

ROCKY POINT MILL PROCESS STEAM CONTROL STRATEGY FOR COGENERATION

By

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Background

- 2001 30MW Cogeneration plant installed
- Independent power provider model
- Shredder and milling train electrified
- 2 BHEM two roll mills installed
- 2500 m^2 No.1 evaporator installed
- Steam supply from cogen extracted from turbine
- All juice heaters are direct contract type
- Utilization of evaporator vapour for process heating duties

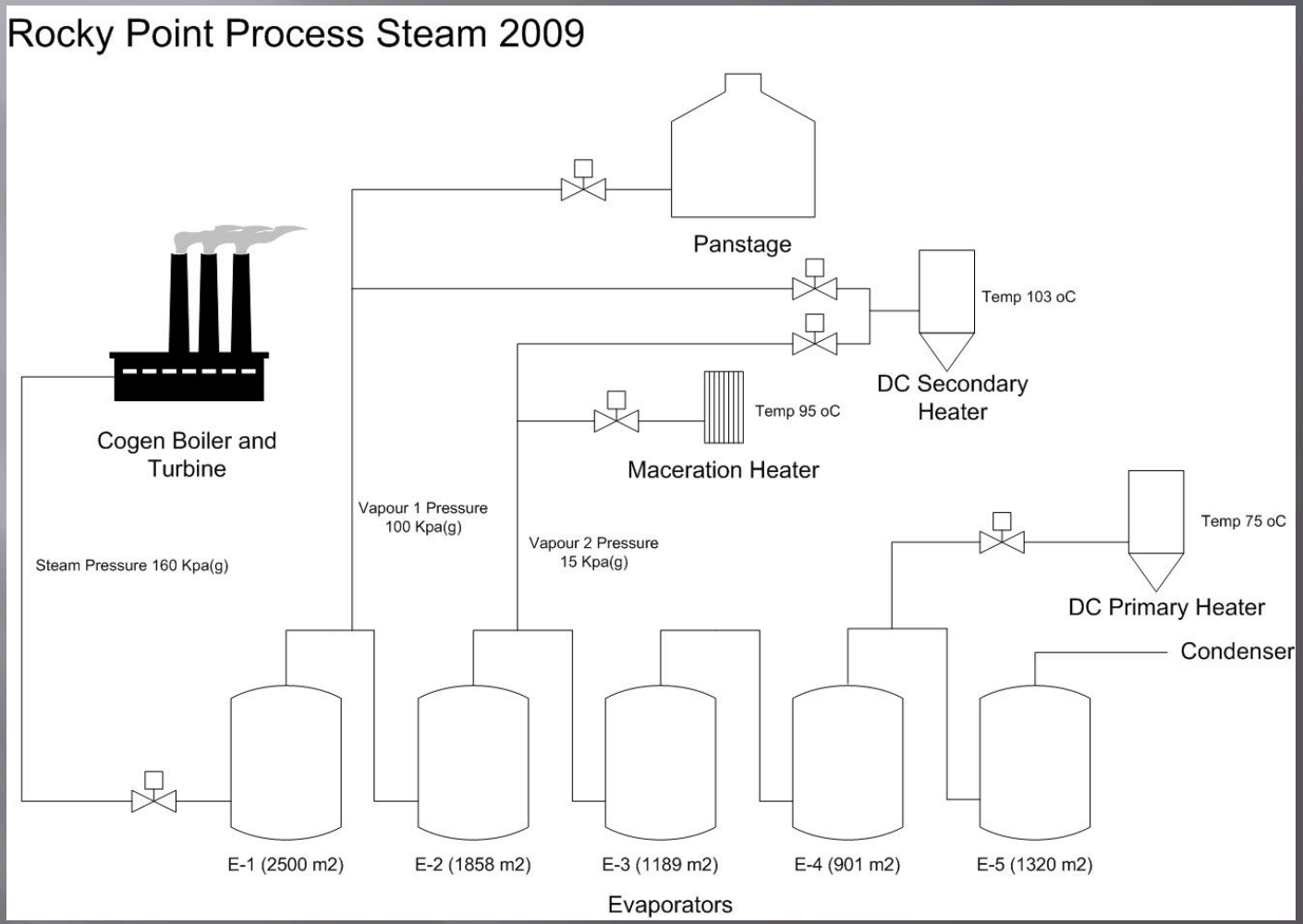
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Aims of Steam Control Strategy

- Reduce the overall steam demand of the sugar mill process house
- Minimize the factory process steam demand fluctuations on the cogen operation.

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Process Steam Layout



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Process Steam Minimisation

- All pans run on vapour 1
- Primary heater runs on vapour 4
- Secondary heater runs on vapour 2
- Juice flow control to minimize make-up water into the ESJ tank
- Plate maceration heater operating on vapour 2
- ESJ heating with No.1 evaporator condensate
- Flash evaporator condensates back to next effect
- Maximise syrup brix
- Identify and eliminate steam and vapour leaks

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Process Steam Control

- Single supply of steam from cogen to No.1 evaporator with condensate return
- Steam pressure 160 kpa(g)
- Steam flow controlled by evaporator operator
- Generally set constant steam flow set-point
- Vapour 1 pressure controlled to 100 kpa(g)
- Varying vapour 1 demand due to operation of batch pans
- Juice flow control and secondary juice buffer tank to manage changes in evaporator juice throughput

Conclusion

- Control system achieved steady steam demand
- Positive feedback from congen operators
- DC heaters can be incorporated into a factory that has a cogeneration facility attached and achieve acceptable results
- Steam on Cane for 2010 season was 40%

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