

RMS™

Water Storage Management System

manage - maintain - control - water quality

Many water system operators struggle to maintain uniform levels of chlorine throughout water storage reservoirs and ground storage tanks, encountering common problems such as thermal stratification, stagnation and blending of different water qualities.

The patent-pending [RMS™ Water Storage Management System](#) from Severn Trent Services solves chlorine-related water quality problems and reduces operational costs by managing and maintaining your system.

Using real-time water quality samples from inside the water storage tank, the self-regulating [RMS™](#) automatically detects and feeds the level of chlorine or chloramine required to maintain a consistent predetermined residual.

The integrated analyzer provides real time, continuous, accurate measurement of free chlorine and chloramines. The [RMS™](#) system is compact and operates regardless of water levels flowing in and out of the water storage tank.

Unlike conventional mixing systems, Severn Trent's technology offers cost-efficiencies through decreased power consumption, installation and service time.

Installation of an [RMS™](#) is simple. It does not require plumbing changes, expensive baffles or de-watering of the water storage tank. In fact, installation can be completed while the water storage tank is still in operation.

Severn Trent developed the patent-pending [RMS™](#) as an economical solution to manage, maintain and control residual levels across varying municipal, commercial and industrial applications, optimizing water quality, reducing cost and energy consumption while maintaining full system capacity.



Simple Design, Enhanced Operation.

The RMS™ Rover, is a portable water quality management system that can easily be dropped into position within a water storage tank or reservoir location. The RMS Rover effortlessly fits into a 24" access way and can be broken into three pieces each weighing under 25 lbs.

Once installed in the water storage system, the submersible pump and eductor create a significant flow of water thoroughly mixing the contents of the water storage tank, facilitating convection mixing. A small stream comes off the exit of the pump and is sent to the chlorine residual analyzer. The analyzer senses a drop in chlorine residual and injects the disinfection chemical until proper residual levels are reestablished. The circulation pump runs continuously, providing a fresh sample to the analyzer and continually blending the various flows in the water storage tank. The system operates independent of the water level; input flows or output flows, and only responds to a predetermined residual set point. For large water storage systems or multiple systems, an optional PLC based control system is provided where multiple circulators run continuously with each tank's sample stream and injection lines are sequenced at timed intervals.

The RMS™ Rover can be used for the following applications:

- ◆ Mixing
- ◆ Mixing with provision for chemical addition from a portable trailer
- ◆ Mixing and real-time monitoring and communication of water quality
- ◆ Mixing, monitoring, communicating and adding chemicals
- ◆ Chlorination
- ◆ Blending Chloraminated water with chlorinated water
- ◆ Chloramination
- ◆ Reducing free ammonia levels in chloraminated water by boosting chlorine

Each RMS™ is designed and typically configured to include the following support components:

- ◆ PLC Controller with Operator Interface
- ◆ Submersible Pump and Eductor Assembly
- ◆ Free Chlorine Residual Analyzer
- ◆ Recorder
- ◆ Total Chlorine Residual Analyzer
- ◆ Associated Valves and Tank Level Controls

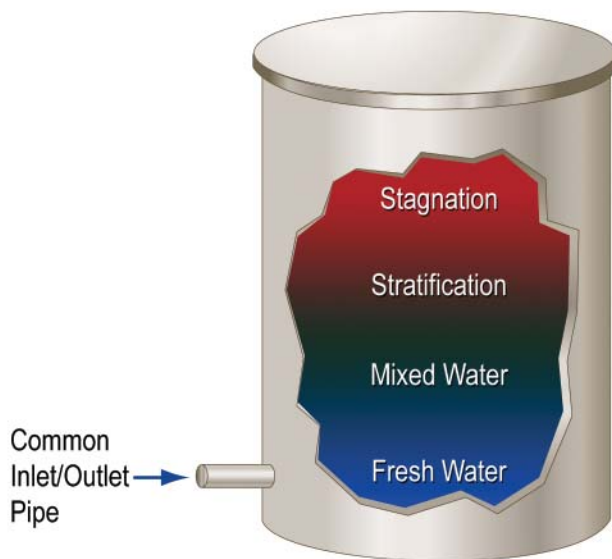
For water storage systems requiring chloramines as a disinfectant, Severn Trent offers the LiquidChem Chiller™, an economically priced ammonia storage and addition system to refrigerate and cool the ammonia water mixture below boiling temperature. A vacuum ammonia system can be provided, in addition to a controller, to automatically control the 5:1 chlorine to ammonia ratio required for chloramination. If needed, Severn Trent offers chlorine feed technology including ClorTec™ on-site sodium hypochlorite generation that generates 0.8% NaOCl or Capital Controls® gas feed system to dispense 100% Cl₂ gas under vacuum, to accompany the RMS™ unit.

RMS™ Features

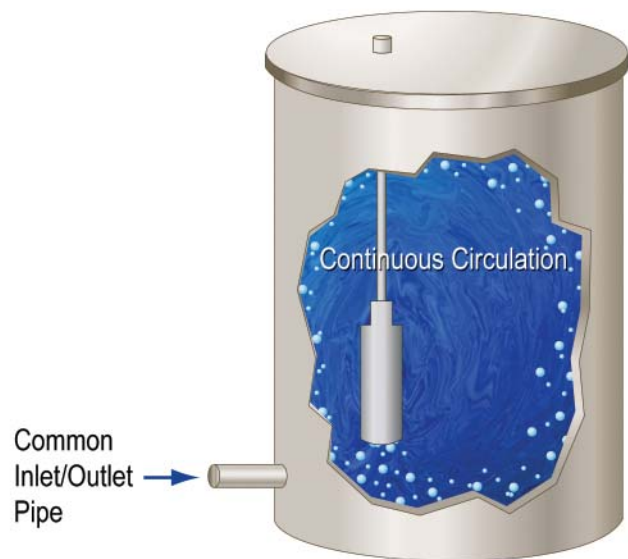
- ◆ Continuous circulation of water
- ◆ Real time sampling and analysis of residual throughout entire water storage system
- ◆ Sample solution returned to water storage system
- ◆ Automatic injection and mixing of chemical disinfectant
- ◆ Data results recorded on site
- ◆ Flexible capacity ranges (10 MG/unit)
- ◆ Easy installation, no down time required
- ◆ Small footprint, portabe
- ◆ Operation is independent of water flow levels

RMS™ Benefits

- ◆ Eliminates thermal and residual stratification
- ◆ Promotes improved water quality
- ◆ Consistent and accurate water quality monitoring
- ◆ No waste effluent generated in the sampling process
- ◆ Maintains residual level
- ◆ Compliance with regulatory data recording
- ◆ Flexible system, applicable to varying flow rates
- ◆ Low operating and maintenance costs
- ◆ Low energy requirements

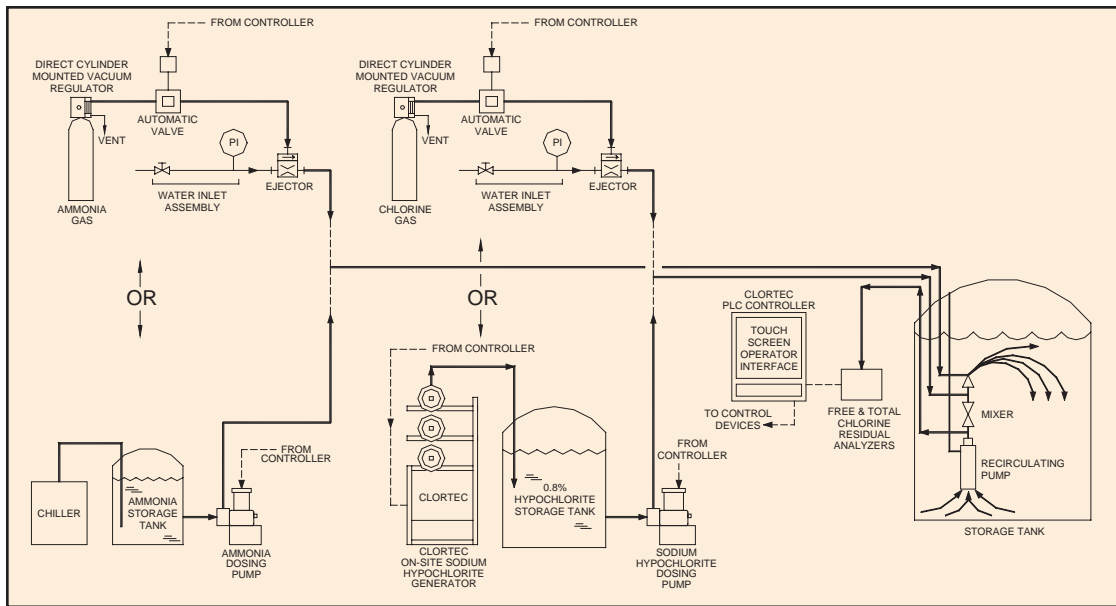


Without RMS™ Water Storage Management System



With RMS™ Water Storage Management System

Technical Data. Warranty. Specification.



Reservoir Capacities: system can be configured for any capacity or flow rate

Control: residual chemical can be controlled from 0.0 to 20.0 ± 0.05 ppm

Electrical Power: 208 or 240 VAC 1 phase, 60 Hz for reservoir recirculation pump and chlorine residual analyzer
other power configurations available upon request

Control Panel: stainless steel NEMA 12 enclosure

Operator Interface: PLC-based LCD operator interface for control and monitoring system status, alarms, tanks and flows

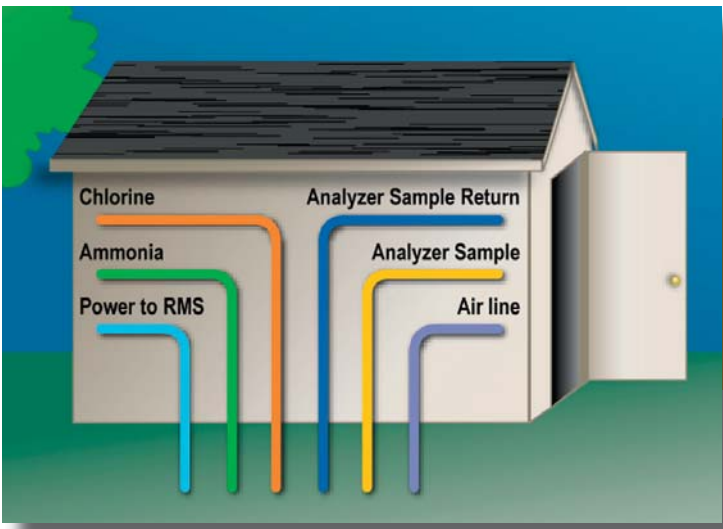
Programmable Logic Controller: expandable from 8 to 32 discrete I/O channels, 4 to 16 analog inputs and 2 to 8 analog outputs

Size: basic RMS™ reservoir recirculation assembly, reservoir insertion assembly weighs 48 pounds and is 6" in diameter by 36" high

the chlorine or ammonia system is mounted adjacent to the facility and is sized to suit specific requirements

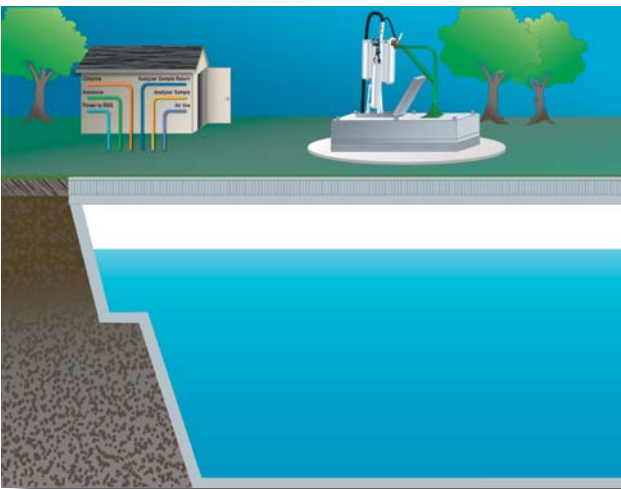
Warranty: a two-year limited warranty is offered on the RMS™ system

Brief Specification: the RMS™ shall maintain chlorine residual in your water storage tank. The system shall be compact and shall be able to be installed into existing water storage tanks with no down time to the system. The system shall operate independently of reservoir level; input flow or output flow and shall respond only to a predetermined residual set point. Chlorine residual is uniformly maintained throughout the tank volume. The RMS™ components shall include a PLC controller system with operator interface, free chlorine residual analyzer, total chlorine residual analyzer, submersible pump and educator assembly, recorder, associated valves and tank level controls. Optional equipment shall include a chlorine feed system and/or ammonia containment system and a PLC controlled chloramination system.



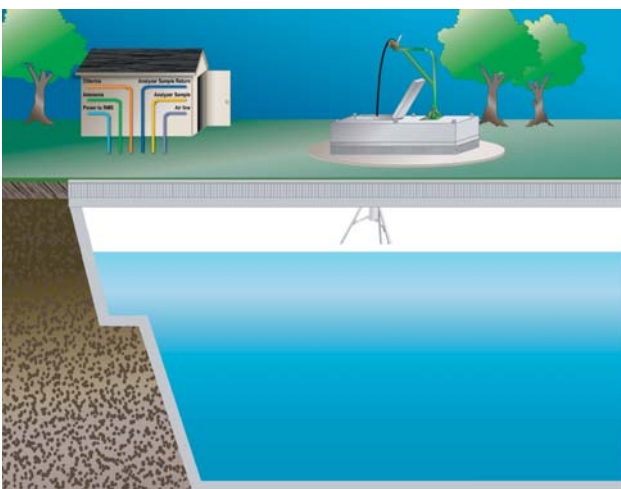
Color Key

Please follow this Color Key for the following scenes:



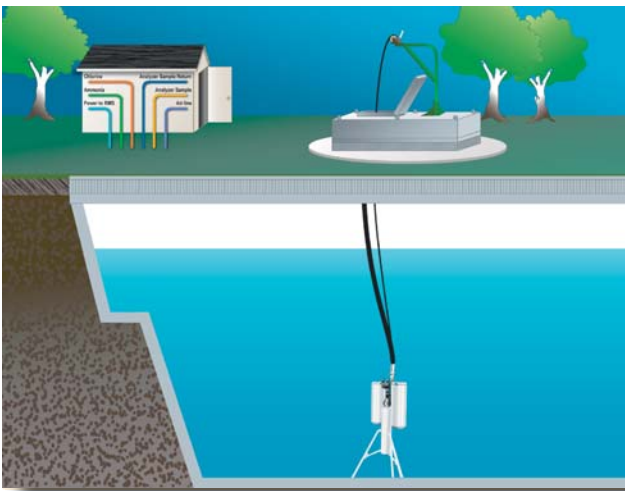
Scene 1 - RMS™ Rover will help to:

- ◆ Maintain uniform levels of disinfectant throughout the water storage system
- ◆ Eliminate thermal stratification, stagnation and water blending concerns
- ◆ Reduce operational costs to manage and maintain a water storage system



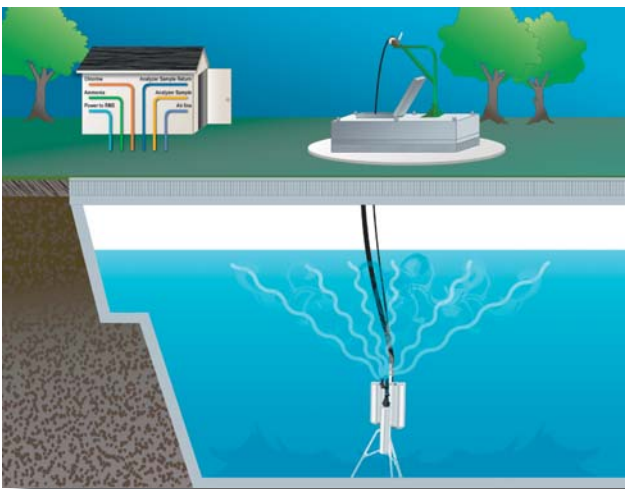
Scene 2 - Installation

- ◆ Simple process
- ◆ No plumbing changes required
- ◆ No dewatering required
- ◆ Fits into a 24" access way
- ◆ Can be broken into three pieces, each weighing under 25 lbs



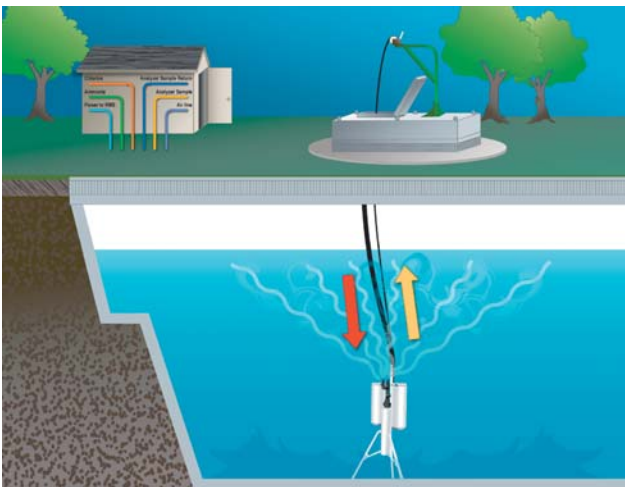
Scene 3 - Installation Continued

- ◆ Air in the tanks enable the RMS Rover to float along the surface
- ◆ Then air is released from the tanks and the RMS Rover travels to the bottom
- ◆ Installation is then complete



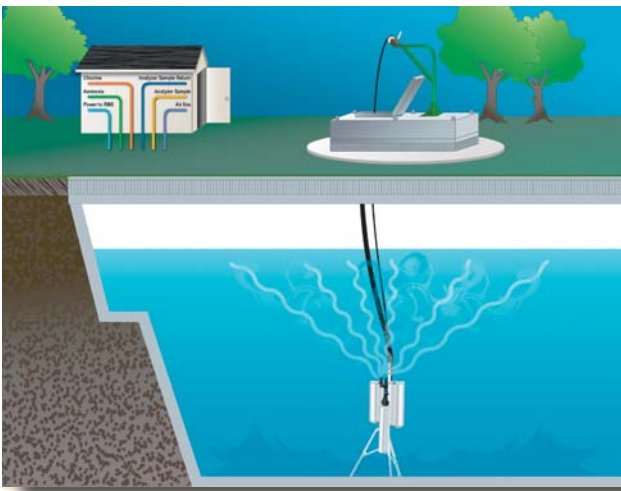
Scene 4 - Mixing

- ◆ The RMS Rover begins to mix the water
- ◆ Multiple units can be used to mix larger water storage systems



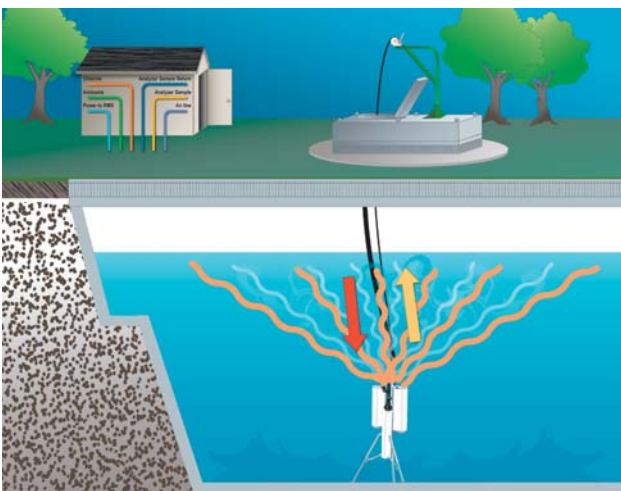
Scene 5 - Sampling

- ◆ Optional real-time sampling available
- ◆ A sample is pulled from the water storage system and sent to the control building
- ◆ The sample is measured in a chlorine residual analyzer
- ◆ If the set point residual is detected, disinfection is not required
- ◆ If a low residual is detected, disinfection injection is required



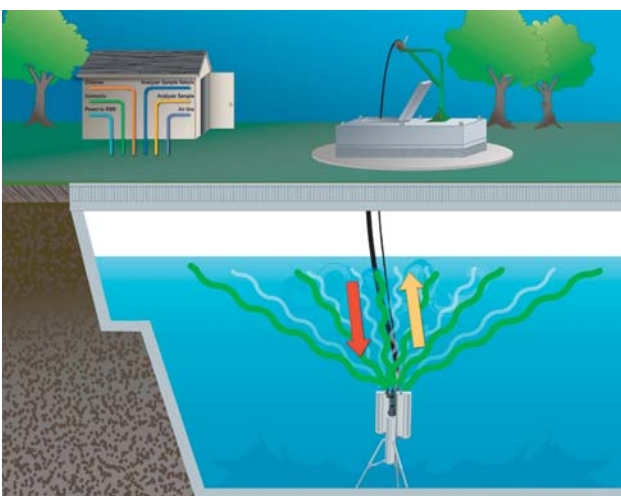
Scene 6 (plain) - Disinfection Injection

- ◆ Disinfection can be provided by sodium hypochlorite, chlorine or chloramines
- ◆ A low set point signal from the chlorine residual analyzer to the controller will dose a disinfectant into the water storage system



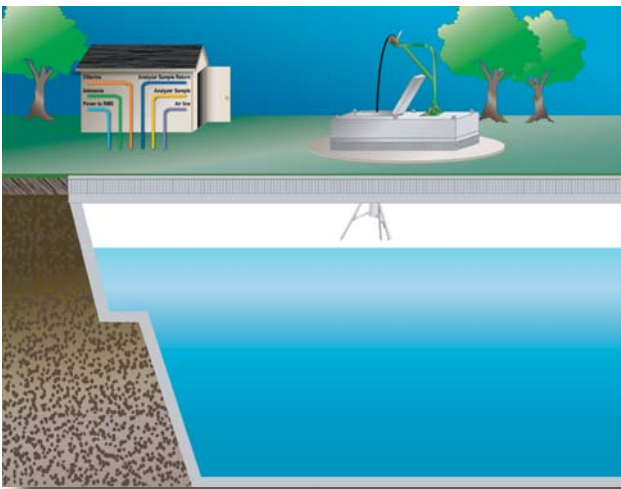
Scene 7 - Disinfection Injection (Chlorine or Chlorine Equivalent)

- ◆ A low set point signal from the chlorine residual analyzer to the controller will dose a chlorine or sodium hypochlorite, a chlorine equivalent, into the water storage system



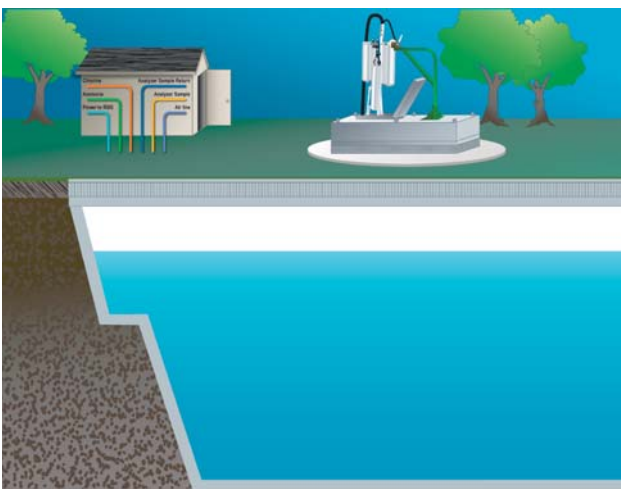
Scene 8 - Disinfection Injection (Chloramines)

- ◆ A low set point signal from the chlorine residual analyzer to the controller will then dose chlorine and ammonia to provide a chloramines disinfectant into the water storage system



Scene 9 - Removal of System

- ◆ Stop mixing
- ◆ Inflate air into the tanks
- ◆ The air will cause the RMS Rover to float to the surface



Scene 10 Removal of System

- ◆ Remove unit from the hatch opening

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