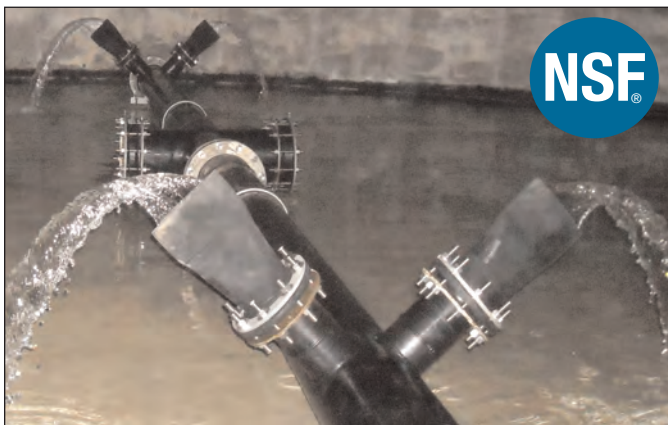


# Tideflex® Mixing Systems (TMS) For Potable Water Storage Tanks

## Improves Water Quality by Complete Mixing

The Tideflex® Mixing System (TMS) has been installed in over 1,000 tanks and reservoirs as small as 2,000 gallons to over 20 million gallons and has been proven to improve storage tank water quality. The TMS has been installed and proven effective in every tank style including circular, rectangular and irregular-shaped reservoirs, standpipes, and dry and wet riser elevated tanks.



*A TMS installation showing the Tideflex® Inlet Nozzles and Waterflex® Outlet Valves*

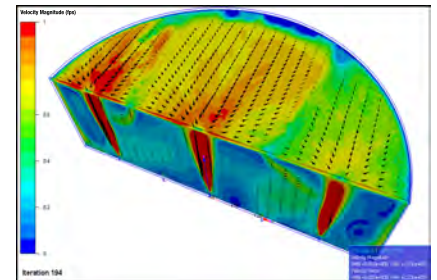
A survey of consulting engineers, water utilities, and state regulatory agencies revealed the primary reasons for the extensive utilization and approval of the TMS are its **PASSIVE AND PROVEN** with unparalleled **ENGINEERING SUPPORT**.

**PASSIVE:** Given the maintenance burden of distribution systems already placed on water utilities, very few are interested in installing mechanical equipment in storage tanks due to maintenance and inspection requirements. The TMS does not require maintenance and uses the energy of the fill and draw cycles to eliminate short-circuiting and achieve complete mixing, passively, without the need for an outside energy source.

**PROVEN:** The TMS has been extensively CFD and Scale modeled for every tank style. And, the TMS has been validated to improve water quality by owner-conducted field sampling and monitoring of parameters such as temperature, residual, pH, DO, nitrites, nitrates, and HPC.

**ENGINEERING SUPPORT:** For every tank, Tideflex® Engineer's select the optimum TMS configuration (based on CFD and Scale modeling), and run Manifold Hydraulics Mixing Analysis Models. The Mixing Analysis shows the owner

exactly how much tank turnover is required to achieve complete mixing. For existing tanks, Red Valve reverse-engineer's the TMS to ensure complete mixing based on how the tank is actually being fluctuated.



*CFD Model*

### **TMS Features:**

- Separates inlet and outlet with one manifold pipe.
- Achieves complete mixing with optimized jet velocity of the Tideflex® Inlet Nozzles.
- Eliminates short-circuiting, dead zones, and stratification.
- Passive, no outside energy source.
- Extensively CFD and Scale Modeled in all tank styles.
- Field Validated in all tank styles by owner-conducted sampling of temperatures and residuals.
- 30 year life with no maintenance.
- Installed in any size and style of tank.

### **What Problems Does the TMS Solve?**

- Disinfection by product formation (DBP).
- Loss of disinfectant residual.
- Nitrification in chloraminated systems.
- Bacteria regrowth.
- Variation in pH and dissolved oxygen.
- Thermal stratification.
- Excessive water age.
- Ice formation.

The increase in distribution system regulations, such as the Stage 2 Disinfectants and Disinfection Byproduct Rule (Stage 2 DBP rule), and the increased use of chloramination have put more of an emphasis on the water quality impact of distribution systems, including storage tanks. The TMS is an extensively modeled and validated multi-port mixing system that has proven to eliminate water quality problems such as loss of residual, bacteria regrowth, nitrification, DBP formation, taste and odor problems, increased HPC, and pH and DO variation.

The TMS is easily installed in new tanks and retrofit to existing tanks. TMS's have even been installed in the wet while the tank is still in service. All TMS configurations have been CFD and/or scale modeled and field validated.