

The Critical Plant Manager

'We understand your need to effectively manage your assets'

JAHCon
Physical Asset Management Pty. Ltd.

Newsletter
September 2008

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.

Projects

JAHCon is currently acting as a facilitator in a knowledge transfer programme for a major mining company in Australia. This programme is designed to provide a formal and systematic link between site experience with specific plant and equipment and the design and installation of new equipment. The input from site personnel under this programme is markedly different from previous projects. Using this approach, formal input from employees is facilitated at the 20-30% stage of the package development and has the authority to influence design.

The principal contractor is obliged to respond to all items raised by the review teams - albeit not necessarily to adopt all recommendations.

In this way, lessons learnt from past experience are built upon rather than perpetuating poor design in the next generation of plant.

Managing Risk through Maintenance

In the June '08 newsletter, I discussed the role of maintenance as a risk management tool. In this edition, I would like to expand on that topic and discuss what category of risks can be managed through maintenance and what risks require alternative approaches.

Because maintenance is normally used as a restoring activity for physical assets - though not always limited to these - the emphasis here will be on physical assets. The way in which a physical asset fails to meet its operating requirements is usually described as a functional failure, and it is the maintenance of the underlying causes of functional failures, rather than the ultimate failures, we are most interested in. Understanding the underlying cause of a functional failure requires us to know the make-up of the equipment and how each component or sub-component can fail.

Maintenance is most effective when there is a strong relationship between the maintenance activity and the failure mode. For example, in the event of a bearing failure in an electric motor, the replacement of the bearing provides a full restoration of the function (assuming no significant secondary damage). Other failure mechanisms, such as fatigue or stress-corrosion cracking of vessels, are not so easily restored without major component replacement and in this case, the typical maintenance activity does not fully restore the function, but, in many cases, simply monitors it (e.g. inspections)

Understanding the potential and actual effectiveness of any maintenance activities undertaken is a crucial part of the management of risk. Only by maximising the effectiveness of maintenance tasks can we optimise the maintenance, risk management, relationship.

Training News

JAHCon is again presenting integrated Maintenance Planning and Scheduling courses in Kuala Lumpur, Malaysia, in October '08 under the auspices of IQPC. These will be made up of two, two-day courses. The first two days will provide an introduction to Planning & Scheduling and the final two days will be a separate course, presenting advanced material. There has been a slight change in the way the course is presented, with the overlap between the Introduction and Advanced courses now kept to a minimum. Many potential attendee's have expressed interest in attending both courses, but repeating a significant amount of introductory material in the advanced course when run together, was considered undesirable. This however means if someone wishes to attend the advanced course only, there will be less introduction material covered and therefore they need to satisfy themselves that they have at least a basic understanding of the concepts.

A new Asset Management course is scheduled for November '08 in Kuala Lumpur, which will comprise two days introductory and two days advanced material.

For details on dates and venues for these courses please check the IQPC web site at www.iqpc.com and go to the relevant training page.

New Pressure Vessel Management Software

i4integrity Pty. Ltd. has recently released a new software package for Risk Based Integrity management. This package integrates the equipment register, corrosion management and inspection functions amongst others, to provide the asset owner with confidence all equipment is managed appropriately on the basis of criticality. This software is designed specifically for the management of static equipment such as pressure vessels, heat exchangers, piping etc. While this package is primarily aimed at the Oil and Gas industries, these types of asset are common to other highly complex plants such as oil refining, chemical manufacture, pharmaceutical, paper mills power generators etc. JAHCon recently reviewed this package in beta testing and believes it will provide a very useful and cost effective tool for the management of these very critical and complex assets.

The high entry cost associated with similar packages providing this level of functionality prevents small to medium organisations from taking advantage of progress in this crucial area of Asset Management.

Go to www.i4integrity.com for additional details and to download a PowerPoint presentation of the main features.

Assessing the Status of Assets

In earlier newsletters, we discussed the importance of 'Sound Foundations', 'Asset Registers' and 'Unique Identifiers' among other basic building blocks of Asset Management. In this edition, we will look at ways to assess the current state of assets as a first step to identifying ways to improve overall performance and cost effectiveness.

Once we have systematically and unambiguously identified each asset, it is useful to try and gain an insight into the current state of each asset. While it is possible to commence an equipment improvement program without carrying out a formal audit, it will inevitably be based on a less sound footing.

The most basic asset condition audit consists of a formal assessment of machines, systems and management using a range of criteria selected to give the clearest possible picture of the state of the equipment and the systems used to manage equipment. The criteria used will vary depending on the asset type, the management systems in use and on the intended use of the audit results. It is important to understand that even a basic audit will need to be structured and systematic if the outcomes are to be used as a basis for improvement. The audit will require significant preliminary work on the part of the Asset Management engineer to identify and understand the assets, identify important criteria and identify those individuals who will provide the necessary information. It is time well spent to ensure the questions used in the audit give the maximum benefit for the effort expended. In addition, it is crucial to ensure the results of the audit are sufficiently detailed so as to support the next stage of the improvement program. There is no point in spending significant amounts of time, effort and money carrying out an audit if the audit outcomes do not provide sufficient detail

to make decisions for optimum follow-up action.

The audit proper should consist of at least two major sections - an audit of specific equipment condition and history and an audit of the Asset Management systems in use on that equipment. Equipment audit questions should be aimed at understanding the appropriateness of a machine for its application, its present condition, its failure history etc. The management system audit should look for overall effectiveness and efficiency issues, trends in reliability, costs, manpower and other critical indicators as well as how the management system suits the equipment.

Auditing Guidelines (not exhaustive):

- Understand the current business environment.
- Understand the link between the asset management program and the current business plan.
- Identify criteria to be used.
- Develop audit questions and a scoring system.
- Schedule meeting with specific individuals.
- Allow sufficient time to interview each person in depth.
- Follow up with additional questions to verify facts.
- Seek evidence for claims made.
- Double check on claims with other sources.
- Get opinion of effectiveness of existing systems and procedures from those using the service.
- Resolve apparent contradictions before leaving the site.
- Generate detailed recommendations which include estimates of costs and resources as well as any obstacles to the implementation of the recommendations.

The usefulness of an audit is measured by the application of its results. Better to use a flawed or incomplete audit as a starting point and build on it over time, than to remain inactive.

See www.jahcon.com.au/auditing for additional details.

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