



● STEAM SYSTEMS

BHFZ Steam Boiler Case Study Ukraine

A HydroFLOW® i60 removed established scale from a pharmaceutical plant steam boiler, reduced blowdown demand and left the boiler drum free of scale at the 11-month inspection.

1.5–2 mm

Initial Scale Thickness



Tubes Scale-Free



Blowdown Demand

11 mos

No Scale in Drum

⇌ BEFORE & AFTER

● BEFORE

- Dense hard scale coated the boiler tubes
- Scale thickness reached 1.5–2 mm
- Blowdown was required two to three times daily

● AFTER

- ✓ Most established deposits disappeared
- ✓ Remaining scale was soft and easy to wash away
- ✓ No scale was found in the drum after 11 months



BEFORE

Dense 1.5–2 mm scale covering the tube



AFTER

Most scale removed after treatment



OVERVIEW

PJSC SIC Borshchagiv Chemical and Pharmaceutical Plant tested *HydroFLOW®* on a steam boiler affected by severe scale formation. Dense hard deposits coated the screen tubes and internal surfaces, while frequent blowdown increased water and gas use.



CHALLENGE

Heavy scale build-up and unstable boiler-water chemistry drove frequent manual blowdown and reduced operating efficiency.

- Existing deposits were approximately 1.5–2 mm thick
- Blowdown was required two to three times each day
- Salt content and alkalinity required laboratory monitoring



SOLUTION

HydroFLOW® was installed after the feed pumps on the supply line to the steam boiler to address established scale, stabilise boiler-water conditions and reduce the need for frequent manual blowdown.

UNIT INSTALLED

1× *HydroFLOW®* i60

SYSTEM

Steam Boiler

INSTALLATION POINT

After the feed pumps

INSPECTION

Internal inspection after 11 months



INSTALLATION

i60 installed after the feed pumps



SYSTEM

Steam boiler



RESULTS

Existing Scale Broke Away

Established scale exfoliated from the screen tubes, collectors and boiler drum.

Tubes Became Almost Scale-Free

After the trial, almost no scale remained on the screen tubes and residue washed off easily.

Water Chemistry Stabilised

Salt content and total alkalinity began reducing and stabilising from the second week.

Blowdown Reduced to a Minimum

After the initial descaling phase, periodic blowdown gradually fell to a minimum.

Gas and Water Use Reduced

The plant reported significant gas and water savings during the test period.

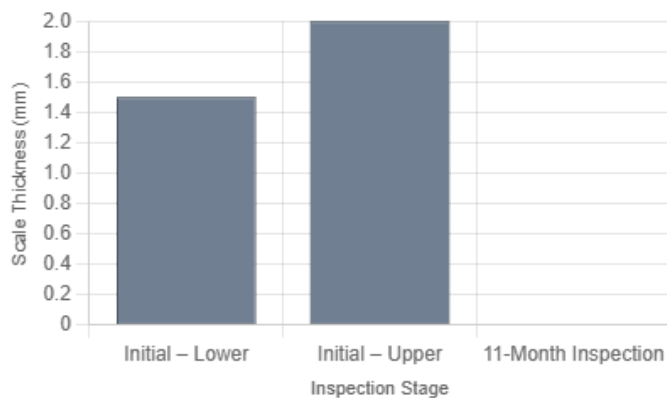
No Scale After 11 Months

The follow-up drum inspection found no scale deposits; a thin rust layer was easily removed.



GRAPHS

Initial Scale Thickness vs 11-Month Inspection



Initial deposits were reported at 1.5–2 mm thick; no scale deposits were found in the boiler drum at the 11-month inspection.

KEY TAKEAWAY

Summary

HydroFLOW® treatment removed long-standing scale from the BHFZ steam boiler while reducing blowdown demand. During the 90-day trial, most deposits disappeared from the screen tubes and remaining scale became soft and easy to remove. Water chemistry stabilised, gas and water use fell, and the 11-month inspection found no scale deposits in the boiler drum.

1.5–2 mm

INITIAL SCALE THICKNESS



TUBES SCALE-FREE

11 mos

NO SCALE IN DRUM



ADDITIONAL PHOTO EVIDENCE



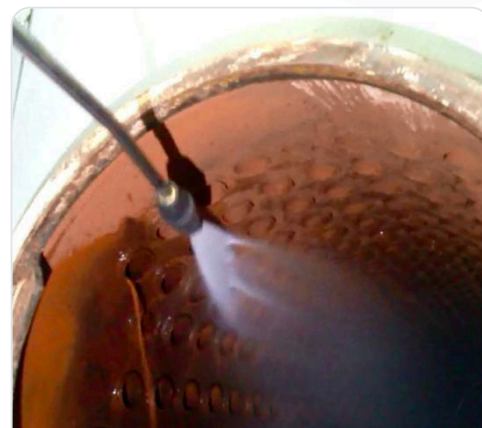
BEFORE

Dense hard scale covering the boiler screen tubes



AFTER

Screen tubes almost free of scale after the trial



INSPECTION

Boiler opened for inspection after the 90-day trial



BEFORE

1.5–2 mm scale completely covering the tube



AFTER

Most scale disappeared; remaining deposits were soft



INSPECTION

No scale deposits found inside the boiler drum



AFTER

Intense scale exfoliation inside the steam boiler



AFTER

Scale was not detected after HydroFLOW® treatment



RESULTS

Scale released from inside the boiler



RESULTS

Exfoliated scale removed from the boiler



RESULTS

Thick exfoliated scale removed from the boiler tubes



RESULTS

Thick exfoliated scale removed from the boiler tubes

HYDROPATH 

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