Case History
#10-023

Condensate Corrosion Control

FDA PLANT CONDENSATE SYSTEM PROTECTED AND CLEANED AFTER 15 YEARS WITHOUT TREATMENT

PROBLEM

The plant used no steam amine treatment for 15 years. Iron throw from the condensate was creating iron deposition in the boiler water tubes and condensate pipes, resulting in plugged condensate traps. The plant's condensate return was already low because the hot water was used to heat food product processing.

SOLUTION

A common steam and condensate return header was used for returning condensate with a propietary neutralizing amine. The plant employs a weak acid-cation pretreatment softener followed by a forced-draft decarbonator. Total alkalinity in the makeup water supply was less than 10 mg/L, which translates to chemical treatment in the same or lower ppms of inhibitor.

Iron deposition in the boilers after years of no treatment.

Boiler tube after three years of BL1542 treatment, passive state.

BENEFITS

After three years of chemical treatment:

- Iron throw reduced by 50 percent.
- Pipe and elbow replacements decreased by 90 percent.
- Boiler inspections have improved with much less iron in the water tubes.
- Condensate trap repair is down 70 percent.
- Condensate return iron test averages 0.09 mg/L or lower.
- Condensate pH will run a wide range depending on process contamination leakage. (7.5–9.5 is the typical pH in the returning condensate.)

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