AESSEAL®
ENVIRONMENTAL TECHNOLOGY

Reliability upgrade reduces water consumption

Kraft pulp mills with recovery boilers have multiple effect evaporators and concentrators to reheat and remove water from the returning Weak Black Liquor from the cooking process.

The output is known as Heavy Black Liquor. The HBL is sent through the Gorator, or grinder, pump to remove any lumps before heading to the recovery boiler firing nozzles. You do not want to be introducing water in to the HBL stream and reduce its efficiency to heat the boiler.

A pulp mill in Canada was having problems with reliably sealing their Gorator pumps. These incline rotor pumps used gland packing along with a cold water flush (API Plan 32) to cool the packing in operation, an estimated 3 to 5 gallons per minute of this water was entering the heavy black liquor steam. Injecting water into the heavy black liquor at this stage is highly undesirable and reduces its efficiency to heat the recovery boiler.

AESSEAL® recommended replacing the packing with a CDSA™ dual seal and SW2™ Water Management System. The new solution was installed in April 2018 and continues to operate without problems more than 4 years later. By using a dual seal and a closed loop Plan 53A support system virtually no water is able to enter the HBL stream to the firing nozzles, and removed the need to repack the Gorator every time the recovery boiler went down for maintenance, a washout, or an annual turnaround. This sealing solution also makes the unit safer by providing a level of containment of HBL that conventional packing cannot provide. Water consumption and maintenance events have been significantly reduced, saving an estimated CA$15,000 per year, per unit. The Mean Time Between Failure has improved from 6 months to 4+ years and counting.

An AESSEAL® engineer identified the issue while conducting an on-site seal audit of the evaporator area and condensate return pumps. The Asst. Steam Chief and maintenance team appreciated the knowledge to identify a long overlooked process problem and provide a cost effective and speedy solution.

‘Saving more than 6 Million Gallons of Water’

Industry:	Pulp & Paper
Product:	CDSA™ and SW2™
Application:	Gorator Pumps
MTBF Increase:	700% (and counting)
Savings:	CA$60,000 (US$46,602)
Water Savings:	>1.5 Million Gallons per year
Reference N.O:	CS0135

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