to impact AOB/NOB growth to prevent nitrification. As a final option, tanks could be drained and cleaned.



Walnut Valley had used tank mixing in the past and saw incremental improvements. In 2016, the staff decided to install an automated residual control system to manage disinfectant levels in a cluster of three 4-5 million gallon tanks (Ridgeline Tanks). The PAX/PSI Monoclor® RCS system was installed in December of 2016 by D&H Water and was comprised of PAX tank mixers, water quality stations (WQS) that monitor ORP, total chlorine and pH; ammonia feed systems, hypochlorite feed systems and "smart" controllers that dose the right amount of ammonia or chlorine based on the need of the individual tanks. All of the control and tank analytics was tied into the Walnut Valley SCADA system for real-time review.

Immediately, the Monoclor® RCS system asserted control over the residual levels and brought the tanks to a consistent 2.3 ppm residual level:



With the implementation of the PAX/PSI Monoclor® RCS system, Walnut Valley was able to reduce the nitrite (nitrification precursor) levels as well as improve residual levels in the service area. The elimination of energy intensive deep tank cycling was a bonus as was the elimination of the labor intensive practice of breakpoint chlorination.

"I've been working here for 23 years and have never seen our water quality this good, where we used to have .4ppm in grid, we now are holding 2.2ppm in grid. The storage reservoirs are sustaining a 2.5- 2.6ppm. I absolutely love this system, Thanks."

Ty Maddux (Water Quality Specialist):

To access our full assortment of case studies, data sheets, brochures and more, visit our document library at https://documents.cleanwater1.com or scan the QR code.