OPTIMIZATION OF STEAM MANAGEMENT IN A SULFITE MILL

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ABSTRACT

Pulp production is an intensive steam consumption process and steam management plays a crucial role in mill costs and optimization.

Regarding this, Altri Group, owner of Caima, Celbi and Biotek pulp mills, establish a cooperation agreement with Andritz OPP to optimize several mill areas. This partnership starts in 2019 in Celbi and was then settled with the other two mills of Altri Group. This paper is related to optimization of steam management in Caima mill because there the steam flow into the process regulates the rhythms of production.

Is the purpose of this project to maximize the production of pulp. In Caima´s pulp process the biggest consumers of steam are the Evaporation plant and the Digester house. Together they regulate pulp production.

To optimize production, steam management must be done so: evaporation is running at full capacity keeping safety and equipment variables in check; Condensing steam turbine is consuming the lowest steam possible (pulp production is the focus); Digesters consuming the remaining steam available keeping the previous conditions true.

Advanced controls were implemented at the evaporation plant and digesters.

Evaporation APC delivers stable solids to the Recovery Boiler while processing the maximum amount of liquor, avoiding high temperature and pressure in the steam line, and maintaining the primary effects of evaporation at the setpoint of temperatures. Evaporation plant has priority in steam allocation due to bottlenecking. For purposes of weak liquor stock management, the APC also has a second mode that when weak liquor stock is at low levels, the rhythm of steam to the evaporation is adjusted to control it at the desired total volume from the operation staff.

Secondly, at the digesters, the APC implemented receives the total steam flow produced by the boilers and calculates the maximum steam available for the digesters/cooking process, so that, steam collector keeps the pressure for the process and condensing steam turbine runs with the lowest consumption possible.

Combining both APC its possible to automate and optimize the steam consumption by the two different areas insuring maximum pulp production.

Keywords: Optimization; Automation; Steam; Caima; Andritz