



Update: New Equipment Management Learnings

CTPM recently had the opportunity to work with a large multi-national following their request for assistance as they were about to invest into new equipment at a number of their sites.

The concern that prompted our involvement was that they believed:

“Engineers looked at Functionality as the prime objective of design and often paid limited attention to Operability and Maintainability”

A Site Example

This led to a reflection of another site's experience when they last upgraded their plant. Although suggested, they decided in their wisdom not to use New Equipment Management activities to assist in scoping, designing and most importantly installing the new equipment so that it would start its life as TPM³ Friendly. Instead they relied on the supplier with its international reputation, to do most of the work. Sadly the supplier didn't quite understand the peculiarities of the product and process their equipment was supposed to support, nor did they take the time to engage the local shopfloor staff to share their experience and expertise.

The outcome was very sad, costing the site not only millions of dollars but more tragically loss of confidence from their customers due to inability to supply.

The Objectives of New Equipment Management

The Objectives of New Equipment Management is to apply the experience gained through TPM³ production and maintenance activities to minimise the **Life Cycle Cost** of the proposed new equipment and to apply **Prevention at Source Design** thinking as the scope of the proposed new equipment is progressed. It is also to ensure the new equipment is **TPM³ Friendly**.

Life Cycle Cost is about ensuring short cuts in specifying requirements do not cause higher than expected cost of operating and maintaining the equipment during its expected life.

Prevention at Source Design is about investing the time up front to ensure all aspects are fully covered rather than quickly scoping the design and spending a lot of time and money rectifying shortfalls when the equipment is commissioned. It is also to ensure the new equipment is TPM³ Friendly so that any problems can be identified and hopefully rectified at the earliest possible time.



TPM³ Friendly is about ensuring the installed new equipment is easy for Operators to identify process and quality problems at the earliest possible time recognising the '*Tyranny of Time*' in addressing problems, as well as easy to identify equipment condition abnormalities (Equipment Defects) to allow the application of '*Prevention at Source for Equipment*'. It is also about ensuring the new equipment design incorporates good operability, maintainability and standardisation:

Goal	Aim	Example
Operability	Make it easy to do right and difficult to do wrong	Built in Quality through automatic stops, Mistake Proofing etc
Maintainability	Try to eliminate maintenance or to make it easy, infrequent and low cost	Automatic lubricating systems, easy access to wear components etc
Standardisation	Minimise spare parts, consumables, and especially training costs	Standardisation of pneumatics, hydraulics, PLCs etc

Key Learning

Recognise the importance of comprehensive and thorough Acceptance Testing covering the 4 steps of:

1. *Factory Acceptance Testing* – performed before equipment is shipped to identify any design and manufacturing failings.
2. *Testing Upon Receipt* – performed after delivery but before the equipment is signed off to ensure the shipment has arrived intact and not damaged.
3. *Installation Acceptance Testing* – performed immediately after installation to identify installation errors.
4. *Start-Up & Commissioning Testing* – the initial start-up, performing all functions of the equipment. Running equipment to the required production conditions and speeds.

Factory Acceptance Testing should involve operations staff, maintenance and operators to ensure ownership to the new equipment and the opportunity to identify Operability & Maintainability improvements.

For more information about CTPM's New Equipment Management methodology, please contact your CTPM Navigator or CTPM Head Office on +61 4226 6184 or email to ctpm@ctpm.org.au.