hydro THERMAL®
SINCE 1934
A HERITAGE OF STEAM INNOVATION

RECAUSTICIZING:
REPLACE MODULATION

SUMMARY

A former Nekoosa Packaging Corporation in Valdosta, Georgia, USA, needed to eliminate hammering and scaling problems exhibited by existing green liquor heater.

Nekoosa has been using an externally modulated direct contact steam heater, mass steam flow rate was controlled by varying the pressure of the steam with an external control valve. The resulting pressure variations of the steam resulted in a reduced range of stable operation. When the heater was operating outside the limited range of stability, the heater exhibited severe hammering and vibration with consequent damage to internal components.

Goals:

- Eliminate hammering and scaling
- Achieve stable operation
- Reduce maintenance

Accomplishments:

- Eliminate hammering and scaling
- Achieve stable operation
- Reduce maintenance

CONDITIONS

Fluid:	Green Liquor
Flow Rates:	300-800 GPM [82-218 m³/hr]
Inlet Temperatures:	140˚F [60˚C]
Discharge Temperature:	190˚F [88˚C]
Fluid Supply Pressure:	40 psig [3 barg]
Steam Supply Pressure:	40 psig [3 barg]

SOLUTION

Hydro-Thermal engineers installed the K414AN Hydroheater prior to the slaker in order to precisely control temperature and maximize the conversion efficiency of slaked lime.

Installed in 1989, the mill reported that all hammering and vibration had been eliminated. The temperature of the green liquor had been precisely maintained at 190˚F [87.8˚C], and the Hydroheater has operated without scaling or fouling.

Update: Regular maintenance can provide years of service even in a corrosive environment. The mill carries a spare heater for easy swapout and uses a 2-3 year rebuild schedule to replace internal wear components. The current heater is on the fourth rebuild and has been in operation for 12 years.

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