PAXSCIENTIFIC™

CASE STUDY

Client: A California County Water Supply

Situation: Municipal and county drinking water is often stored in large holding tanks while the water is in transit for distribution. These tanks also help maintain a consistent supply of water and regulate water pressure.

Problem: Water held in these tanks, which can contain more than 1 million gallons, stratifies according to weather conditions. This temperature stratification can be harmful to the tank's water quality because it allows bacteria to grow more rapidly in the upper, hotter layers of the tank, as well as allowing the settling of substances used to ensure water quality. Effective mixing can reduce both the stratification and the settling time, but the structure of the tank's single inlet/outlet pipe limits full integration, allowing pockets of stagnation throughout the water.

Solution: Working with a collaborator, a leading water and wastewater engineering firm hired to improve various aspects of municipal water remediation, PAX Scientific installed a self-contained, floating mixing unit inside a 1-million-gallon reservoir/holding tank. Within 20 hours, and using only 1/30 HP of power, the PAX Scientific impeller system had mixed the entire reservoir; most current mixing technology uses 1 HP for every million gallons mixed, and this mixing may be incomplete. This highly energy-efficient mixing can be attributed to the unique shape of the PAX Scientific impeller.

In another study, several submersible, bottom-mounted PAX Scientific impellers were installed across a variety of tanks ranging in size from 1 million gallons to 4 million gallons. Regardless of the size of the reservoir, the compact PAX Scientific impeller design was able to completely mix not only the 1 million gallon tank with less than 1/15 HP, but the 4 million gallon tank using only 1/4 HP. Depending on the level of mixing required in the tank, and the urgency of the mixing time-scale, the low-maintenance PAX Scientific solution can be scaled to ensure effective mixing and the elimination of stratification in virtually any tank size.