

Problem

Pulp manufacturing requires continuous operation of mutually-dependent processes and flows. Liquor pumps in the digester process operate in challenging conditions and are prone to failure. When the flow is obstructed, the pumps can cavitate and otherwise, suffer, causing damage that may not be apparent. The damage ultimately leads to early failure during process start-up.

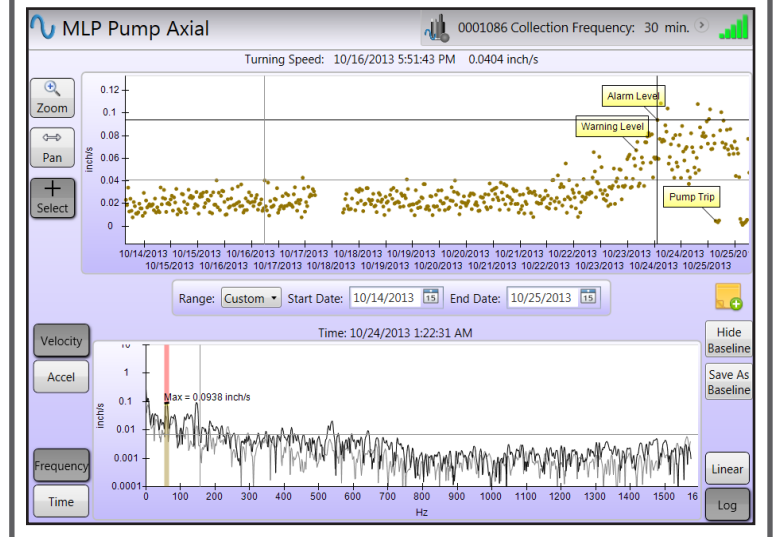
Solution

SmartDiagnostics® wireless vibration and temperature sensors are deployed to monitor the condition of Make-up Liquor Pumps and motors in the pulp digester process. This application showed a dramatic increase in vibration at the pump running speed which increased 5X over a 2-day period. A process sensor ultimately tripped the system leading to \$30,000 in avoidable cost. The vibration data showed the increase 36 hours in advance of the process trip and could have prevented the excess cost. Monitoring is now used to track the MLP health through cleaning & startup.



TOP: KCF sensors on digester liquor pumps;

BOTTOM: early detection of a process disruption



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Success Factors

Monitor MLP health through vibration trending

Perform full-spectrum analysis continuously

Monitor all conditions against ISO thresholds and baselines

Customer Value

Provide additional information for process-related trips

Track bearings health, alignment, cavitation & impeller health

Continuously improve predictive information to help avoid unexpected loss of operation