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**How to Motivate Maintenance Professionals for
Optimum Performance**

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My name is Mark Rowland and I am with Scandinavian Mill Services, a subsidiary of Metso Paper that is involved in the outsourcing of maintenance for the fiber and paper making industries worldwide. I am coming from a paper manufacturing background in US mills. I started my paper industry career with International Paper as a Maintenance Engineer and from there logged almost 19 years with Southeast Paper Manufacturing Company in Dublin, GA (now called SP Newsprint). At SP Newsprint I held various positions in Engineering, Operations, and Maintenance, the last of which was Engineering and Maintenance Manager. I have been with Metso's Scandinavian Mill Service (SMS) subsidiary for just over two years.

Most of the ideas that I share with you today come from my experience in the pulp and paper industry on the manufacturing side. Some of these ideas have actually been put into practice as SMS seeks to organize and harmonize existing maintenance workforces under a new and improved operating model. In this activity, it is often the case that the human factors involved can be just as challenging as any technological ones, and quite often these are even more difficult.

The topic I would like to discuss with you today is far from the high tech and sexy new maintenance tools with lasers and flashing PDA lights. It's also far from the twin tandem hot shoe calenders and single shoe presses that may highlight some of today's fast machines and rebuild projects. It's a topic that sometimes gets overlooked in the very technically oriented world of maintaining high speed, complex, fiber or papermaking equipment but it is just as important to the success of any organization. It's a topic called **motivation**.

Although motivation is in itself a very complex subject to which thousands of studies and theories have been developed, my goal and intent of this paper is to talk about a few practical applications of motivational ideas with the specific target of the mill maintenance professional in mind.

The definition of the word motivation is "stimuli that move one to achieve a desired outcome or action". This can be internal or external stimuli. Since we as human beings can only influence the external stimuli on other people, I will concentrate this discussion around those.

Allow me to add a qualifying statement here: I realize that some of the ideas and suggestions I will mention here are part of the foundational Human Resources and personnel policy systems of your respective companies and therefore you are not going to go back and easily affect these next week. However, there are some ideas contained here that may stimulate you to think about implementation on a smaller scale- perhaps in your department, area, or crew.

Academia viewpoint:

The human resources gurus tell us that there are seven broad strategies for motivation:

- Positive reinforcement / high expectations
- Effective discipline and punishment
- Treating people fairly
- Satisfying employee's needs (i.e. recognition, feeling of belonging and accomplishment)
- Setting work related goals
- Restructuring jobs
- Rewards based on job performance

In one of the most elaborate studies on employee motivation, involving 31,000 men and 13,000 women, the Minneapolis Gas Company sought to determine what their potential employees desire most from a job. This study was carried out during a 20-year period from 1945 to 1965 and was quite revealing. The ratings for various factors differed only slightly between men and women, but both groups considered security as the highest rated factor. The next three factors were:

advancement

type of work

company perception- proud to work here

Surprisingly, factors such as pay, benefits, and working conditions were given a low rating by both groups. Does this tell us that these items are unimportant? Certainly not. I think it tells us that these items are the basic foundational items that are expected to be present at an acceptable and normal level.

You will see some variations of these seven factors woven into the topics that follow, the first one- fear- hits on the "security" issue.

The "wild card" motivator- Fear

I call this particular motivator the "wild card" because it runs the gambit from "if I don't go to work and do a good job, my wife is going to kick me out of the house!" to "there is more and more people in the world that are producing paper at a similar quality and lower cost than us. How long before my job disappears as a result?" Fear motivates different people to varying degrees and thus is not a very reliable motivator. Of course, if you have been around the paper industry for very long, the latter fear has become quite strong in recent years but its effect tends to wane as retirement approaches and there is "light at the end of the tunnel".

The Basics (or Motivation 101):

There are certain foundational items that must be in place just to get into the ballpark in terms of motivating maintenance craftspersons. These are mentioned below only briefly so that more words can be devoted to the juicier ideas later:

- 1) Proper tools and training including refresher training

Hand tool policies vary widely from company to company and without going into details, the bottom line is that the maintenance craftsperson must be armed with the proper tools to do the job. A broken ratchet handle is not an acceptable reason to extend a planned outage.

One area that is often skimmed on is training to use the more sophisticated tools. Once the new laser alignment or thermographic camera is purchased, too often there is little or no investment in proper initial training and then retraining as personnel are shifted around the organization or as additional users (i.e. production personnel) are empowered to utilize the tools. I would submit to you that some of these tools in the hands of an untrained user could have more negative than positive effect.

2) Appropriate parts in inventory in the right quantity

Parts inventory management is an area where, similar to advances for predictive and preventive maintenance tools as mentioned above, all sorts of slick computer systems and electronic wizardry is making inroads to help keep up with the stuff that maintenance people need to do their job. These are neat and cool but in the end the bottom line goal must somehow be accomplished : right parts, right quantity.

3) Clean (relatively) and well lighted working environment

You have probably heard Christer Idhammar extol the virtues of the clean and well-lighted work area and clean equipment. I agree with him wholeheartedly! Besides the benefit of improved safety and improved accessibility to inspect and work on the equipment, there is a sense of pride that comes from a clean work area. This pride can motivate all employees to keep their area of responsibility clean and orderly. Often the maintenance person who is assigned work outside of his normal work area where he feels less ownership, can slack off and leave an area untidy after his work is complete. My experience shows that the culture and philosophy from the management must be to promote the idea that the job is not complete until the area looks at least as good if not better than when the job was started.

There is a corollary to this as well that involves the cooperation of production personnel. It must be a planned part of the job procedure to "make ready" the equipment for the planned job. This may require dumping stock, washing up, cooling, etc. so that the prescribed work can be performed in a safe and timely manner.

The road to this cleanliness goal can sometimes require a culture change but once this hurdle is crossed, many benefits accrue to the organization, one of which is improved motivation.

Team atmosphere

Every human being has this innate need to belong - to be liked and accepted and part of something that is a source of pride. This is no different in the mill environment. One of the most effective ways that I have seen this work in practice is the culture in which the production personnel are genuinely taking ownership and care of the equipment in their area of responsibility so that they are:

1) Checking the equipment on a regular basis for signs of pending failures

- 2) Adjusting, lubricating, checking vibration, where they are so trained
- 3) Cleaning the equipment and the area around it
- 4) Participating in root cause failure analyses
- 5) Assisting with preventive maintenance work during planned outages
- 6) Operating the equipment within design specifications and manufacturer's recommendations

If the above practices are not in place there is a tendency for the production person to take the approach "I only push the buttons -- let me know when it's fixed". How frustrating and demotivating this can be! Have you ever heard this?

Another very important factor that fosters a team atmosphere is the mutual support that is given between production and maintenance personnel. In practice this should translate as:

- 1) Maintenance should not be perceived as the bad guys for requesting proper time to perform adequate preventive maintenance work required to prevent unplanned shutdowns
- 2) Equipment should be prepared (drained, cooled, clothing off, etc) as scheduled for work to proceed as agreed. (This is repeated from the topic above for emphasis)
- 3) Emotional "break-in" work should be minimized to nearly zero level
- 4) Work requests should be specific to minimize guessing and potential costly mistakes
- 5) Maintenance should communicate very clearly the status of their work, especially the projected end time so that preparations for starting up can proceed
- 6) Shutdown planning should *always* be a joint effort as should post shutdown evaluations

Involvement

It has been proven by countless management and human behavior studies over the years that the level of involvement in how the day to day work is accomplished is a major, if not the most important, factor in the level of motivation of those doing the work.

There are so many opportunities to involve maintenance craftspersons in the decisions that affect their daily work. Some examples of these are:

- 1) Work planning
- 2) Developing production/maintenance inspection routes
- 3) Coordination of shutdown subcontractors
- 4) Root cause of failure analyses
- 5) Development of solutions to prevent repetitive equipment failures
- 6) Maintainability analyses of capital projects
- 7) CMMS implementation/ improvement projects
- 8) Work efficiency improvement projects

Targets

What are we trying to achieve? How do we know if we are getting there? The choice of targets, how these are measured, and the reward or recognition attached to achievement can be a significant motivator. Management textbooks as well as the school of hard knocks will tell you: "Unless you are measuring it, you are not managing it"

The chosen targets should be:

- 1) Supporting the overall "big picture" goals or mission of the company
- 2) Clearly communicated
- 3) Measurable without controversy
- 4) Achievable- not too easy or perceived as impossible
- 5) Celebrated/ participants rewarded when achieved
- 6) Ratcheted up after achievement for continuous improvement
- 7) Few enough (2-3) to be focused upon

A target around % unplanned downtime for a particular area is a noble target in that it hits right at the maintenance craftsperson's whole reason for existence- the quest for equipment reliability. Since this one obviously has some outside factors that can influence it such as steam, power, air, etc. it may be also desirable to have a target around preventive and predictive work completion rates. Involve the team in deciding what these targets should be and at what level to set them. This will foster ownership in actually achieving them. Someone might argue, "how can I involve the team to set these, they will just set them low so that making them is easy". My experience has shown just the opposite. I challenge you to try it!

Share the wealth

Many studies and debates and have centered around the actual effect of money as a motivator. It is not the purpose of this paper to debate the level of influence that money has as a motivator. However, my experience has shown that mills that have instituted some type of performance bonus system, which usually has production quantity woven into it somehow, have performed consistently better than average in the generally accepted measures of success.

A case in point, and one that I participated in for over 18 years, is SP Newsprint. I am convinced that the production bonus there has helped the Dublin, GA mill achieve the rare status as the most productive (kg/cm/day) newsprint machine (PM2) in the world for the past two years in a row. This also goes a long way towards minimizing the fear that competition is going to cause job reductions.

Bonus systems, however are not guaranteed motivators. They must be very carefully planned and implemented in order to have the desired effect. If there is a perception of "you're playing games with this" then the buy-in will quickly diminish.

Sharing financially in the benefits of good performance has been the norm in most industries for a great deal of time. Have you ever picked fruit and received payment per pound? Received a sales commission? Examples are all around us.

Conclusion:

If you want to increase the motivation level within your organization, look around for some ways to implement or improve on the existing situation around these items. I have summarized them below for convenience:

- Pay for performance

- Set clear, relevant, achievable targets and communicate them and the progress towards achieving them
- Involvement in the decisions that affect daily work
- Foster a team atmosphere with production, engineering, purchasing, etc.
- Clean, well lighted working environment
- Parts available to do the job
- Proper tools/ training

I hope that your involvement in this conference and these ideas have motivated you to go back to your workplace and make a difference to your organization.

(end)