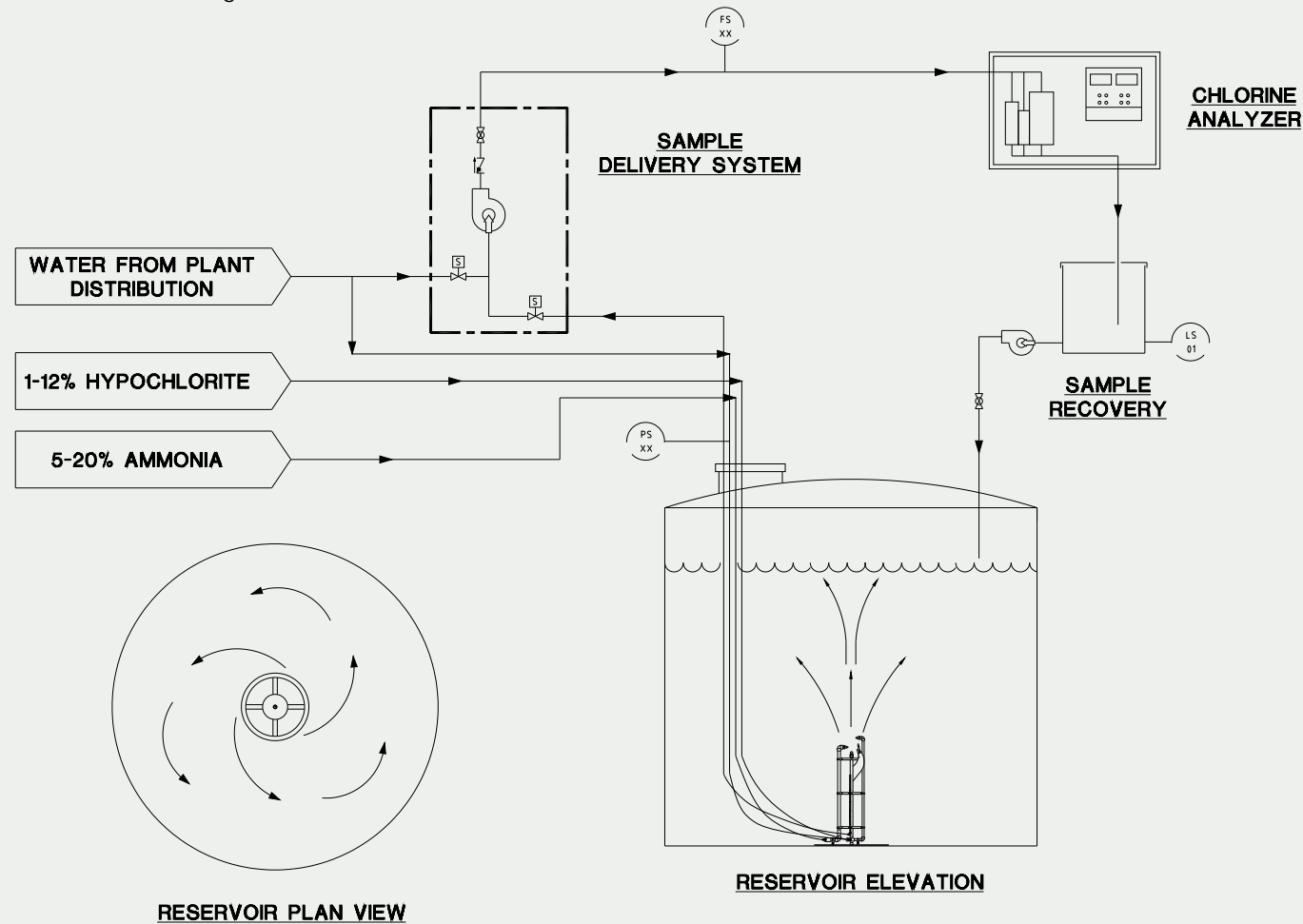


The Tank Shark

Tank Water Quality Management System

The Tank Shark mixing apparatus can be utilized in several different formats consisting of one or more nozzles located at strategic locations within the reservoir.



Unlike competitive processes, **The Tank Shark** requires no pumps, motors, or electrical supply within the reservoir itself. In addition, all submerged or wetted components are NSF approved.

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WATER AND WASTEWATER TREATMENT TECHNOLOGIES

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The Tank Shark

Tank Water Quality Management System

For Potable & Reclaimed Water

Eliminates

- Thermal Stratification
- Nitrification
- Low Residual
- Pumps within the Reservoir
- Electrical within the Reservoir
- Tank Penetrations
- Moving Parts
- Downtime

Benefits

- Realtime Residual Information
- Rechlorination Capability
- All NSF Approved Materials
- Constant Residual
- Guaranteed Performance

Many water storage facilities struggle with maintaining water quality within the storage vessel. Varying flow rates, stagnant zones and inconsistent chemical feed lead to poor water quality. Problems include temperature stratification, stagnation, and blending of different water qualities. **The Tank Shark** solves all of these problems with the simplest, most reliable and efficient process available.



Project under design: 11 MG Steel



Project under design: 1.5 MG Reclaim - Concrete

The Tank Shark maintains complete mixing of the tank while generating realtime water samples and automatic chlorine or chloramine injection to the desired levels. **The Tank Shark** accomplishes all of this without placing any mechanical or electrical equipment inside your water storage vessel. This allows for easy installation, operation and maintenance. With the exception of the chemicals to be injected, there are minimal operational costs associated with **The Tank Shark** operation.



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The Tank Shark

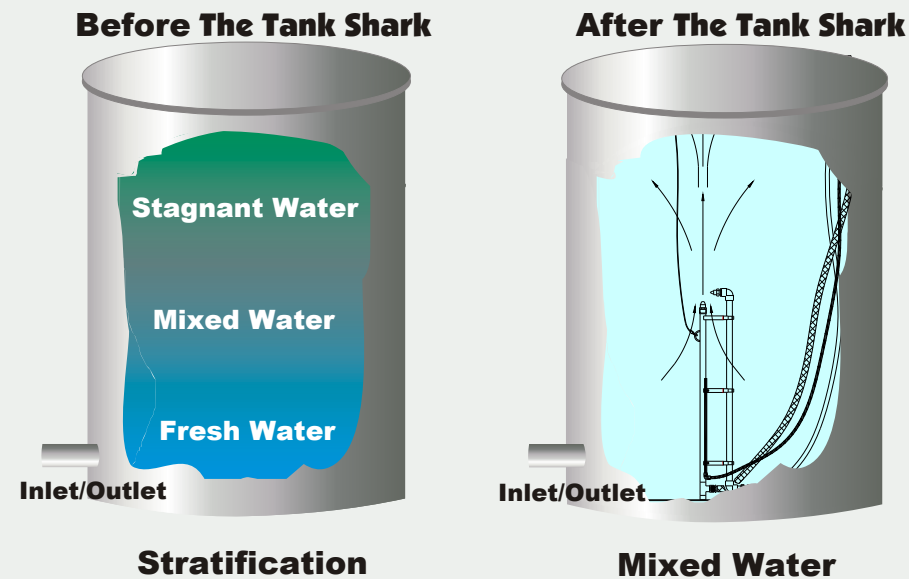
Tank Water Quality Management System

The Tank Shark optimizes water chemistry and quality within large bodies of potable or reuse water such as municipal water reservoirs.

Large water reservoirs are prone to water quality problems as they are typically stagnant with as little as one to two percent turnover per day. This lack of turnover allows for biological re-growth, nitrification, and temperature stratification. These factors can all compound to produce a poor or even unhealthy water quality leading to consumer complaints and related water quality issues within the distribution system.

The Tank Shark process has four major functions within a large body of water:

1. **Mixing in order to achieve a homogenous solution.**
2. **Mixing to eliminate temperature stratification.**
3. **Sampling of mixed water and chlorine residual analysis.**
4. **Chemical injection directly within the flowing mixed water to allow for re-chlorination and improved water quality.**



The Tank Shark apparatus utilizes one or more 15 GPM multiplicative eductor nozzles placed within three to five feet of the base of the tank causing an upward flow of water equal to approximately five times the nozzle flow.

This upward flow of water causes mixing of the water volume in three distinct ways:

1. Direct addition of motive energy at the 15 GPM nozzle utilizing a 50 PSI pressure differential. This nozzle energy is converted into a 75 GPM upward flow.
2. This upward flow of water not only provides axial thrust, but also provides a rotational characteristic to the upward flowing stream.
3. 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.

If the residual analysis determines deficiency in chlorine or ammonia either or both chemicals are then injected into the 75 GPM upward flowing stream of water for dilution and mixing within the tank volume.

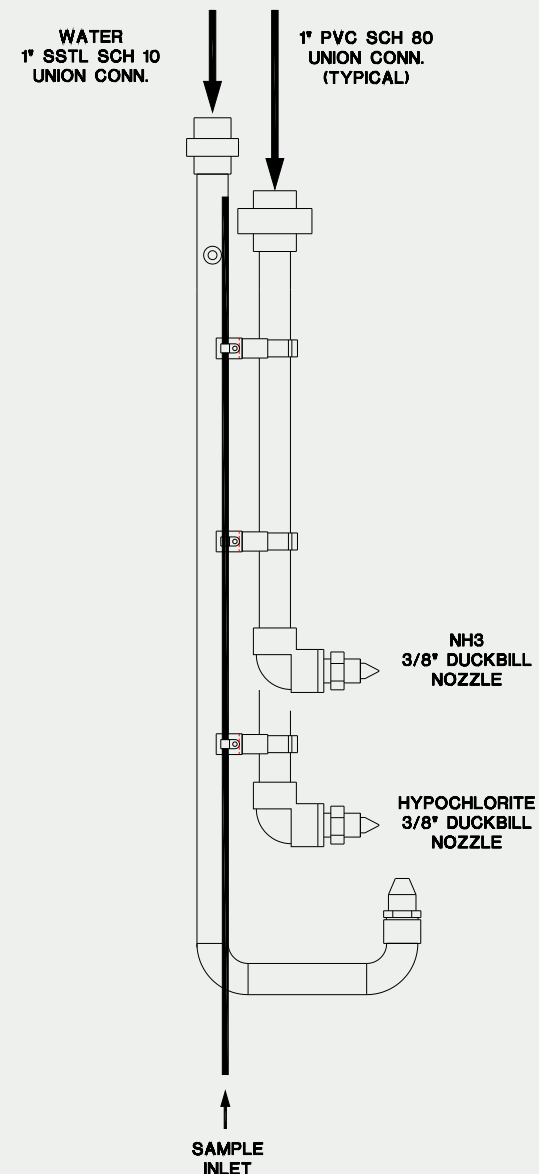
A sample line is connected from the submerged apparatus to a rotary gear pump located outside of the tank capable of drawing 0.25-0.75 GPM of representative water from the tank. The sample is then driven to a chlorine residual analyzer where a determination of water quality is made on a continuous basis.

The Tank Shark process is completely compatible with bulk and onsite generated hypochlorite. When chloramine delivery is a requirement, aqueous ammonia with PSI's proprietary chiller apparatus is the feed stock of choice.

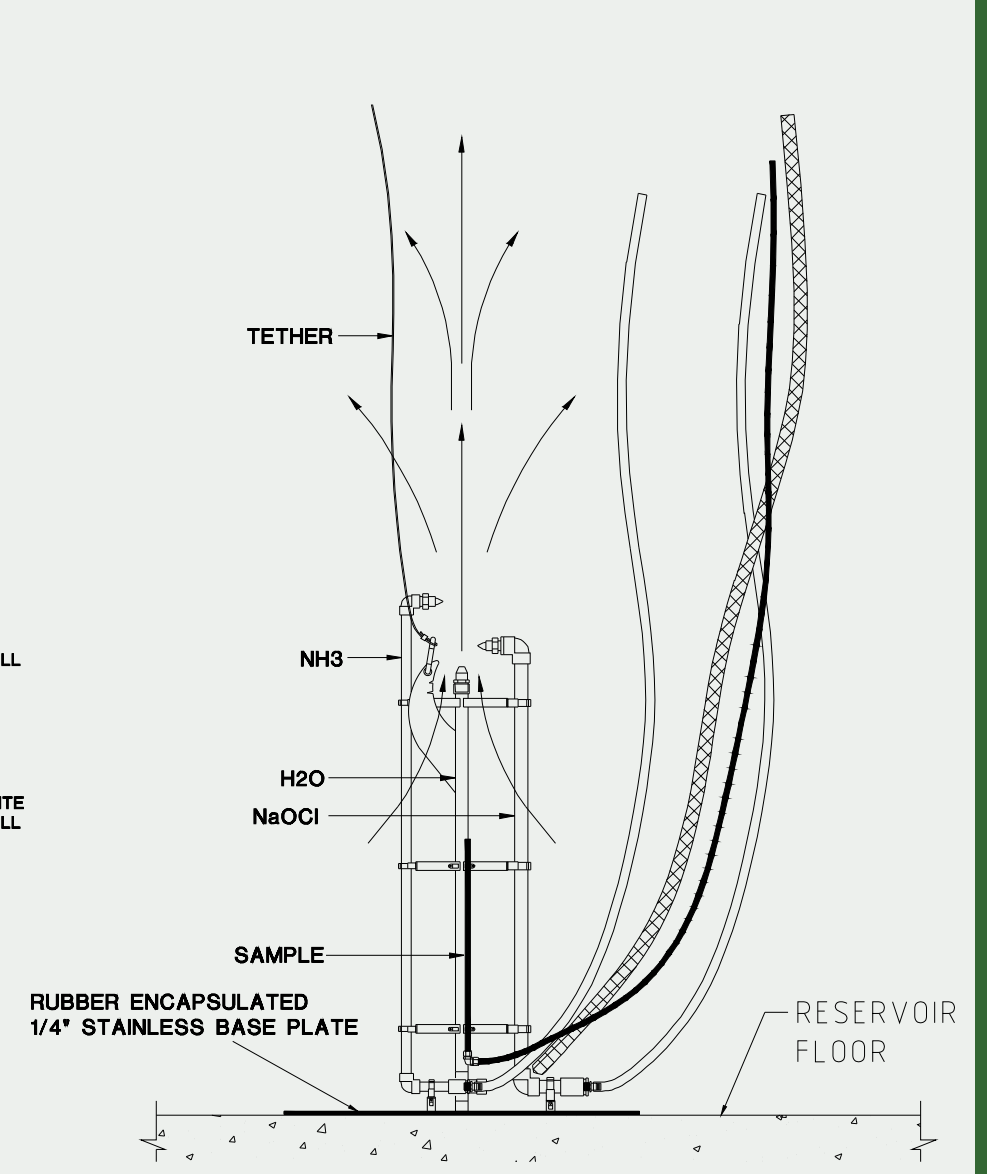
The two primary application scenarios for The Tank Shark are:

1. **Suspension of the nozzle assembly from the reservoir roof near an access hatch.**
2. **Direct submersion of the weighted Tank Shark frame into the reservoir, which also allows for remote placement and retrieval.**

Suspension Tank Shark



Submersible Tank Shark



Each application scenario will provide all of the intended benefits while the submersible model allows for remote positioning of The Tank Shark via pre-positioned anchors and stainless steel guide cables.

