

Aquarius Technical Bulletin - No. 12

Dosage & Control of Microbicides under Winter or Stagnant Conditions in Comfort Cooling Systems.

In cooler climates, such as the southern states of Australia or in New Zealand, the cooling water system may not be required for many weeks during winter, and the cooling system water may remain stagnant for considerable periods.

Bacteria will continue to grow even at the reduced temperature conditions, such that a system which has remained stagnant and without periodic biocide dosages may provide a great risk of an Legionella outbreak when the system is restarted, and with the fans distributing the bacteria in the aerosols far and wide.

It is pointless dosing biocide into cooling water systems unless the dose is thoroughly mixed and distributed through the entire water system, and it is essential that all cooling water systems are circulated and thoroughly mixed on at least a weekly basis even when there is no load requirement on the system.

There are several methods for ensuring good microbicidal control during winter or off line periods

(1) The microbicide can be dosed manually and the circulating pumps also manually ran for a period of 20 - 60 minutes to provide good mixing dependant on the volume in the system, however manual systems tend to be unreliable, as we are all too busy, or forgetful.

(2) A Seven Day Digital time clock can be programmed and wired to activate the circulating pumps for a set period on a weekly or more frequent basis.

(3) Most Aquarius Controllers already utilise a Seven Day Digital timer for programmed dosage of biocide, and an additional 240 Vac output socket can be included as an option on the controller, to also control a separate relay in the switchboard to circulate the entire cooling water system automatically when biocide is being dosed. See diagram on following page.

Most comfort cooling water systems have a recirculation time of 2 -10 mins, and 20 - 60 minutes usually ensures adequate distribution of the biocide throughout the entire system.

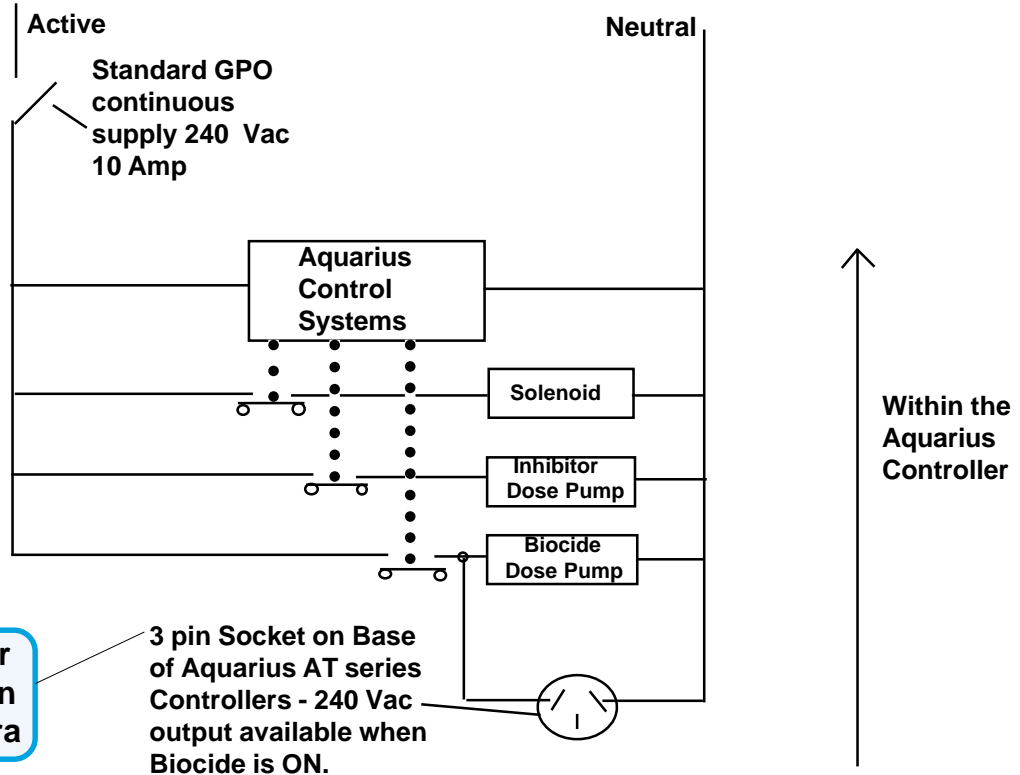
(4) A separate small pump, again controlled via a Seven Day Timer can be installed to circulate the cooling system water via the manifold supplied with most Aquarius systems, e.g. ORP controlled systems, and the sensors installed will allow for automatic dosage up the desired set points.

Care needs to be taken to ensure that the separate circulation pump system installed is capable of circulating the entire system in the time period set, e.g. a system having a volume of 10,000 litres and a small pump capable of 2.0 l/s would turn the system over in just under 1.5 hours, and if set for 4 hours on a once or twice per week basis would allow for the biocides to be dosed as required to maintain the system.

Periodic circulation of stagnant water systems is also essential to circulate the inhibitor solution, repairs any defects in the inhibitor film and minimise corrosion rates.

SCHEMATIC ELECTRICAL CIRCUIT

to "auto-run" the Condenser Circulating Pump on "Test" during Microbicide dosage to ensure thorough mixing when using Aquarius Controller Systems



Work to be carried out by the clients Electrical Personnel

Terminated with a 3 pin plug to mate with 3 pin socket on AT522

10 Amp 3 core cabling from AT522 to the ADDITIONAL relay in Switchboard below

Inside CONDENSER SWITCHBOARD CABINET

Relay to provide ISOLATION of TWO ACTIVE SOURCES

Active source from Switchboard Supply - may need to be 3 Phase ! - to suit Condenser pump

240 Vac Relay coil & contacts rated to suit Condenser Pump and to provide ISOLATION for service on AT522

Active Feed TO Condenser Pump