

New facilities and Preventive Maintenance

To avoid **CRISIS** don't delay its implementation!

By Paul Dean, CEng



When you start up a new factory or facility you are faced with many mechanical equipment failures. These early 'infant mortality' failures swamp the stable failure pattern of the equipment. They arise from the aggregation of deficiencies embedded in the facility by errors made in the course of design, manufacture, procurement, installation and commissioning. An embedded deficiency lays dormant until sooner or later it activates an in-service failure of its 'host' equipment.

In a process plant the adverse impact on production is particularly marked. A failure of any piece of equipment in the process line can jeopardise the prime quality production of the whole line.

An installation's early high failure frequency period may well extend beyond the start-up phase for two years or longer. The challenge is to manage the inevitable, emerging failures so that *sudden failures* impacting the business are avoided as far as possible.

Plant reliability and uptime is fundamentally dependent on having an effective preventive maintenance (PM) plan in operation. PM underpins the plant performance required by the business plan. An effective failure-countering PM plan will take into account not just the nature of the equipment part assemblies, but the context of equipment use and consequences that a failure would have for the business. The PM plan has two intentions. Firstly, to detect developing failures in critical equipment so that they can be remedied before becoming functional failures impacting the business and, secondly, to ensure that all equipment receives basic care, so that the self-inflicted failures that would otherwise arise from in-service neglect are completely avoided.

So-called 'maintenance manuals' supplied with equipment are generally not of great help. With the exception of a few, they rarely provide an effective plan of maintenance tasks. Most managers find this revelation very surprising – but it is nevertheless a fact of life. The manufacturer's

manuals may provide specific assembly/disassembly instructions to aid *repair after failure*, but *preventive* maintenance information tends to be woolly, full of provisos or 'over the top' – in order to minimise commercial risk and cost for the supplier.

Many companies still build their maintenance 'plan' as they go along, according to the unfolding in-service failure pattern of their equipment. When an equipment failure occurs, the maintenance countermeasures needed to avoid it happening again are decided and added to the PM plan. This may satisfy the maintenance engineer - it may even be of some consolation to the production manager, but it is a very costly approach to take for the business. In any facility there are many thousands of parts prone to failure and this 'plan as you go' approach guarantees years of grief, lost production and waste.

When a facility starts up, the 'new baby' gets all the attention - everyone is preoccupied with its immediate needs. It is very easy to forget about, or put off, establishing the support systems essential for its good health and survival. Engineers and managers, so enthralled with their new plant, all too often neglect to implement a PM plan. In these cases it is inevitable that sudden failure of critical equipment will be a frequent occurrence - production volume and quality will be drastically affected. In the case of hazardous or environmentally critical processes, statutory violations are to be expected. Sooner rather than later the business can find itself in crisis a situation.

Devising a *business effective* maintenance plan for a complex facility is a skilled undertaking. In these lean manufacturing times, few companies have sufficient in-house resources to carry out the work themselves.

Don't defer taking PM action. Don't leave it until you are in a crisis. Pro-active maintenance is profitable maintenance and a precondition of survival in the global marketplace. For the software and professional service solution to your needs, contact the PM specialists and the UK's No 1 producer of computerised maintenance management systems...

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