



Inspired Blended Learning[™] Case Study

OSB Mill Reliability Improvement Project

Version 1.0



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INSPIRED BLENDED LEARNING™ CASE STUDY

In a competitive commodity market, we, as an OSB mill and as a business, cannot afford to run our operations in an unreliable state and allow our competitors to overtake our market share. Eliminating poor asset performance is key to survival and was an overall theme in the business drivers that led to the justification for our reliability improvement journey. My mill is one of the older-vintage mills and in order for us to keep our niche in the market we needed to look at how we were performing with regards to maintenance and reliability. We had antiquated systems in place and we had just come out of a long and drawn out market downturn in which maintenance took a back seat. Now our reliability was showing us the effects of those decisions and we needed to re-align ourselves with the business goals and begin implementing a focused effort to drive reliability back up to a level which would allow us the opportunity to deliver more sustainable results in a safer and more efficient manner.

Strategic Alignment of Operational Reliability

Leadership positioned reliability and the associated initiatives very high on our list of priorities. Senior plant management was a huge contributor to the implementation of maintenance and reliability best practices as well as having a strong alignment with the OSB Director of M & R. This was also a chance for several maintenance and reliability leaders throughout the organization to collaborate and share current best practices in order to collectively deliver our overall improvement strategy. The leadership commitment to have 16 cross sectional maintenance leaders attend the iBL™ course in November 2012 was a true demonstration of their level of support.

At the time of our iBL™ kickoff, my site was recognized as being the pilot site for SAP implementation. It became apparent that our biggest opportunity for reliability needed to start at a basic level of planning and scheduling. This was going to be the main focus as we started down the road to reliability. PM Optimization (PMO) was also a main focus area so we could be sure we were doing the right things at the right time, and the right intervals. Both the integration of SAP and the short-term PMO focus aligned well with the iBL™ course.

As in any process change, the first and foremost concern was getting the support of all the associates in our mill. This was a classic case of *“we have done it this way for 30 years and don’t see any need to change now.”* We have a very mature workforce in my mill with 30-40% of skilled trades people retiring in the next 3-5 years, and those were the folks that were going to be affected the most.

The Improvement Process

The original scope for my iBL™ short-interval project took a drastic change upon returning to the mill after the kickoff event, as I was now faced with an implementation date of only 5 weeks. The first order of business was to start developing a process for the mill that would explain how we would conduct our daily maintenance planning and scheduling activities. The Edson “To-Be” document was born and would become instrumental in getting us through this transition. The actual timeline for our “reliability implementation” was to coincide with the SAP implementation.

There were several steps taken during the early stages that would lead us through the implementation phases. We were targeting a complete SAP implementation within 6 months showing marked improvements through the first year of “Go live”. The reliability implementation target was to take on a much wider scope and timeline but would also coincide with other milestones taking place. I, personally, was looking for dramatic reduction in unscheduled downtime in two main areas within the first year, Caul Return and SL Liquid Blending systems.

Developing the Asset Hierarchy was the first order of business. We had a dedicated team who, after several discussions and several meetings, began assembling the hierarchy the way that we thought made the most sense for ourselves (as the Pilot Site) and for other OSB mills. The timing was perfect since this was the starting point of my iBL™ program as a first step and foundation for managing plant reliability.

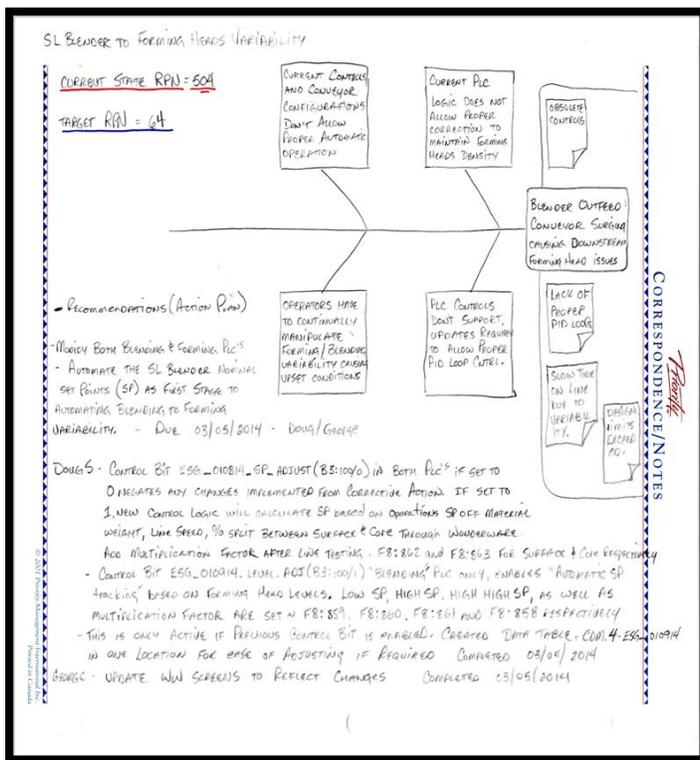
As the two main focus areas for improved reliability were concerned the first (caul return conveyors) was being addressed through newly installed AC VFD’s which enabled us to better control the ramping up and down of these conveyors. The downtime attributed to these conveyors through 2012 was 4406 minutes. Once we had completed the drive upgrades, and had all the parameters dialed in, we reduced the unscheduled downtime over the next year to 966 minutes in 2013 which was an impressive improvement of uptime by 78%. This initiative in itself was a contributor of over \$500,000.00 to our bottom line in less than 12 months.

Caul Return improvement was directly related to utilizing the fundamentals taught through the iBL™ course. One of the bigger impacts was being able to use the tools and education provided in performing and facilitating accurate and detailed Root Cause Analysis (RCA) techniques to eliminate “repeat offenders” which added up to the overall big picture of downtime. This process also allowed us to put some justification into tackling some of these issues with capital improvements, such as the VFD upgrades.

My second iBL™ focus line was the Surface Line Liquid Blender which was causing significant downtime due to plugging and poor controls on the atomizers and wax application system. Through RCA events and utilizing Reliability Centered Maintenance (RCM) methodologies taught within the iBL™ program we nailed down a couple of underlying issues that needed to be addressed quickly, poor wax header system design and maintainability.

We proceeded to re-engineer the system and came up with a design that eliminated the header and provided us a safe reliable solution which included redundancy and allowed for runtime maintenance. The Equipment Maintenance Plan (EMP) was utilized to ensure we

had accurate and value added PM's in place for the new wax application system. A Management of Change (MOC) process was executed to make everyone aware of the changes, as well as an avenue to express any concerns we may have overlooked. We also used the same process to evaluate the current state controls and drives that were causing downtime and were able to secure funding to proceed with upgrading the VFD's and PLC's for this equipment.



We were able to take SL Blender unscheduled downtime from an average of 212 minutes per month in 2012 down to an average of 81 minutes per month in 2013, which was another big boost to the bottom line of nearly \$260,000.00.

The processes that we were able to initiate as part of the SAP rollout in the form of our "To-Be" document is also deemed a milestone. My team and I developed this document which was the roadmap for how we would conduct our business with regards to planning and scheduling, and laid down the framework for all stakeholders to know their part in the six key process elements:

1. Work Identification and Review
2. Work Order Planning
3. Work Order Scheduling
4. Work Order Execution

5. Completion and Review/Update of Data, Procedures and Processes
6. Metrics and Results Tracking

Not only did the iBL™ program aid in how to laid out the “To-Be” document, it also helped us capture the fundamental standards of practice for each key element. We were able to focus on creating accurate and repeatable job plans to ensure consistency in our maintenance execution, as well as detailed Bill of Materials (BOM) to ensure we capture the right parts for the work orders. Through some disciplined approaches we were able to ensure we had the right folks on the bus and made sure they were sitting in the right seats!

The changes we were putting the mill and the employees through were substantial and the ongoing commitment and support from the company was paramount in our success. We made Subject Matter Experts, as a result of completing competencies with the iBL™ program, available for constant refresher training and coaching to ensure we were changing the culture and supporting the change as it unfolded.

Results

The overall impact of my integrated iBL™ and SAP reliability implementation has proven to be a huge success in three distinctly separate business drivers. First and foremost, the “People” and the culture change we have been through. As a leader in this facility, I have seen a remarkable change from where we began. We now have people that are engaged

and wanting to improve, and more importantly have become empowered with owning the processes and improving them as needed.



The second big result to date is marked improvements in our equipment reliability and the ability to diagnose the root causes of our downtime incidents to eliminate future occurrences. Implemented improvements have generated a positive bottom line return to the tune of more than \$760,000.00 in less than two years.

The third benefit realized from these efforts was an overall 40%!! Maturity improvement in our Work Management Processes within one year. This is a journey and we are nowhere close to being at our destination, but it’s a great start. The people and processes that we



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have in place will only enhance our ability to reach our end goal. The future of the reliability and sustainability of our initiatives is as every other change, dependent on the support from leadership and the aforementioned empowerment of the team to continue. I am confident that my mill will continue on its reliability journey and will continue to receive the support it needs as a result of the positive benefits demonstrated thus far.

Sustainability

I can't stress enough the important role that education plays in starting a reliability initiative. In my opinion it is the largest cause of failed initiatives. Any company can start a journey like ours and should be encouraged to do so as it, in itself, will deliver astounding results to your company's bottom line. The personal satisfaction, however, of having the knowledge and experience gained from the iBL™ training program, and being able to teach others to utilize these skills, is an even greater overall benefit not often afforded to people in my role or profession.

I know in my facility we will continue with our journey as we are currently performing a complete site wide PM Optimization to review each of our over 2300 PM's to ensure we are utilizing the correct preventive and predictive technologies available and following learning's from this course. We will be reviewing each piece of equipment and will have 100% of our equipment covered by an Equipment Maintenance Plan (EMP) by the end of 2015.

Starting your iBL™ Program

A piece of advice to new iBL™ students, ensure you have the time and support to complete this course as it is time consuming and requires a lot of team work and support you're your coworkers. That said when you hit submit on your final exam and you get your passing grade you will be able to look back at this as a solid foundation for an extremely rewarding career in maintenance and reliability and the beginning of your journey. Most of all, remember it is a journey and the destination is as far away or as a close as you decide to make it.