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Partnering to Competitive Advantage:

Veracel's Road-Less-Traveled Approach to Maintenance

By John Yolton

A new market pulp mill in Brazil implements a unique alliance approach to maintenance outsourcing, with partner company incentives based on Key Performance Indicators.

Some 50 kilometers inland from Porto Seguro, the first landing site of Portuguese explorer Pedro Alvares Cabral in 1500, in what is now the country of Brazil, stands the massive new market pulp mill of Veracel Celulose. The mill is sited in the center of 72,000 hectares of eucalyptus plantations that represents about half of the plantations in Veracel's area. The other 50% are preserved. In this climate the trees grow to maturity in seven years, with the best plantation productivity in the world.

Scheduled for startup this July, but possibly as early as May, this technological tribute to the best in pulpmaking stands as a potent symbol of the new paradigm in the hardwood market pulp industry. The company is a partnership between global giant Stora Enso and Brazil-based Aracruz Celulose. Estimated cost of the new facility is \$1.25 billion. During peak construction, the project employed upwards of 12,000 workers.

When in full operation later this year, the new Veracel mill will have a production capacity of 900,000 metric tpy of bleached ECF eucalyptus pulp. Located near the municipalities of Eunápolis and Belmonte, the complex occupies a total area of 2 million m², containing 400,000 m² of buildings and facilities. It currently is the largest single line pulp mill in the world and one of the most technologically advanced, process-wise and environmentally. Most of Veracel's production will be exported to Europe, the U.S., and Asia.

Planes, Autos, and Boats

"Getting to the Veracel site is not easy. First we fly from Sao Paulo to Porto Seguro. Then by car on the way in, we take a winding dirt road after first crossing a small river by ferry barge. The trip is practically a rally race once the ferry lands and disembarks its load of automobiles and SUVs. Each driver, my Brazilian colleague notwithstanding, jockeys for front running position on this narrow muddy track. It rains often and heavy. Eventually, as we near the construction site, the road widens and improves. This new road will be the primary route to the mill upon completion."

—Author John Yoltan



This article examines the maintenance and reliability philosophy being implemented at Veracel, as explained by Luiz Marcello Dionello Piotto, engineering & maintenance manager of this new mill. The maintenance concept at Veracel is based on a unique, partner-oriented outsourcing arrangement structured around specific disciplines and business areas, with pay-for-performance incentives.

Maintenance Vision. Veracel's maintenance process will be recognized as one of the mill's main competitive advantages. "I spent a lot of time visiting other mill locations all over the world, including North America and Europe, examining the variety of different approaches used to maintain physical assets," Piotto states. "We wanted to be assured that we achieve the highest level of reliability, certainly, but ultimately, the philosophy we follow must also allow for continuous cost reduction as the reliability improves."

This vision is premised upon Veracel being a high efficiency mill, e.g., low production costs, high asset availability, low maintenance costs, high product quality, and fulfilled environmental and safety demands.

"It is clear to me that outsourcing our maintenance effort is the proper action for this site, in this location," Piotto continues. "But, it is also clear that there is no one single source for all the maintenance services needed in a high technology mill such as Veracel. We developed a matrix (see Figure 1) that demonstrates the tactical needs and then began the process of selecting 'specialist companies' that we felt would welcome this opportunity to work in an alliance-based setting."

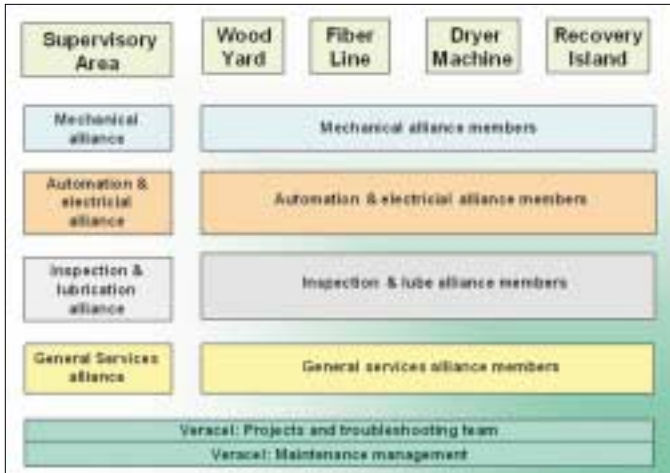


Figure 1. Veracel's maintenance requirements matrix.

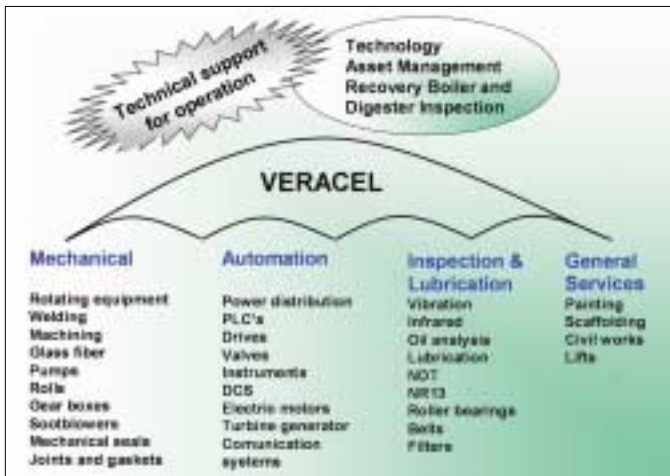


Figure 2 - The Veracel umbrella.

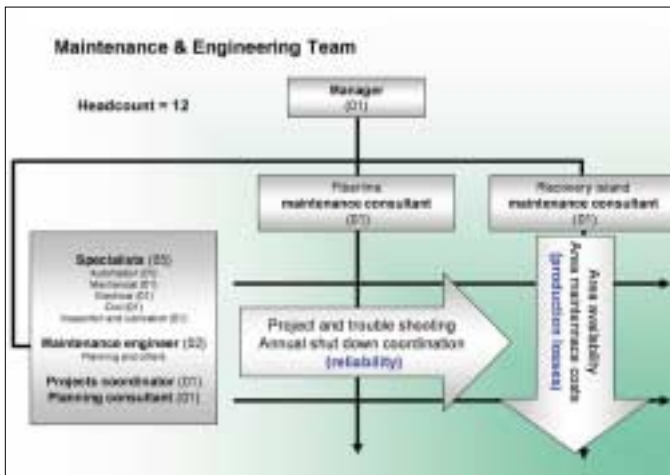


Figure 3. Maintenance and engineering organization at Veracel.

Piotto explains that the model developed recognizes that there are four fundamental disciplines—mechanical, automation & electrical, inspection & lubrication, and general services. These disciplines will be needed across all four business areas—woodyard, fiberline, pulp machine, and recovery, with different and varying intensity and timing (see Figure 2).

In addition to these basic maintenance disciplines is the requirement to support operations with information and asset management technology as well as risk-based maintenance support associated with regulated equipment such as pressure parts (boilers, digester, etc.).

Organization. Management and coordination of the outsourced resources falls upon Veracel maintenance and engineering team. Again, a matrix of functional actions and responsibility depicts the vision, as shown in Figure 3. Table 1 (see page 41) outlines more specifically how this team functions.

Roles and responsibilities for each member of the alliance group as well as the Veracel staff is clearly defined and understood, as outlined in Table 2 (see page 41).

Piotto envisions a harmonious maintenance effort from the partner 'specialists companies,' but recognizes that the Veracel staff will be required to smooth relations as the culture unfolds. "We purposely selected the specialist companies to become partners because we recognized, from past experiences, their interest in cooperating and collaborating with

Veracel's Maintenance & Engineering Team

(Reference Figure 3)

- Responsible for maintenance performance and new projects results.
- The structure is a matrix, where the areas responsible (columns) facilitate the interface between the operational people and partners companies and control their results in that area.
- The functions (or skills) responsible (rows) technically support maintenance and engineering. They mainly work on projects and troubleshooting and also monitor the performance of equipment families (pumps, gear boxes, etc.) and control the results of the partners' companies throughout the mill.
- The continuous improvement process is conducted and motivated by the management team, through multi-skills groups.
- The engineering coordinator is responsible for the implementation and results control of new projects.
- The planning specialist is responsible for the mill shut-down coordination, verifying the integration between partners' planning, verifying the quality of the information in the CMMS, and supports cost control.

Table 1. Duties and responsibilities of the maintenance and engineering team.

ourselves and other service suppliers,” he notes. “That doesn’t mean we will not have our work cut out for us. We are on new ground here. To my knowledge this has never been attempted before, under these circumstances and conditions.

“We have the full support of senior management,” Piotto continues. “And we have the latest technologies. Operations management and personnel work hand-in-hand with us and the partners. We also have support from the OEM suppliers and the specialist companies with whom we have experience. We are a long way from any other outside support, whether it is equipment, spare parts, or contractor personnel. So we have to make it work.”

Performance Incentives. Veracel intends to pay for performance. Every contract signed with the specialist companies has performance-based language. Piotto and his team expect to review performance, measured through the use of Key Performance Indicators (KPI), on a regular and periodic basis, making adjustments as required.

“To fulfill the mission established and to arrive at the level of achievement idealized in the vision, it is essential (for Veracel and its partners) to pursue the concept of ‘world class maintenance,’ through systematic application of practical business processes and the constant evaluation of results. Maintenance strategies are based and will be periodically reviewed on objective analysis of results,” Piotto says. “Cost is our common enemy and profit is a function of performance. We fully expect to lower costs through good work from our alliances and share the profit resulting from improved performance.”

Partner Responsibilities

Maintenance partners at Veracel are responsible for functional performance, fulfilling the requirements of:

- Reliability engineering
- Planning, scheduling and control
- Execution

Where Reliability Engineering, for example, is defined as responsibility:

- To monitor production losses
- To evaluate equipment history data—to control the information quality
- To analyze failure root cause
- To make recommendations to avoid losses
- To elaborate maintenance politics, plans and procedures
- To guarantee spare parts optimization
- To provide technical support for operations
- To monitor function performance
- To analyze new technologies

Table 2. Roles and responsibilities of the alliance group.

The Future. The achievement of Veracel’s vision to any degree, as part of its ongoing process of improvement, will provide the mill a clear competitive advantage in today’s difficult marketplaces. In the meantime, the world’s largest single line bleached eucalyptus market pulp mill is being readied for startup with a reliability-focused, alliance-based, pay-for-performance culture firmly in place. ■

About the Author

John Yolton is a 40 year veteran of the Pulp and Paper Industry and remains active in PIMA’s Manufacturing Reliability Specialists Group as well as TAPPI’s Mill Engineering and Maintenance sub-Committee. Email: john.yolton@maintenancememo.com