

Growth on the horizon

The economic crisis prompted a period of reflection in Brazil to reaffirm that their growth strategies still made sense. The answer turns out to be a resounding “Yes!” with the formation of Fibria, the start-up of the world’s largest single fiberline, and plans on the drawing board for additional greenfield projects.



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Guilherme Araújo, Fibria’s Fiberline Production Manager

Guilherme Araújo (left), with Newton Kozak, ANDRITZ Project Manager.

“Speed of thinking and speed of production are critical to our future,” says Francisco Valerio, Director of Industrial Operation and Engineering of Fibria, the new company formed by the merging of VCP and Aracruz in Brazil. “This is not a time to slow down.” (see side interview on page 15)

In some organizations, speed can lead to mistakes. But it is hard to discern any mistakes in Fibria’s Horizonte Project – a massive greenfield 1.3 million t/a bleached market pulp mill line recently started up near Três Lagoas in southwest Brazil (Mato Grosso do Sul state).

If you had to name a greenfield project that has been fully vetted and scrutinized, Horizonte would come to the top of the list. The land for plantations and a potential mill site was purchased by Champion International (which became part of International Paper in 2000). Trees were planted and plans were developed for a new mill – and there were several false starts.

Then in 2006 things moved forward at a quick pace. IP announced that it would exchange its pulp mill project at Três Lagoas (together with the surrounding planted forests) for VCP’s Luiz Antonio mill and its nearby forests. In addition, IP would build a new 200,000 t/a paper machine adjacent to the greenfield pulp mill, with VCP providing pulp and utilities to the machine.

Groundbreaking took place in December 2006 and pulp started flowing from Project Horizonte in March 2009. After this, VCP introduced itself to the world as Fibria, merging its operations with Aracruz Celulose and forming the world’s leading market pulp producer (5.8 million t/a production capacity).

Smoother start-up than Veracel

Could it be that these Fibria people have

become so used to building and starting up large greenfield mills that they take it for granted?

“No, not at all,” says Guilherme Araújo, Fiberline Production Manager at Três Lagoas. “A start-up still gets the adrenaline running – especially when you first pump chips to a 3,900 tonne digester or put that pulp on a big 9.3 meter drying machine! But let’s just say that we have total confidence in our team and suppliers that allows us to remain calm and focused.”

Upon coming to the project in 2007, Araújo’s main tasks were to select his operating team and prepare for commissioning and start-up. The team consists of about one-third seasoned veterans for the control room and two-thirds young people training to become operators. Most of these new people are from the local region and have never seen a pulp mill before. “The IDEAS Simulator from ANDRITZ has been an important tool for us because of these new people,” Araújo



ANDRITZ provided the stock preparation system, drying machine, and automated baling line. Shown is the wet end of the dewatering machine. ▶

A close-up of the dewatering machine shows the press section of this 9.3 m wide machine. ▼



Room to grow. The production line features a single fiberline (left) and a drying/baling plant (right) all supplied by ANDRITZ. With this 1.3 million t/a mill ramping up production, plans are starting to add a second line beside it. In the background are part of Fibria’s plantations which surround the mill. ▼



says (see sidebar story about the IDEAS Simulator on page 13).

“All the technical and commercial decisions were made before I got here,” Araújo says, “but this is not a problem for me. It’s the third fiberline project in a row that I’ve worked on involving ANDRITZ equipment. Each time I learn something – and it’s reassuring to know that ANDRITZ learns each time as well. I would say that this start-up was much smoother than even the one at Veracel.”

Completely calm

“At the end of April 2007 we bought big packages from ANDRITZ (fiberline, drying/baling plant, and white liquor plant),” says Valerio. “Twenty-three months later, we started up this plant and the ramp-up was fantastic. What was most remarkable to me was to walk into the fiberline and drying machine control rooms two days after start-up and see how the operators were acting. The atmosphere was like this mill had been operating for years. So calm.”

Prime production

Within the first 30 days, Três Lagoas reached 50% of its design capacity, and it is continually moving up the learning curve. “We are today above 90%,” Valerio

says. “This August we produced 99.5% prime pulp. September it was 100% prime. I’ve been working in this industry for 40 years and to reach 100% is an outstanding achievement. We are really very proud about the ramp-up and the quality.”

According to Araújo, “From the beginning we have not had a problem regarding quality parameters such as brightness or viscosity or cleanliness. I’m not just talking about lab tests, because we have one customer over the fence (IP) that is consuming our pulp at the rate of 280,000 tonnes per year. They are very happy.”

In October, the performance test run for the ANDRITZ drying and baling plant was successfully completed. Performance guarantees were met and, according to Araújo, a new production record was set at 3,643 admt/d. “Not bad for a plant designed for 3,450 tonnes per day!” he smiled.

Building during a boom

This is not to suggest that everything in the project went perfectly from day one. “A project would not be a project without daily challenges,” Valerio says.

One of the main challenges was that all the purchases were made during a boom time

in the industry. “This created a lot of difficulties for us,” Valerio says, “as steel prices, construction prices, and labor prices were at a high. Suppliers’ workshops were full and everyone was busy. We had to cut the frills and stick with the best proven technologies.”

Newton Kozak, ANDRITZ’s Project Manager from Curitiba, Brazil, also points to the logistical challenges of working in an interior state such as Mato Grosso do Sul. “It’s about 700 km to the ocean ports where shipments come in,” he says. “In addition, there was a strike by federal customs employees. Locally, the state’s customs of-

ficials had not dealt with pulp and paper components before. This caused shipments to be held at the border while officials agreed upon the import/tax classifications for components coming from China, Sweden, Finland, Germany, the USA, and Austria.”

“We’ve had a few small difficulties, but the results have been fantastic,” Valerio says. “We are very proud of our results – no doubt.”

Designed for expansion

Marco Iáconis is one of Fibria’s Project Engineering Coordinators and was a pro-



“The process design here is very nice. Nowadays I think that ANDRITZ has proven itself as having the best fiberline technology – especially in bleaching.”

Marco Iáconis, Fibria’s Project Engineering Coordinator

Murilo Sanches da Silva, Operation Supervisor for the white liquor plant (left), Alexandre Oliveira, Project Engineer (center), and Fernando Pereira, Utilities & Recovery Manager walking in front of the new ANDRITZ LimeKiln™. ▼



cess design consultant for the Horizonte project. “This was originally planned to be a 900,000 tonnes per year mill when IP was going to build it,” he says. “But we found that with very little additional investment, we could reach 1.3 million tonnes.

“The process design here is very nice. Nowadays I think that ANDRITZ has proven itself as having the best fiberline technology – especially in bleaching. They have more experience and more knowledge for these projects.”

What once was the lay-down area for the construction crews stands empty today, but not for too long. Fibria has already announced its intent to build a second line at Três Lagoas, hopefully in less than five years, if the markets hold.

Like coming back from a shutdown

One of Fibria’s people involved in mechanical commissioning was Daniel Rubega. “I love doing something completely new,” Rubega says. “It’s very exciting to create something where there is nothing.” Gesturing around the mill site, Rubega makes his point. “Before 2006, there was nothing here but eucalyptus trees.”

Rubega and his team performed the pre-commissioning, cold commissioning, and

hot commissioning of the equipment prior to the actual start-up. “We didn’t really have what I would call a classic start-up,” he says. “It was more like coming back from a shutdown. Operators walked into the control rooms, sat down, activated the DCS, and things just worked.”

When asked about working with the ANDRITZ team, Rubega was quite sincere. “The ANDRITZ people are like real partners,” he says. “They are always open to discussions and ideas, very transparent, and a pleasure to work with. There is confidence and competence on both sides.”

Friends with responsibility

ANDRITZ also delivered the lime kiln and recausticizing plant for Project Horizonte. For Fibria, this area of the project was managed by Alexandre Oliveira.

“We have good modern equipment in the white liquor plant and it is operating very well,” Oliveira says. “The overall production capacity is 12,000 cubic meters per day of white liquor.”

The LimeKiln™ is the largest in South America (5 meters in diameter and 145 meters long) and is rated for 960 tonnes per day. The recaust plant has two LimeGreen™ green liquor filters and a LimeDry™ lime mud filter with 14 discs. Of special interest to Oliveira is the LimeWhite™ white liquor filter which is a new prototype design with the lime mud vessel inside. “This reduces the space requirements,” he says. “We are working with ANDRITZ to perfect the design.”

“ANDRITZ has been very simple to work with,” Oliveira says, “though I must admit that I’ve worked with them since 1994. I consider them good friends – but friends with responsibility. They take this responsibility seriously.”

“I can honestly say that we all worked as one team on this project,” Valerio says. “It was like everyone worked in the same company. The same level of teamwork and commitment remained from engineering, to

Overall production for the ANDRITZ white liquor plant is 12,000 m³ per day. The LimeKiln™, designed to produce 960 t/d of lime, is the largest in South America. ▶



SIMULATING SUCCESS

“I know that complete automation is a goal and not always the reality,” says Edevar Lopes of Fibria. “But that is my motivation – to make the plant work like a symphony.”

Edevar Lopes, Automation Specialist for Fibria



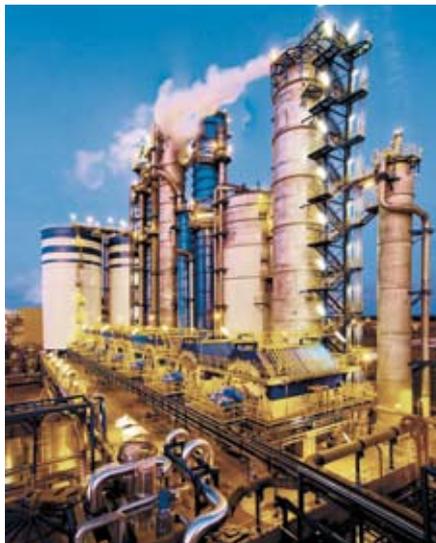
Lopes finds it exciting to work with automation systems in a heavy industrial environment. “There are other places I could work with my 16 years instrumentation and programming background, but none as challenging as this mill.”

One of the challenges in a greenfield start-up is preparing the operators to take over control of the mill even though the equipment is not yet installed. Lopes and his team used the IDEAS Simulator from ANDRITZ as a key training tool.

“The dynamic process Simulator is used for at least two distinct tasks,” Lopes says. “First is to verify control loops and checkout the DCS before start-up. By doing this, we virtually eliminate problems with integrity of control loops so that we know the DCS will perform well. This can be done weeks before we actually go online.”

Task two is operator training. In the case of Três Lagoas, the IDEAS Simulator was configured for the fiberline, kiln/causticizing, evaporation, recovery boiler, and power boiler. Experienced operators worked on the Simulator for two and one-half months, and new hires four months in order to prepare for start-up. “The screen of the Simulator is exactly like the screen on the DCS,” Lopes says. The mathematical model is so accurate, there is no difference to the operators between operating a virtual digester and the real one.”

What about feedback? “The best feedback is at start-up,” Lopes says. “During a normal start-up, operators will come to us constantly with questions or small problems. You know, a control loop not controlling or not understanding something on the DCS. Not here. We actually got a little lonely waiting for them to call. It’s amazing how smooth this was!”



▲ Two views of the ANDRITZ fiberline at Três Lagoas. Left: The single-vessel continuous digester is currently ANDRITZ's largest. Right: Large DD washers are employed for washing and bleaching.

José Alves, Process Specialist for Cellulose Production (left), Cirio Nishi, ANDRITZ Fiberline Process and Mechanical Supervisor (center), and Daniel Rubega, Maintenance and Commissioning Engineer, check a flowsheet in the fiberline area. ▼

checkout, to commissioning, to start-up.” Fernando Pereira, Utilities & Recovery Manager, has a similar opinion. His responsibilities include the power, recovery, water, and wastewater systems for the mill. He has been involved with the Horizonte Project from the beginning, coming to the site from VCP's Jacaré mill.

“We had a manufacturing problem with the kiln's drive gear when it was first installed,” Pereira says. “I was impressed with how quickly ANDRITZ came to action. They changed out the gear as quickly as possible and we've been running well ever since. What we're doing now is pushing each piece of equipment to its maximum so that we know our limits. We'll make design production, but I would always like to get more!”

There is no one at Fibria who disagrees. While they are getting accustomed to starting up large greenfield lines that their peers in other countries can only dream about – they are also accustomed to delivering maximum production at the lowest possible cost. They choose their technology partners carefully – and then work side-by-side to reach their goals.

