

A Proud Group. Gathered next to PM-8 are:
(l-r) Dan Chrusz and Andre Nicol, execs at
Thunder Bay Fine Papers; Mayor Lynn Peterson;
Michael Gravell, Member of Provincial Parliament
(MPP); John Hitchman; and Bill Mauro, MPP.



Thunder Bay Mill Rolls to Re-start With New MES

After being shuttered for two years, the newly formed Thunder Bay Fine Papers mill is up and running better than ever thanks to a lot of hard work and a new production control system.

By Lon Allworth

Thunder Bay Fine Paper had reason to celebrate during the recent reopening of the former Cascades plant. Approximately two years ago the former Cascades mill closed down due to unfavorable economic conditions and high energy costs. At the time, it was a definite loss for the community as many of the area residents worked at the mill.

The mill, located in Thunder Bay, Ontario, started up again on May 1, 2008 under the newly formed company of Thunder Bay Fine Papers, Inc. According to John Hitchman, the company's chief operating officer, efforts to re-start the mill were on a fast track.

"The whole process started January 4th, and 120 days later the mill was producing quality paper for Canadian and US markets," Hitchman noted.

So far, about 180 jobs have been generated and eventually 320 jobs will result when the remaining two machines are brought to life later this year. The mill will produce fine coated paper used by publishers for books and magazines.

One of the challenges of the start-up was the mill itself. Being dormant for two years under extreme winter conditions created problems with things like broken pipes, not to mention the toll it took on the existing paper machines. However, PM-8 was the focus of the machine restoration process as it was selected as the machine that would be fired-up first for the start-up of the mill.

SYSTEMS AND MILL PROCESSES

When the mill was purchased by the new owners group, there was no roll tracking system included in the assets. The owners needed to find a company that could provide the critical production control systems the mill required while also meeting an extremely short timeline. Ultimately, the decision was made to go with Vancouver, Washington-based Panther Systems, who specializes in software for the paper industry and other roll manufacturing businesses.

Along with a short deadline, installing the roll tracking system was further complicated by the timing of hiring personnel. During the period immediately preceding the planned paper machine start-up—when it was necessary to create and test business processes and workflows—many positions throughout the mill were not yet staffed and the management team was in the midst of the hiring process.

In addition to the time crunch, limited documentation was found revealing prior mill practices. Although many of the newly hired personnel had previously worked at the mill and could recall prior practices, it was deemed necessary, for the most part, to adopt Panther's standard processes and workflows. This was the only realistic option available if the mill was going to meet the aggressive start-up schedule.

Similarly, the rapid deployment schedule made it necessary to forego the customary project management steps of creating a design team, building a consensus around documented requirements, formalizing testing plans, and testing for end-to-end acceptance. In lieu of this normal project management process, the mill identified key personnel whose judgment was relied upon to evaluate rapid prototype software delivered by the Panther team. These key personnel, who are experts in various areas of mill operations, were empowered to define mill processes. Together with the Panther team they worked on the system configuration and use. By selecting from available options, they were able to customize the applications to meet the mill's specific needs.

NEW MANUFACTURING EXECUTION SYSTEM (MES)

Installed components of Panther's MES include the Panther MillTools® suite, which is a production management information system for roll tracking, and the integrated Panther Test-Central® system providing quality information for the dry lab.

A core team consisting of corporate, mill and vendor experts were assembled to plan and execute the project. This was a notably small group. In all, fewer than two dozen people made up the core group, with resources split nearly equal between the software vendor and the mill staff.

A cursory site survey and gap analysis was provided prior to project kickoff to develop and detail the project plan.



Checking-In. John Hitchman talks with energy manager Mark Niemi during the start-up phase of the mill.

This was necessary in order to meet the business processes and operational requirements. The actual project got underway April 17, 2008 and the system began processing paper on May 1, 2008—a short two weeks later. During the project, the systems were configured, the database populated, and testing performed on-site. A core team of mill resources was trained by Panther to use the system applications. In addition, during the first two weeks of system use, Panther provided support to mill personnel to ensure project success and provide additional on-the-job-training.

The new roll tracking and dry lab systems operate on a normal business LAN using thin client workstations and a single server rack. Data views and reports are distributed throughout the mill using web (intranet) technologies.

The single roll tracking system performs traditional roll



Up and Running. Thunder Bay Fine Papers' chief operating officer John Hitchman and chief financial officer John Arnold stand next to some of the first paper produced on PM-8 since the re-opening of the mill.

tracking and ERP functions, thereby assuring tight and complete data integration for smooth mill floor operations. Orders are entered in the system and initially being manually scheduled, pending selection and integration of a Trim Optimization package. Inventory and shipments are handled by the system, as well as preliminary invoices used to pass accounts receivable data to the mill financial software, which generates the final invoice.

The addition of the dry lab system adds a new dimension of integration not previously available. This has shown benefits in several areas of mill floor level decisions to save paper and smooth production. It also provides roll genealogy of integrated production, quality and order data over the Internet for customer communications, and in-mill or corporate performance analysis.

Expected benefits from the system were quickly realized. In addition to the obvious advantages of being able to order, schedule, produce, label, ship, and bill for paper mill production, the system successfully automated processes and eliminated manual steps previously required at the mill.

In addition, customer required Certificates of Analysis are generated automatically by the system and are sent via email automatically to the customer. These documents can also be set up to send via an auto fax server when one is available.

MULTIPLE BUSINESS MODELS

The mill is able to use a combination of business rules to achieve its objectives. This includes combining "make to stock" and "make to order" business processes. Inventory is managed locally and at off-site warehouses. Load planning can occur prior to roll production or by creating pick lists of produced inventory. Loading is currently performed using peel off roll labels which are scanned at a workstation. It's important to note, this process will be replaced when hardware arrives for wireless warehouse operations. Pro Forma invoices, necessary for crossing the border into the U.S., are automatically generated for southbound loads.

Data quality information is now integrated and available to the winder operator before the winder operation is performed. The operator readily sees the quality information

and can make a decision to cull or downgrade a roll without other intervention. Lab tests can be re-run quickly when encountering a suspect quality problem and the mill reports that roll/set quality tracking has vastly improved. The immediacy of the data and floor level communication results in paper savings while maximizing operations.

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The scale operation is a multi-purpose station that weighs, measures, bands and labels rolls of paper in preparation for order fulfillment in shipping. Measured weight, length and diameter are used to compare against calculated weight produced by the paper machine basis weight sensor and order roll size. An error between the actual weight and calculated weight automatically prints a default label, indicating an error condition.

With the Panther system, like rolls can be soft allocated in warehouse bays. An order can be quickly assembled and shipped from the available inventory. This flexibility maintains shipping efficiency and accuracy while keeping inventory requirements to a minimum.

REPORT GENERATION

The system provides a customary set of standardized reports. New reports are easier to generate using standard report generation packages readily available for PC operation. The reports can also be made available over the Web. It is expected that new report types will be added over time as the system and existing reports get used and additional needs are recognized. Focused reports allow the mill to analyze all aspects of production to reduce cost and increase revenue.

An interactive downtime report has proven to be quite useful. The report maintains a history of paper machine events and allows operator comments to be added. This permits the mill to perform operational analysis against time of occurrence, grade, customer order, and reason for downtime, or any other of the many related parameters kept in the database.

OPERATOR ACCEPTANCE

One common favorable response from operators is the ease of use of the roll tracking and dry lab systems. The learning curve on Panther's system is moderate and application proficiency is quickly achieved. For this mill, a cross-trained workforce is standard procedure. Fewer screens, straightforward information and response to entries, and simplified navigation help the operators to concentrate on their jobs rather than becoming computer technology experts.

WEB ACCESS

Because of its modern Windows platform, the new Panther system makes information access through the Internet easily available. Web access provides linkage for the Corporate Enterprise systems, allows mill personnel to examine operations via a Web browser in local or remote scenarios, permits corporate resources to obtain data for analysis, and allows customer service representatives to obtain immediate status on orders, shipments and roll quality for customer satisfaction.

FUTURE IMPROVEMENTS

The roll tracking system is being expanded as the two remaining paper machines are eventually brought online. These machines are expected to start-up later this year. Specific improvement projects being planned include: improved visibility of work in process found at various points in the plant, interfacing with the paper machine control systems, integrating with the Trim Optimization package, and adding a process historian and analysis tools.

The mill will also be involved with moving a winder from an unused machine downstairs up to PM-8. The replacement winder is much newer and in much better condition. Although this will be a huge physical undertaking, the internal swap will save the mill a great deal of money.

It is exciting to witness the revival of a once closed mill—to see how investors, the community and vendors have come together to successfully achieve what seemed to be an insurmountable task. Not only was the restoration of the mill a grand achievement in and of itself, but the extremely short timeline certainly heightened the challenge. ■

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