CPP Analyzer Update

KappaQ and AlkaliC Analyzer

Presented by:
Rahul Pukadyil
Rashiv Lubana

Agenda

- Mill information
- AlkaliC
  - Start-up
  - Current Challenges
  - Path Forward
- KappaQ
  - Installation
  - Issues
  - Advantages/Savings
- Questions

Cariboo
Cariboo Pulp & Paper Company

Mill Information

- Softwood (SPF)
- Lo-Solids Digester
- 7-Stage Brownstock Washing
  - Oxygen Delignification stage
- 5-Stage Bleach Plant ($DEDE_pD$)

Valmet Alkali-C

- Project approved in 2015 and commissioned in July 2016
- 5 sample points:
  - *White liquor*: Feed to Digester
  - *Black liquor*: Upper Extraction, Lower Circulation, Main Extraction and Wash Extraction
- Measured liquor properties:
  - *White liquor*: EA, AA, TTA, % sulphidity, % CE, carbonate
  - *Black liquor*: Residual EA

Analyzer Start-Up

- Smooth start-up with minor issues:
  - Analyzer user interface PC failed
    - Valmet ordered a replacement under the warranty
    - Vortex cooler added to electronics cabinet
  - Minor piping modifications required
- Sodium carbonate not being used in the black liquor analysis

Current Challenges

- Validating results of the analyzer
  - Benchtop autotitrator required for validation
  - Analyzer reading higher values than lab tester

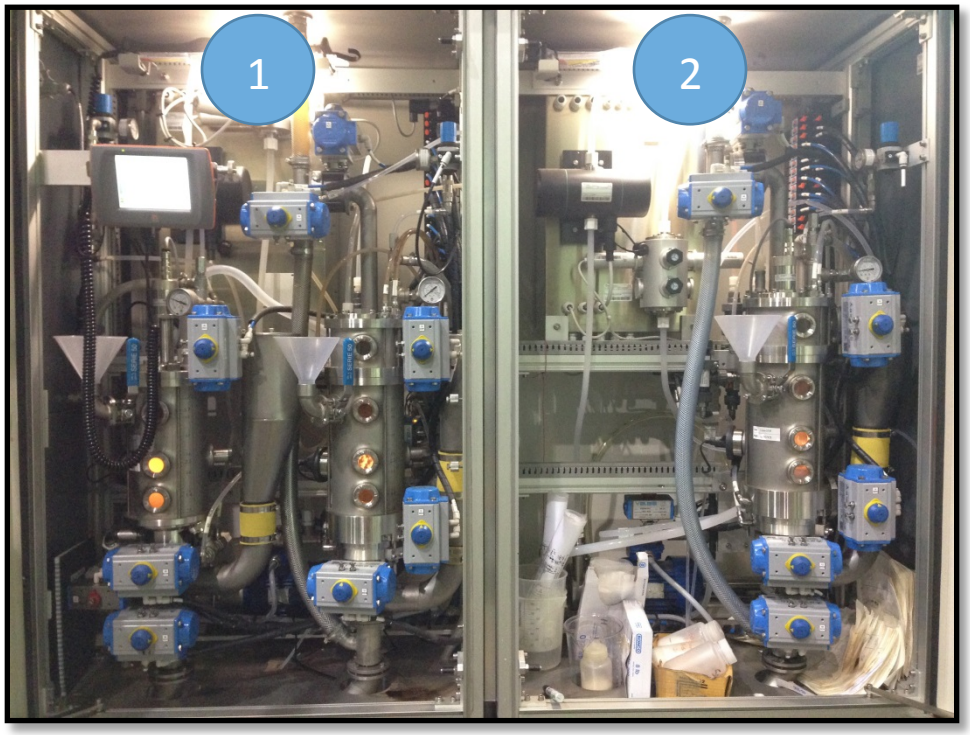
- SCAN vs TAPPI
  - Analyzer currently runs SCAN method on both WL and BL samples
  - CPP's lab uses TAPPI method for WL analysis and a modified version of SCAN (titrating with HCL and Na_2CO_3 to end-point pH) for BL samples
  - Currently working with Valmet to understand the differences in results

Path Forward

- Make an informed decision on the titration method used in the Analyzer (inflection point vs. end-point pH titration)
  - Test more black liquor with the different methods and compare the results with the analyzer

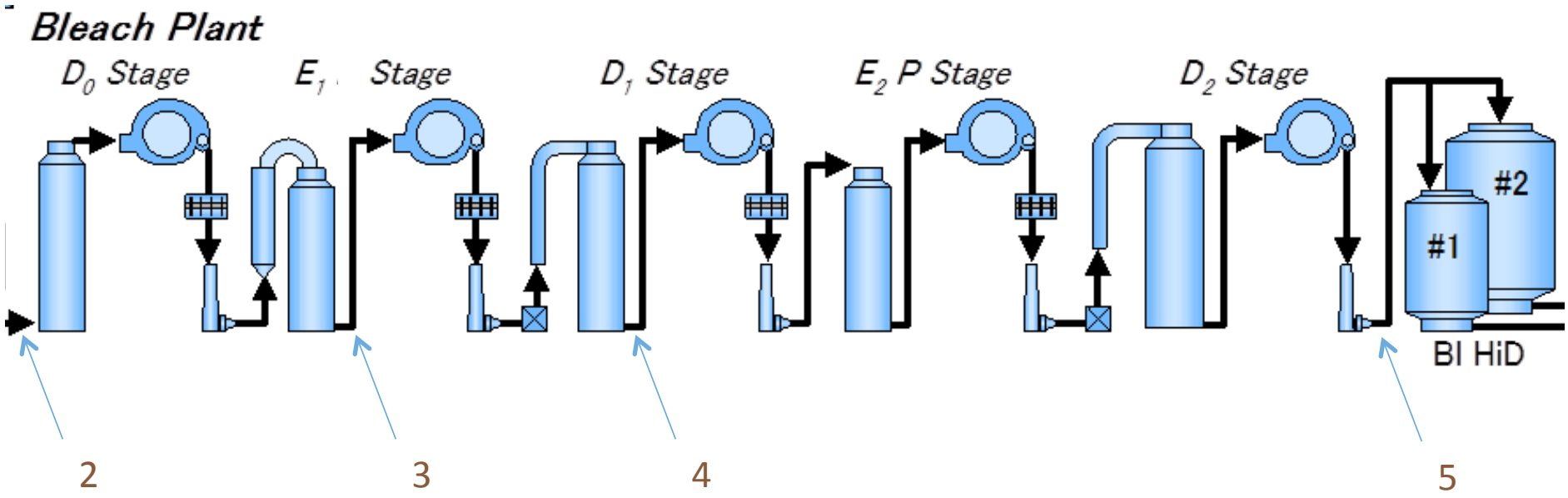
- Develop and implement controls on the Digester using the results from the liquor analyzer

Valmet KappaQ



- Project approved in 2014 and commissioned in September 2015
- Two cabinet analyzer
  - Dual chamber: Kappa#
  - Single chamber: Brightness
- 30-35 measurements/hour

Sample Points



5 sample points:

1. Digester Blow line (Kappa#)
2. 2 X Feed to bleach (Kappa#)
3. After E-1 tower (CEKappa#)
4. After D1 tower (Brightness)
5. After D2 washer (Brightness)

KappaQ Issues

- Start-up issues:
  - Transfer hose connections: changed clamp type
  - Hot water pressure: installed booster pump
  - Sampler leak: moved sampler location
  - Reducer leak: switched from fiberglass to Alloy 254 SMO
- Development of calibration curves for each sample point
  - Spanned over six months
  - Duplicate points
- Hot vs. cold water wash of blowline sample

Reducer leak

Savings

- Developed in-house compensated kappa factor controls
  - Implemented in April 2016

Chemicals	Current Savings (Kg/Machine ADt)
ClO2	1.92
NaOH	2.53
H2O2	-0.01

Questions?