



• COMMERCIAL HEATING/COOLING

Seawater Cooled Chiller Plant Case Study Hong Kong

HydroFLOW® was trialled at Exchange Square and rolled out across five Hongkong Land buildings, removing biofilm, improving COP by 10–15%, and enabling ATCS shutdown after verification.

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

Hongkong Land operates five seawater cooled chiller plants in Hong Kong: Exchange Square, Landmark, Jardine House, Prince's Building and Alexandra House. Seawater treatment relied on electro-chlorination and an Automatic Tube Cleaning System, 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 Exchange Square before wider rollout to the other buildings.

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 Exchange Square on the seawater cooled chiller plant. After performance was verified, installation was extended to Landmark, Jardine House, Prince's Building and Alexandra House.

TRIAL SITE

Exchange Square

ROLLOUT SCOPE

5 Hongkong Land buildings

APPLICATION

Seawater cooled chiller plant

EXISTING TREATMENT

Electro-chlorination + ATCS



INSTALLATION

Exchange Square install



INSTALLATION

Jardine House install



INSTALLATION

Landmark install



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 Exchange Square trial, Hydropath units were installed across five Hongkong Land buildings.

KEY TAKEAWAY

Summary

Hongkong Land trialled Hydropath treatment on the seawater cooled chiller plant at Exchange Square, then extended installation across four more buildings. Although chlorine discharge to Victoria Harbour was limited to 0.2 ppm and condenser tubes were previously cleaned annually, the system removed biofilm within two months. Over 14 months, chiller COP improved by 10-15%, 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

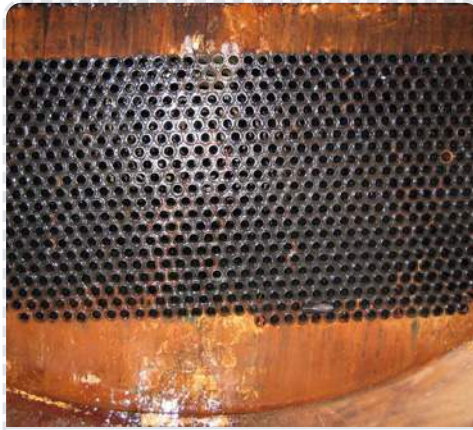


ADDITIONAL PHOTO EVIDENCE



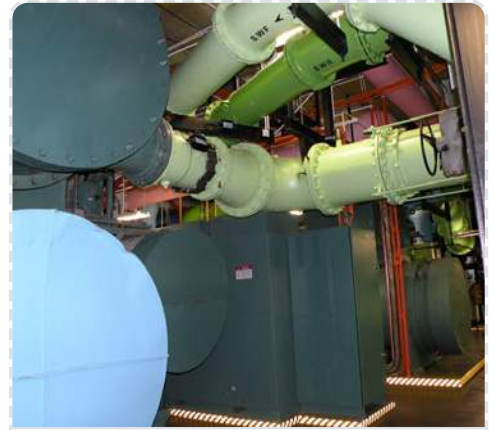
AFTER

Clean condenser tube surface after biofilm removal



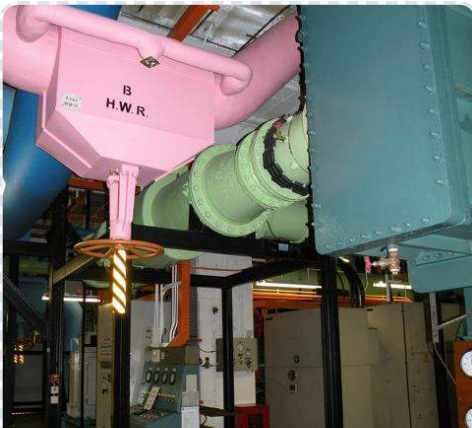
AFTER

Tube sheet free from biofilm after treatment



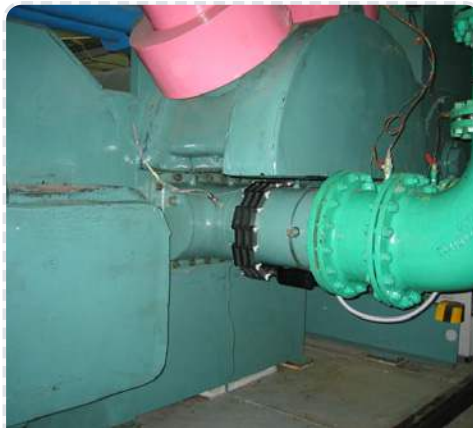
INSTALLATION

Installation at Exchange Square plant room



INSTALLATION

Plant room installation, Exchange Square



INSTALLATION

Installation at Jardine House



INSTALLATION

Pipework installation, Jardine House



INSTALLATION

Installation at Landmark



INSTALLATION

Installation at Prince's Building



INSTALLATION

Installation at Alexandra House

HYDROPATH

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