

PAPTAC Bleaching Committee
Section 7 - MILL UPDATES AND PROBLEMS SESSION
Nanaimo, BC. – September 20-22, 2015

Paul Earl Consulting

Question: Do folks filter the Cormec or Polarox readings?

- James Goldman – depends on mixing
- Laurier Morissette – Controller sometimes acts as filter

Paper Excellence - Skookumchuck

- Will be installing a Noss Secondary Knotter
- Installing FITNIR for EKA Generator and digester
- Have installed 4 wells to supply water to the Mill. 4-5K gpm for 28 days under testing .
- Installing a new drive system for a Pulp Machine

Question: Anyone recycling Bleach Cleaner rejects back to brownstock?

- Brian La Brash – Yes on hardwood pulp
- Many possibilities – Should first focus on improving cleaners, like adding an additional stage.
- Should test rejects for ash, some grit can be from tile grout
- Recovering might be a seasonal opportunity due to things like sclereids
- Some have seen dirt build-up in their systems. Suppliers don't recommend

Clearwater Paper – Lewiston

- The proposed Polysulfide Continuous Digester project has been fully approved
- Purchased a FITNIR in 2015 for Kiln
- New 1000 ADT bleached HD in 2016
- Installing pressurizing Eop and a Precipitator Dust Purification™(PDP) for chloride removal
- 2 new gas burners for kilns

Question: Does anyone use spray / nozzles to reduce foam on level tanks?

- Irving uses on paper machines
- Castlegar uses a spray knockdown on a seal tank

Question: Any ideas on handling charred wood from forest fires?

- Skookumchuck – Don't use if possible, will see dirt. Double debarking helps

Question: Has anyone tried HCL instead of H2SO4 in the Bleach Plant?

- Alison – Flint River Mill tried it and didn't see a difference

Question: Has anyone looked at fiber charge off final bleach washer?

- Use as clean a wash water as possible, not much you can do if this is the case
- Question has come up at mechanical pulp mills
- Irving – Use Bi-Sulfite continuously to control ClO2 residual instead of SO2

Irving Pulp

- New Valmet digester to start-up at end of 1stQ 2016
- New demineralizer plant
- New bleached stock recovery system
- Pulp Dryer engineering ongoing
- New advanced controls in Bleach Plant ongoing
- New hog and bark delivery system for Power Boiler

Working on upgrade project for replacing 3 old pulp machines with 1

Question: How can we increase Bleach Plant capacity with CanRon washers?

- Daniel Brouillette – Talk to AV Nackawic, and GP Alabama River Pulp
- Paul Earl – See Fall 2005 presentation from Elk Falls on vacuum assist

Question: Where is the best place in the Bleach Plant to upgrade washing?

- Do stage to improve Eop performance
- Running a simulation can help determine the best location

West Fraser - Hinton

- Mill has been running better since Sept Outage
- Best month ever since 2008 machine upgrade
- Some management changes, have filled most of staff positions
- Put in APC bleaching controls from Spartan Controls

Question: Best practice for bleaching tower level measurement?

- Radar as primary measurement
- DP cell as back-up to radar for most mills

Question: What types of instruments are people using for washer vat levels?

- David Trzil – DP cell and two vibrating prongs, will email info on this
- Rick Wasson –Continuously purged DP cells

Question: What could be causing lower brightness from bleach washers than final pulp dryer brightness?

- Look at ClO₂ residual
- ClO₂ will absorb into pulp causing color
- Take bi-sulfite and do a side by-side test with and without to see if there is a significant difference
- Should neutralize to 5-5.5 pH to run brightness

DMI – Peace River

- Corrosion projects and FRP replacement after 25 years of operation (Digester Flash Tank and bottom of Digester overlay)
- Replacement of #5 Wash Press rolls – positive impact on conductivity
- Training focus to address employee turnover and succession planning for knowledge retainment
- Replaced 10 ft of kiln shell due to corrosion concerns around one of the support points
- Lost 6 days due to HPF bearing issue
- Looking at MC Pumps
- Solved evaporator problems
- Broke TC Pump/line
- Have lowered blowline temperature

Question: How many mills are still using Lithium Bromide chillers? Group survey

- No mills responded yes

Question: How do mills shrink wires?

- Steam hoses to vat
- Steam spargers in vat

Question: How do folks measure evaporator condensate quality?

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WestRock – LaTuque

- New DCS
- Batch digester replacement

Question: What are mills using for scrubbing medium in Bleach Plant Scrubbers? Group survey

- ~80% use white liquor

- ~20% use weak wash or NaOH
- 3 mills use Eop filtrate - these have Turbotek scrubbers

NORAM Engineering

- Have a chloride and potassium removal system for treating Recovery Boiler saltcake?

Question: Have developed a resin based technology which captures Potassium in the ESP catch as KOH. The resin is regenerated using 20% caustic. Can this caustic be re-used in the Bleach Plant?

- Group response was it could be used and is similar to most caustic to bleach plant strengths

Harmac Pacific

- Partnering with city for WWTP
- Adding O2 plant
- Installing mixer in bleach plant
- Going to medium consistency on E2
- Adding DCS for digester
- Changing outlet device cone in digester
- Changing bleach washer shower nozzles
- Raising evaporator solids

Question: Who is using a BTG BLT or DLT device?

- Verso Wisconsin Rapids, Howe Sound installing one, Castlegar?

Question: Washer speeds limit production, what can be done / causing this?

- Control washer inlet consistency?
- Does the washer need defoamer?
- Look at wires, check for vacuum leaks

Question: What is backpressure on a pressurized Eop Tube?

- Mona Henderson – 40-80 psig
- Hinton – 20 psig?
- Grand Prairie – 50-60 psig 165 oF

Question: White water used on pre-bleach washer has changed and not sure if conductivity measurement is still useful?

- Develop a relationship between the conductivity and ClO2 consumption

Verso Corporation – Luke Mill

- Converted pine line from 4 stage to 3 stage, by-passing a P stage

Verso Corporation – Phil Sekerak -Corporate

Question: D1 pH Extractor readings not representative of the process?

- Could be channeling – check consistency, repulper dilution
- Poor mixing is likely the cause

Question: Having reliability issues with direct steam heating of Chlorate, what are folks doing?

- Heat hot water as high as possible, Steam coils
- Murray Walters – Some use spargers in the railcars
- Cariboo and Skookumchuck have steam coils in the tank – Skook controls to 200 oF
- Howe Sound controls to 60-70 oC and trims with direct steam

Question: Peroxide residual testing options?

- Peroxidase strips, remove D1 shower water before testing to remove ClO2 residual, there is a titration that can be done to negate the influence of ClO2

Verso Corporation - Quinnesec Mill

- Installed new de-barking drums in Woodyard, largest chip pile in many years
- Lots of new hires throughout the mill
- Wireless alarm system installed on safety showers/eye washes in Chemical Preparation & R10

Question: Are folks controlling dilution water to MC pumps?

- Some are doing ratioing to production
- Texo has configured major/minor flows to repulper / standpipes

Question: Has anyone re-packed S-10 vent scrubbers and seen a marked improvement in efficiency?

Question: How many folks are running to DEK vs. %Delig for their Do controls?

- No one is running to %Delig. Most are running to DEK, some with Eop brightness feedback
- Skookumchuck – Running just feed forward KF
- Many using residual measurement as part of the control

Akzo Nobel

- Paper chemicals division sold to Kemira. Retaining bleaching chemicals and chlorate business

Kemira

- Bought SOTO

Question: Do mills have emergency systems to treat NCG's sent to the stack when they cannot be handled normally?

- Sent to power boiler, lime kiln
- Scrubbed in packed tower using white liquor
- Sometimes they cannot be treated and are vented to atmosphere

Texo

Question: How do mills handle dry chips?

- Verso Quinnesec, Add cold blow to FV-4
- Honey – Harmac adds water to the chip belt
- Many responded it depends upon digester runnability. Some screen out and meter a portion back in to the digester feed

Verso Corporation - Wisconsin Rapids Mill

- Ozone stage has been removed. #1 Fiberline converted from ZEpD1D2 to DED
- Converted hardwood and softwood 2 digesters to Downflow Cooking
- No longer white liquor limited so working to get White Liquor Oxidizer back on-line
- Broke safety record for days between recordable injuries

Question: Are having significant scale issues with feeding caustic to D stage repulper – clove rotor pump feeding the Eo tower is full of scale. Have tried anti-scale. Working to get acid press running to be able to add acid?

- DMI – use anti-scale and acid clean with Urea HCL
- Could be poor washing in previous stage

Verso Corporation - Escanaba Mill

- Changed batch digester cooking strategy and have improved yield and number of cooks
- Converted from 5 stage to 4 stage bleach plant. Removed E2 stage.

Question: Anyone using a direct steam injection device for heating?

- GL&V has a medium pressure mixer
- Solaris by Hydrothermal sells a device

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- No one in attendance is using one

Question: Are seeing the ClO₂ flow from storage to the Bleach Plant diverging?

- ERCO has seen this when flowmeters start to die
- Hinton has experienced this

Valmet Automation

- Metso is out of Pulp and Paper; all P&P under the name Valmet

Valmet

- Moved office from Norcross to Duluth Georgia

Canfor – Intercon Mill

- New Turbo Generator
- Looking to convert 2 steam turbines to VFD in bleaching and Pulp Dryer
- Adding a quaternary screen to the brownstock system
- 2-stage O₂ in 2016
- #1 washer trowled on lining installed last year was inspected and is doing well

Question: Seeing flow restriction in a dilute acid line?

- Kynar lines have melted/collapsed
- Barium Sulfate
- Irving – Iron Sulfate from dirty acid

Canfor – Northwood Mill

- New chiller before summer of 2016 – compression style instead of absorption
- Looking at lots of energy savings projects – steam trap maintenance, heat exchangers

Question: Who has absorption style ClO₂ vent scrubbers and what is the scrubbing medium used?

- Irving – use chilled water
- Skookumchuck – Used to use NaOH, now use chilled water, 39 ppm
- Cariboo – Well water, gas fed to Bleach Plant scrubber which uses NaOH

Question: Who has Upflow Towers?

- Irving – Do only
- Skookumchuck – Do upflow
- Crofton – D stages are upflow

Question: What kind of washer wire do you use, do you have issues with tears?

- Irving – Shrink on, don't have tears
- Verso Luke – Shrink on Kynar
- Harmac – have dilution line on top of tower for start-ups
- Skookumchuck – Can get pulp wedged under doctor board, added a water doctor, use a chime ruing instead of bands

Question: How do you control washer rpm / dilution?

- Irving – Control vat dilution flows

West Fraser – Cariboo Mill

- Bought first kappa analyzer and are installing
- Lots of new young workers
- Capital investment in upgrading Kiln, Recast, and ash handling
- Steam conservation projects, looking at Bleach Plant temperatures

Fall 2015 Bleaching Committee – Mill Updates and Problems

- Working on ClO₂ alarms – 12 zones with monitors

Question: Who is using Metso and FTNIR measurements for digester liquor residuals?

- No responses for Metso
 - FTNIR - Canfor Northwood and PG pulp, Crofton, Resolute Thunder Bay
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Weyerhaeuser

- Lots of cross-training between mills
- Lots of new bleaching Process Engineers
- Flint River up and running after shutdown, delayed almost 30 days
 - New Do tower – 30 min
 - New Do and Eop Valmet wash presses
 - New DCS in Bleach Plant
- New Bern – Goes down for annual outage in October – new headbox

Question: Is anyone regulated on the feed to a Bleach Plant Scrubber?

No one has really heard of this, but David Trzil stated that it can be used to potentially infer scrubber emissions

Paper Excellence - Howe Sound

- New MC Do stage
- New 600 ADT storage tank
- New O2D system
- New digester wash screens
- New CRP for ash purging
- New evaporators

Question: Has anyone removed SO₂ from the final stage?

- Many are using bi-sulfite
 - Adding H₂SO₄ to pulp dryer takes care of it
 - Control residual better
 - Can use H₂O₂ to kill ClO₂ residual
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Nalco

- Mike Kjerulf has joined Nalco
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Econotech

- They are releasing a new reburnt lime analyzer
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Doug Pryke Consulting

- Optimizing the bleach Plant at Covington
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Murray Walter – AllNorth

- Lots of work
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Tom Mullen

- Oxygen plant to be installed for primary clarification
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Catalyst – Crofton Mill

- New Page acquisition
 - Working to improve reliability
 - Lining Do tower with FRP
 - Changed washer wires
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Fall 2015 Bleaching Committee – Mill Updates and Problems

FP Innovations

- Near neutral bleaching trials
 - Working with BTG on brown stock washing
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Question: Who is using acidic bleach filtrates as a heat source?

- Paul Earl – A few mills are using Do filtrate for ClO₂ HX's since they have to be built from titanium anyway
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Canfor – Prince George Mill

- Water treatment system
 - Splitting warm and hot water systems
 - Pulp Eye installation
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Verso Corporation - Androscoggin Mill

- Re-structuring. Going to 1 fiberline and 3 paper machines
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Poyry Canada

- 110 Kappa southern pine line
 - Drum washer replacement
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ERCO

- New president Ed Bechberger