

## *Myrtle Guides Paper Manufacturer Through Business Transformation, Producing Significant Savings and Optimized Throughput*

An integrated, multi-line paper mill producing a variety of consumer products wanted to adopt a competitive approach to resource management and productivity. To support this effort, a corporate-level playbook was developed with the help of Myrtle Consulting Group, based on the firm's extensive knowledge of business transformation. Implemented with latitude for local adaptation, the playbook also preserved key elements needed for consistency within the corporate organization. Myrtle's Analysis Validation Scan (AVS) process was used to identify specific needs and areas of opportunity, and to outline steps needed for transformation. The project was guided by both the Myrtle team and local mill personnel, with corporate oversight from the client organization.

### *Client Challenge*

The mill had developed over many decades into a collection of silos and isolated, often opposing objectives. Downsizing pressures in the past had led to a minimal staffing model with high supervisor-to-operator ratios and high staff turnover in some areas. A once sound approach to mill management had also devolved into a series of inefficient (though often practical) workarounds in many areas. Market pressures, environmental regulations and rising fuel and salary costs combined to challenge the facility's future.

Aging equipment, especially in the board mill, and a maintenance program that failed to preserve capacity in many mill areas resulted in unreliable assets, while constant failures in process areas led to a "just fix it" mentality as opposed to a "let's make this better" frame of mind. The collective mindset was one of survival and the financial losses inherent in this approach were estimated at over \$25 million annually. The scope of Myrtle's mill-wide engagement included implementing a standardized management system with metrics, returning equipment to OEM standards, increasing throughput, improving the maintenance work management cycle, improving planned outages, improving reliability practices and reducing overall maintenance spend.

### *Myrtle Approach*

The Myrtle AVS process highlighted the most acute areas of need. Myrtle consultants performed a variety of diagnostic studies and compiled production and financial data to convey a realistic picture of the mill and the issues at hand. The findings led to some stark but manageable conclusions and the corporate group overseeing the analysis agreed that the immediate needs were resolvable by implementing the guidelines laid out in the overarching playbook. The issues included:

- Poor communication and meeting behaviors
- Lack of formally reviewed Key Performance Indicators (KPIs)
- Lack of operational standards and effective troubleshooting guides / SOPs
- Customer and supplier integration points that were ambiguous and ineffective
- Suboptimal financial performance
- Missing or unclear guidelines at the operational level
- Misplaced decision rights on priority and procedures
- A poor work management process for reliability and maintenance
- Asset strategies not well defined or outdated for aged equipment



As a result of these findings, the decision was made to take a participative approach to address the issues. Myrtle consultants worked alongside the local management team to introduce the business guidelines and the renewed sense of urgency, energy and engagement. The project's primary focus areas were aimed at three critical opportunities: Management Systems, Maintenance and Reliability, and Production. The processes, systems and tools were implemented across the mill and were mostly effective in the board mill, power and recovery, pulp mill and tissue making due to the aging equipment, lack of standard operating procedures and lack of a cohesive asset strategy.

**1) Management Systems** – A series of well-defined meetings with specific attendees, agendas and objectives took place. These meetings served as communication and accountability forums and were also the setting for decision-making. KPIs were designed for both the meetings and for the production elements that were discussed in the meetings. Action logs were installed as part of the meetings, outlining specific activities and time expectations for resolutions. Responsibility matrices were designed and communication triggers and responses were defined for many of the critical elements within production areas. One of the most valuable portions of the management operating system was the formalization of the internal “customer-supplier” relationships. The formal meeting schedule and standing agendas were designed with this relationship in mind and highlighted both upstream-downstream responsibilities and the appropriate response and issue resolution protocols. This was particularly helpful between utilities, pulp mill and the board areas, as a lack of communication caused unnecessary downtime, especially around start-ups and shut-downs.

**2) Maintenance and Reliability** – Neglected assets were identified and prioritized for restoration. Returning these vital production assets to “like new” condition readied the mill for a renewed sense of capability. Asset strategies were defined for critical production assets while lubrication methodologies, preventive and predictive routines and activities, along with decisions on stocking levels for critical spares and supply chain protocols for other MRO items all served to support these strategies.

Within the board mill, criticality criteria were defined and planning and scheduling methodologies for managing backlog were introduced and implemented with input from technicians and departmental managers. Downtime reasons were categorized and significant failures were subjected to Root Cause Analysis (RCA) examination. Financial tracking of the sources of losses provided the motivation for funding and correcting the issues. Work was then prioritized based on downtime and financial returns and executed during the next scheduled down day or, if possible, while the board machines were running.

In addition, scheduled down days were improved through a new process in which board mill down days were formally reviewed and planned six weeks in advance. All job lists were frozen two weeks out and an integrated Gantt chart was put into place showing both operations and maintenance tasks. During the down day itself, the Gantt chart was reviewed by operations and maintenance to ensure jobs were on schedule. Most importantly, all down days were critically reviewed after the fact to ensure continuous improvement.

The same maintenance and reliability approach was taken in power and recovery, pulp mill, tissue making and converting, resulting in significant uptime and throughput improvements across multiple assets in those areas.

**3) Production** – Productivity for both mechanical assets and for personnel was examined and improved. Thresholds for optimal levels of operations for all production assets were defined and KPIs were used to measure performance against these expectations. Deviation from the ideal rates of production was cause for discussion and correction. Using “centerline” guidelines for identifying ideal rates and operating parameters led to well-defined operating limits to use in the control rooms and in the field. These centerlines were the result of deliberate examination of past performance and expectations against OEM standards and mechanical improvement efforts.

“Back end” productivity issues (liquor cycle, kiln and caustic management and pulping operations) required optimizing flow across the evaporators, managing dissolved solids by controlling rinsing and dilution and managing liquor inventories. Centerline for the back end included communication thresholds for liquor volumes and burn rates, storage capacity issues and recaust management.

The centerline and white boards were especially useful within the board mill, tissue making and converting because each experienced operator was running the machines / assets differently. By installing the centerline, it was easy to tell how each shift was running and then immediate feedback could be given to shift leaders if they were not operating within the appropriate limits. Placing white boards on the machine pushed the board, tissue and converting leadership team to the floor much more often, forcing them to understand the true issues on the production floor. This use of short-interval control tools allowed first-line supervisors to respond quickly to changing conditions and tactical demands within the board mill, as well.

## The Results

The mill benefited from a variety of process and financial improvements:

- OEE in tissue making increased 14 percent
- OEE in board making increased 11 percent
- The pulp mill increased 4 percent points uptime across all lines (an increase of \$1.8 million) and showed a significant increase in dissolved solids in the spent black liquor
- There was a 20 percent decrease in chemical makeup costs in utilities
- The management of the liquor cycle in the mill increased 22 percent in volume through the evaporators and saved \$3.1 million in fuel costs through increased liquor burning
- There was a 15 percent increase in uptime in all boiler assets
- The mill achieved a 35+ percent decrease in backlog across all areas
- An annualized savings of over \$5 million in maintenance contractor and material spend was achieved

Additional impact within the mill came from increased pride in results, improved longevity in personnel positions mill-wide, a certification program for lubrication technicians and improved visibility for safety results. A well-defined path was established for introducing new hires to the management system and tools, as well as clear accountability for results in all areas.

Are you ready to start building long-term, sustainable financial results? Contact us today to get started on a path to improved margin and profitability.

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