

The A-B-C's of Asset Management

Want to make your mill run better, preserve your facilities better, manage your resources better? Then you and everyone else in the mill must focus on the “better” part of a maintenance organization development plan.

By John Yolton

While there is a lot of discussion concerning how best to manage assets, asset management is really a simple process if you allow yourself to view it as simple. Like anything else confronted that is not well understood, the maintenance requirements for a pulp and paper mill can cause undue concern, frustration and annoyance, or the popular term, FUD—fear, uncertainty and doubt.

Here is a simplified explanation of the workings of maintenance in a pulp and paper mill environment. There is no “magic,” no “silver bullet,” rather it is basic common sense in basic common language, no frills, no hype, no program of the month and no buzz terms.

The basic premise of this simplification is that the operating quality of the production and service machinery is the responsibility of everyone in the mill that comes into contact with its product. Each individual has specific responsibilities, which, if performed properly, allows the machinery to provide uninterrupted operation while producing a quality product. In short, you as an employee are an owner/operator/stakeholder in the equipment and its performance.

Everyone tries to but no one can “change” a mill’s culture overnight. The problem with making change lies in keeping the mill running, using the existing workforce and their experience, while at the same time attempting to persuade those same people that a change to something better is necessary.

Part of this change process involves explaining to workers the benefits of not only long-term employment, which is always in jeopardy during turbulent times, but also of continuing the

enjoyment of their work. Definitely a “to be” vision is helpful in explaining the necessity of change.

Most “visions” start with establishing goals or objectives.



OBJECTIVES

Any plan to improve asset management is based upon the idea that the maintenance of equipment and processes has three objectives:

- To Make the Mill Run Better
- To Preserve the Facilities Better
- To Manage the Resources Better

After all, if we do not strive to better things, we are only caretaking the operation.

CONVENTIONAL APPROACH

Many conventional organizations concentrate on only part of the first objective, i.e. make the mill run, with so much intensity that the other objectives and the “better” part are ignored.

In effect, the management style and philosophy of one generation is carried on to the next, and then

again to the next and so on. This cycle of continuing to do the same things is called “Caretaker Management.” No new ideas, no attempt to make improvements, no risk, just business as usual with the same old results—acceptance of downtime and mounting costs, and a policy of protecting your own skin in the process.

The motto of Caretaker Management is:

“The duty of the maintenance shop is the very quick repair and servicing of all equipment.”

And how can anyone oppose this objective, namely, remaining busy correcting failures?

ALTERNATIVE APPROACH

On the other hand there is the possibility to practice “Value-adding Management.” That is: a management style that is pro-active by solving problems; management that attempts to improve the situation at hand and that constantly strives to meet the three objectives stated above, especially focusing on the “better” part; management that very simply follows-up on solutions to undesirable situations and circumstances.

The motto of the Value-adding Management effort is:

“The task of the maintenance function is to provide resources and knowledge to minimize production losses caused by asset failures with the implementation of planned preventive actions.”

DETERMINE PRESENT SITUATION

As with any journey you must first determine where you are in order to establish a timeline for reaching the destination:

- What is the productivity level of your asset management resources, both internal and external?
- What is that level of productivity adding to the business goal’s value?
- How effective is your planning and scheduling of resources?
- How is the effort organized and how well do the resources function?
- To what level of competence are the crews and supervisors trained?
- How much are you spending on excessive materials, emergency shipments, overtime, and outside resources?
- What are the benchmarks for relative comparison?

Some people are fortunate during their careers to develop a checklist of questions that gave them (coupled with experienced observations) a fairly complete understanding of the present circumstances for asset management.

A “discovery” format involving the checklist above and a series of interviews with a cross-section of employees, management and hourly, maintenance and operations, formal and informal, provides an opportunity for observation. The observation of practices, habits, procedures and routines is very informative. This insight of the existing culture forearms the change agent with valuable information about the qualities the “culture” displays—reactive or proactive, confrontational or cooperative, elitist or interdependent, high performance or not.

A mill’s maintenance culture can’t be changed overnight, but the operating quality of the production and service machinery should be the responsibility of everyone in the mill that comes into contact with its product.



VALUE-ADDING DETERMINATION

In addition to the interview assessment process, there is a qualitative exercise that was developed years ago called Statistical Activity Sampling, or in more generic terms, “wrench-time” analysis.

This sampling merely involves determining what activities the typical mechanic performs throughout the typical day. The concept is that unless the worker is performing a task with a tool of their trade they not performing the function for which they were hired and, therefore, is non-value adding for some of the time for which you are paying them to perform a skilled job with their hands on a tool of their trade (wrench-time). Of course, that is an oversimplification. But the point is that using this statistical methodology, very accurate analysis can be performed on the reasons for loss of productivity within this group. Not surprisingly that loss of productivity can generally be attributed to poor management (caretaker management) and the obstacles (see following list) they place before the worker.

Studies of typical pulp and paper mills not properly utilizing the resources available to them have a work force productivity level of 20-25%, while best practice for this “wrench-time” is stated at greater than 50%.

LOSSES OF RESOURCE PRODUCTIVITY

Productivity losses are created by:

- poor planning and scheduling
- lack of tools
- poor materials management
- poor instructions
- and sometimes, timid supervision (among other things)

All of which can be corrected by enlightened value-adding asset management personnel.

Other factors affecting productivity include that time allowed for contractual processes, i.e., lunch breaks, coffee breaks, rest time, union activities, safety and informational meetings, and training. These can certainly be influenced, in time, by altering management practices, but cannot immediately be changed.

Of course there is also a certain amount of “personal” time for the typical worker. The results from numerous studies performed reveal that contractual and personal time will average between 35 - 50% of the “typical” day for the “typical” maintenance employee.

Consider this: if you can improve the hands-on wrench-time for your typical worker from 25% to 35% without that improvement being seen as onerous by the worker, you then have just increased the value-add of your crew by 40%; without turmoil. In the process, your available resource base has been increased by 40% without adding one single person, that

is, without a major expenditure. Imagine all the daily tasks that should be done, but are kept in backlog due to limited resource availability, tasks that prevent future maintenance or asset failure. Wouldn't you rather increase your resource pool without adding people, but instead by simply working smarter?

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PLANNING IMPROVEMENTS

With this information in hand (the questionnaire data, the interview and observations information and the wrench-time data), the mill's existing asset management effort is well defined. Now a plan with justification and concentration of effort can be properly developed. A plan, incidentally, that must be developed in-house by mill personnel in order to be successful; not a plan brought in from outside, with little or no support, or input, from mill people—the stakeholders. Of course outside assistance with development of your plan can be provided and is usually helpful, but the plan must be driven by and for the people who take the journey.

To keep in sync with the concept that asset management is simple, we use the terms A, B, and C to help describe the elements of any plan for improvement. A brief explanation of the characteristics of the A-B-C elements of the program is in order.

“A” WORK

When you analyze the maintenance workload of a paper mill objectively, forgetting the time-honored tradition of associating assignment of work to cost centers or geographic locations or by placating loud, vociferous business unit managers demanding personal attention, you will observe that some part of your daily workload is urgent (sometimes emergency) type work.

This work is described (in oversimplified terms) as:

- Being less than 8 hours in duration
- It must be done today
- It generally requires material that can be easily acquired, or no material
- It generally requires very little coordination between crafts
- It generally does not require engineering, drawings, etc.
- And it generally requires one or possibly two people

This type of work is called “A” work, or AREA assigned work.



This type of work is best performed by a small, well supervised team of quick-thinking, fast-acting troubleshooters working within an AREA. They are assigned to “handle” this workload on a daily basis. They are not disturbed. Their objective is: to keep the place running—period. They are the SWAT team of the particular production or service area. They take their task assignments from the production management for the area.

Depending upon the accuracy of your CMMS, an inquiry to the database can quantify the amount of “A” work in your mill. Generally, based upon information from mill studies, the number of worker hours required for “A” work approaches 30% of the total workload. Reducing that urgent work to less than 20% of the total workload becomes a goal for those “A” crews and the KPI is the percent of break-in work or whatever you call urgent work characterized above.

“B” WORK

There is another group of very basic tasks needed by any piece of equipment. For example, simple cleaning of machinery will extend its life. A lubricant change will improve reliability, or tightening of bolts will reduce stress and vibration. Changing a filter can improve performance and adjust packing can reduce leakage. These tasks or activities are called Basic Care activities. “B” is for BASIC CARE. Basic Care can be performed by mechanics and by operators depending upon skills competency.

Every machinery manufacturer provides information suggesting, if you, the operator/owner of the equipment, perform these simple, basic routines the equipment will perform more reliably and provide longer service life.

Another better process for determining the proper tasks for reliability is to perform a variant of reliability centered maintenance (RCM). Using this process, asset criticality is determined and brought into the analysis, and consequence (to the business objectives) is considered in determining which equipment is critical to the business goals and which are not, thereby allowing informed reshaping of responses to specific asset maintenance needs.

The reward for this dedication of effort is a better running machine, a more reliable machine, a machine producing better quality.

So BASIC CARE or “B” work becomes another of those daily workloads, regardless of cost center, geographic location or political clout for which the mill workforce must be concerned if they are to achieve the business’ goals. This basic care effort becomes an issue for staffing. The people selected



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for this work should exhibit certain attributes and characteristics. The crew consists of special people who like the routine, the habitual behavior. People in these crews espouse cleanliness and a well-kept environment while performing “paperwork” and record keeping. Smaller crews are required while operating, and larger (supplemented from elsewhere) crews are needed when the equipment is down. No planning is needed, the tasks are all well-documented and scheduled according to a pre-determined plan that is laid out for the next year or longer.

“C” WORK

Last of these identifiable workloads is the “C” work. This maintenance effort must have central administration, planning, scheduling, coordination, communication, facilitation.

There are corrective work projects to be completed that have nothing to do with Basic Care routines or urgent, emergency work. Projects that require:

- More than 8 hours to complete
- Bigger crews
- Material to be specified and ordered
- Coordination between crafts
- Coordination with operations
- Planning
- perhaps redesign and engineering

This is the workload that returns the future failure elimination benefits of the entire A-B-C plan. “C” stands for Corrective or Controlled. Corrective actions determined by root cause analysis of failure or near failure events would appear on this list.

What makes asset management a profit center?

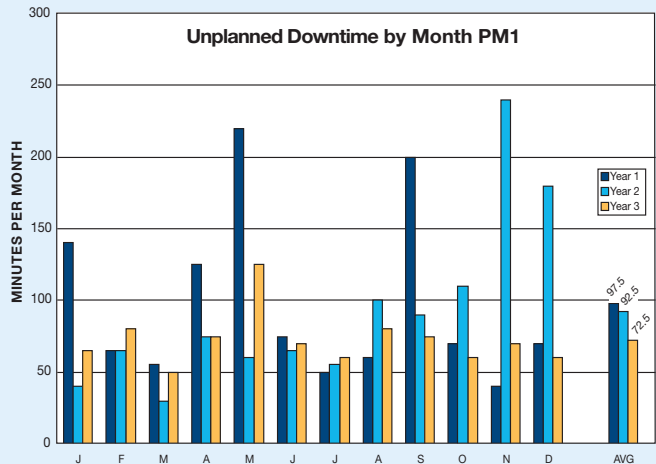
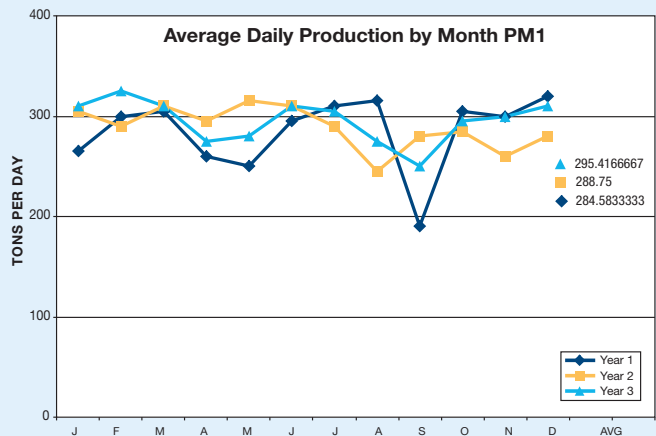
Using the logic described, this mill was able to completely change its reactive culture—the product of nearly one hundred years of operation—to one seeking solutions to one of its problems, e.g., unplanned downtime (DT) due to failures of mechanical and electrical equipment.

Over the course of three years, the first year being spent understanding the situation and developing a plan of corrective actions; year two being spent on fully implementing the new plan and year three reflecting one full year under the change.

This chart reflects the actual unplanned DT by month over the three year time frame. It is obvious that the extremes between average monthly DT decreased, while the average over the three years came down by 20 hours per month.

This chart displays the same time frame and the production average per day on PM 1. Again clearly evident is the more consistent operation, e.g., less wild swings. In combination with the reduction in unplanned DT providing more hours of production, e.g. incremental tonnage, a phenomenon occurs where consistency allows an improvement in production rate.

Ten tons per day may not sound like a dramatic increase, but on an annual basis it is over 3,500 tons of lower cost additional capacity that contributes significantly to the site's profitability.



By allowing concentration of PLANNED AND SCHEDULED effort by the largest portion of the maintenance forces, those limited resources can be optimized and used to their best advantage, supplementing the B crews, providing labor resources for shutdowns, tackling improvement projects, filling vacancies in the other A and B crews, and so on.

These corrective work mechanics can be used to produce more work with less effort and less cost because their work can be properly planned or delayed. For example, work:

- that otherwise might not get done in a reasonable length of time, if ever
- such as improving the facilities, rebuilding or overhauling of critical and support equipment
- that in a typical paper mill never seems to get done
- that may have to be performed by “outside” resources, or on overtime, at greater cost, and is sometimes not done, thereby losing the benefits
- on well planned shutdowns that concentrates on resolving recurring problems
- that is well planned and will eventually lead to smaller shutdowns, less often, using less and less repair material and labor

SUMMARY

These are the A-B-C's, briefly. Thinking of asset management in terms of actual task requirements instead of cost/profit centers or geopolitical concerns may well cause you interference from those champions of “financial-based” decisions neatly packaged into accounting divisions. Those operational silos that sometimes fail to recognize the greater good that can be derived from cooperation, collaboration and understanding. That is the harsh reality of life today and you are a member.

An organization development plan based upon the assignment of maintenance by tasks is simple, and that's what makes it workable.

Implementation of the plan takes a lot of effort and cooperation among the various users of maintenance resources within the mill. It requires an attitude of, and aptitude for, problem-solving rather than finger-pointing and worse, care-taking. The change requires a lot of communication and understanding among the stakeholders because change has to be shown to be beneficial to everyone and harmful to no one.

It is a simple idea, this assignment of resources according to workload need. But it is not so simple to complete. Others, concerned for their own welfare, would complicate the task because simplicity is, well, simple. As simple as A-B-C. ■

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