

# THE SAMI TIMES

December 2000      Volume 1      Issue 2



## PRESIDENT'S MESSAGE

### What is Asset Management

Many of you have been hearing the term, "Asset Management." You may have questioned, "What is this? How is it different from what we do in the plant each day?"

There may be other points of view than SAMI's for sure, but at this point the only definition we've come across is an article we authored in *Maintenance Technology Magazine*, "Defining Asset Management," from January, 1999. You can go to their website [www.mt-online.com](http://www.mt-online.com) to see the text, or request the article from our website [www.samicorp.com](http://www.samicorp.com).

So, in a nutshell, what is the answer? **"Completely align plant resources to achieve the business goals of the organization at the lowest cost"**. That would seem to be the same goal that every plant has, so how does Asset Management contribute to this objective?

First of all, implementing asset management is dependent on having many other elements of excellence in place. Many of you are familiar with the SAMI Pyramid, reflecting the Operational Reliability Maturity Continuum. Asset management requires that:

1. Your work management process is working consistently throughout the plant
2. Your reliability program has been effective in eliminating 80% of the failure events your plant may have experienced before you began improvement efforts
3. Operators are willing participants in at least the minimum activities of operational maintenance, such as inspection, writing work requests, and preparing equipment for maintenance.

If these elements are not in place, we think there is a better return to complete these changes before embarking on higher-level activities.

Asset management, as we define it, first puts science or method into determining the level of maintenance to perform on a piece of equipment. Secondly, it involved a high level of ownership and cooperation in planning and executing improvements among operators, maintainers and engineers, along with their supervision.

### **Levels of Maintenance**

How do you know what the right level of maintenance is, or as we prefer, *asset health care*. We begin with a process that goes through these steps:

1. Identify the equipment hierarchy
2. Identify system and component criticality
3. For critical systems, Identify the current equipment condition
4. Establish Strategies for Component Care
5. Develop Failure Modes and Effects
6. Develop Maintenance Activities



**S. Bradley Peterson**  
**SAMI President**

This process assures that manufacturing priorities (criticality) determine the strategy for each system. For highly critical systems, we do a modified RCM approach to assure we understand the failure causes and effects. Finally we design the maintenance approach for each component. By using a simplified method of determining equipment condition, we can create immediate operating value by restoring condition immediately. (This is, of course, dependent upon having Stage 1 planning, scheduling and execution in place).

Since the team that develops this information is at the department or unit level, and the work is performed primarily by first line workers, there is great understanding and ownership of the asset healthcare program they develop, and everyone lends a hand to assure that it gets done.

*(continued on page 3)*

<b>President's Message .....</b>	<b>1</b>
<b>Prioritization .....</b>	<b>2</b>
<b>The Operational Reliability Maturity Continuum .....</b>	<b>3</b>
<b>SAMI @ SMRP .....</b>	<b>4</b>

We are a consulting group for industrial organizations working to improve profitability, efficiency and equipment reliability. Our Mission is to improve our clients' production equipment health, by tapping the desire, creativity and dedication of all plant staff, and our vision is to be the firm consistently chosen by companies serious about making change; because our values of integrity, content knowledge, advanced practices and compassion for the workforce match the values of our clients.

# THE OPERATIONAL RELIABILITY MATURITY CONTINUUM: PART 2 PRIORITIZATION

BY DAVE ARMY



In the last issue of this newsletter, I discussed the importance of Work Identification. In this article, I will, cover the second element of SAMI's Stage 1 model for Maintenance Excellence, prioritization. As you may recall Stage 1 includes the following elements:

- ➔ Work Identification
- ➔ Prioritization
- ➔ Planning
- ➔ Scheduling
- ➔ Work Execution
- ➔ Trending and Follow-up
- ➔ Preventive Maintenance
- ➔ Computerized Maintenance Management Systems (CMMS)

Why is the proper prioritization of work so critical? Well, as someone really important (I can't remember who) once said, "If everything's important, then nothing's important." What does this mean to you, in a maintenance setting?

As a universal concept, everyone knows what emergency work is. It's that problem that has to be fixed right now. Drop everything and attend to it, regardless of the cost and the impact on other activities. As maintenance professionals, we're conditioned to this response and are rewarded by our ability to immediately address these crises. You all know the feeling; the boss comes up and pats you on the back, praising you for a job "well done." We live for those moments and these traits characterize a reactive organization.

In a well-disciplined, highly evolved organization (I don't mean maintenance department), true emergencies are few and far between. In organizations that are less evolved, high priority activities are the rule rather than the exception. Why does this happen, and what are the impacts?

As a rule of thumb, work can be segregated into about 5 levels of urgency (priority):

- 1 Really, really important – The world will cease to exist as we know it
- 2 Kind of important – Needs to be done pretty soon, or we'll really have a problem
- 3 It can wait – Can be done in due time
- 4 Fill in – Nice to do, minor in nature, get it when you can (This priority is often considered a "black hole")
- 5 Shutdown required – Need a system or equipment outage to perform

There are many variations to this prioritization scheme, but I have usually found that more than five priorities are confusing and don't provide any better help with getting work performed.

When production or operations departments have no confidence or trust in the ability of maintenance to accomplish work in a timely manner, priorities will often get inflated. A priority 2 will become a priority 1, or a priority 3 will become a priority 2. Why is this? Simply stated, the person creating the priority knows that unless the Work Order enjoys a high priority, it will never get done.

If a Work Order initially receives a priority of 3 or 4, it disappears into the Maintenance "black Hole." Therefore, the originator inflates the priority. By the time you know it, work is dominated by emergency and high priority work. If management attempts to control the amount of high priority work (requiring justification for P-1 activities is a common ploy) without an accompanying process change, then the baseline emergencies drop. For example P-2 work orders take over and are often followed up by phone calls. I remember a time when, as a maintenance manager, my organization went through one of these attempts at control. I ended up seeing work orders with priorities of 2 HOT!, 2 \*\*\*, 2 in Red, etc. You get the picture.

When we assess organizations for their level of Asset Management sophistication, we look for the number of high priority work orders as a percentage of total work. This gives us an indication of how much control the organization has over emergent work. Without exception, P-1 and P-2 activities are unknown immediately prior to execution and consequently conducted with little or no pre-planning. Parts are most likely unavailable, and other work will get interrupted. We calculate that emergent, high priority work costs three times more, takes three times longer to complete and is three times less likely to be successful than planned work. This tells us that there are potentially great financial savings to be gained by reducing the amount of high priority, emergent work.

What can an organization do? Some answers are contained within the priority setting process. Simply defining and training personnel in the priorities and educating them about the consequences of insisting on high priorities will help. However, the most effective way to reduce the impact of high priority reactive work is to modify the planning and scheduling processes. This will result in an atmosphere that will allow work to be performed in a timely manner. If work won't be ignored, and the production or operations personnel feel that work will get done, prior to failure, they will resist the temptation to inflate priorities. This approach will subsequently result in a lessening of the stress on the maintenance organization. We'll discuss these process improvements in a later article.

Dave Army is the Vice President of Results Delivery for SAMI. His expertise includes analysis, design and implementation of maintenance and operations solutions for numerous industries. He currently oversees all SAMI implementation and assessment activities.

# PRESIDENT'S MESSAGE (CONTINUED): WHAT IS ASSET MANAGEMENT?

BY BRAD PETERSON

(continued from page 1)

A fuller discussion of this process can be found in *Maintenance Technology*, October 2000 issue.

The limitation of this process, of course, is that it is static, while manufacturing is always a moving target. Markets change, product mix changes, and thus the demands on equipment changes. And most plants want more production from the same equipment next year than this year, which places additional risk of pressing the equipment beyond its design capability.

## Asset Management Planning

The Annual Asset Management Plan, and its execution, are the dynamic aspects of caring for equipment. There is a feedback loop going on here, during the annual budgeting process, usually begun in July or August.

In this diagram, Plant Capability represents the 6 steps above under the heading of Levels of Maintenance. Both the equipment capability and the business requirements are inputs to developing the annual plan. What is different here is that we have now studied the plant at a greater detail than ever before. We know what the right level of maintenance is historically, and can justify the activities and expenses. We are now considering the assets, their condition and capability, as well as our systems, human and automated, all as part of the annual planning process.

Based on market pricing assumptions, the expected company ROI identifies the product mix and volumes expected from the plant. Nothing new here. In many situations, however, these are "I hope" numbers. We didn't achieve them last year, and now the plant is supposed to produce more this year, with lower scrap, and higher quality. On what basis can we justify these numbers?

The key is getting the units involved in the planning process. Each production center is given production performance specifications. In asset management, they make a science of determining whether the unit can make the volumes and quality, identifying the gaps in expectations, and developing proposals to overcome the gaps. These proposals identify risks, expenses and capital funding required, and personnel requirements. These in turn are (5) fed back to the plant level to evaluate options. This feedback process continues until everyone is in agreement and understanding of expectations and resources required.

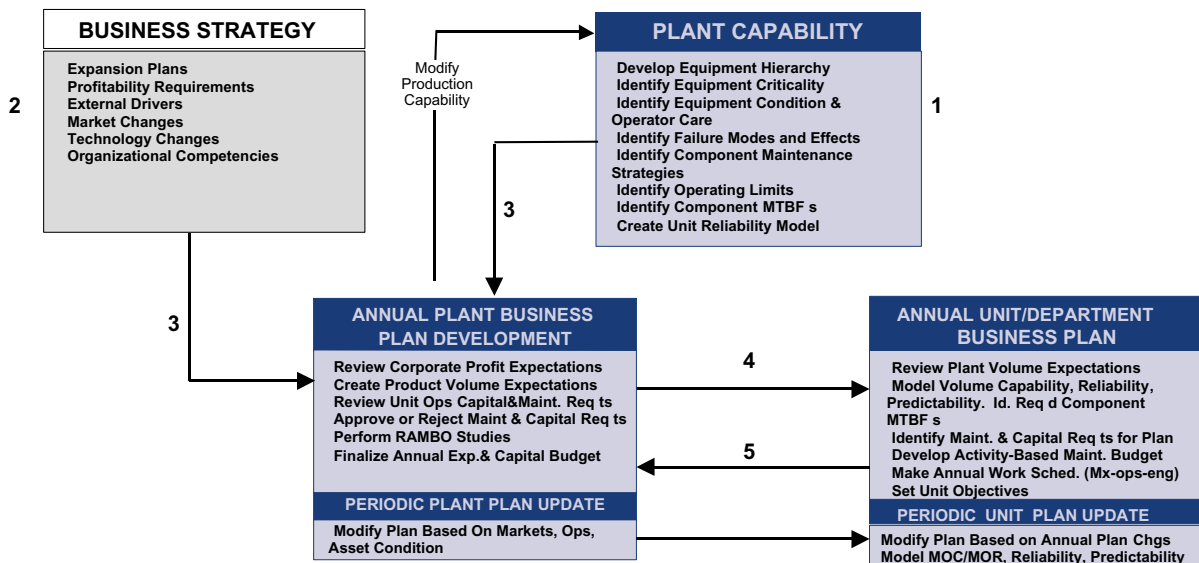
This activity is assisted by technical models of the unit operations, including a reliability model that helps determine the effects of changes in system operating parameters.

Once the plant and unit level plans are in place, detailed resource planning for normal asset care routines, new care requirements, overhauls and turnarounds, and capital projects are completed and scheduled prior to the beginning of the new year. Thus 80% or more of all time and money are committed, planned and scheduled, creating a vehicle for accountability for the management team. We know, of course, that accountability is uncomfortable for most people, so this process may take a few years to mature and become the way of life for the plant.

## So What is Asset Management?

Asset Management is a data driven system of manufacturing accountability that considers most of the variables affecting production. It emphasizes taking care of the goose that lays the golden eggs, so that we can accurately predict how many eggs we will have for sale. We reduce variation, develop a more intimate knowledge of equipment and process, and have a vehicle for operational excellence that our competitors will have a hard time duplicating.

Sounds like a winner!

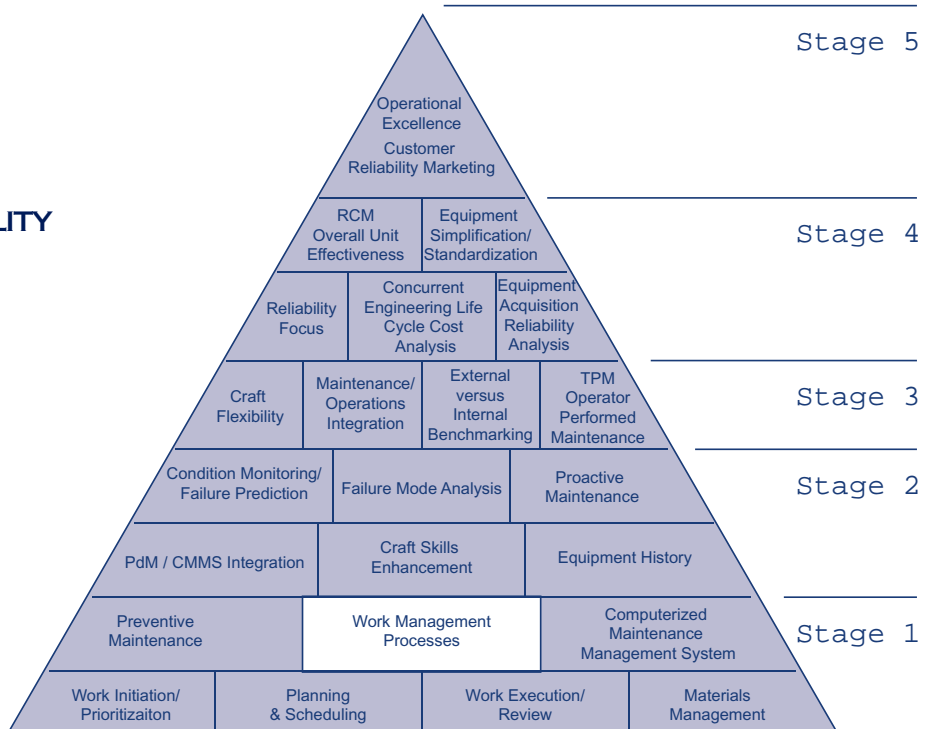




**Strategic Asset Management Inc.**  
**258 Spielman Highway**  
**Suite 202**  
**Burlington, CT 06013**

PRSRT STD  
 U.S. POSTAGE PAID  
 HARTFORD, CT  
 PERMIT NO. 2386

**THE OPERATION RELIABILITY  
 MATURITY CONTINUUM**



**Strategic Asset Management Inc.; 258 Spielman Highway; Burlington, CT 06013**  
**Tel: 800 706 0702 info@samicorp.com www.samicorp.com**