

A start-up starts up...

BIG.

You would think that the people at Eldorado Brasil would stop and take a breather. This start-up company (formed in late 2009) just built a new mill on an empty plot of land and started up the world's largest pulping line (which has already produced over 1 million tonnes of prime quality pulp). But, work is underway to secure an environmental permit for a second line – which at two million tonnes per year will be roughly 30% larger than the first.

In December 2012, Eldorado Brasil inaugurated the biggest single pulp line mill (1.5 million tonnes) near Três Lagoas, Mato Grosso do Sul state. Total investment in forests, plant, and infrastructure was more than US\$ 3 billion.

As President and CEO José Carlos Grubisich views it (see side story on page 17), while the first line propels the company to being the fifth largest producer of bleached hardwood pulp, it is only the beginning. "We designed this site to support three lines in parallel, producing roughly five million tonnes of pulp per year," he says.

ANDRITZ delivered the woodyard (three chipping lines), the fiberline (digester, washing, screening, and bleaching), the two-machine pulp drying plant with baling lines, and the white liquor plant. Plus, the IDEAS process simulator and web-based training tools, which the project team called "a great benefit for fast start-ups."





▲ View of the massive Eldorado mill from the woodyard. The new 360-degree Stack-Reclaimer is in the foreground.

The right time

Timing, according to Eldorado Industrial and Technical Director Carlos Monteiro, was excellent. "New pulp projects were frozen during the economic crisis," he says. "We felt if we could move quickly, we could get good pricing from suppliers and start up before other announced lines."

Guilherme Araujo, Mill Manager, adds, "In the last year, mill closures took about 1.2 million tonnes of pulp from the market. Pulp pricing is good, and the devaluation of the Brazilian Real against the US dollar has worked to our favor. This puts us in a good position to satisfy our debt obligations and achieve a good payback on the overall investment."

The right place

In terms of logistics, Eldorado is well positioned. "About 50% of our production moves by train and the other 50% by river barge and train," Araujo says. "The barges come back loaded with purchased wood, so this is very cost efficient."

Forest resources are close by. Plantings began in 2006 and Araujo estimates that it currently takes about 150,000 ha to support the mill (25,000 ha per year with a six-year growth cycle). The company is planting over 50,000 ha per year in anticipation of the



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Mill Manager
Eldorado Brasil

second line. According to Araujo, 100% of Eldorado's forests have received certification and are in compliance with FSC (Forest Stewardship Council) norms.

A forest technology center is being built in the Três Lagoas area. "We want to increase our fiber productivity," Araujo says, "and will use biotechnology to develop clones that are more dense so that less land area is required. Our goal is to get about 55% yield in the digester."

Well-operating woodyard

"We had some concerns with whether the woodyard would be of sufficient capacity

because we found that our wood density is not what we predicted it would be," Araujo says. "But there has been no problem supplying the fiberline."

The ANDRITZ woodyard has three chipping lines with log loading decks and horizontally fed HHQ-Chippers, gyratory chip screens, and a large stacker-reclaimer system that provides a consistent flow of chips to the massive digester. "There initially were some problems with the stacker-reclaimer," Araujo says, "but these have been resolved. The three chipping lines are perfect – they run well. As an example, we fed the digester directly from the chipping lines at 70-90%

of nominal capacity for several weeks while work was being performed on the stacker-reclaimer. There was no chip storage. I've never seen this level of sustained output from a woodyard."

Pulp quality – excellent

The fiberline features the world's largest Lo-Solids digester and a DD Washer based bleach plant. "We are very pleased with the quality of the pulp and the stability of the fiberline," Monteiro says. "Last month, we produced 100% top quality and, in fact, set a record for the fastest achievement of quality – 43 days to reach 95% top quality on a 30-day moving average. Our daily production record so far is 4,752 admt."

ANDRITZ is adjusting some of the lines at the top circulation of the digester to reduce vibration. "Keep in mind this digester is HUGE," says Newton Kozak, ANDRITZ Brasil's Project Manager for the fiberline. "The chip pumps are large and the impact of any air in the system is magnified due to the size. But all the problems are manageable. We used the experience from other projects to make modifications during erection so disruptions have been minimal."

Almost forgotten – the white liquor plant

"We almost forget about the white liquor plant – which is a compliment," Araujo says



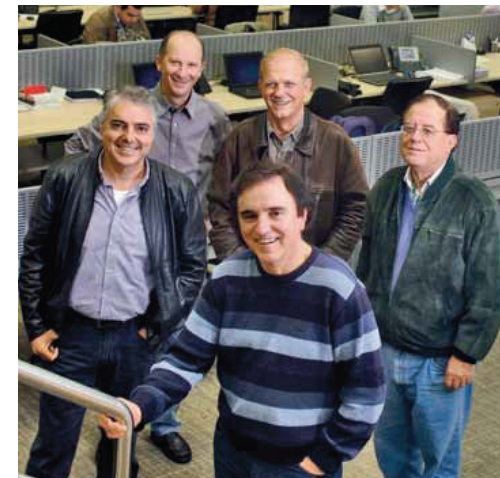
▲ ANDRITZ delivered the two-machine pulp drying plant with automated baling lines.

smiling. "We have not lost one tonne of pulp due to the plant. It is not a bottleneck, it does not cause environmental problems, and it does not require special attention. That means it is running quite well."

Pasquale Neto, Eldorado's General Project Manager for Recovery/Power, evaluates the project. "ANDRITZ had considerable challenges with the civil contractor (the com-

pany went bankrupt in the middle of the project)," Neto says, "but they were able to keep the schedule with very few problems during erection. We are very satisfied. This huge kiln (the largest in the world) is running with no problems."

According to Alfredo Cunningham, ANDRITZ Brasil's Project Manager for the white liquor plant, there is one other kiln of



◀ Carlos Monteiro, Eldorado's Industrial and Technical Director (front center) and his team planning the second line. Left to right around him: Pasquale Neto, João Carlos Tonelli, Gilson Martins, and José Carlos Kling.

this size (165 m length and 5.5 m diameter) now under construction. “This however is the first that we have delivered with five bearing supports,” Cunningham says. Other technology in the white liquor plant is the LimeGreen filter (green liquor filter), the LimeWhite white liquor filter, and the LimeDry system to wash and dry lime mud, improving heat consumption in the LimeKiln and reducing emissions.

Kid's football

Araujo says that the start-up was a time of high excitement, high activity, and long hours. “My job during a start-up is kind of like being a soccer coach,” he says. “With all the new operators, it was like a kid's soc-

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Carlos Monteiro
Industrial and Technical Director
Eldorado Brasil

cer game where everyone runs around in a tight group chasing the ball. My job is to get people to stay in position and pass to one another. That is what we are doing now – positioning people in the right jobs.”

“Our team goal was to produce 4,237 admt/d on a 30-day moving average,” Monteiro says. “We achieved that in August. With ANDRITZ’s continued support and a few small modifications, I expect we can get to 1.65 million tonnes per year.”

With that, Monteiro pauses to reflect – something he has not had the luxury of doing for the last couple of years. “Think about it,” he says. “This began as an empty site near Três Lagoas in March 2010. I joined the company in January of that year, and in about two years we built the world’s largest pulping line. It started up on schedule in December 2012 and we are planning the next one. Not bad!”

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◀ Alfredo Cunningham, ANDRITZ white liquor plant project manager (left) and Murilo Sanches da Silva, Eldorado Recovery Island Superintendent, in front of the lime kiln, one of the largest in the world.