

● COMMERCIAL HEATING/COOLING

Heat Exchanger Scale & Corrosion Case Study Haifa, Israel

A *HydroFLOW*® C120 unit treated scale in a heat exchanger, improving heat transfer, reducing pressure drop, and stabilising calcium levels without chemicals.

🔒 Client details have been anonymised at their request.



Pressure Drop Reduction



Heat Transfer Increase



Calcium levels stabilised



Scale reduced in heat exchanger

⇒ BEFORE & AFTER

● BEFORE

- ✗ Severe scale blocking heat exchanger tubes
- ✗ High pressure drop across heat exchanger
- ✗ Ongoing chemical treatment required

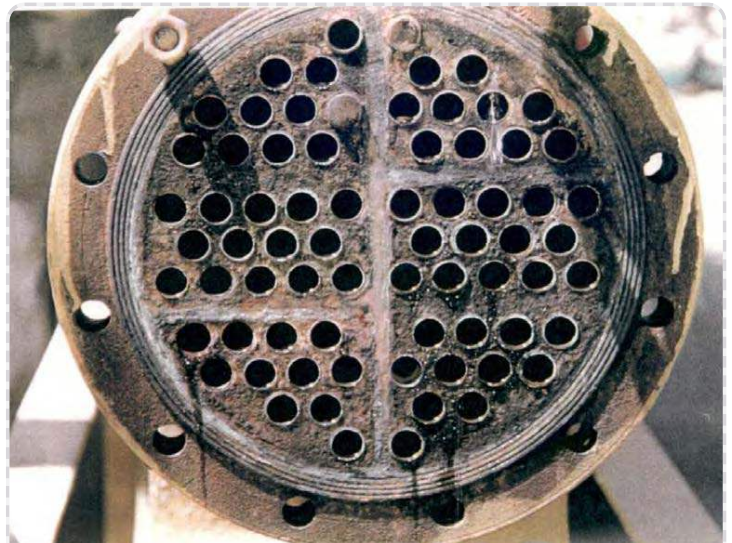
● AFTER

- ✓ Heat exchanger tubes observed clean after inspection
- ✓ Pressure drop reduced during operation
- ✓ Stable operation with reduced chemical reliance



BEFORE

Heat exchanger tubes blocked by scale



AFTER

Heat exchanger tubes clean

OVERVIEW

A semi-industrial trial was conducted on a heavily scaled shell and tube heat exchanger within a large cooling system. The system previously relied on chemical dosing to manage scale and corrosion. A *HydroFLOW*® C120 unit was installed to evaluate performance using untreated mains water, with monitoring focused on scale behaviour, heat transfer, and pressure drop over a five-month period.

CHALLENGE

Heavy scale buildup and chemical reliance reduced heat exchanger performance and increased operational constraints.

- Severe scale deposits reducing heat transfer efficiency
- High pressure drop across heat exchanger tubes
- Environmental pressure to reduce chemical use

SOLUTION

A *HydroFLOW*® C120 unit was installed on the heat exchanger inlet pipe, treating untreated mains water during operation to assess its impact on scale behaviour, heat transfer, and pressure drop.

UNIT INSTALLED

1x *HydroFLOW*® C120

INSTALLATION POINT

Heat exchanger inlet pipe

INSTALL DATE

June 1994

TRIAL DURATION

5 months

RESULTS

Reduced Pressure Drop

Pressure drop decreased from 1.2 to 0.3 ATS, improving flow conditions.

Improved Heat Transfer

Heat transfer increased from 200 to 500 kcal per hour during the trial

Higher Outlet Temperature

Cooling water outlet temperature increased from 35°C to 43°C

Scale Removed

Heat exchanger tubes and lids observed clean after inspection

Calcium Stabilisation

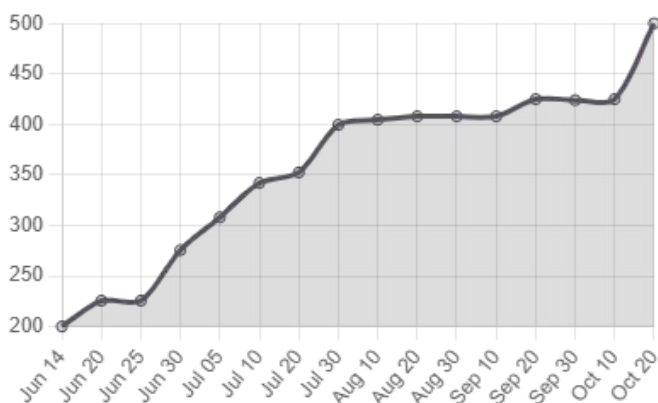
Outlet calcium levels stabilised to match inlet levels over time

Reduced Chemical Dependence

Demonstrated potential to reduce reliance on chemical treatment

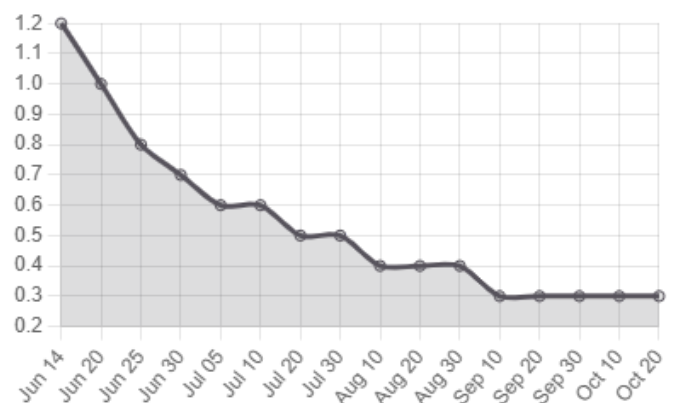
GRAPHS

Heat Transfer Over Time



Heat transfer increased gradually from 200 to 500 kcal per hour

Pressure Drop Over Time



Pressure drop decreased from 1.2 ATS to 0.3 ATS over time

KEY TAKEAWAY

Summary

HydroFLOW® treatment improved heat exchanger performance by reducing pressure drop, increasing heat transfer, and stabilising calcium levels over time. Inspection confirmed clean internal surfaces, supporting more efficient operation with reduced reliance on chemical treatment.



PRESSURE DROP REDUCED



HEAT TRANSFER INCREASE



CALCIUM BALANCE

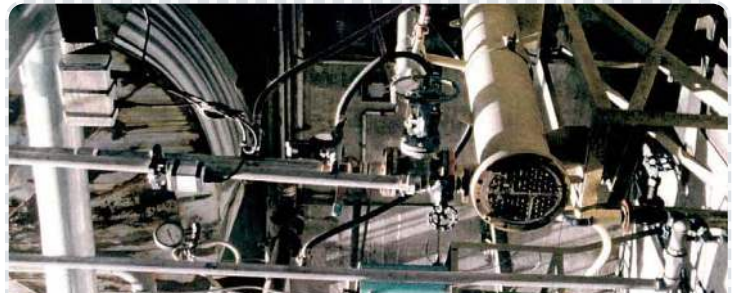


ADDITIONAL PHOTO EVIDENCE



BEFORE

Heat exchanger with heavy scale before treatment



AFTER

Heat exchanger surfaces clean after inspection

HYDROPATH

The Forefront of Sustainable Water Treatment

HydroPath Technology is a world leader in sustainable water treatment solutions, providing chemical-free alternatives for industrial and commercial applications across more than 50 countries.

50+

COUNTRIES

30+

YEARS EXPERIENCE

1M+

UNITS INSTALLED

HYDROPATH

Ready to reduce chemical dosing?

Get a free consultation for your facility.

✉ sales@hydropath.com

☎ +44 (0)115 986 9966

🌐 hydropath.com

✓ ISO 14001:2015

✓ ISO 9001:2015

✓ GREENPRO

✓ SOLAR IMPULSE