



PAPER MANUFACTURING

Paper Mill Shower Nozzle Case Study Wallula, Washington, USA

After 11 weeks, treated shower nozzles at Boise Paper Mill remained substantially clearer than the untreated comparison.

11 weeks

Clear Treated Nozzles

30 ft

Pipework Treated



Scale Reduction



Chemical-Free Treatment



BEFORE & AFTER

BEFORE

- Untreated nozzles showed heavy deposits
- Scale restricted nozzle openings
- Nozzles required regular cleaning

AFTER

- ✓ Treated nozzles opening remained clear
- ✓ No Hydroblasting Required
- ✓ Substantially less visible scale build-up



BEFORE

Untreated D1 nozzle – close up



AFTER

Treated E1 nozzle – close up



OVERVIEW

Boise Paper Mill in Wallula, Washington operated multiple shower units in its bleach plant. Severe limescale accumulated in the shower pipework and nozzles, requiring periodic hydroblasting or replacement. A treated shower unit was compared with an untreated unit to assess scale accumulation.



CHALLENGE

Scale accumulated inside bleach plant shower pipes and nozzles, creating recurring cleaning and replacement work.

- Severe scale affected multiple shower units
- Nozzles required periodic hydroblasting
- Scaled nozzles required replacement



SOLUTION

HydroFLOW® unit was installed on the metal inlet pipe approximately 30 ft before the treated shower nozzles.

UNIT INSTALLED

1 × HydroFLOW® Custom 8"

PIPE OUTSIDE DIAMETER

8⁵/₈ in, metal

INSTALLATION POINT

30 ft before treated shower nozzles

TRIAL INTERVAL

11 weeks



INSTALLATION

Custom 8" on E1 inlet pipe



SIGNAL

33–37 V peak-to-peak scope reading



RESULTS

Clearer E1 Unit Opening

The treated E1 unit opening appeared much clearer than the untreated D1 opening.

Treated Nozzle Stayed Open

Close-up images show a clear E1 nozzle beside substantial deposits in D1.

Clear Treated Nozzles

The E1 nozzle 30 ft down the line appeared clear; its D1 counterpart was scaled.

Reduced Scale Accumulation

Treated nozzles remained substantially clearer than the untreated comparison.

KEY TAKEAWAY**Summary**

After 11 weeks, the treated shower unit and its nozzles remained substantially clearer than the untreated comparison. The results supported chemical-free scale treatment for the bleach plant application.

11 weeks

TREATMENT COMPARISON



CHEMICAL-FREE TREATMENT



SCALE BUILD-UP

**ADDITIONAL PHOTO EVIDENCE****SITE**

Untreated D1 unit

**SITE**

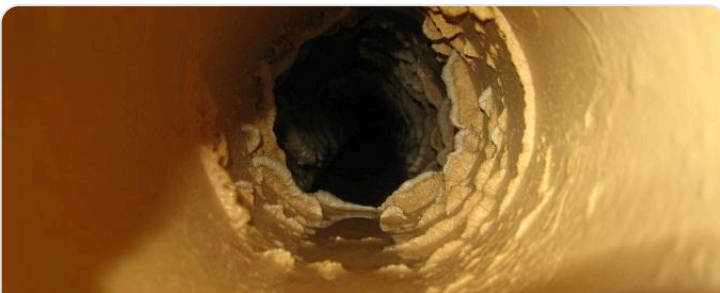
Treated E1 unit

**INSPECTION**

Untreated D1 unit

**INSPECTION**

Treated E1 unit

**RESULTS**

Untreated D1 nozzle – 30' down the line

**RESULTS**

Treated E1 nozzle – 30' down the line

HYDROPATH **Protect industrial shower systems from scale**

Discuss scale control for paper mill process water.

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