

The Critical Plant Manager

'We understand your need to effectively manage your assets'

JAHCon
Physical Asset Management Pty. Ltd.

Newsletter
June 2010

A newsletter from JAHCon Physical Asset Management Pty. Ltd. to keep our current and potential clients informed of our ongoing activities and to raise awareness of how JAHCon may be able to help your organisation meet its Asset Management needs.

This newsletter also provides a forum for sharing Asset Management ideas and experiences.

RCM Vs. PMO

PMO is often said to use RCM principles to review and improve current PM's. What is less clear is how much RCM is used in these reviews. Clearly, if all aspects of RCM are used, then the process is RCM, while if less than all RCM principles are used, we must understand how much rigour is 'lost' by this 'streamlining'. When we expand basic PMO to include extra RCM features, we run the risk of losing the very advantages of speed and reduced cost that PMO offers.

In a rational world PMO and RCM are neither 'good' nor 'bad' but one or the other may be more appropriate depending upon the application.

It is necessary to determine at the outset whether the current PM's are of sufficient quality, that sufficient failure history is available and the plant is effectively the same as when the original PM's were created before embarking on a PMO review.

Precision Maintenance

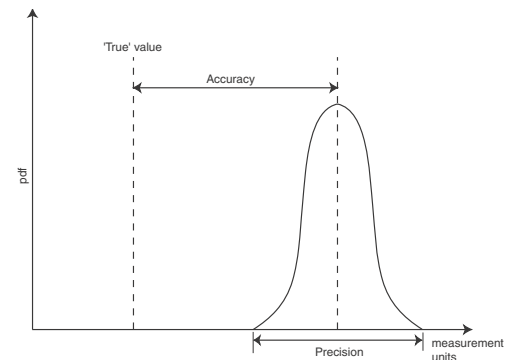
In this ongoing discussion of Precision Maintenance it is useful to consider the difference between 'accuracy' and 'precision'. In everyday use, accuracy and precision are often used interchangeably but in an engineering environment they have specific and different meanings.

For the purposes of this discussion, accuracy is a measure of the degree to which a measurement approaches the 'true' value while precision is a measure of the repeatability of the measurement. Practical applications in industry may achieve accuracy but not precision, or achieve precision without achieving the necessary accuracy. A valid measurement must achieve the necessary accuracy and precision if it is to be useful in managing critical assets.

In some applications (e.g. the manufacture of large quantities of identical components) control of the variability (i.e. the precision) can be the major focus, with accuracy being of a lesser concern. In other applications, (e.g. machining a shaft to suit a press-fit bearing) accuracy may be more important.

In most practical applications however, an acceptable level of accuracy and precision must be achieved simultaneously for the device to be considered satisfactory. Calibration of critical field devices against established Performance Standards typically demand high levels of accuracy and precision.

...to be continued.



Training News

Following the slowdown in demand for training courses, 2010 seems to have really picked up. Demand has been especially strong since the beginning of 2010, especially from the Middle East and Asia. Our 'Introduction to Planning & Scheduling' and 'Advanced Planning & Scheduling' courses continue to be very popular with the recent advanced course held in Kuala Lumpur fully booked. We have been presenting these courses for the past three years and aim to do a major rewrite this year to freshen up the material and to introduce more emphasis on the P&S of high criticality equipment. The rewriting of the Introduction and Advanced P&S courses will increase the emphasis on class participation and reduce the theoretical content in line with participant feedback. This is a difficult balance to strike as different groups of participants can have diametrically different views on what material they would like to see included. The updated courses will continue the emphasis on real industry examples as well as include more worked solutions during the course.

We will be introducing a two-day hands on P&S workshop later this year to give more emphasis on practising the skills covered in the courses. This is an existing course previously only presented in-house.

Several new courses are being developed at present with a new PMO course to be available towards the end of this year. The aim of this course is to help participants determine when true PMO is the most appropriate approach. The course will emphasise generic PMO rather than a hybrid PMO/RCM approach which has become common.

Human Error in Maintenance

In this issue I would like to discuss how human error can be managed to acceptable levels, especially where they impact on critical plant. Critical equipment in particular requires greater attention to detail in operation and maintenance and this is especially so when the tasks being performed have a high likelihood of deviating significantly from the desired outcome.

When developing operating procedures, maintenance task lists, etc. it is important to consider how human error could result in an undesirable outcome. Only by identifying critical task steps that must be achieved within narrow boundaries can we determine where we must apply additional effort to prevent human error (or variability) from impacting unacceptably on the outcome of the activity.

One practical way to manage the potential for competency-based human error is to provide 'hold points' in the task list that required separate review or sign-off by a competent person before the tasks can continue. This review aims to ensure the tasks complete up to the hold point have been carried out satisfactorily. A practical example of this approach is seen when large numbers of paper machine drive couplings are inspected during a plant shutdown. Experience has shown that this task sometimes results in unacceptable rates of in-service coupling failures directly traceable to the activity especially if carried out by contract labour. By placing a hold point in the task list, once the contractors have dismantled and cleaned the coupling components a technically competent staff person has the responsibility to inspect each coupling before deciding to reassemble or replace. This can be shown to result in improved reliability.

The Asset Management Cycle - 'Scope development'

Having established the need for a new or upgraded asset and identifying the basic operating concept to be used, it is necessary to convert the operating concept into practical assets and systems that are best able to meet the operating requirements at the lowest overall cost. Failure to properly determine the real needs of the organisation can lead to poor asset selection and subsequent failure of the asset to meet the business needs when it enters service. The scope development phase considers how to meet the operating scope and is suitable equipment, systems and software available to meet these requirements. The process usually begins by breaking down the operating scope into manageable sections and identifying established engineering solutions wherever available.

Traditionally, the operations group determines the operational requirements and the engineering (or projects) department decide how to meet these requirements. The engineering department selects, sources, builds, commissions and hands over the project according to the operating scope provided by the design prepared by engineering and

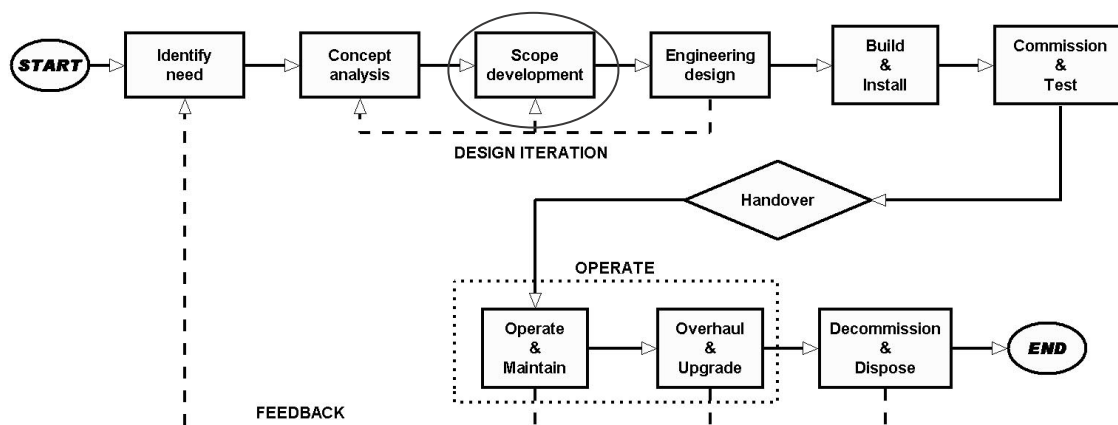
accepted by operations.

In recent years the increasing need to optimise the engineering designs available from suppliers has become increasingly important as the whole of life cost becomes a major Asset Management consideration. Before appropriate assets can be selected to meet the operations scope, it is important to have a good understanding of how operations and maintenance practices can impact the overall performance of the asset before specific asset types are considered for the application. Inherent in all asset designs are particular constraints and limitations that impact the overall performance of the asset and stay with it throughout its operating life. These constraints or limitations can relate to an asset type or class or to specific brands or models of a particular asset type. The manner in which individual manufacturers implement their design for a particular asset type (e.g. pumps from different manufacturers have individual design features) can significantly influence the operational behaviour of the asset and also the ease and cost of performing routine and repair maintenance.

It is at the scope development phase where choices are

made as to the asset type to be used to meet the operations scope and therefore these characteristics are 'frozen' into the design at this stage. Any need for design changes at a later stage will inevitably be more expensive than if optimum selections were made at this stage.

...to be continued.



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