HYDROPATH

Save Water | Improve Lifespan | Optimise Chemicals | Reduce Downtime | Improve Efficiency

Case Study

Inland Power Plant, China

HydroFLOW® Multihead 72 inch units were installed on two 600 MW steam condenser inlet pipes at an inland power plant in China, enabling full elimination of chemical dosing while preventing hard scale formation and improving condenser efficiency.

Before *Hydro*FLOW®

- **Full chemical dosing for scale control**
- **Risk of hard scale in steam condensers**
- **Transit temperature 5–6°C (same period prior year)**

After *Hydro*FLOW®

- **Chemical dosing fully eliminated**
- **No hard scale found on inspection**
- **Transit temperature reduced by 1.5°C**
- **Vacuum pressure increased by 1 kPa**

Overview

An inland power plant in China operates two 600 MW steam generation units, each served by a steam condenser with 1,800 mm inlet pipes using river water for cooling.

The plant aimed to eliminate chemical dosing while preventing hard scale formation and maintaining condenser efficiency under normal operating conditions. After installation, chemical dosing was stopped within one week, cooling water transit temperature dropped by 1.5° and no hard scale was found on inspection.

Challenge

The power plant relied on chemical dosing to manage scale formation in the steam condensers and maintain acceptable heat transfer performance.

- Risk of hard scale forming on condenser tubes
- Reduced heat transfer efficiency
- Increased cooling water transit temperature
- Discharge water unsuitable for reuse due to chemical treatment

The objective was to eliminate chemical dosing while maintaining condenser efficiency and safe operation of the cooling system.

Solution

- Units installed: *Hydro*FLOW® Multihead 72 inch
- Installation point: Inlet pipes to the two steam condensers
- Pipe size: 1,800 mm outer diameter
- Installation date: November 2016

Two *Hydro*FLOW® units were installed without cutting pipework or shutting down the system. Chemical dosing was discontinued one week after installation, and system performance was monitored against the same period in the previous year.

Results

- **Chemical dosing fully eliminated one week after installation**
- **No hard scale found inside the steam condenser on inspection**
- **No hard scale on heat exchanger tubes or cooling tower packing**
- **Cooling water transit temperature reduced by 1.5°C compared with the previous year**
- **Vacuum pressure increased by 1 kPa**
- **Discharge water suitable for reuse on site**

These results were achieved while maintaining normal operating conditions across both 600 MW units.

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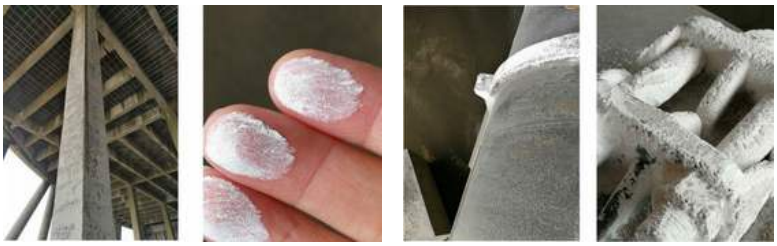
After *Hydro*FLOW®

Steam condenser tubes and cooling tower packing free from hard scale on inspection.



Only soft, non-adherent deposits observed, easily removed with water and requiring no chemical or mechanical cleaning.

Summary

The installation of *Hydro*FLOW® Multihead 72 inch units on the 1,800 mm inlet pipes of two 600 MW steam condensers at an inland power plant in China delivered measurable operational and environmental improvements under monitored conditions.

Most significantly, *Hydro*FLOW® achieved:

- Chemical dosing fully eliminated one week after installation
- No hard scale found inside the steam condenser on inspection
- No hard scale on heat exchanger tubes or cooling tower packing
- Cooling water transit temperature reduced by 1.5°C compared with the previous year
- Condenser vacuum pressure increased by 1 kPa
- Discharge water suitable for reuse on site

These results demonstrate effective scale control and improved condenser performance without the use of chemical treatment.

*Hydro*FLOW® units are working all over the world on multiple applications, treating carbonate and non-carbonate scaling and filtration issues in a wide variety of industries.

- From homes to heavy industry
- From spas to steel mills
- Suitable for any pipe material
- From 15mm to 2700+mm OD pipe diameter

Would you like a free consultation?

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