



Final Monitoring Report

Fraser Suites- Seef District
Kingdom of Bahrain

ScaleWatcher(SW) Water Treatment Report for the 20-Storey
Building Main Water Line and RO System

September 11, 2016



Overview

- Installations of SW IE8 Model in the main outlet 4” pipe of storage tank, SW IE4 Model in the main inlet 2.5” pipe of storage tank and SW CM2 model in the 1.5” main pipe to the RO supply water line was on August 10, 2016. (1 set of coil with 85 loops, 2 sets of coil- 55 and 42 loops and double layered coil with 32 loops respectively)
- Initial status of some critical areas in the building were noted:
 - *Strong water leaking with hard red rust corrosion of the pipe fittings in the 7th floor pressure adjustment valve located in the ceiling of the swimming pool’s main entrance to the indoor fountain.
 - *Hard external scaling and hard red rust in the pipe fittings and pump and water heater area were present and affecting the said water applications.
 - * Water samples were collected both from kitchen/pantry area and Room 1605 to benchmark the water status of the 20-storey building.
 - *Scalings were noted on the water sprinkler of the shower area in Room 1605..
- OperaKool recommended a 100% non-usage of chemical water treatment(Broxo Salt water softener)upon full installation of the SW units in order to prove that it is a perfect alternative for the current water treatment implemented by Fraser Suites-SeeF Maintenance team.
- Initial water status are as follows:
 - *Kitchen/Pantry area(Ground Floor) pH is 8.08 and TDS(ppm) is 158.10.
 - *Room 1605 pH is 7.84 and TDS(ppm) is 158.60.



Fraser Suites Seef District- 20 Storey Building Main Water Supply Treatment with SW Electronic Water Treatment



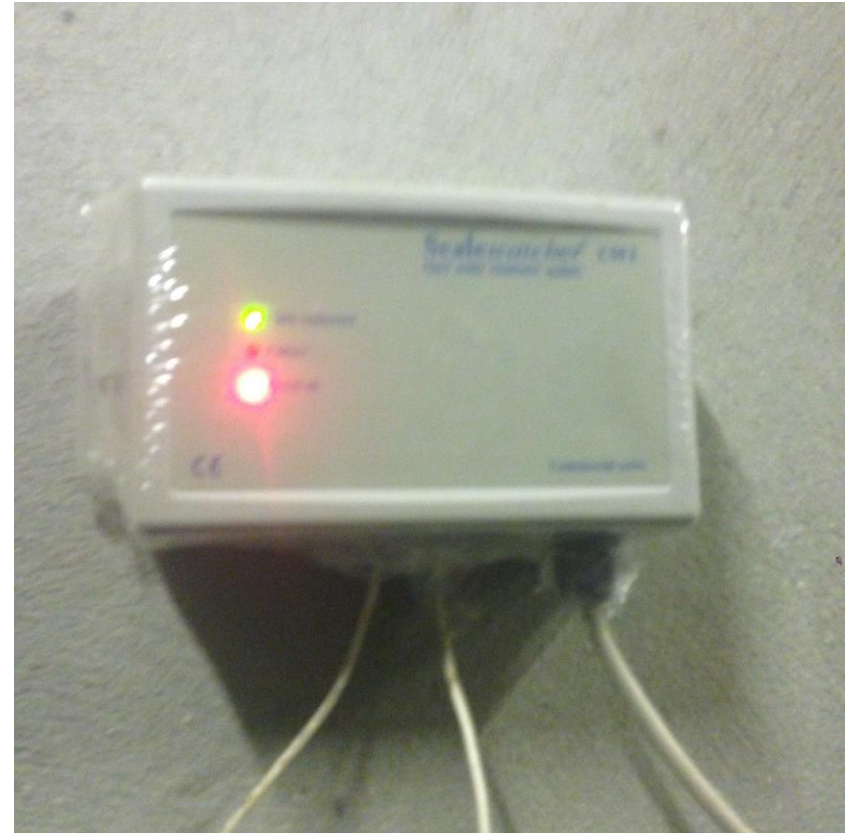
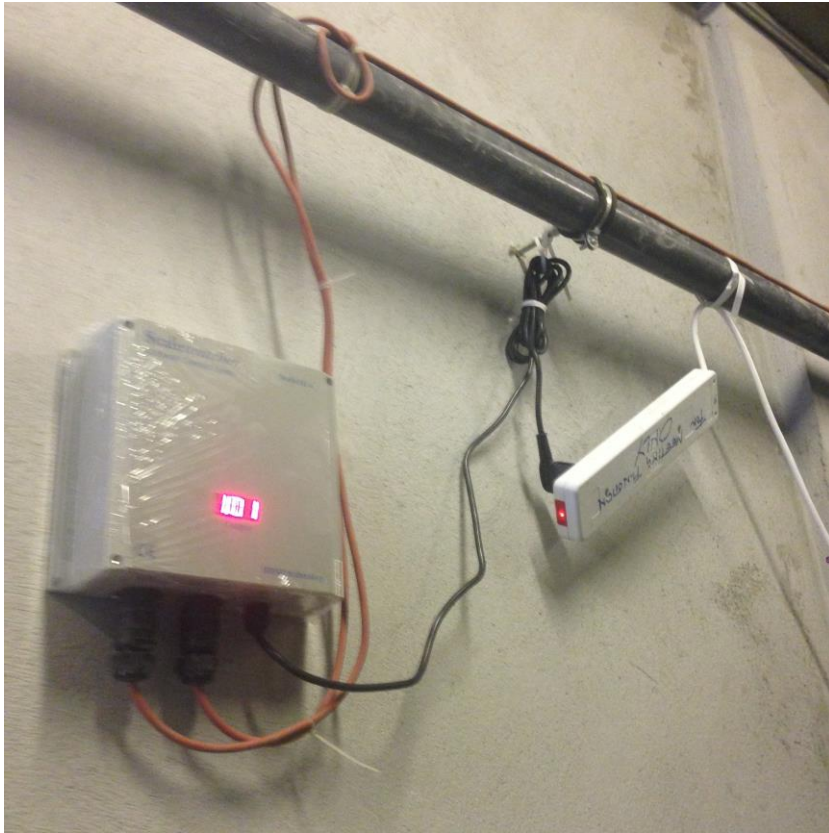


IE8 SW Model installed in the 4” outlet pipe of the water storage tank with 1 set of coil of 85 loops.



IE4 SW Model installed in the 2.5" inlet pipe of the water storage tank with 2 sets of coil of 55 and 42 loops.

CM2 SW Model installed in the 1.5" main inlet pipe of the RO system with double layered coil of 32 loops.



Pressure Adjustment Valve in the 7th Floor

The “stock-up” adjustment knob which is greatly affected by hard red rust due to internal corrosion.

Closer view of the valve clearly indicating the scaling and corrosion causing strong leaking of the water before SW units were installed. The small encircled area indicates the strong leak of water affecting the said pipe fittings.



Water heaters affected by scaling and corrosion

Hard scales and corrosion before SW installation.



Other unit affected by the same problems.



Water sprinkler in the shower area of Room 1605

August 10, 2016- Initial status wherein there are some hard scales that has developed through time.

August 28, 2016- after 18 days of SW treatment without any chemical wherein the scales has started to soften.(noted by Mr. Michael Datan)



Indoor Fountain Status After SW Installation

August 10, 2016- Initial status wherein there are some hard scales that has developed through time, the metal sprinkler looks to be dull in appearance.

August 28, 2016- after 18 days of SW treatment without any chemical wherein the scales has started to soften, the stainless surface appears to be more shiny and clean.(noted by Mr. Michael Datan)



Water pH Status Kitchen Area

August 10, 2016- with Broxo salt water softener.



August 29, 2016- without chemical water softener; with better pH status.



Water TDS Status Kitchen Area

August 10, 2016- with Broxo salt water softener.



August 29, 2016- without chemical water softener; TDS has stable values.



Water pH Status Room 1605

August 10, 2016- with Broxo salt water softener.

August 29, 2016- without chemical water softener; with better pH status.



Water TDS Status Room 1605

August 10, 2016- with Broxo salt water softener.



August 29, 2016- without chemical water softener; TDS has stable values.



Water Analysis Report

Fraser Suites
Seef District, Kingdom of Bahrain

Area where samples taken: Room 1605 & Kitchen Area

Date	Parameters	Room 1605	Kitchen
August 10, 2016	pH	7.84	8.08
	TDS	158.60	158.10
August 29, 2016	pH	6.98	6.97
	TDS	151.20	166.00

Approved By:

Mustafa Saifee
Marketing & Sales Engineer
OperaKool
Mobile: +973 38178612

Summary of the water test results showing the safe status of the water with SW treatment as an alternative for the chemical water softeners.



Costing Comparison

Chemical Water Softener (Broxo Salt) vs ScaleWatcher

Return of Investment for Fraser Suites Seef District Maintenance Cost Comparison for 20 Storey Building

	With Broxo Salt Water Softener	With ScaleWatcher- No Chemical Water Softener
Average annual expenses for Broxo Salt water softener*	BD 1,320/Year*	BD 7,155(as based on actual quotation for the 3 units installed for the building- 1 time investment only)
Estimated wages for maintenance staff per year (rough estimate only- labor cost in monitoring, repair and maintenance of the water line, pipe and fittings of a 20 storey building)	BD 1,200/Year (assuming a BD100 monthly wage expenses only)	NONE! Since the SW water treatment is a maintenance free water softener.
	1,320 x 5 = 6,600 1,200 x 5 = 6,000	BD 7,155 – 1 time investment only
Total expenses for 5 years	BD 7,200	BD 7,155

*as based on the average water softener expenses per 20-25 storey building per year in the GCC Region
 Projected savings for the next 7 years for ScaleWatcher Water Treatment
 Assuming that SW units will last for 7 years:
 BD 17,640 – BD 7,155 = BD 10,485 potential savings for Fraser Suites for the next 7 years.
 (17,640 – computed from 1,320x7 and 1,200x7)



Observations:

- Hard scaling that has developed through time in the water heater and pump room has significantly softened.
- The water leaking in the 7th floor has significantly reduced. The red rust corrosion has slowly been converted into “Black Magnetite”.
- The maintenance team is no longer required to bring the heavy chemicals for water softening up to the main water tank area of the building.
- The water shows a stable parameters without any chemical water softeners since the installation of 3 units of ScaleWatcher.
- The scaling and water markings in the shower area of Room 1605 has softened and significantly improved.
- Water appearance and quality in the main storage tank is indicating a good status without the chemical application of the usual water treatment by the maintenance team.



Recommendations:

- Secure a 24/7 electrical power connection for the SW Electronic Water Treatment System.
- Regularly check (DAILY) the SW head unit reading and make adjustment with the (+) or (-) sign. Reading should be within the range of 100-103 for IE8 and IE4 SW Models while the CM2 model only indicates a green and red flashing lights.
- Monitor the status of the water heaters and compare the frequency of replacing the heating elements and compare to the records of expenses before the SW s installed.
- Check the status of the progress of conversion the red rust corrosion in the 7th floor pressure adjustment valve and the intensity of water leaking. This will heal through time by converting the red rust into its beneficial form- “Black Magnetite”.
- Installation of 4 star Model for the inlet water line of coffee-maker machine, dish-washer, washing machine 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.

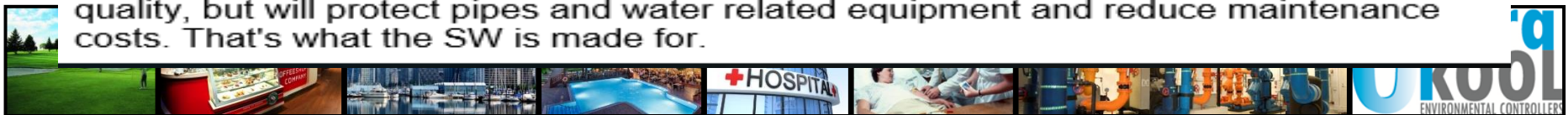
Scalewatcher treatment follows this rule: It does not remove any calcium components from the water, but influences crystal formation. Calcium and Carbonate ions no longer form particles with matted structures, but smaller crystals with a rounded shape. These will no longer adhere to the pipe walls, but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



OperaKool

ENVIRONMENTAL CONTROLLERS

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



Team OperaKool #@yourservice



Testimonials of Satisfied ScaleWatcher Users Bahrain and Other Countries

