

SEVERE DROUGHT IMPACTS ABILITY OF ZONE 7 WATER AGENCY TO MEET PROPOSED 20 PPT PFHXS LEVELS Aqueous Vets® Quick Response Keeps Critical Stoneridge Well in Service in Northern California

BACKGROUND

Zone 7 Water Agency is a water wholesaler in Northern California that serves more than a quarter million residents. Blending water from both surface and groundwater sources has enabled Zone 7 to address many emerging contaminant concerns over the past several years. However, 2022 marked the third year of a severe drought that impacted the ability to blend surface and well water. They needed to utilize well water from the critical Stoneridge wellhead to ensure water supply reliability and adequate supply capacity if the drought continued into 2023.

In July 2022, the California State Water Board proposed a response level of 20 parts per trillion for perfluorohexane sulfonic acid (PFHxS). The response level would have a significant impact on Zone 7's Stoneridge Well – one of the most important wells to keep up with demand. Through August 2022, Zone 7 was able to pump in 17,000 acre-feet (AF) as planned. However, decreasing groundwater levels put Zone 7 at risk as some wells would need to be taken out of service for recovery periods and the aquifer would drop below a few wells. Stoneridge is ideally located over the aquifer and serves as one of the most productive wells, key to meeting a 2023 target of 14,700 AF of water.

PROJECT DETAILS

To address this situation, staff proposed a capital improvement project to treat PFAS, including PFHxS, at the Stoneridge Well. Zone 7 had been working with a consultant to design treatment plants prior to the announcement of new response levels. Life cycle cost analyses comparing granular activated carbon (GAC) to IX resin resulted in a recommendation to install IX treatment systems at the Stoneridge site.

The typical estimated time to implement such a project is 12-15 months, based in part on a long lead time to purchase the pressure vessels. However, Zone 7 worked with their consulting engineer to pre-procure the treatment systems in a progressive design-build process, fast-tracked to remove the PFHxS. The consultant reached out to multiple manufacturers, but only Aqueous Vets (AV) was able to meet the 4–6-month lead time required.

PROJECT LOCATION

Livermore, CA

PROJECT TIMEFRAME

August 2022 – July 2023

END USER

Zone 7 Water Agency

DESIGN ENGINEER

Carollo

PROJECT TYPE

Design Bid Build

PROJECT PHASE

Complete

GENERAL CONTRACTOR

Carollo

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KEY SYSTEM DESIGN & OPERATIONAL PARAMETERS	VALUE
Number of Systems/Vessels per System	4/2
Operating Configuration	Parallel/Lead-Lag
Carbon Capacity/Volume per Vessel	420 ft ³
Resin Type	Purolite PFA694E
Design Flow Rate (Overall/per Vessel)	4,600/1,150 gpm
Hydraulic Loading	13.6 /ft ²
Empty Bed Contact Time (per Vessel/per System)	2.73/5.46 minutes
Underdrain	Septa/External Ring Header

AV® PROJECT SCOPE

AV designed, manufactured, delivered, offloaded, and assembled three (3) 12-520 LowPro® IX systems, on-site process pipe, resin, prefiltration equipment meeting NSF 61 standards.

