A.R. Thomson Group

CASE STUDY | XS150 Fabri Valve - Green Liquor

Fabri XS150 installed on green liquor pump

SERVICE DETAILS	
Application:	Valves for Pump isolation, Intake & Discharge
Media:	Green liquor and White liquor
Sizes:	6”, 8” and 10” ANSI 150 # Flanged connections
Temperature:	Maximum 150°F
Pressure:	80 PSIG

Green liquor is a corrosive fluid that leaves scale deposits which build up over time and prevents the valve from cycling, leaving it seized in the open position.

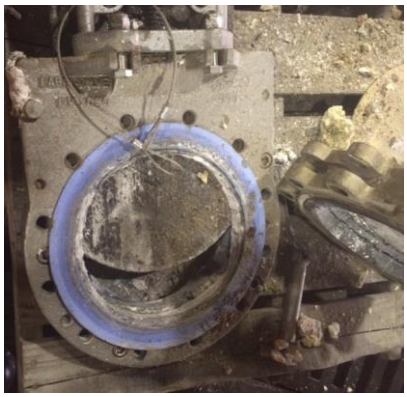
SITUATION

ARTG was called to survey six plug valves at Canfor Northwood Pulp in Prince George. The valves were seized in the open position and deemed inoperable. The customer required these valves to be closed to isolate pumps for routine maintenance.

CHALLENGES

The recovery process of green liquor is evaporation, combustion, recausticizing, and generation. Spent black liquor contains about 15% solids when it is returned to the evaporators where it is concentrated to approximately 70% solids content. This concentrated black liquor is called strong black liquor and is burned in the recovery boiler to recover the inorganic chemicals for reuse in the pulping process. This combustion process leads to the formation of a molten product called smelt which, when dissolved in process water (weak wash) converts to green liquor. Green liquor consists of sodium carbonate and sodium sulfide and when mixed with calcium hydroxide becomes the white liquor used in the pulping process.

Green liquor is a corrosive fluid that leaves scale deposits on the internal components including the gate. Over time, the buildup can prevent the valve from cycling, leaving it seized in the open position. Costly process downtime is required to clean the scale off of the valve components.



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ACTIONS

After consulting with the ITT Engineering team and the customer, ARTG recommended replacing the aged plug valves with the ITT Fabri XS-150 knife gate valve. In addition, optional gate coatings were supplied in order to minimize scale buildup on the gate.

RESULTS

Successful implementation of the recommended changes.

- The XS-150 was installed in the green liquor line in place of the failed plug valves.
- Typical service life increased from 8-12 months to a minimum of 24 months in the same service.
- Smaller face to face and one-half the weight of the previous valves eliminates the need for lifting equipment.
- Injectable packing allows easy packing adjustments to be made under line pressure without valve disassembly or removal of valve from pipeline.
- Patented, one-piece Chest and Seat design eliminates leak paths and allows for quick and easy seat replacement.