BAY STATE PAPER COMPANY: A MILL THAT REINVENTED ITSELF

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AN OLD PAPER MILL IN BOSTON GETS A NEW LIFE.

BAY STATE PAPER CAME INTO BEING IN DECEMBER 1994 when three experienced professional papermakers, along with a capital investment firm, purchased the assets of the former Patriot Paper Corporation. Paul Magnell is CEO; Jim Morgan, president; and Charles Wall, vice president of operations. The two most recent owners of the mill were Tembec, Inc., and James River Corporation. The mill site enjoys a unique place in U.S. papermaking history. A plaque outside the main entrance states, "This is the longest continuously operating paper manufacturing site in the nation. A paper mill has been located here since 1773."

1. The administration building of Bay State Paper. A plaque beside the front door indicates the history of the site.

Today, BSP is one of only a handful of domestic independent containerboard producers without intracompany ties to corrugated or boxboard plants. Jim Morgan, who focuses much of his efforts on the sales and marketing functions, says, "The vision of our team is to operate this mill as an independent supplier of corrugating medium, linerboard, and specialty kraft grades."

The company's focus is on quick service. Says Morgan, "If a key customer places an order with us, we respond with immediate service. This can mean same-day or overnight delivery in some cases. This is a point of true differentiation in our market."

On average, the mill produces 300 short tons per day—approximately 80% corrugating medium, 15% linerboard, and 5% specialty kraft grades. The corrugating medium is produced from a 95%/5% blend of old corrugated containers (OCC) and mixed waste. The linerboard uses approximately 35% double-lined kraft (DLK), a preconsumer box plant waste, with an OCC balance. Recovered paper comes in by truck, and rolls of containerboard products go out by both truck and rail. Charles Wall says, "In essence, we take almost 400 tons of wastepaper from the Boston area each day and convert it into over 300 tons of salable product."

REFURBISHMENTS AT THE MILL

Paper machines

Bay State operates two fourdrinier paper machines. The No. 2 machine started up in April 1995, and the No. 3 machine followed two months later. The machines, which had been idle for about two and a half years, were completely refurbished prior to startup; several capital improvements followed shortly thereafter.

The No. 2 machine trims out at 95 in. and operates at speeds up to 1200 ft/min. A new profiling Bergstrom steam box was installed at startup. In 1996, LG Industries replaced the press section. The first press, a rebuilt unit, loads to 600 pli. The new second press loads to 1500 pli. All four rolls in the press section are blind-drilled, and the presses have a tandem top and bottom felt arrangement. Weight and moisture control are accomplished with a

Honeywell-Measurex 2001 System, and a Fisher-Rosemont Distributed Control System provides process control. The machine has 36 dryers 4 ft. in diameter. These dryers are currently being rerated to 100 psi by GL&V. The process consists of measuring shell thickness, visually inspecting the internals, magnetic particle testing of the heads and headbolts, and pressure testing each dryer at twice the operating pressure.

The No. 3 machine trims out at 105 in. A new MagneTek variable frequency ac drive permits speeds up to 2000 ft/min. This machine also received a new Bergstrom steam box at startup. Two years later, the press section was replaced, the fourdrinier was extended 19 ft., and a new tapered header was installed on the headbox by Valmet. The new presses are similar in design to the No. 2 machine, but they load up to 1000 and 2000 pli respectively. A prototype Honeywell-Measurex Vision System is currently being replaced with an MX Open System (also from Honeywell-Measurex) and is Y2K compliant.

Process controls

Process controls are provided through a Fisher-Rosemont PROVOX System. This system was extended to include both paper machines at startup in 1995. It too is currently being upgraded to the ENVOX platform and is Y2K compliant. Five operator stations, one at the pulper, two in screening and cleaning, and one at each of the paper machine wet ends provide operators with control access.

Stock prep system

The stock prep system has also undergone significant changes from previous arrangements to accommodate the change from white to brown grades. These changes have reduced maintenance and operating costs, reduced fiber losses from the system, and increased output.

Pulping system

The former high-consistency batch pulper was converted by Thermo-Black Clawson to their raised-rotor design for continuous operation. A ragger was added, and the batch detrasher was also converted to continuous operation. The converted pulping system operates in the medium consistency range. A Thermo-Black Clawson model 20 hydrocyclone accomplishes high density cleaning of the furnish, removing large, heavy debris. This debris includes rocks, staples, and glass. A sand separator removes these materials from the system and returns any fiber and water back to the process.

Deinking system

Most of the other original deinking system has been replaced with a combination of new and used equipment that is more appropriate for either throughput or debris-handling capabilities. Thermo-Black Clawson provided a UV-400 pressure screen with 0.079-in. holes for the primary coarse position and a Float Purge with 3 mm holes for the secondary position. A Jonson-type vibrating screen with 0.125-in. holes is in the tertiary position. Two model 20 hydrocyclones serve as medium density cleaners to remove sand and grit. Another sand separator removes this material from the process. A Voith size 30 vertical pressure screen with 0.01-in. slots provides primary fine screening. A UV-300 and two model 50 Mini Screens from Thermo-Black Clawson are the second, third, and fourth stage fine screens. These are also equipped with 0.01-in. slots. Screened and cleaned furnish is thickened with a vacuum drum decker and then pumped to storage at approximately 8% consistency. From storage, the furnish is refined independently for each machine. The No. 2 machine has two Beloit-Jones 30-in. DD refiners, and the No. 3 machine has two Bolten Emerson 36-in. refiners.

2. Charles Wall, left, vice president of operations, and Jim Morgan, president

Infrastructure

On an ongoing basis, the mill continues to work on typical physical plant and infrastructure issues common with old facilities. The electrical distribution system, roof, and HVAC systems are examples.

Wall says, "We are also in the final phase of an engineering study to determine the cost, configuration, and

3. Mill density cleaner with sand separator

benefits of a cogeneration facility for the mill. Since electrical power costs in this area are extremely high, this project represents a great opportunity to reduce a major cost component."

BUSINESS STRATEGIES

A significant factor for most mills like BSP is the difference between the cost of fiber and the price that BSP can get for their medium and liner. The viability of the mill is based on being able to maintain a cost structure that will support the material spread at its lowest levels. To get the best possible price for their products, Morgan emphasizes that consistent customer service and product quality are their top priorities. As an independent supplier, they believe they can be a successful niche supplier of the lower basis weight grades and provide exceptional service to their customer base. "We want our customers to realize that we will always be a provider of these grades and services, whereas larger mills will typically only produce the lower basis weight grades when their core market is slow," says Morgan.

4. Conveyor feed to pulper

Even though the cost of OCC has increased appreciably in the last 18 months, BSP is operating at levels that will secure it as a long-term viable business. Another challenge the mill faces is maintaining a highly skilled workforce. With the strong economy and tight labor market, this is perhaps their major task. But, as time goes on, BSP is gaining a reputation as a good, reliable place to work. The mill management is very optimistic about the future and BSP's place in the containerboard and specialty kraft marketplace. TJ

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