How we Survived Lime Mud in the Bleach Plant

Bleaching Committee Meeting
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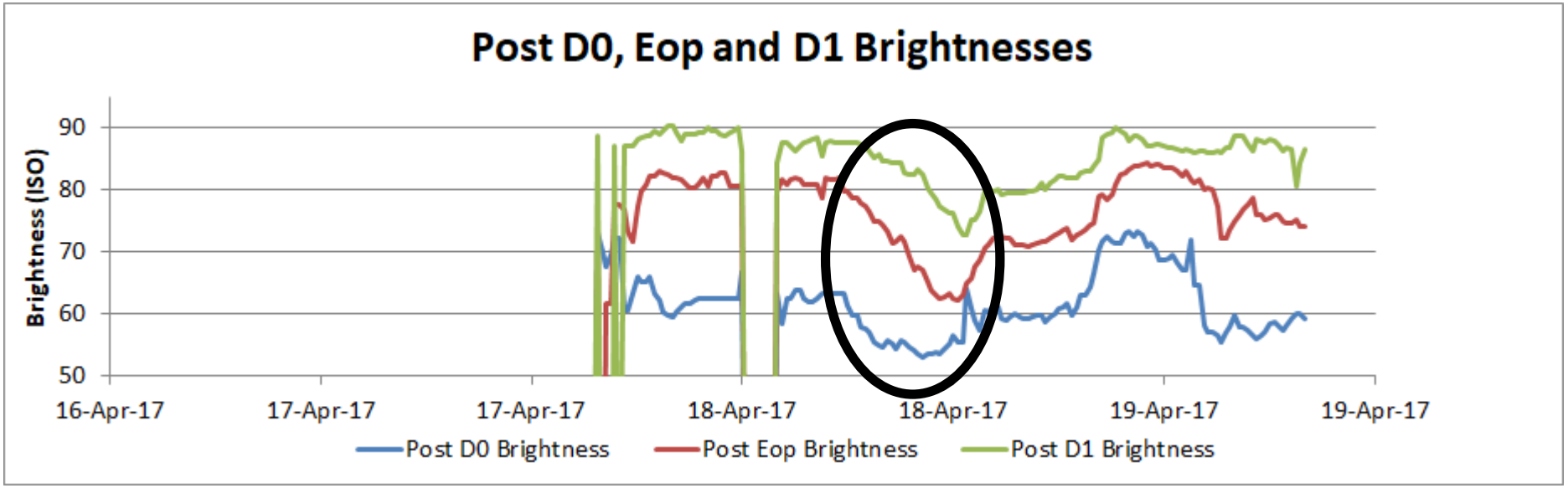
International Paper

The Background

- April 2017 Startup at New Bern mill
- All Stages up by April 17 at 11:30 pm and making prime pulp
- At about 8:45 am April 18, high kappas for this mill started to come through. D0 dosage picked up, but then all brightnesses started dropping as this pulp came through the bleach plant
- Bleaching Sequence is OO-D0-Eop-D1

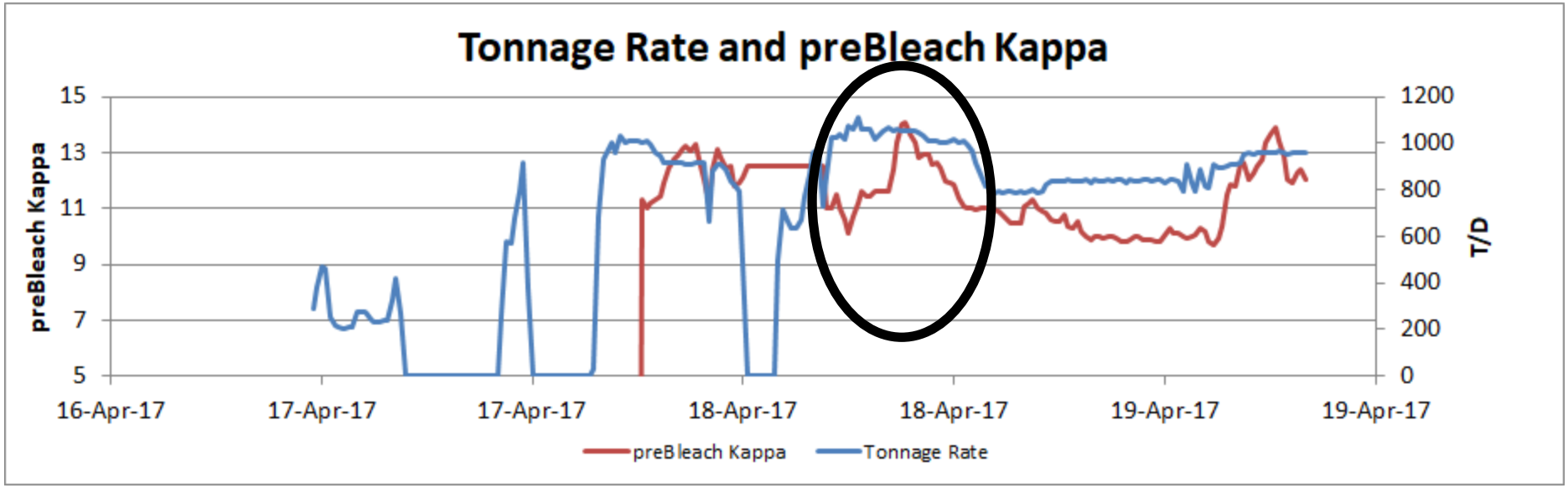
Some Trends

- First the D0 Brightness dropped, then Eop, then D1



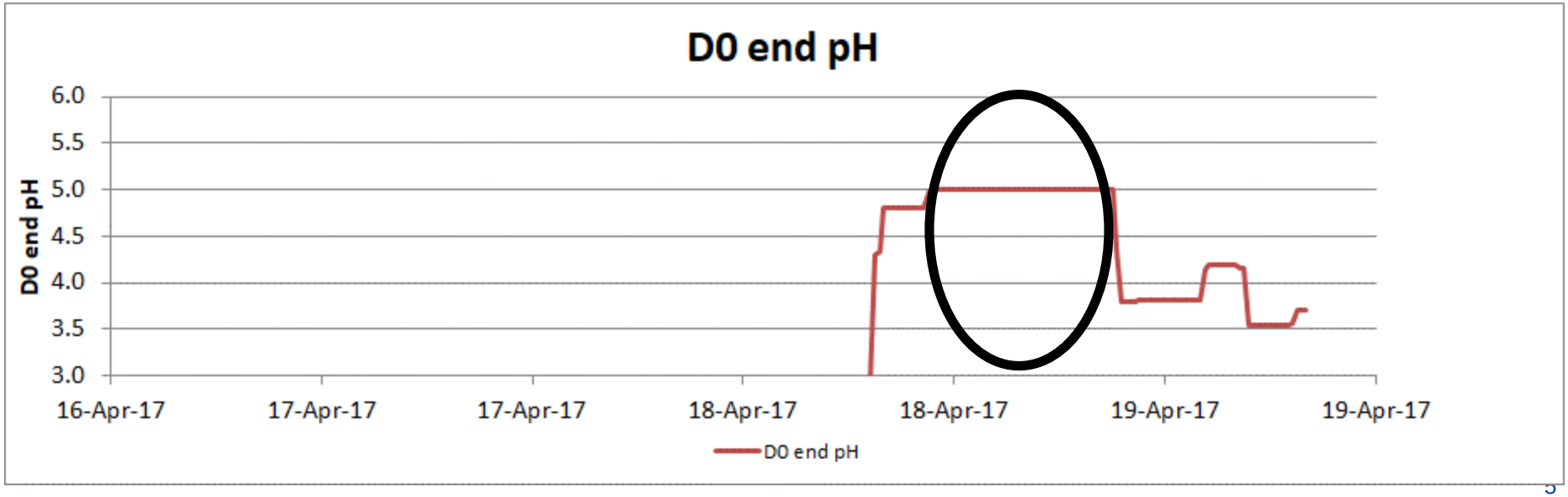
Some Trends

- It was startup with some ups and down with tonnage rate
- PreBleach Kappa went quite high – to 14's (mill normally has 11's)



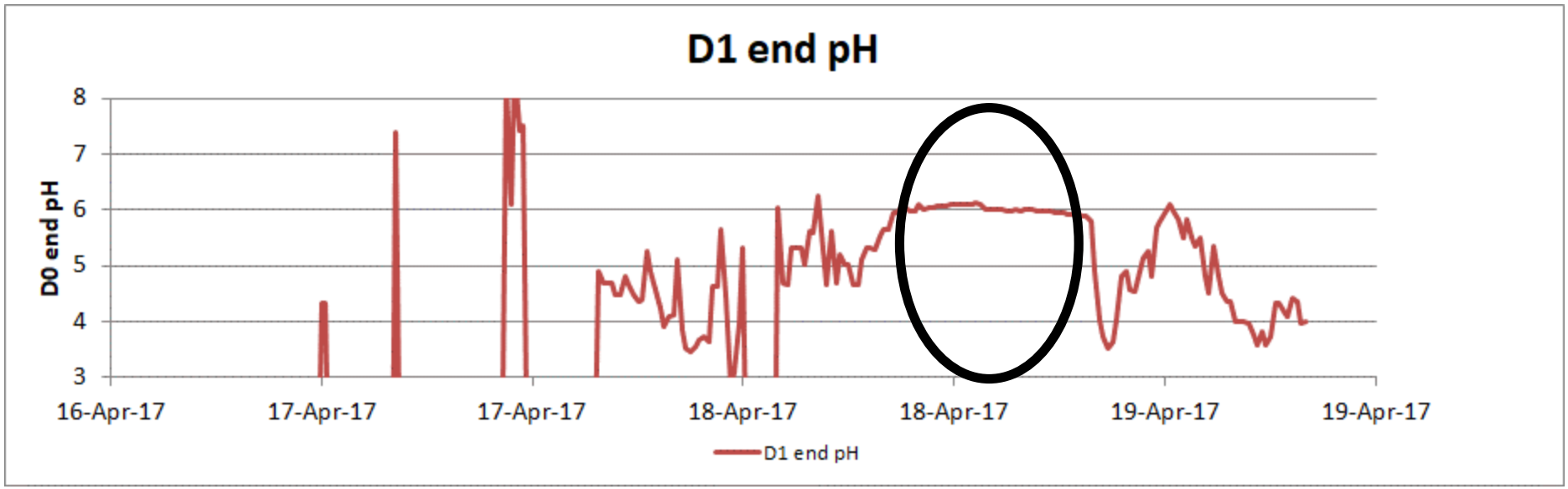
Some Trends

- Could it be we just didn't add enough ClO2 for the 14 kappas? Kappa control was on, and D0 dosage was very high for this mill
- We were short on lab testing but lab pH was 5 after D0



Some Trends

- Which also came out as high pH after D1
- Then the Powerhouse said, “we had a lot of lime mud carryover”



Lime Mud Carryover

- We did not know we had a lot of lime mud carryover, and startup as well as high kappas masked the problem to some extent.
- With acid valve 100% open on D0, we had concentrated the acid for D0 **until we found out it was lime mud**, and knew that concentrating the acid had little effect.

What to do with this pulp?

- Naturally, when the lime mud infected pulp came out of D1, with brightness 78-82, it was segregated.
- Lab and analyzer testing showed this low brightness.
- But it came time that this pulp had to get processed.
- To our surprise, it came out as prime on the machine (decision made to still downgrade it)
- How did this happen?

2012 Installation of State of the Art Bleach Cleaners

INTERNATIONAL PAPER

- 2012 Installation of state of the art bleach plant cleaners

EQUIPMENT

STAGE 1: CELLECO TRIPAC 90 SR CLEANERS WITH (2) X C-210 MAIN HEADERS, (410) ACTIVE CLEANERS, (10) ISOLATED CLEANERS

STAGE 2: CELLECO TRIPAC 90 SR CLEANERS WITH (1) X C-140 MAIN HEADER, (130) ACTIVE CLEANERS, (10) ISOLATED CLEANERS

STAGE 3: CELLECO CLEANPAC 270 SR CLEANERS WITH (1) X BP-4V MAIN HEADER, (42) ACTIVE CLEANERS, (6) ISOLATED CLEANERS

STAGE 4: CELLECO CLP-700 CLEANERS WITH (1) X SB-10 MAIN HEADER, (9) ACTIVE CLEANERS, (1) ISOLATED CLEANER

STAGE 5: CELLECO CLP-700 CLEANERS WITH (1) X SB-4 MAIN HEADER, (4) ACTIVE CLEANERS

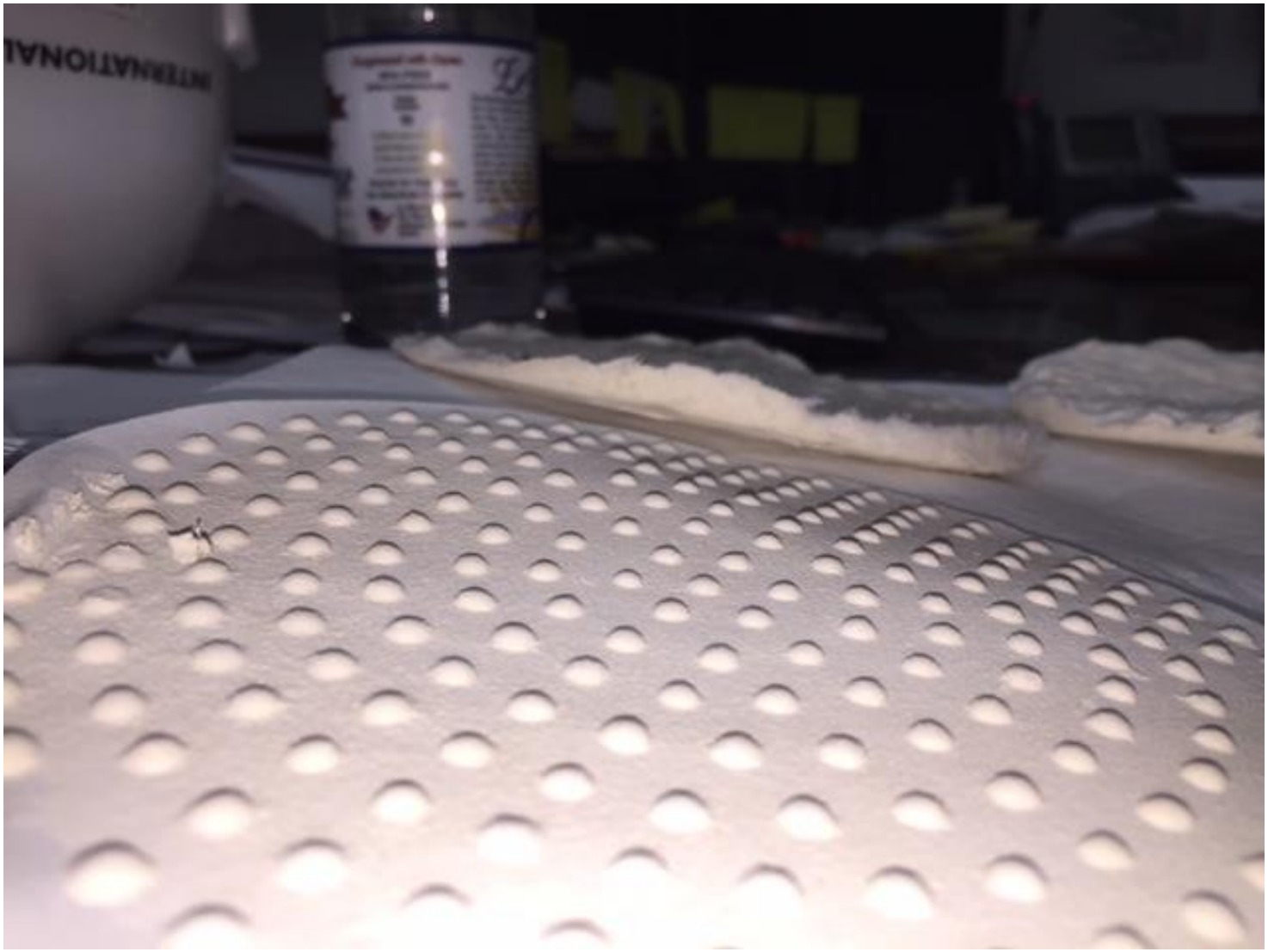
FIBER RECOVERY STAGE 6: CELLECO CLEANPAC 350 FMZ 0/3 CLEANERS WITH (1) X 0/3 MAIN HEADER, (3) ACTIVE CLEANERS

2012 Installation of State of the Art Bleach Cleaners

- And this is what the cleaner rejects looked like
- Cleaner rejects video.MOV (video not available with pdf version, here is snapshot from the video)

Cleaner rejects – Ew!

Filtered Rejects – Ew!



Can you delignify with pH 5-6?

- Probably not very well, but the good fortune of this mill is the double stages of O2 Delig, and low kappa to the bleach plant.
- A high kappa mill would not be so lucky
- You brighten well at pH 5-6

Questions I have

- So does the lime mud stick to the fiber in a way that is extremely difficult for analyzers with a screen and powerful washing, or a lab with distilled water washing to take out?
- Can the fiber actually can be at brightness targets but the lime mud is bound and creating low brightness?