Redesigning Repulping Operations – A Success Story

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ABSTRACT

This presentation will focus on the recommendations made by the energy team using Voith Paper to optimize the preparation of pulp for papermaking and will show the savings gained. We will review the steps that the energy team took and the methodology that led to their present day success.
The major steps:

- Initiated supplier involvement
- Changed pulping times
- Supplied two paper machines from the largest pulper
- Installed a SlushMizer™ repulping rotor and QuadraPlate™ extraction plate.

Finally, we will present the financial benefit of moving from the past practices to current operations. The utility data will be presented to show the benefits of each change which include:

- Optimizing batch pulping times
- Utilizing a single pulper to supply furnish for both paper machines
- Reducing energy requirements by converting to high performance pulper tackle

INTRODUCTION

As an Energy Advisor with Focus on Energy, Wisconsin's statewide energy efficiency program, we have had some great success in helping BPM Inc improve their energy efficiency. This paper will detail the events of one opportunity that mill personnel have embraced showing greatly improved efficiency along with cost reduction.

MILL HISTORY

The mill formerly known as Badger Paper Mills in Peshtigo ran two paper machines 24 hours a day. Each machine had a completely independent whitewater system. After their pulp mill closed in 1996, the pulpers ran continuously to provide stock to keep the machines running. During the machine outages, the pulpers were turned off but otherwise they operated in batch mode 24 hours a day.

For various reasons the mill was closed in October of 2005. The mill got a fresh start later in 2005 when its assets were purchased and the operation restarted as BPM, Inc.

As BPM Inc., the paper machine operations were changed to run only one paper machine at a time and not build inventory, though there have been periodic times of concurrent operation. This schedule allowed for change in the pulping operations. Instead of continuously making batches, the pulpers were run only as needed and for a shorter period of time each batch.

Focus on Energy teamed with their local utility (Wisconsin Public Service) in 2006 to provide assistance to the mill through an Energy Team headed by Jim Koronkiewicz and Randy Cohorst. In our monthly meeting, we were able to communicate the assistance that Focus had for each potential project and changes in our program that may benefit the mill. Some of the assistance was helping implement projects through financial incentives; other assistance came as a "reasonableness" test to project savings and still others as co-funding feasibility studies. After more than a year the mill moved from 5 days per week operation to 7 days. During meetings with the management, we spoke of a new program that Focus was implementing for 2008. It would cover staffing time for one person to work about 1,000 hours on energy projects for the year. Some of the conditions were regular monthly meeting and projects needed to be implemented. With this in mind Steve Peterich was hired as Energy Engineer/Plant Engineer at the operations in Peshtigo.

During a 2008 brainstorming session it was identified that the mill could use a Focus incentive offering and install an energy efficient re-pulping rotor on their largest pulper based on a previous Focus case study. The mill did not

have the data to substantiate how long they were running their pulper vs. how long they needed to run their pulper. It was suggested that Voith Paper in Appleton be contacted to provide some guidance in this area. On their first visit to the mill, the pulping time was evaluated using their "Blue Glass" test model. After running trials with various blends of fiber, it was suggested that the pulping times be cut in half. This project reduced pulping cost by 50% (savings of $45,000 per year) and nothing happened except the pulpers were turned off earlier until they were needed again.

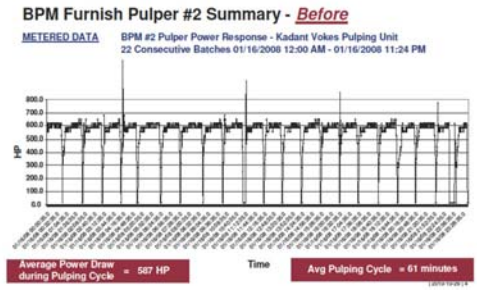
Operators embraced this concept immediately with comments like "Why not? It is just a waste to let it run." and "We need to be more careful so that our grandkids have energy to use when they grow up." The next change took place because the operators were thinking "outside the box". They found that if they soaked most bales on grades with extra time between batches, they could run the pulper for 8 minutes instead of the usual 30.

Finally at the end of 2009 pipes were installed to connect all pulpers to any machine. The next step was to order Voith's "Slushmizer" (the high-efficiency rotor and extraction plate). It was engineered, manufactured and installed in 2010. In November 2010 training was given to operators to make the most efficient use of the pulpers. It included analysis by the energy team to calculate the savings from the point that Focus and Voith started trials on the pulper to the way that the mill is presently running their pulpers.

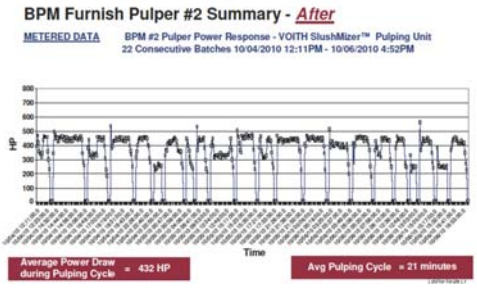
CONCLUSION

The biggest attribute of the project was not the energy saved equipment. It was the change in attitude toward energy waste and the operator involvement that made the most impact at BPM. The project was the catalyst for a myriad of changes that collectively dwarfed the savings from just the rotor and extraction plate change.

The savings calculations were generated from data gather with a DENT power recorder. Graph No. 1 shows the power draw from the pulper before the mill changed any operations and Graph No 2 shows the same pulper after the extraction plate and rotor were operating.



Graph No. 1



Graph No2

Table No. 1 gives the overall savings summary. Table No. 2 provides the calculations for pulping 200 ton per day.

Table No. 1

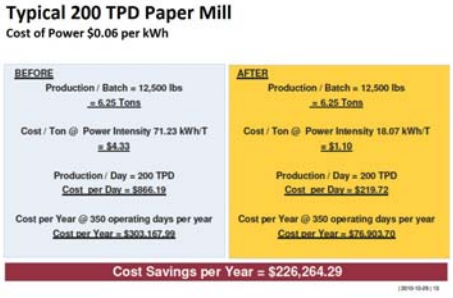


Table No. 2

ACKNOWLEDGEMENT

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