



● COMMERCIAL HEATING/COOLING

Seawater Cooled Chiller Plant Case Study Hong Kong

HydroFLOW® was trialled on a seawater cooled chiller plant before rollout across five commercial buildings, removing biofilm, improving COP by 10 to 15%, and enabling ATCS shutdown.

Client details have been anonymised at their request.

10-15%

COP Improvement

2 mo

Time to Remove Biofilm

0.2ppm

Chlorine Discharge Limit

5

Buildings Treated



BEFORE & AFTER

● BEFORE

- Biofilm remained on condenser tubes
- Annual tube cleaning was required
- ATCS and chlorination still in use

● AFTER

- ✓ Condenser tubes were free from biofilm
- ✓ COP improved by 10-15%
- ✓ ATCS was shut down after verification



OVERVIEW

A major commercial property owner in Hong Kong operates five seawater cooled chiller plants across its commercial portfolio. Seawater treatment relied on electro chlorination and an Automatic Tube Cleaning System (ATCS), but residual chlorine discharge to Victoria Harbour was restricted to 0.2 ppm, so condenser tube biofilm could not be fully eliminated. A Hydropath trial began at one of the chiller plants before being rolled out across the remaining sites following successful performance verification



CHALLENGE

Strict chlorine discharge limits meant condenser biofilm persisted despite electro-chlorination and tube cleaning.

- Residual chlorine discharge was limited to 0.2 ppm
- Biofilm on condenser tube surfaces persisted
- Condenser tubes still needed annual cleaning
- Existing ATCS could not fully eliminate biofilm



SOLUTION

Hydropath treatment was first installed at an initial trial site on a seawater cooled chiller plant. Following successful verification, the installation was extended across four additional buildings.

TRIAL SITE

Initial trial site

ROLLOUT SCOPE

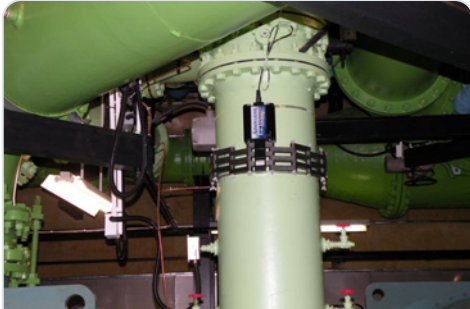
5 commercial buildings

APPLICATION

Seawater cooled chiller plant

EXISTING TREATMENT

Electro-chlorination + ATCS



INSTALLATION

Initial trial site installation



INSTALLATION

Commercial building installation



INSTALLATION

Commercial building installation



RESULTS

🕒 Biofilm Removed

After two months, condenser tubes were free from biofilm

📈 % COP Improved

A 14-month data log showed COP improvement ranging from 10-15%, depending on load profile.

🛑 ATCS Shut Down

The Automatic Tube Cleaning System was shut down once HydroFLOW® performance was verified.

🛡️ Works Within Limits

Hydropath treatment succeeded even though chlorine discharge to Victoria Harbour was capped at 0.2 ppm.

🕒 Cleaning Interval Reduced

The system addressed a problem that previously required condenser tube cleaning once every year.

🏢 Multi-Building Rollout

Following the successful trial, units were installed across five commercial buildings.

KEY TAKEAWAY

Summary

Hydropath treatment was trialled on a seawater cooled chiller plant before being extended across four additional buildings. Despite strict chlorine discharge limits, the system removed biofilm within two months. Over 14 months, chiller COP improved by 10 to 15%, and the Automatic Tube Cleaning System was shut down after performance was verified.

10-15%

COP IMPROVEMENT

2 mo

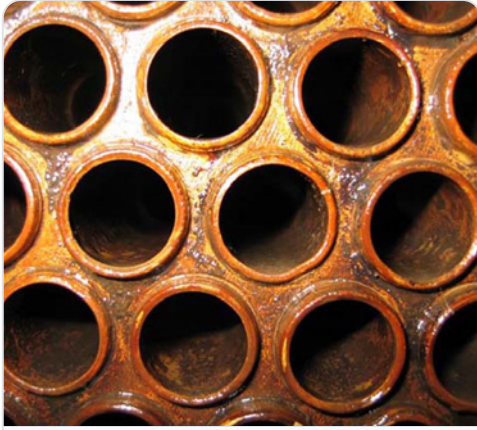
TO REMOVE BIOFILM

5

BUILDINGS TREATED

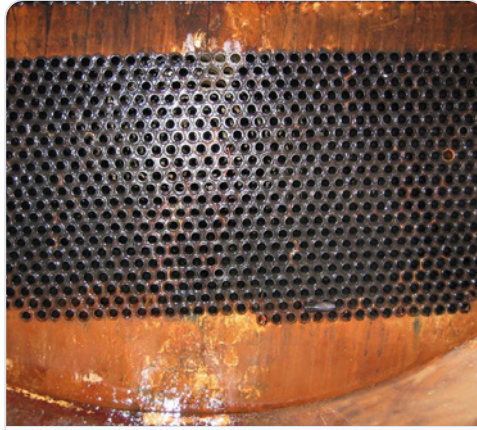


ADDITIONAL PHOTO EVIDENCE



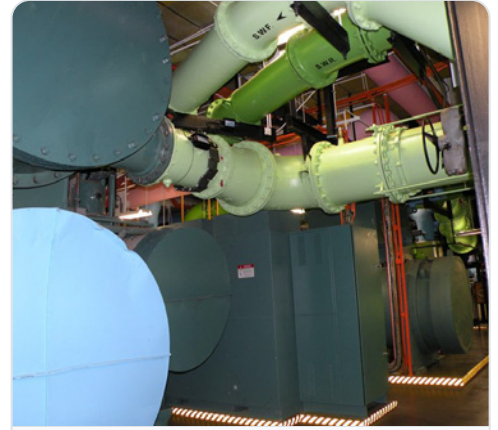
AFTER

Clean condenser tube surface after biofilm removal



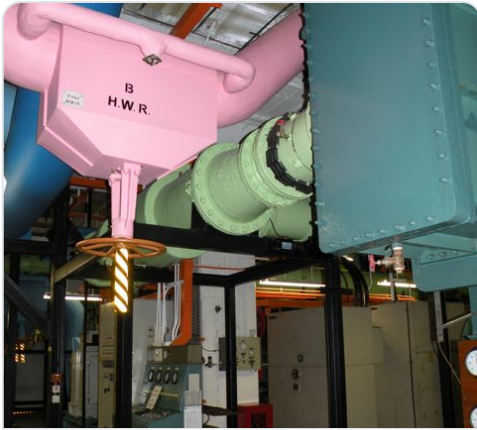
AFTER

Tube sheet free from biofilm after treatment



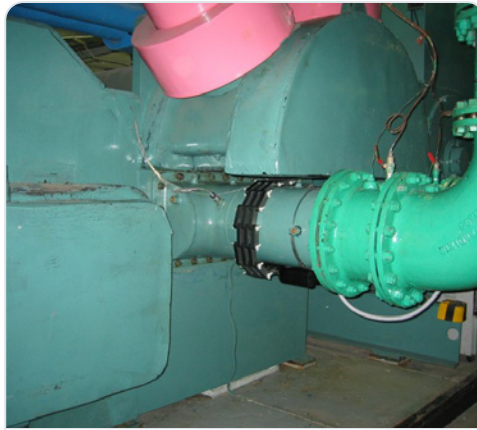
INSTALLATION

Initial trial site installation



INSTALLATION

Commercial building installation



INSTALLATION

Installation at commercial building



INSTALLATION

Pipework installation



INSTALLATION

Commercial building installation



INSTALLATION

Installation at commercial building

HYDROPATH 

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