

# TPM - Total Productive Maintenance PPT Training Presentation

## Operator Driven Reliability Through TPM Maintenance 1-Day Seminar

### Course Content

#### TPM Overview

- What is Total Productive Maintenance?
- Where Profit is Lost in Business Processes
- The Six Production Losses
- The Seven (7) Process Wastes
- The Value Stream Concept
- The Hidden Factory
- Another View of the 'Hidden Factory'
- Production Losses and Overall Equipment Effectiveness

#### How TPM Improves Equipment Operation

- Common Wrongs Humans Do To Machines
- 6 Mechanical Equipment Care Standards to Set, Use and Keep Using
- The 'Human Element' in Asset Management
- Machines Cannot Forgive Our Mistakes
- The Truth is Hidden Under the Surface
- The Substance of TPM
- The Never Ending TPM Cycle
- Getting high equipment reliability...
- Total Productive Maintenance is ... operator driven reliability
- Defects Cause Failure
- Failures Misuse Time and Resources
- The Best are Proactive – They Do Defect Elimination and Failure Prevention
- The Story in Human Error Rate Tables
- Human Error
- Likelihood of Human Error
- Stop Defects and you Stop Problems
- Journey to 6 Sigma: Minimize Variability
- Move to 'Preventive' Quality Control

#### Setting Work Quality Standards

- The Solution starts when Management set standards, then promote and enforce them
- Turn Objectives into Systematic Activities
- 4 Pillars of Quality Management Systems
- Elements of a Good Management System
- What Are the Critical Success Factors?
- Standards and Standardisation
- Standardise the Work
- Standardised Work

#### Understanding Machinery Limitations

- Understand How Machines are Designed and the Limits They Must Live Within
- The Unforgiving Nature of Machine Design
- Strength of Materials Limitations
- Cause of Aging Failures
- The Degradation Cycle
- Repeated Over-Stressing Causes Fatigue
- The Overload Cycle
- Know the Limits of Your Parts
- Stress and Fatigue are Optional
- Parts Fail... then Machines Stop
- Equipment is components in series
- High risk in a series arrangement

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## Course Content Continued

### Setting a Vision of How the Equipment will Perform

- Need an Equipment Performance Vision
- Match TPM Process to the Vision
- Activity 1 – Define a Vision of Equipment Performance
- TPM in a Nutshell
- Purpose of Total Productive Maintenance
- TPM Works by Reducing Risk of Failures
- Multiple Strategies across the Life Cycle
- Value-Added to Equipment with TPM
- Risk Reduction with TPM

### Measuring Equipment Performance Improvement

- Monitoring Operating Effectiveness
- Measuring KPIs and Outcomes
- Purpose of Measuring Equipment Performance
- Overall Equipment Efficiency
- Start Measuring Plant Non-Performance
- Maximum Sustainable Throughput
- Production Disruptions Causes Variation
- Pareto Chart the Problems for Focus

### Operator Driven Reliability

- Promoting Operator Ownership
- When you feel responsibility for its performance
- When you are competent in its use
- When the ownership is recognised by others
- When the support structures in place sustain it
- Operator Monitoring and Watch-keeping
- Equipment Behaviour – Identifying the Degradation Cycle
- Operators Learn about their Equipment ...
- Operator Monitoring and Watch-keeping Procedure
- Operator Monitoring and Watch-keeping
- Fact Based Equipment Decisions
- To know equipment condition and capabilities ...
- Failure Preventing Job Procedures

### Quality Driven Standard Operating Procedures

- Accuracy Controlled Expert
- Accuracy Controlled SOPs Prevent Variation
- Including 3T Failure Prevention in SOPs
- Accuracy Controlled Enterprise (ACE) Standard Operating Procedures
- Activity 2 – Develop a 3T Watch-keeping Check Sheet
- 7 Visual Quality Management Tools for TPM Problem Solving
- Make measurement Visual, ... turn numbers into information people can use

### Necessary Supporting Organisational Structures

- Identifying TPM Systems and Processes
- Critical Mass of Support
- The People of Successful TPM
- The Culture of Successful TPM
- Best Performance from Multifunctional Teams

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### **Course Content Continued**

- Role and Importance of Supervisors
- Activity 3 – Building Hi-Performance Teams
- TPM Requires a Change Management Process for Successful Introduction
- Manage TPM Introduction like a Project
- Providing the whole 'TPM Mix'
- Sustained Resourcing of TPM Processes
- Prototype a TPM Programme for Proof of Worth
- Supporting the TPM program
- Change ... Do ... Learn ... Improve
- TPM Champions Needed

### **Case Study of TPM Implementation**

- A Case Study - Beginning with TPM
- Management Support
- TPM Team Objectives
- TPM Team Development
- Identify Current State
- Prioritise Equipment Problems
- Target Key Problems/Set New Standards
- Authorise Proposed Changes
- Improve Documentation/Training
- Return Equipment to Condition/Sustain it
- Measure Improvement/Lock-in Gains
- Second TPM Cycle

### **Preparing for Operator Driven Reliability through Total Productive Maintenance**

- Planning TPM Introduction: Using the Change Management Matrix
- TPM Change Management Requirements
- The TPM Route Map
- Develop Detailed Project Plan & Schedule