



Final Monitoring Report

Enma Mall - Riffa

Kingdom of Bahrain

ScaleWatcher (SW) Water Treatment Report for the
outdoor fountain, 3rd October 2017



Objective

OperaKool team is aiming to **provide solution on the challenges concerning the scaling, corrosion and micro organism growth problems in fountains of Enma Mall.** As fountains are open to the environment so their chances for scaling, corrosion and microorganism growth increases. The problems faced by fountains are usually:

- Scaling and corrosion affecting the whole system.
- Algae and bacterial challenges resulting to fouling of odour of the water in the fountain.
- Increased replacement of equipment due to harsh water parameters affecting the system.
- High maintenance expenses for the mall such as replacement and maintenance shutdown of the fountains and the whole system, periodic cleaning and application of chemical antiscalants.

The problems stated above are the main concern and objectives, this report shows how our team was able to solve them.



Overview

- Installations of SW Commercial Model in the inlet 3” pipe of outdoor fountain system was on September 18, 2016. (2 set of coil with 40 loops)
- Initial status of some critical areas in the fountain were noted:
 - *Hard external scaling were present and affecting the said water applications.
 - *Corrosion and microorganism growth were noted on the marbles, fittings and bottoms of the fountains.
- OperaKool recommended a 24/7 water treatment upon full installation of the SW units in order to prove that it is a perfect alternative for the current water treatment implemented by Enma Mall - Riffa Maintenance team.



Enma Mall, Riffa - Dishwasher System Treatment with SW Electronic Water Treatment





SW Commercial Model installed in the 3” inlet pipe of the dishwasher system with 2 set of coil of 40 loops



Before & After results of SW on Fountain within a month of installation

Before treatment (18th Sept 2017), as shown in the image, the water looks greenish due to algae content in it



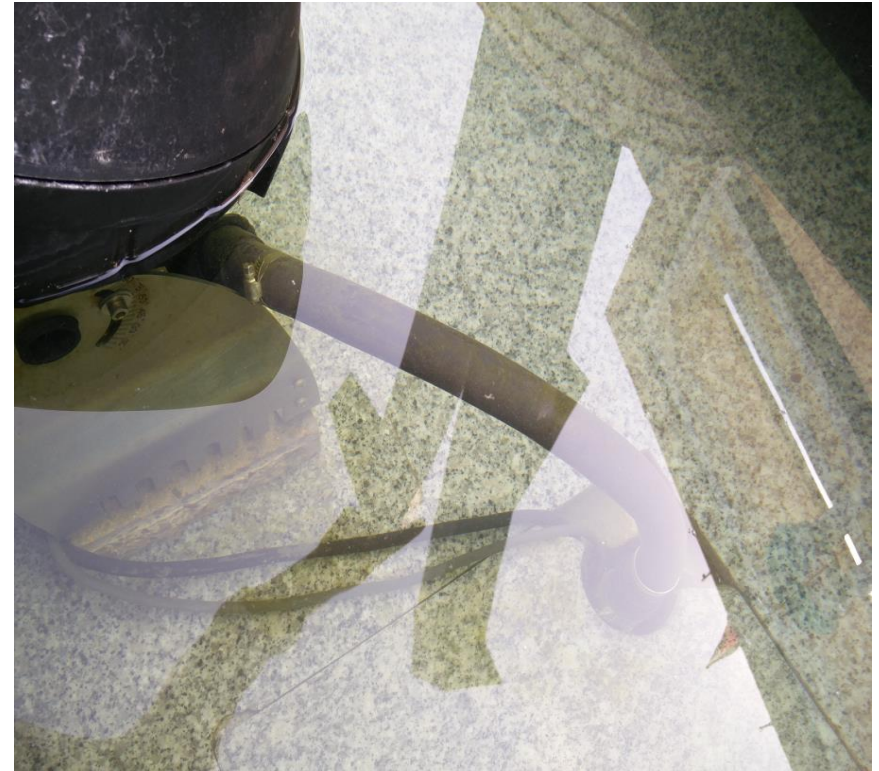
After treatment (23rd Sept 2017), the image clearly shows that the water is shining and is clean



18th Sept 2017, the scaling patches found on fittings and greenish water due to algae content



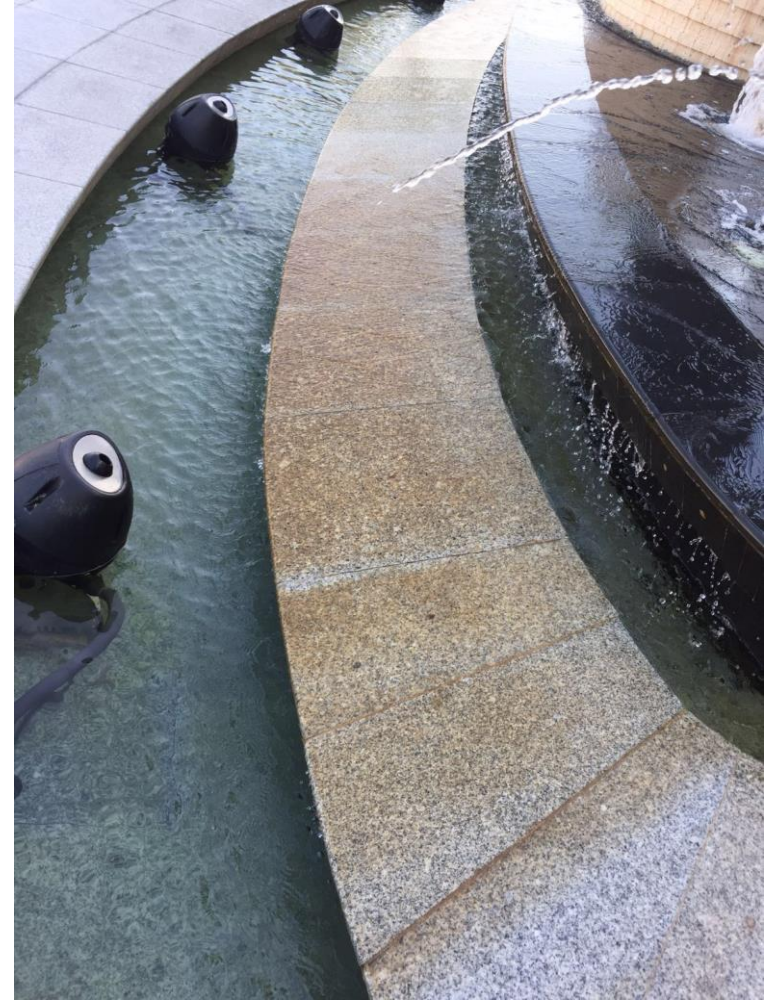
23rd Sept 2017, the scaling patches are being decreased on fittings and the water looks clean



18th Sept 2017, the water looks greenish due to algae content in it



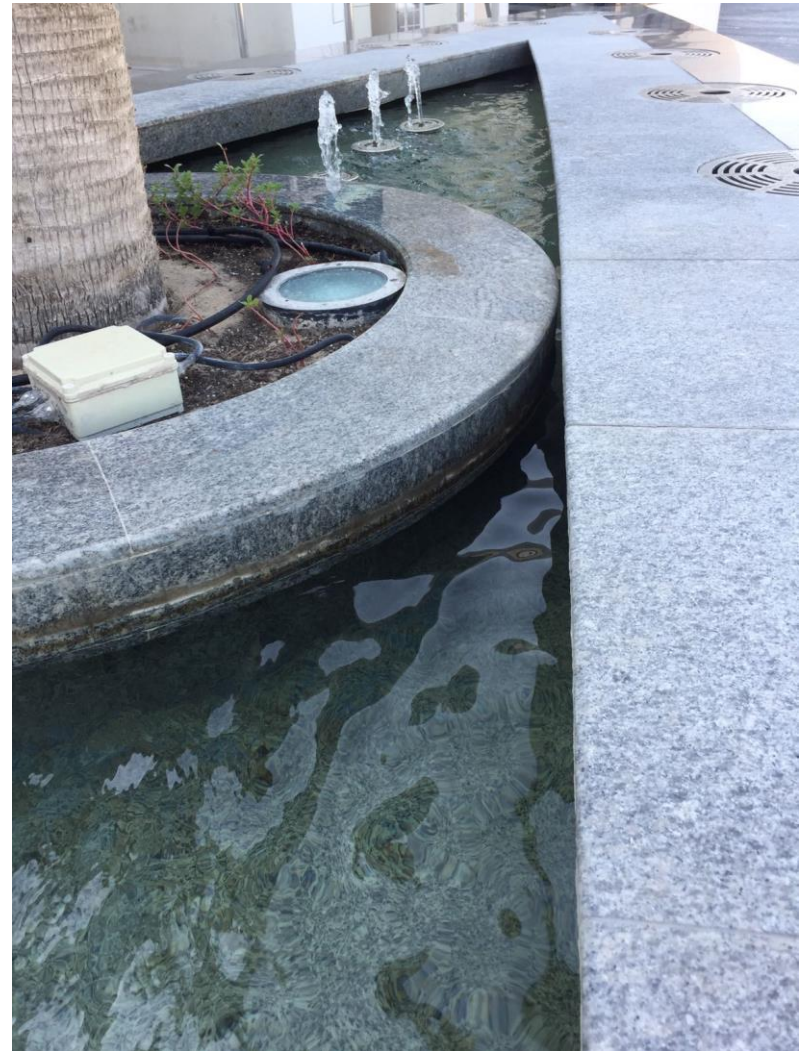
23rd Sept 2017, the image clearly shows that the water is shining and is clean



18th Sept 2017, Water is dull and foggy



23rd Sept 2017, Water is clean and sooth silky



18th Sept 2017, Water is dull and the bottom is not clearly visible



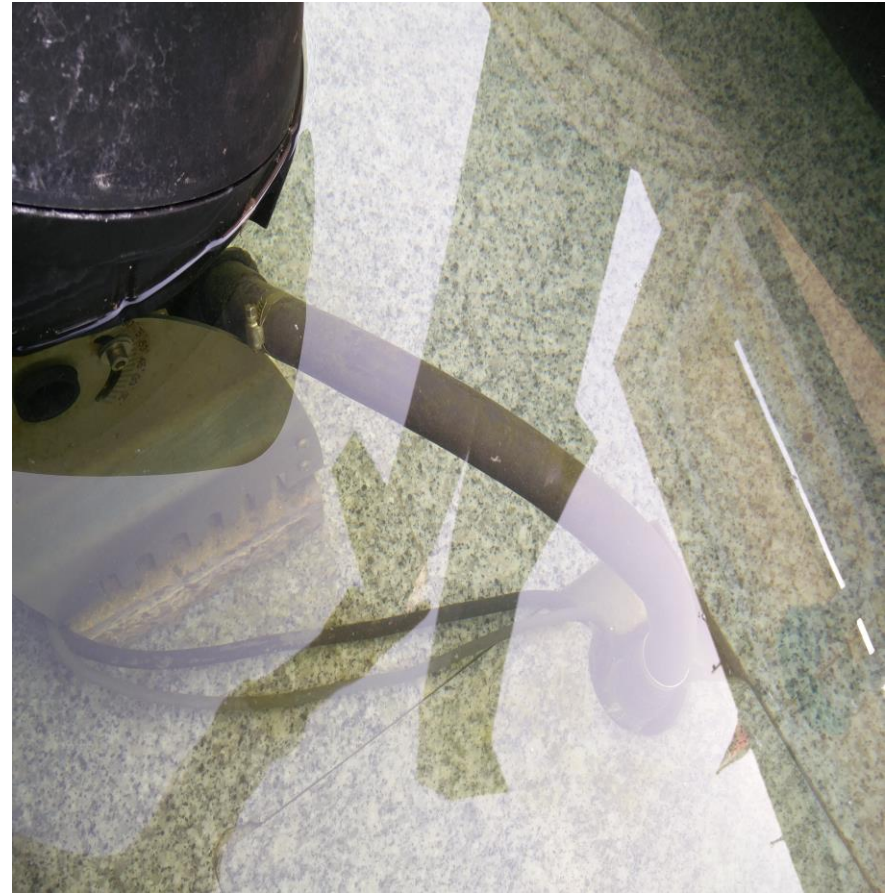
23rd Sept 2017, Water is clean which makes the bottom visible clearly



18th Sept 2017, the inside fittings are totally covered with Algae



23rd Sept 2017, Algae content has reduced drastically as you can see in the Image



Observations:

- Hard scaling, corrosion and microorganism growth that has developed through time in the dishwasher system has significantly soften.
- The maintenance work reduced drastically.
- Water has become more smooth and silky which looks more enhancing.
- The SW commercial has really worked on the fountain and has made to appear as brand new within a small period of time.



Conclusion

- Providing an effective water treatment will ensure a significant reduction of maintenance expenses of the Mall, lesser maintenance shutdown of high invested units with longer performance period and minimal concerns on water parameters affecting any system or application.
- Achieving these results will positively increase the revenue of the Mall.
- In order to achieve and maintain the ideal water parameters with a minimal expenses, we are proposing to install an Electronic Water Treatment (EWT) - ScaleWatcher to have a 24/7 water treatment.
- ScaleWatcher is a patented technology from The Netherlands proven to provide solutions to various problems associated with water.
- It is a maintenance free, non-invasive and eco-friendly water solution that guarantees to eliminate scaling, corrosion, biofilm causing the fouling of odour and significantly lower the maintenance expenses for Enma Mall.



Recommendations:

- Secure a 24/7 electrical power connection for the SW Electronic Water Treatment System.
- Monitor the status of the fountain and check the inner surfaces of the system and compare to the records of expenses before the SW was installed.
- Check the status of the progress of conversion the red rust and the intensity of Algae in water. This will heal through time by converting the red rust into its beneficial form- “Black Magnetite”.
- Installation of SW Commercial and Industrial Models for the inlet water line of main storage tank, RO system, washing machine, steamers, chillers, pumps, swimming pool and spa area to significantly reduce maintenance expenses and provide protection to extend functionality of the said high-value equipment.



ScaleWatcher(SW) Guaranteed Product Benefits:

- 24/7 water pH stability ensuring no scaling, corrosion, biofilm and algae to develop in the water; meaning a healthy water source for the users.
- Removes old scale layers and prevents further build-up of new scales.
- Improves cleaning properties of water resulting to lesser amount used resulting to savings for the company.
- Reduces or prevents algae and bacterial growth in the water line (ex. Legionella).
- Eliminates and reduces corrosion and removes rust and replaces it with a black layer called Black Magnetite.
- Zero usage of water softener and other chemical treatments (ex. Broxo Salt).
- No chemicals for descaling.
- No expensive maintenance, non-invasive system and guaranteed environmentally friendly.
- Guaranteed protection of pipeline with lesser maintenance costs and shutdown.
- Prolonged shelf life of existing system or high invested system such as water pumps, filtration and pipelines.
- Increased water pressure in the pipelines and higher water yield for the RO system.
- Cleaner status of drinking glasses, plates and cutlery with no undesirable water markings resulting to its longer usage of the company as compared before the installation of ScaleWatcher.



Benefits

–ScaleWatcher will Save

- Money
- Energy
- Water
- Time
- Safe and Environmentally Friendly



Quality Assurance on SW Mode of Action- Health Declaration Assurance Aligned to EU Standards

Health Declaration

Most natural water contains calcium and carbonate ions that form – depending on temperature and other conditions – several crystal structures like calcite and aragonite. Calcite is essential for the human body – so it should remain in the water. But it should not remain in the pipe, as this would increase maintenance costs.

Scalewatcher treatment follows this rule: It does not remove any calcium components from the water, but influences crystal formation. Calcium and Carbonate ions no longer form particles with matted structures, but smaller crystals with a rounded shape. These will no longer adhere to the pipe walls, but are flushed through the pipe by the flow of water.

The Scalewatcher electronic hard water treatment system operates with a signal cable, wound around the pipe work. It emits a weak magnetic and electric field around the inside and outside of the pipe work which affects the calcium molecule formation.

The Scalewatcher system neither adds nor removes anything from the water and there is no physical contact. **So the water quality is not changed by the Scalewatcher. It has no adverse effect on health and can be consumed in the normal way.** In the stomach, the Ca-related content is dissolved by the acidity and available for the human metabolism.

Since 1989 over 300,000 units have been sold worldwide for residential use. There has never been any suspicion that related a Scalewatcher system to health problems of consumers nor has there been any reference to health problems associated with the product from any organization either government or consumer.

Good drinking water is rare and expensive. So SW treatment will not change water quality, but will protect pipes and water related equipment and reduce maintenance costs. That's what the SW is made for.



The World Green Building Council specifies only NON-CHEMICAL water treatment such as the FMW/SW, currently registered with the US and UK Green Building Councils.





Your SERVICE
SPECIALIST in saving
water, money and
energy for the
Kingdom of Bahrain
and the rest of the
GCC Region



Team OperaKool #@yourservice

