



HEALDSBURG WWTP- MEMPULSE® MBR SYSTEM WITH ORIGINAL B40N MEMBRANES, 10 YEARS & COUNTING!

EVOQUA WATER TECHNOLOGIES' MEMPULSE® MBR SYSTEM ASSISTS SONOMA COUNTY MEET REGULATIONS AND PROVIDE SUSTAINABLE IRRIGATION WATER TO AWARD WINNING WINERIES.

The City of Healdsburg Waste Water Treatment Plant is located sixty miles north of San Francisco in the heart of the picturesque Sonoma County. Prior to the upgrade, the facility consisted of aerated lagoons that discharged into the Russian River via an effluent pond. In 2004, a US district court designated the existing effluent pond as “waters of the United States” thereby making the Healdsburg plant subject to the Clean Water Act and necessitating the need for a National Pollutant Discharge Elimination System Permit (NPDES).

Challenge

The City of Healdsburg needed to initiate a plan that not only addressed the impending new regulatory requirements but also the increasing water needs of its flourishing wine industry. To meet these requirements, the upgrade project would have to increase the level of treatment from secondary to tertiary, or Advanced Wastewater Treatment (AWT) standards which would allow treated wastewater to be reclaimed for irrigation of agriculture or public areas.

Solution

The City and HDR, Inc. investigated two options to determine how best to meet its future water needs; a conventional BNR plant with tertiary treatment or an MBR plant. Ultimately, the MemPulse MBR System by Evoqua Water Technologies was selected. The grounds for the selection were the following:

- The MemPulse system process had the lowest present worth over a 20-year lifecycle cost analysis
- The system would give the city the opportunity to advance the level of treatment to the best level possible
- The technology was robust enough to meet current and future regulations
- The Evoqua MEMCOR® team's industry experience

Location

Healdsburg, CA

Source

Residential

Application

Surface Discharge

Technology

MemPulse MBR with B40N modules

Total Plant Capacity

4.0 MGD (15.2MLD)

Commissioned

April, 2008

Operational Data for MemPulse

Number of Cells - 5

Modules per Cells - 128

Filtrate Flow- 4.0 MGD (15.2 MLD)



The Healdsburg WWTP became one of the most advanced and innovative treatment facilities in California. The plant was designed to have an average dry weather flow of 1.4 MGD with a sustained peak of 4 MGD.

Aerial photo provided by the City of Healdsburg WWTP.

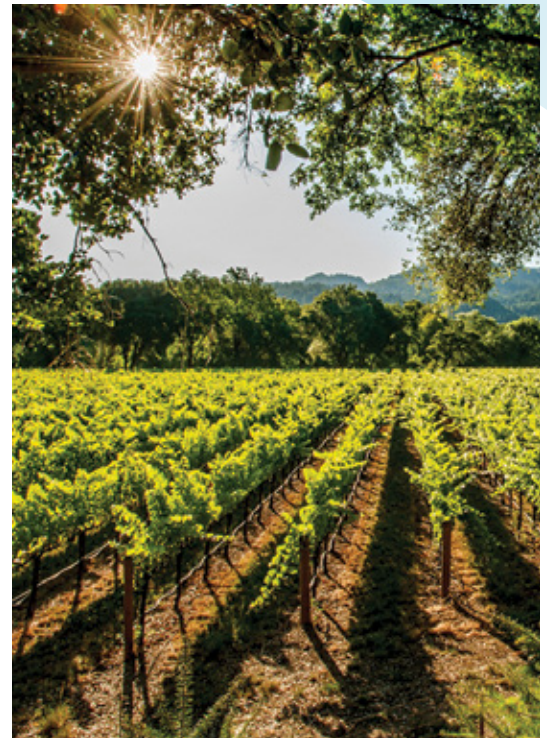
The Healdsburg Wastewater Treatment Plant became one of the most advanced and innovative treatment facilities in California. The plant was designed to have an average dry weather flow of 1.4 MGD with a sustained peak of 4 MGD. The old treatment lagoons are now used as equalization basins during winter storm events, which allowed the city to build the treatment plant with a smaller peak flow than it would otherwise need for handling these events.

Process Overview

The Healdsburg WWTP consists of two parallel biological trains configured in a Modified Ludzack-Ettinger (MLE) process for biological nitrogen removal (BNR) and five membrane tanks with a common overflow weir.

The membrane operating system has been designed so that one tank can be out of service in all flow conditions for maintenance or cleaning. The filtrate is drawn through the membrane surface by applying a suction pressure from a rotary-lobe positive displacement pump. As this occurs, the suspended solids and bacteria are retained in the mixed liquor and returned to the biological system by overflow. Each membrane tank was equipped with 128 immersed membrane modules.

The filtrate flows through low-pressure, high-intensity UV lamps and then to discharge. Ultimately, virtually all the plant effluent will be reclaimed for unrestricted reuse.



The Advanced Wastewater Treatment (AWT) standards achieved at Healdsburg WWTP supports the thriving wine industry with reclaimed water for irrigation.

TYPICAL EFFLUENT FOR HEALDSBURG WWTP

Parameter	Design Influent	Design Effluent	Measured Effluent
BOD ₃ (mg/L)	301	<10	<1
TSS (mg/L)	213	<10	<1
Turbidity (NTU)	N/A	No Limit	<0.1
TKN (mg/L)	47	N/A	N/A
NH ₃ -N (mg/L)	36	No Limit	<0.5
Nitrates (mg/L)	N/A	No Limit	<10
Temp (°C)	13-22	N/A	N/A

Results

- Consistent, reliable operation for over 10 years
- Sustained process performance - meeting peaks of 95% of design flow
- Compliance with effluent discharge limits - meeting or exceeding turbidity and TSS targets
- Reliable pathogen rejection that you can trust with Evoqua B40N



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