Skookumchuck Pulpmill

(Skookumchuck Pulp Inc)

780 ADMT/D Bleached Softwood Market Kraft

Chips

- About 60% sawmill residual chips, truck hauled, 40% whole log chips from Canfor segregated operation
- 50% Pine, 30% Spruce, remainder Douglas Fir, Larch, some Balsam. Two "grades" are produced, with Fir/Larch, or without.
- Single, 127 tonne Rader dumper, up to 125 trucks/day
- Primary chip screens are Rader Dynagage bar screens , replacing blade screens about 3 years ago. Followed by Liwell screens with 10 mm top screen and 6 mm lower screen. Single Rader slicer.

Digester

- Original, 1968 vintage digester was converted to two-vessel vapor phase in 1985. 15'6" diameter, original design was 380 tpd, now running at 950 ADMTD—could be the world's most heavily loaded.
- Atmospheric presteaming chip bin is Kone, with screw feed discharger, and nearly plug-free.
- Running 15.5% EAW, 280 DegF on bottom circulation, 320 DegF cook temperature. At this point there is no sophisticated control system on the digester, no licensed cooking strategy. Kappa target is 24, variability (std dev/Kappa) normally about 8%.
- Rely heavily on two rows of wash screens, radial wash, very large cold blow coolers, cold blow temperature down to 70 DegF to maintain blow temperature low enough for the double atmospheric diffuser.

Brownstock

- Washing is comprised of: 2-stage atmospheric diffuser on the digester blowline (above 300 tonne unscreened hi-d storage), Corudek II decker after screening and before O2 delig, two compaction baffle washers post-O2.
- Two Hi-Q primary knotters, Sunds secondary knotter, with knots blown to the chip bin. Screens: Four I-R primary (212) screens, 212 secondary, 210 tertiary, and 210 quaternary, with quat rejects to a Sunds con-flow rejects refiner, refined tailings returned to the quat. Pair of grit cleaners on the tertiary screen feed.
- Single stage O2-delig, running oxidized white liquor, fed by Praxair owned and operated O2 plant. Achieving ~48% delig. Kappa feed forward control only, no feedback, no pH control.

Bleach Plant

- Very conventional, 5-stage bleach plant, built in 1978 for 580 tpd, now up to 900 bleached ADMTD. Running DoEopD1EpD2, incoming Kappa 12, final brightness usually 90% ISO, though the target is 88.
- 13'6" Impco washers on first two stages, 11'6" washers on last 3, all Impco style. Impco steam mixers, Warren thick stock pumps still chugging.

- BTG KNA 5200 kappa analyzer provides all ClO2 control on Do and D1. Does 5 measurements (blow, pre-O2, post-O2, into Do, CE exit kappa), plus a dissolved lignin measurement, which is used to bias ClO2 addition on Do. In-line BTG brightness measurement out of D1 and E2, but neither are tied into control.
- Note that the towers are all equipped with sampling screens above the dilution zone, so pH and residuals are measured truly at the end of the stage, not in the washer vat. Tower retentions are : 30 min Do; 1.5 hours E1 and E2, 2.5 hours D1 and D2. Do is upflow low consistency, all others downflow.
- Chemical usage spots us low overall in surveys, largely due to low kappa, but middle pack on usage/kappa. Caustic usage is down to about 18 Kg/ADMT, with ClO2 17-18 Kg/ADMT, peroxide 2 Kg/ADMT.
- Turbotak scrubber is run with white liquor, regulated to 39 ppmv ClO2 discharge, using an Optek ClO2 analyzer on the stack to control white liquor addition.
- ClO2 generator is an atmospheric (Mathieson) built by Omni, converted to run on peroxide, ie the HPA process, generally expected to run 91-93% efficiency, at up to 21 tpd ClO2 production.

Machine

- Pulp machine is mostly the original 1968 vintage but with improvements, 140" width, maximum production has been 925 ADMT/D. Mitsubishi-Beloit open headbox, first and third presses have been double felted, added dryer decks to total 27. Lambs cutter layboy, single bale line, single 1000 ton press. No strapping, no gluing.
- Cleaners are four stage Celleco with final fiber recovery, to an Impco slusher.

Power and Recovery

- Evaporators, recovery boiler and recausticizing were new in 1993. Evaporators are 5 effect Ahlstrom, producing 75% solids. Recovery boiler is ABB single drum, producing 480,000 lb/hr of steam at 600 psi, at 150 KLb/hr solids fired.
- Hog boiler is the original recovery boiler, converted in 2000, and producing 250,000 lb/hr of steam.
- All 600 lb steam is run through a 45.5 MW Siemens condensing turbogenerator, with extraction of MP and LP steam for process. Target production is 44 MW, with the mill using 25 MW, the remainder for cogeneration sale.
- Collection of CNG from the Digester and Evaps is handled through a Modo Chemetics designed system, and all incineration is done in a dedicated incinerator.
- Recaust, also new in 1993, is standard design, with a 70 ft green liquor clarifier, 4 causticizers, weak wash and white liquor pressure filters, and a problematic kiln. Fitnir, on 6 streams, has recently been added, and is using Texo's Caust-X control.

Environment

- Effluent is settled in a settling pond (dredged, solids to an upscale, lined landfill), thence to an ASB, and then to a colour clarifier. This clarifier is expensively operated during the months of the year that the Kootenay river has insufficient flow to sustain the mandated restriction of <15 color unit increase below the mill outfall. Effluent color reduction is a high priority, strict spill containment is practiced, and Eop recycle has been practiced to some extent.

- Water is supplied from the Skookumchuck creek, water usage is about 45 m3/ADMT. Recently four wells were drilled adjacent to the creek, pumps and lines are in the process of being installed. The intention is to provide most or all of the 5,500 USGPM mill water demand—more reliably, and with cleaner water.