The Tank Shark

"Tank Water Quality Management System"

The Tank Shark maintains complete mixing of the tank while generating real time water samples and automatic chlorine or chloramine injection to the desired levels.

Features/Benefits

PATENTED EDUCTOR NOZZLE
The Eductor Nozzle puts out a 5-time flow increase to produce a 75-500 GPM upward flow utilizing 50 PSI motive water. This upward flow of water not only provides axial thrust, but also provides a rotational characteristic to the upward flowing stream.

MIXING ENERGY
The Tank Shark transfers its applied motive energy to the mass of water in the reservoir, placing it in motion. The nozzle motive energy functions to move colder water from the base of the reservoir up to and on top of the warmer stratified layers. This thermal disruption causes additional mixing beyond the energy associated with the nozzle itself. Chemical Injection occurs in the violent area of the nozzle discharge allowing for complete mixing and distribution of the applied chemical. Additionally, the extreme velocity at the nozzle discharge provides for self cleaning of the injection nozzles.

HOMOGENEOUS RESERVOIR
The upward rotational force of the Tank Shark achieves a homogeneous mixture and eliminates thermal stratification, aged water, ice, and structural damage. The Tank Shark achieves a homogeneous mix within 4 hours.

CHLORINE AND CHLORAMINE INJECTION
If the residual drops below a predetermined set point, chlorine and or ammonia are then injected into the upward flowing stream of water for dilution and mixing within the tank volume. The Tank Shark process is completely compatible with gas chlorine, hypochlorite and onsite generated hypochlorite. When chloramine delivery is a requirement, aqueous ammonia with PSI's proprietary chiller apparatus is the feedstock of choice.

REAL TIME SAMPLING AND ANALYSIS
A sample line is connected from the Tank Shark to a rotary gear pump located outside of the tank capable of drawing 10 GPM of representative water from the tank. The sample is then driven to a chlorine residual analyzer where a determination of water quality is made on a continuous basis.

DBP REDUCTION
DBP formation is significantly slowed by a number of factors including lower water age, lower temperature, no stratification, and aeration or atomization.

Process

The Tank Shark functions to thoroughly mix the entire reservoir volume creating a homogeneous solution while eliminating thermal and residual stratification or gradients.

Additionally, the Tank Shark has the unique ability to extract a continuous sample of reservoir water for real time residual analysis. The typical chloramination scenario is a two-stage process where some free ammonia is expected to be present. Upon the determination of a 5% differential from set point, free chlorine is engaged until such time as the proper residual is reestablished. If the residual continues to fall to a 10% differential, ammonia feed along with chlorine feed is initiated at a one to five-part ratio until such time as the chloramine residual set point is reestablished.

NOTE: The above algorithm is field tunable based upon site specific water parameters.

Safety interlocks: No chemical feed is permitted unless both sample and Tank Shark motive water flow is confirmed.