

Debottlenecking of the PET Warmer line, saving 15.47 Kilolitres (4,087 Gallons) fuel per year for a beverage multinational company

 **Thailand**

 **Beverage**

Problem

AMNC beverage plant in Thailand was facing two scenarios in their PET line warmer:

1. Condensate temperature was 50°C (122°F), indicating stalling in the heat exchanger. This was impacting the process temperature (not achieving the set point) and heating time (which was longer).
2. Process temperature was exceeding the set point temperature by 10°C (50°F).

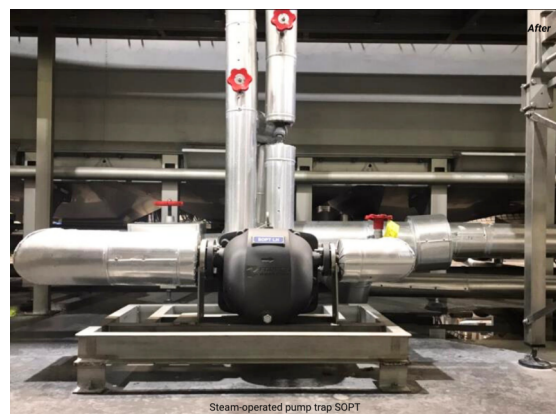
The plant was facing temperature variations against desired and delayed heating times at PET Warmer 9. Condensate was being recovered through trap pressure. Additionally, there was a 15-metre (49 foot) lift in the condensate line after the trap.

Solution

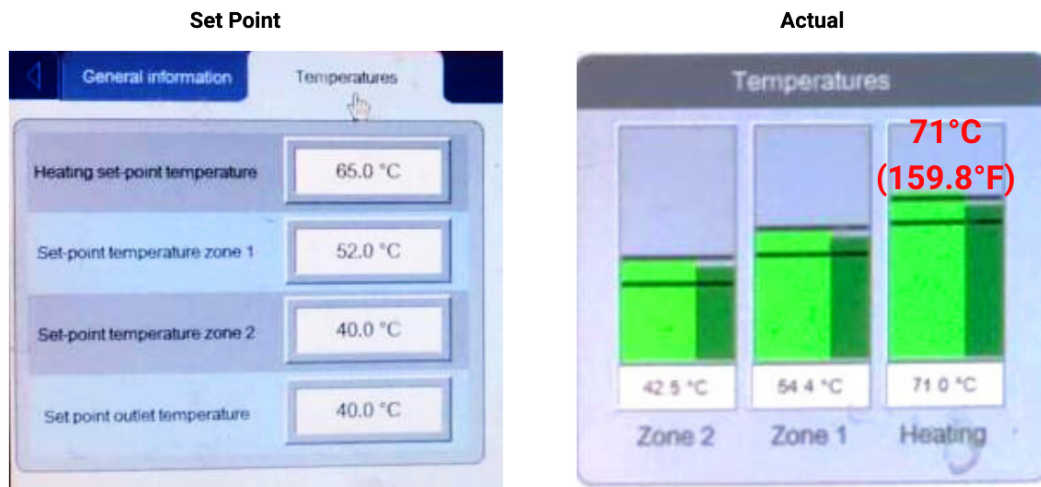
Forbes Marshall conducted a plant-wide audit. Our recommendations for PET Warmer 9 involved installing a steam-operated pump trap (SOPT), eliminating the lift in the condensate line and using a pressure powered pump package unit (PPPPU) to transfer condensate to the boiler feedwater tank. A condensate recovery meter was also installed for real time accurate monitoring. These measures addressed the temperature issues in the Warmer and increased the condensate temperature from 50°C (122°F) to 86°C (186.8°F).



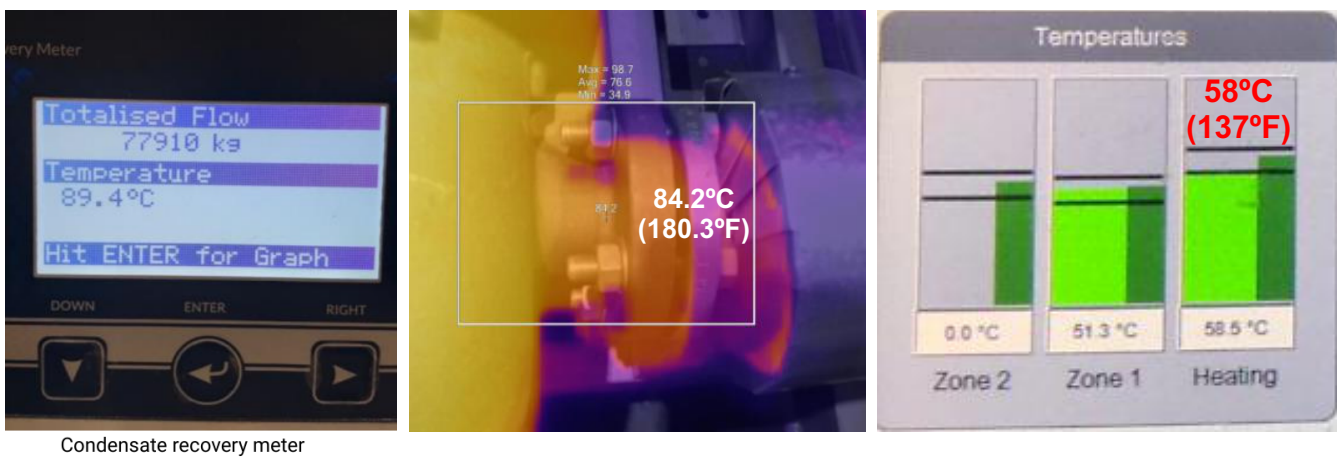
Condensate temperature
47-51°C (116.6-123.8°F)



Before



After



Benefits delivered

Condensate temperature improved from 50°C (122°F) to 86°C (186.8°F)

Steam saved annually 209,000 Kilograms (461K Pounds)

Fuel saved annually 15.47 Kilolitres (4,087 Gallons)

Water saved annually 2,396 Kilolitres (632K Gallons)

CO₂e reduced 40MT (88K Pounds)

Annual monetary savings THB 355,306 (~USD10,900)

