USC CONSULTING GROUP™

Empowering. Performance.

A paper maker improves quality and efficiency.

Client:

A leading manufacturer of specialty pulp and paper products with several mills in the Midwest turned to the operational expertise of USC Consulting Group to solve a number of problems impacting the efficiency, product quality and maintenance costs surrounding one particular paper mill.

Challenge:

Paper manufacturing can be as delicate as the product itself. The company produces paper in reels, which are then cut and processed into rolls. Throughout the process holes, contaminants and inconsistencies can cause unusable product and even paper breaks. These disruptions waste significant product, and cause lost time, efficiency, and energy to correct them.

Internal factors also played a role due to un-calibrated and un-monitored components of the production equipment. Employees from different shifts would often modify settings based on their own experience since no standard production settings existed.

Lastly, the preventive maintenance plan did not leverage maintenance crews as cost-effectively as possible, resulting in increased spend on outside contractors and overtime.

Process:

Solution 1: Visual Aids - As we examined how operators handled the production equipment we noticed the gauges lacked any clear ranges specifying whether operations were running in-spec. Instead, machine operators relied on their own knowledge and experience to interpret the readings.

To improve efficiency we worked with the client to set standardized parameters for each gauge. We then applied green, yellow, and red coloring around the numerical figures along the outside of the dials. By clearly spelling out operational ranges, employees would know at a glance whether the machine was functioning correctly, whether they'd been with the company for a decade or a single day.

Solution 2: Enhanced Metrics Tracking - We also encouraged the client to begin monitoring certain factors directly correlated to uptime and quality. For starters, depending on the weight of the paper being produced, operators may adjust the asset's production speed. So long as operators kept this rate - known as "best run setting" -

consistent over the course of the day, the company maintained efficiency. That said, there was no system in the mix for tracking this information. We developed a *Speed Process Monitor* chart for operators to record any changes to best run setting, so managers and supervisors could address major issues before they escalated.

We introduced a similar approach to improve paper quality as it was still being produced. The client already used photosensitive scanning equipment to evaluate the condition of the reels in production, after ensuring this was working properly we added a visual inspection component as well. After all, the integrity of the reel was typically indicative of a greater issue like pulp consistency. Catching these problems early limited waste.

We realized that their daily operational report only monitored overall volume, so we separated the report into shifts, and created buckets for loss percentage, paper breaks, and uptime figures. This created visibility so that these quality and efficiency could be addressed at the beginning of each workday.

Solution 3: Downtime Kitting Program – To reduce overall maintenance spending we helped the client to better utilize equipment operator's idle time during a planned or unplanned shutdown.

Employees were tasked with assembling maintenance kits for components at the top of the work order list. This not only kept the staff, but prepared the maintenance staff for these repairs with the tools and parts necessary to finish the task quickly.

Performance Results:

- Significantly reduced turnaround time.
- Improved product quality, resulting in less rework and waste.
- Reduced overall downtime during two latest planned shutdowns.
- $260,000 in maintenance cost reductions.

Conclusion:

Though the complexity of these issues seemed daunting, our operational expertise brought on straightforward solutions for improving transparency throughout the manufacturing process and optimizing how the company expended resources to produce the highest quality paper. They are also working toward implementing a 24-hour maintenance work cycle to cut back on expensive overtime and contractor costs.