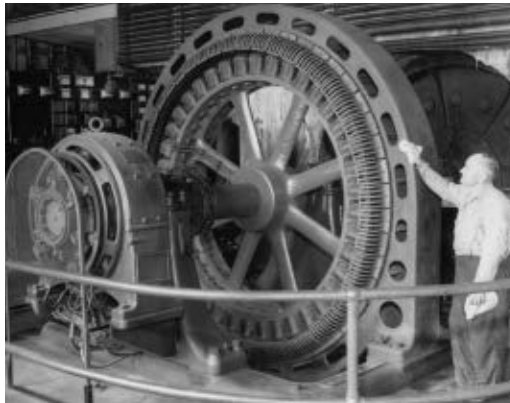


Photos at left show one of the old grinders used in the ground-wood mill and the original paper machine. At right, Jon Johnson with one of the bales of recycled fiber, each of which is tagged with an RFID label



By GRAEME RODDEN, Executive Editor

Joining FutureMark Paper Group is helping Manistique create a brand, not a commodity

MANISTIQUE MAKEOVER

LIKE LONG LOST SIBLINGS reunited after many years of separation, the Alsip, IL, and Manistique, MI, paper mills are now back under the same umbrella – this time that of the FutureMark Paper Group.

After suffering through numerous ownership changes, including a bankruptcy shut down in August 2011, the Manistique mill re-opened just one month later thanks to the efforts of Jon Johnson, now executive vice president and general manager, as well as the foresight of the local bank, mBank, and the Michigan Economic Development Corporation. Still, this was a short-term solution and a buyer was needed for long term survival.

The Watermill Group, a Lexington, MA-based

private investment firm, which had purchased and repositioned the Alsip mill in 2009 as FutureMark Paper (*PPI*, February 2011, June 2011), first visited the Manistique mill in November 2011 and was intrigued by the possibilities of this northern Michigan mill, finalizing the sale in May 2012. Although the two mills are separate legal entities, they are operated under a marketing alliance called Futuremark Paper Group and share common senior management. There are now 150 employees, up from 120 when the sale was finalized with Watermill. And, the mill has been profitable every month since the purchase.

Originally opened as a groundwood pulp/newsprint mill in 1920, the Manistique facility has evolved to produce about 130,000 tons/yr of uncoated print-

ing and writing grades from a 100% recycled furnish. (For a more complete history, see boxed copy.) Recently, it has made a bold move into lightweight brown kraft packaging papers, which now accounts for about 25% of capacity and is growing. And, the mill still produces a small amount of newsprint mostly destined for local markets. Its market for other grades extends about 700 miles.

"We started making kraft paper in early 2011," says Johnson. "This was an attraction for FutureMark and Watermill, that a paper machine could quickly switch between high bright and kraft."

At first, Johnson adds, FutureMark and Watermill were skeptical about the mill's ability to switch so quickly. But, knowing the printing and writing market was in decline and kraft paper was growing, creative management searched for a way to enter a new market and was successful.

The mill accomplishes this on its one machine, a Voith DuoFormer F twin wire former that was installed in 1986 when Voith completely rebuilt the original machine including part of the dryer section. Johnson says the mill has a "great relationship" with Voith, noting the mill modernized further in 2007 with the installation of a Voith Master Jet F dilution

control headbox and a Honeywell scanner and distributed control system (DCS).

The goal of the new headbox was to allow the mill to make quick grade changes, but also to improve formation, an important parameter for printability. "We get excellent formation in our paper," says Johnson, "which is a great competitive edge for Manistique."

Only the winder, vintage 1976, has not been touched, other than with the addition of an automated slitter. The wrap line was installed in the 1980s. All production goes out by rolls.

The machine can now run up to 4,500 ft/min with a trim of 147 in. at the winder. The mill's basis weight range is 30-70 lb/ft². The rebuild also included a unique self-threading system that allows crews to recover from breaks in two to four minutes.

"The ability to run a large range of basis weights allows us to jump in and out of grades," Johnson explains. "The quick change also allows us to make various colored paper products: steno pads and legal pads, for example."

Other technical twists that allow Manistique to master grade changes quickly include a 5-press configuration that provides extra dryness for the web going into the dryer section. White water and storage

Ensuring the source

Recycled paper mills are at the mercy of the secondary fiber market. Silver notes that in 2011 when prices were at a peak, many North American recycled mills went under. For example, over a recent two-year period, ONP and OMG market prices fluctuated 300%.

It has not been an easy road, but FutureMark has fought hard to stabilize recycled fiber costs. When market prices were at their peak, no one would talk to them. But, when the market cratered in 2012, FutureMark went back to the collectors and offered stable cost agreements but over a two to three-year period, based on the historical market indexes. RockTenn (which has a large collection division) was the first to agree. Then, more and more came on board so that now, approximately 50% of both mills' raw material is sourced under long-term contracts. The industry giant, Waste Management, is the latest to sign purchase agreements with FutureMark.

With two mills, FutureMark is one of the largest users of waste paper in the mid-West, purchasing about 300,000 tons/yr. As Silver notes, "It makes it easier for us to do more long-term pricing contracts.

From a marketing perspective, a number of customers want a recycled sheet but also question how to insulate themselves from recovered paper cost volatility. "We think we found the way," says Silver. "We can make money but so can our suppliers. We've hedged a proportion of what we need and can play the market on the balance. This ability to regulate the cost of our raw material allows us to be a more reliable supplier to our customers."

Another benefit is that with long-term supply agreements with high-level suppliers, FutureMark is ensuring a consistent source of quality fiber.

tanks are much smaller than for a conventional machine, which prevents contamination of the process when changing grades.

The dryer now has 53 drying cylinders so space is tight. During the bankruptcy period, when cash was hard to come by, the mill was forced to buy lesser quality secondary fiber. As a result, the dryer cans suffered from a buildup of stickies.

This led to the mill increasing the heat so it could get through the layer of stickies. Moisture profiles were off the charts: wet in the middle; dry at the edges. After the sale, teams from both mills searched for a solution: a spray bar from VIB improved the moisture profile and customer satisfaction was rith back up. The space restriction in the dryer drove another in-house solution for the stickies problem. Ashland supplied what FutureMark Paper Group CEO Stephen Silver calls a soy-based, environmentally friendly “super goo be gone” that softens the stickies so that they can be easily removed. But, to get to them, the teams designed their own doctor blades, which Johnson says look like “multiple butter knives” that fit into the narrow pockets between dryer cans and solved the problem once and for all.

The mill was averaging 285 tons/day prior to the FutureMark/Watermill acquisition. Now, it is up to 325-335 tons/day and in April 2013 experienced its best month since 2009, averaging more than 350 tons/day. “It was a relief to solve the quality problem,” says Silver, “but the increase in productivity really put the mill on solid financial ground.”

FORESIGHT SHOWN BY FORMER OWNERS

The 1986 rebuild was done when the Field family (which also built the Alsip mill) owned the Manistique mill. Johnson says that at that time, the mill primarily made newsprint. “We knew we had to find a way to diversify to continue to make money,” Johnson says. “It was good foresight by the Field family.”

Manistique was one of the pioneers in recycling, first experimenting with the use of secondary fiber in 1959. The mill converted to a 100% recycled furnish between 1981 and 1983 with the installation of a Voith flotation system. The groundwood mill was shut in 1984.

Since then, the only change to the system was the



Recycled fiber moving up the conveyor; a scanner at the top reads the RFID tags

installation of a disc filter, roll press, steaming and bleaching (peroxide), and stock storage in 1996 when the mill was owned by Kruger. The \$13-million investment was helped by a solid waste alternative program grant, and the new additions helped the mill achieve 80 brightness on its paper and it has since increased that to 85.

The Manistique mill recycles nearly one million pounds of secondary fiber each day. This includes some ONP and OMG as well as OCC for its kraft paper. The mill sources its paper from a 500-mile radius around Manistique, which includes the road from Chicago north along the western shore of Lake Michigan up to the mill.

The majority arrives by truck and Manistique has various agreements in place for back hauls. That is, trucks delivering paper from the many mills in northern Michigan/Wisconsin return with secondary paper instead of driving back empty. This was another attraction for FutureMark and Watermill, which was surprised when transport rates for Manistique

were close to Alsip rates, although Alsip is an urban mill. The back haul was the reason.

Another interesting twist is that each bale of fiber that enters the mill is immediately tagged with an RFID label noting the grade, weight, seller details and the FutureMark team member who received it. All this information is entered into the mill's database. "We know what each bale is and that is key to our recipe management," Johnson says. A scanner also reads each label at the top of the conveyor just before the bales drop into the pulper.

Johnson says the mill buys 12 different types of paper. "Depending on what we make, we decide what we want to mix. With our small storage capacity, we can go from conveyor to headbox in three hours."

Providing further data points to assist with 'recipe management,' there are brightness sensors situated throughout the process, enabling operators to follow brightness levels and blend the secondary fiber to reach the required levels for particular products. "We can follow it and make adjustments without adding chemicals," Johnson adds. By the end of this year, the mill will also add a disperser, which will allow the Manistique facility to improve the strength of its product and develop further in the packaging paper markets. Also by the end of 2013, the mill aims to complete its transition to natural gas, shutting down two coal-fired power boilers that were installed in the 1970s. It installed its first gas boiler in 2012 and the new system should be able to provide all the mill's

It's a wonderful life

The upper peninsula of Michigan has long been a major source of wood for the forest products industry. Numerous sawmills were built in the 19th Century to provide lumber for the burgeoning cities of Chicago, Milwaukee, Green Bay and Detroit.

It is estimated that between 1863 and 1912, 5.1 million tons of sawdust and chips were either dumped into the Manistique River or barged and dumped into Lake Michigan. (Imagine what could be done with that today!)

Pulp and paper mills seemed a natural for the region. W.J. Murphy, owner and publisher of the Minneapolis Tribune, was looking for a place with water and wood where he could build a newsprint mill to feed his presses. He was the first to come up with definite plans in the early part of the 20th Century. However, American participation in World War I meant steel had to go for armaments, not paper machines so construction was put off until 1920.

The mill changed hands in the 1950s when Marshall Field IV purchased it. It was another branch of the Field family, led by Teddy, that owned the Alsip, IL, mill. In the late 1980s, Marshall Field's finances were hard hit by some poor investments so he sold the mill to Canadian-based Kruger.

The Kruger family owned the mill until 2006 when it decided the newsprint industry would no longer be its primary focus, and subsequently sold the mill to private equity interests. This was the beginning of bad times for the mill, ending in the bankruptcy and shutdown. For a mill that produced the paper for the Harry Potter series of books, some Hogwarts' magic was badly needed. It came with the restart and, finally, the acquisition by Watermill.

FutureMark CEO Stephen Silver compares the story of the restart with the classic film: *It's Wonderful Life*. When the mill went under, the community rallied around it. Not only was Manistique Paper the community's largest employer, but there were also multiple indirect jobs associated with the mill – transportation, maintenance, hospitality, etc. "Jon and mBank convinced the state to provide a short-term loan to keep operating. This gave them the time to go through a real Chapter 11 sales process. We found a united community, not an angry work force. And there was a very loyal customer base. The purchase closed in May 2013, and we were not only profitable from day 1, but we have increased our head count by 20%. To top it all off, loan support was released at the end of the first year."

A testament to its workforce, products and customer relationships, when the mill reopened after the short shutdown in 2011, its reputation was such that every customer but one returned to the fold. Its largest customer was an educational publisher, which meshed well with the Alsip mill's new push into the school book market.

steam needs so the coal boilers be used only as a backup. Not only will the conversion to natural gas further improve the mill's "green" credentials, it will also help save money. However, with very little power generation in the upper peninsula of Michigan, the state is pushing co-generation so that is something Manistique will be evaluating.

What else is on the wish list? Johnson says it is important that the mill continues to be nimble. Besides the products already mentioned, the mill produces school work book paper, as well as paper for machine rolls, bank disclosure sheets and fast food bags. "The capital investments we've made will allow us to get into more of these markets," Johnson says, "because of the added strength it will bring to the sheet."

THE ROAD TO MANISTIQUE

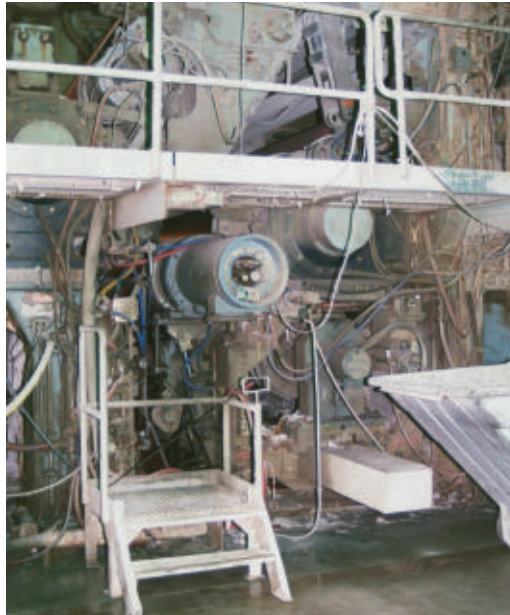
What was the attraction this ageing and ailing mill had for FutureMark and Watermill? Silver says being an uncoated recycled P&W mill makes it a good complement for Alsip, which produces coated P&W grades from a >90% recycled furnish.

He says the Manistique was primarily in Chapter 11 because of the pricing volatility of waste paper. "It had loyal customers, dedicated employees and a good management base. They have been very creative in ensuring the paper machine remains profitable."

Based on the experience with Alsip, Silver adds that recycled paper can be marketed as a solution for environmental needs, rather than as a commodity. "Many companies – particularly the Fortune 500s – prefer recycled paper. With the Manistique/Alsip combination, we can offer a much wider range of products that meet their needs."

Silver adds that many magazines are now branding their paper as being supplied by FutureMark. Among them are *US News & World Report* and American Airlines' first class magazine, *Celebrated Living*. "We now have many respected magazines printing on our paper, as well as as number of the nation's top retailers."

FutureMark also believed the concepts it had developed at Alsip – customer loyalty, partnerships, alleviating pricing volatility of secondary fiber – were transferable to Manistique.



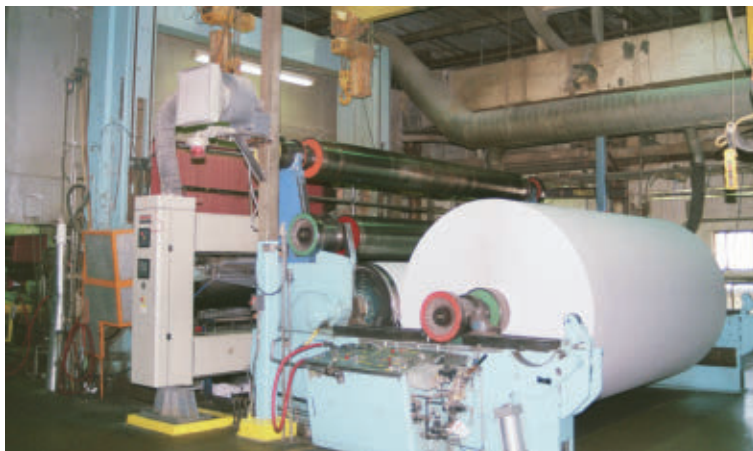
The machine has a 5-press configuration which provides extra dryness

When the FutureMark and Watermill teams team visited Manistique in November 2011, they found a number of pleasant surprises, many of them on the financial side, according to Silver. "The business was historically profitable. The last shutdown because of lack of orders was back in 1977."

The customer base was loyal and the mill had a strong position in the uncoated market and was growing in kraft paper. There was potential for some significant energy savings, and, perhaps most importantly, it had a good paper machine capable of quick changes.

On the downside, there had been minimal preventive maintenance since Kruger sold the facility; there had been no capex for six to seven years. In addition, energy costs were high. The area is served by a small electric cooperative and Manistique is its largest user. FutureMark went to the cooperative, explained the situation and was able to make a deal with a larger energy provider. By the end of the year, FutureMark will bring in about two-thirds of its electrical needs from the new provider, saving approximately \$2 million annually. Of course, co-gen is still on the table for the future.

Despite the handful of drawbacks, FutureMark



Winder trim is 147 in.

saw a hidden gem with significant opportunities to improve and expand the product base. “We have a very nimble machine that can make much more than printing and writing papers,” Silver says. “We saw an opportunity to make Manistique even more profitable by paying some overdue attention to the mill.”

Silver notes that lessons learned at Alsip have been application to Manistique. “When a customer starts showing a preference for a particular product, it’s a wonderful situation. It evolves into a long-term relationship that can move into product development.”

For example, he cites a case at Alsip, which could become a model for Manistique. One of the mill’s customers, an educational publisher, was looking for a higher brightness paper for its weekly reader for students. It needed an 85-86 brightness and the highest Alsip had been able to reach was 82. “But, we worked at it and succeeded,” adds Silver, “and now we’ve picked up other customers in the text book market.”

The mill is also experimenting with even higher brightness products, which moves it into the realm of a coated freesheet (Alsip has an online coater).

Silver would like to see even more partnership and development happen at Manistique. Since Watermill purchased the mill, 72 new customers have come into the fold including some cross-sold from Alsip. These clients, some very large, are buying from both mills, not leaving one to buy from the other.

“We would like to get to the point where customers don’t think of the specific mills and their products, but of our ‘green’ paper solutions. FutureMark can be a full line supplier for customers. We’re fast, efficient, flexible – and sustainable,” Silver adds. “We will continue to further explore kraft paper because it enables us to diversify into packaging, and to balance our product offering.”

One major customer has begun converting from coated text book paper to uncoated but, still wants to print a “heavy” four color. Silver says Manistique paper is so good, customers are switching from coated to uncoated and are very satisfied with the end result.

“We now produce nearly 300,000 tons/yr of recycled paper,” Silver adds. “We have two sets of managers who developed their knowledge separately in the coated and uncoated markets. With all this, we are moving up the ladder for recycled paper and hitting new, higher value-added markets.” **PPI**

Stop wasting money cleaning combustible dust.

Start using SonicAire 2.0.



Combustible dust from pulp and paper processing is a dangerous challenge. Using our proven Clean Fan Technology™ system, we’ve built the SonicAire 2.0 to control this heavier fugitive dust by creating an overhead barrier. The results? Your plants comply with OSHA regulations and stay protected from dust explosions.

Let SonicAire 2.0 be the last investment you make that can pay for itself in a year.

Take advantage of our “Try and Buy” promotion. Try a SonicAire 2.0 fan for 60 days. Money back guaranteed if you are not completely satisfied.



Contact Jordan Newton for details:
Call **336.712.2437**
or email
jtnewton@iesclean.com.

iesclean.com



Manufactured by IES



To read more articles on Papermaking, visit our Papermaking Technology Channel at www.risi.com/technologychannels/papermaking