

# Operations Excellence

through

## TPM & Lean (TPM<sup>3</sup>)

Webinar 18

13 May 2014

# Operator Equipment Management Production Area Based Team Improvement Activity



Presentation by:

**Ross Kennedy**

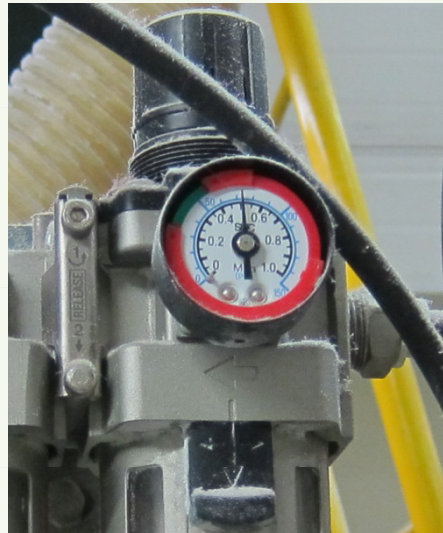
**President CTPM Australasia**



## Outline of Presentation

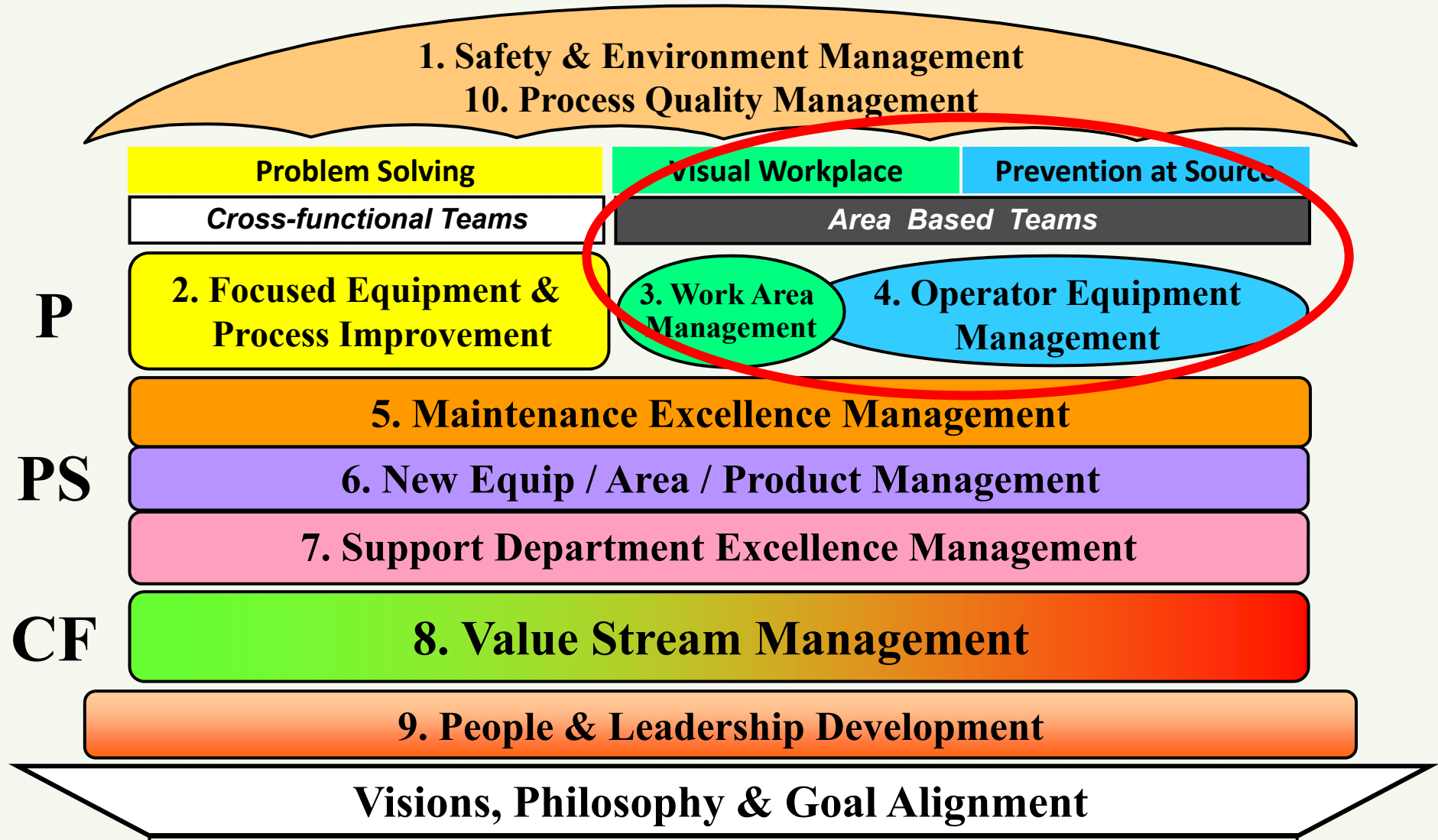
# Operator Equipment Management (OEM)

1. Role of OEM / WAM in the Operations Excellence journey
2. Importance of Horizontal Development of your People
3. Why 4 Stages and 7 Steps of Operator Equipment Management
4. Why use Check–Act–Plan–Do approach rather than Plan–Do–Check–Act
5. Making it Happen
6. Key Learning



# TPM<sup>3</sup> Framework for TPM & Lean

*incorporating 10 Improvement Activities supported by the Leadership Base*



P = Production    PS = Production Support    CF = Customer Focus Activities

# Why name it Operator Equipment Management?

**Work Area + Equipment = Workplace**

**Work Area Management + Operator Equipment Management = Perfect Workplace**

*Zero Breakdowns*  
*Zero Quality Problems*  
*Zero Accidents or Incidents*

**Supported by Cross-functional Teams**



# **The Role of Operator Equipment Management supported by Work Area Management in the Operations Excellence Journey?**

*To provide a 2-3 year structured development plan for your Team Leaders and Operators to significantly increase their capability to world class*

- **Frontline Safety & Environment**
- **Achieve the Production Plan**
- **Frontline Quality**
- **Formal On-going Improvement**
- **Frontline Work Area Management**
- **Frontline Equipment Management**
- **Frontline Energy Management**

# Role of Operator Equipment Management

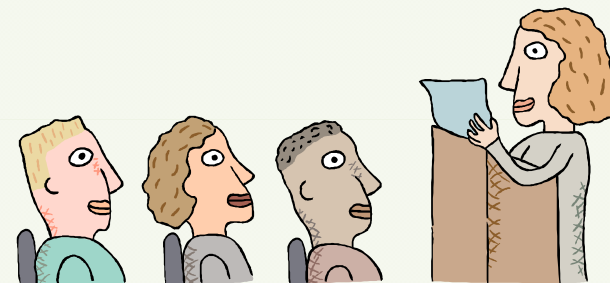
Operator Equipment Management or OEM is a 4 stage process involving a **progressive series of 7 steps** typically spanning 2-3 years. Each step building on the learning from the previous step.

OEM aims to **provide everyone with the training, systems and opportunities to care for their equipment and workplace**, while developing synergistic Area Based Teams.

A key outcome from OEM is to create a workplace that is **failure-free** (Zero breakdowns), **trouble-free** (Zero quality problems) and **safe** (Zero accidents or incidents).



# *Ask the Audience*

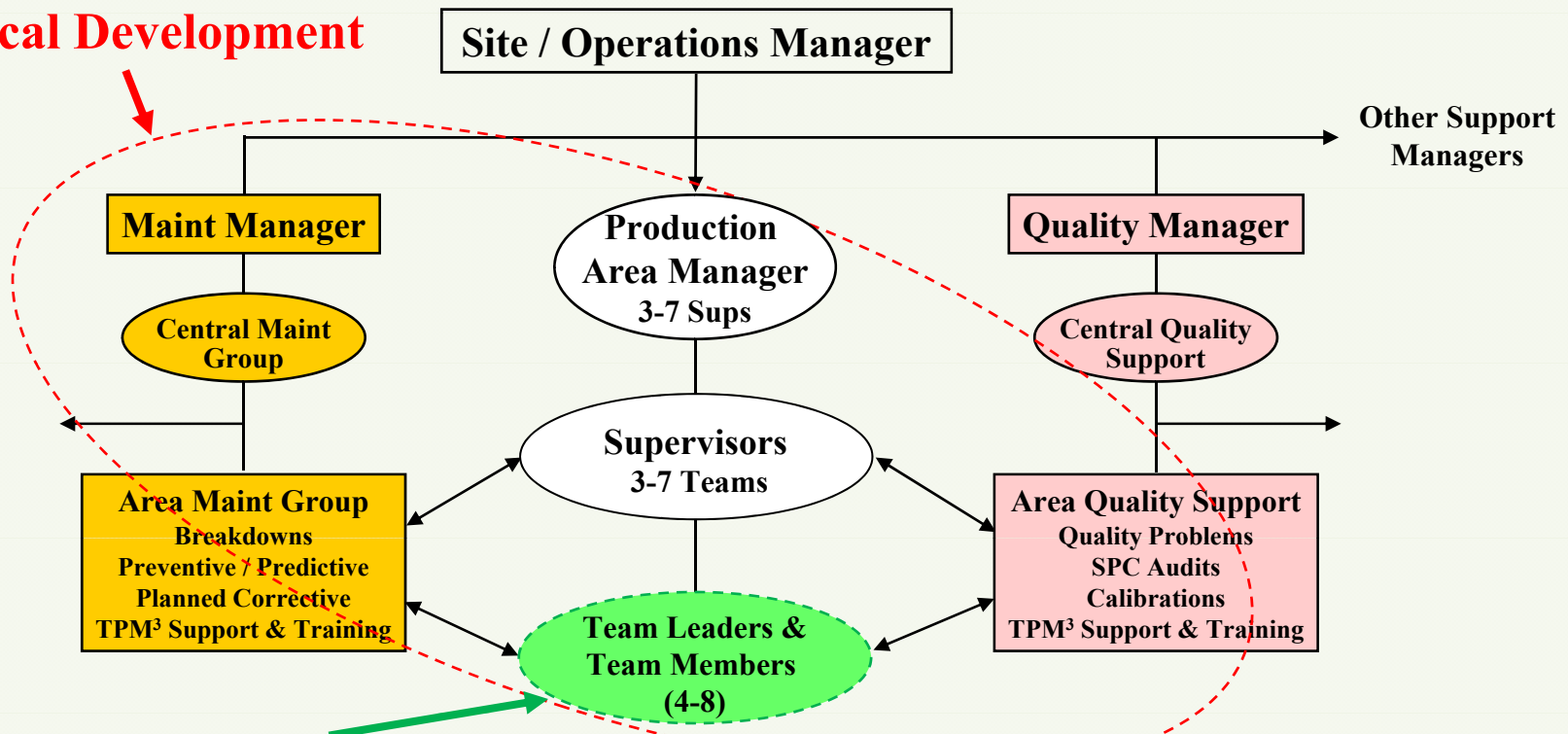


## 2. Importance of Horizontal Development of your People

We believe every business has the potential to significantly increase productivity and reduce costs by engaging all their personnel in the quest for excellence.

### Vertical vs Horizontal Development of your People

**Vertical Development**

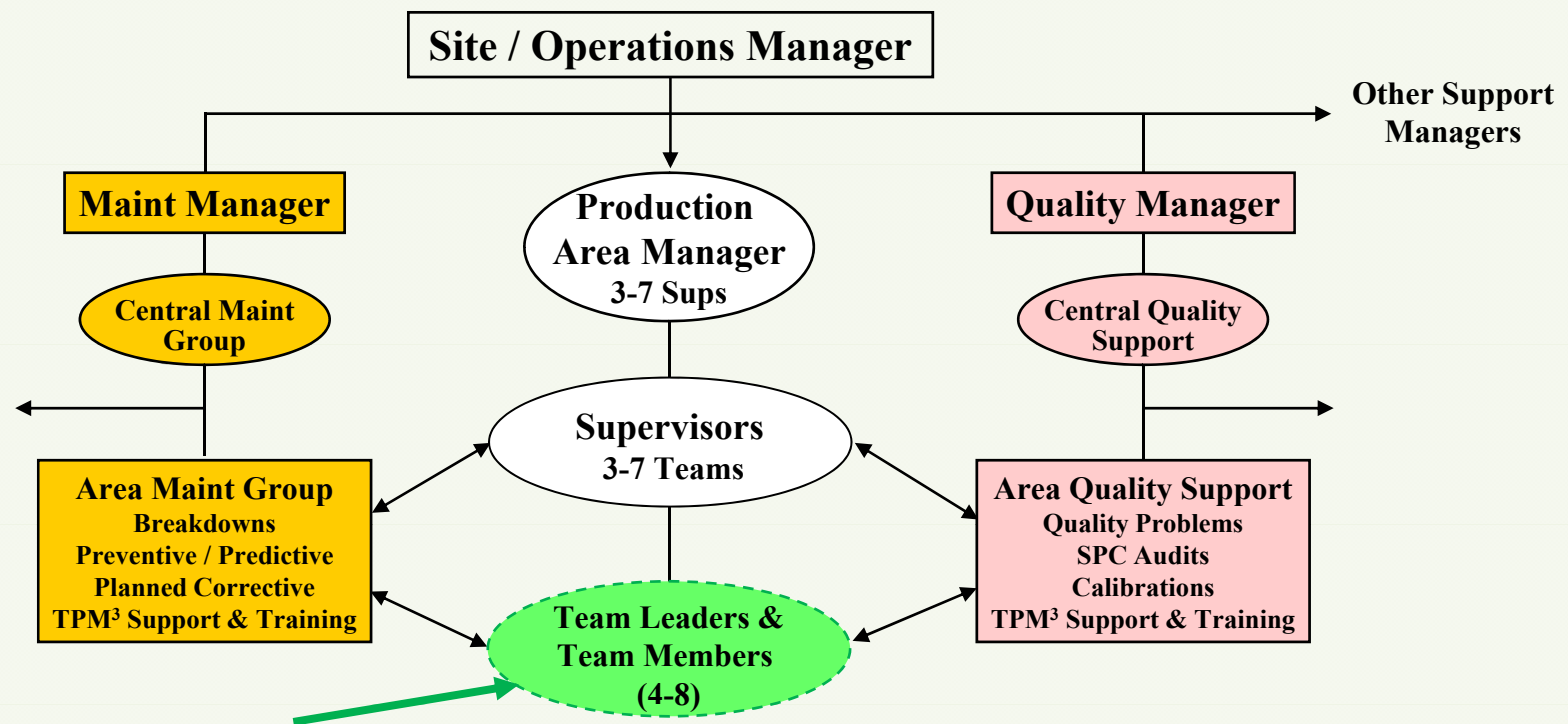


**Horizontal Development**



# Horizontal Development of your People

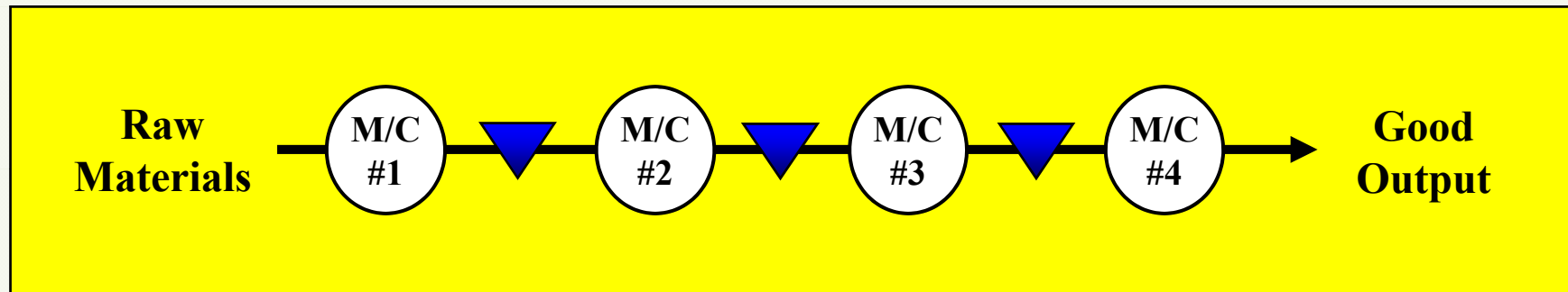
Opportunity to work with people at the same level in their organisation, led by their current Team Leader to develop Visual Workplace and Prevention at Source skills (so as to identify and stop problems at the earliest possible time)



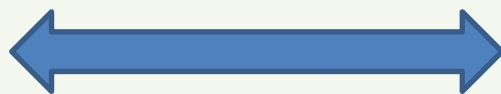
**Horizontal Development**

# Area Based Teams

## Defined Production Area (DPA)



**HORIZONTAL**  
Development of your  
people



### Area Based Team:

A team of 4-8 people including a designated Team Leader who work together to achieve the Production Plan and improve their workplace (Work Area + Equipment) by mastering Problem Solving, Visual Workplace and Prevention at Source skills

### 3. Why 4 Stages and 7 Steps of Operator Equipment Management

- People development takes time – hence we need a process spanning 2-3 years involving cycles no longer than 12 weeks duration.
- Should be based on competency achievement (Team self assessments verified by the Improvement Co-ordinator) hence some steps may be quicker or longer than other steps depending on the starting point
- The key is to ensure all shifts progress each step at the same time (don't allow 1 shift to get ahead or behind) as a key part of the learning is to get agreement from all other shifts involved in the workplace

### **3. Why 4 Stages and 7 Steps of Operator Equipment Management**

#### **Stage 1     Cleaning for Inspection Activities**

Step 1 – Identify & Rectify Equipment Defects

Step 2 – Address Sources of Contamination and Difficult to Access Areas

Step 3 – Establish Perfect Lubrication and Clean for Inspection Standards

#### **Stage 2     Training for Inspection Activities**

Step 4 – Understand Equipment Functioning (typically 6 modules over 3 cycles)

Step 5 – Finalise Inspection Standards for Equipment Care

#### **Stage 3     Consolidate Quality Assurance Activities**

Step 6 – Understand Quality and Equipment relationships

#### **Stage 4     Consolidate Ongoing Improvement Activities**

Step 7 – Manage own Workplace ensuring Zero Breakdowns, Zero Process or Output Quality Problems, Zero Accidents or incidents



# 4 Stages of Operator Equipment Management

## **Stage 1 Steps 1, 2, 3 Cleaning for Inspection Activities**

Learn how to recognise, rectify and prevent equipment defects so as to achieve and maintain Basic Equipment Conditions and thus reduce variation in Equipment Component Life (to allow Maint to enhance their PMs / PdMs) while improving Safety and Quality..

## **Stage 2 Steps 4, 5 Training for Inspection Activities**

Learn how equipment functions so as to diagnose equipment, quality and safety problems at the earliest possible time, be able to identify and contribute to improving Design Weaknesses and contribute to achieving a workplace that has Zero Breakdowns while improving Safety and Quality.

## **Stage 3 Step 6 Consolidate Quality Assurance Activities**

Develop a deeper understanding of the relationships between Quality and Equipment Conditions so as to create a workplace that has Zero Quality Problems while improving Safety.

## **Stage 4 Step 7 Consolidate Ongoing Improvement Activities**

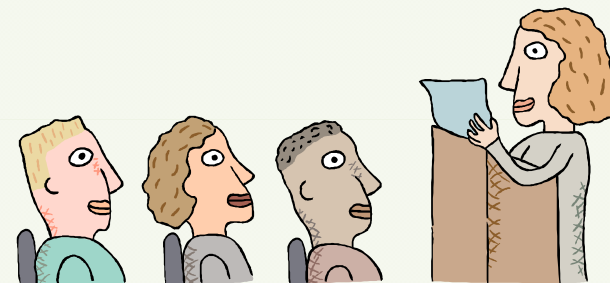
Manage own workplace as a successful Mini Business (eg mature synergistic Area Based Team) so as to always achieve the Production Plan with Zero Breakdowns, Zero Quality Problems and Zero Accidents or Incidents.

## 4. Using Check–Act–Plan–Do rather than Plan–Do–Check–Act approach to ensure sustainability

Cross-functional Team Deductive / Vertical Dev		Area Based Team Inductive / Horizontal Dev	
<b>Plan:</b>	Define and baseline problem and develop an action plan to solve	<b>Check:</b>	Thoroughly examine and expose all issues
<b>Do:</b>	Implement the action plan including any trials	<b>Act:</b>	Take actions to rectify all issues and identify requirements to prevent recurrence
<b>Check:</b>	Verify the results to original baseline	<b>Plan / Standardise:</b>	Implement approved improvements and standardise to prevent recurrence
<b>Act:</b>	Refine, standardise and identify future opportunities to apply learning	<b>Do:</b>	Monitor and assess to ensure the procedures are followed. Communicate results and share learning



# *Ask the Audience*



## 5. Making it Happen

- Properly formed Production Area Based Teams (4-8) including a competent Team Leader with good ownership to their Improvement Area
- Successfully completed Work Area Management with all self-assessment scores > 80% as verified by the Improvement Coordinator
- Excellent relationships with the dedicated Maintenance (Mech & Elect) persons who will be supporting the team
- Stable Production Plan with regular (weekly) time allocated for Clean for Inspection activities (1-2 hrs)
- Effective Defect Tagging System established with clear rules and regular monitoring to ensure all defects are responded to at the earliest possible time

**Then we need a structured process to follow**



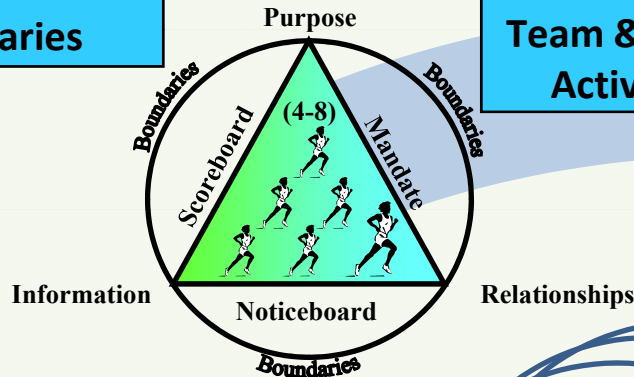
# Operator Equipment Management - Step 1 of 7 (OEM-1) Process

**1. Confirm Mandate & Boundaries**

**2. Review Team & Scope Activities**

**3. Expose all Issues**  
(Initial then Regular Clean for Inspections)

**4. Take Actions to Rectify**



**Equipment Defect Tags**

CTPM DEFECT TAG	
Tag No.	Tag Date
Equipment No.	Equipment Name
Defect Description	Defect Location
Defect Category	Defect Status
Defect Priority	Defect Action
Defect Assigned To	Defect Completed By
Defect Assigned Date	Defect Completed Date



**10. Communicate Results & Share Learning**  
(Final Presentation)



**Check** – expose equipment defects  
**Act** – fix equipment defects  
**Plan / Standardise** – checklists etc  
**Do** – regular monitoring to sustain

**5. Identify Requirements to Prevent Recurrence**

**9. Monitor & Assess**



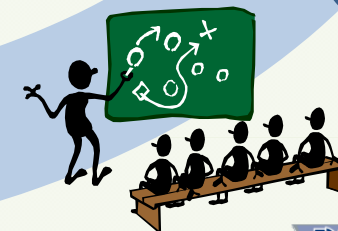
**8. Standardise to Prevent Recurrence**



**7. Implement Approved Improvements**

TPM <sup>3</sup> Improvement Sheet	
Team Name: Field Patrol	Location: Cessant One - Product Products
Operator: Team	Item: Manual Meter Monitoring Control
Team Leader: D. Bailey	Completed Date: 20/07/13
<p><b>Problem Statement</b></p> <p>Operators, especially new staff could move the damper in the wrong direction.</p>	
<p><b>Current Situation</b></p> <p>(Photo)</p>	<p><b>Proposed Change / Approved Improvement</b></p> <p>(Photo)</p>
<p><b>Improvement</b></p> <p>To design a simple &amp; effective use that clarified instruction</p>	<p><b>Expected Benefit</b></p> <p>Expected Completion Date: 15/05/13</p>
<p><b>Approval</b></p> <p>Approved by: TL, SBA, BA, JF, JS</p>	<p><b>Future Action</b></p> <p>Supply sheet on instructions to do to ensure the work.</p>
<p><b>CTPM</b></p> <p>CTPM has been kept up to date of the improvement.</p>	<p><b>CTPM</b></p> <p>CTPM has been kept up to date of the improvement.</p>

**6. Obtain Approval to Proceed**  
(Mid-way Presentation)



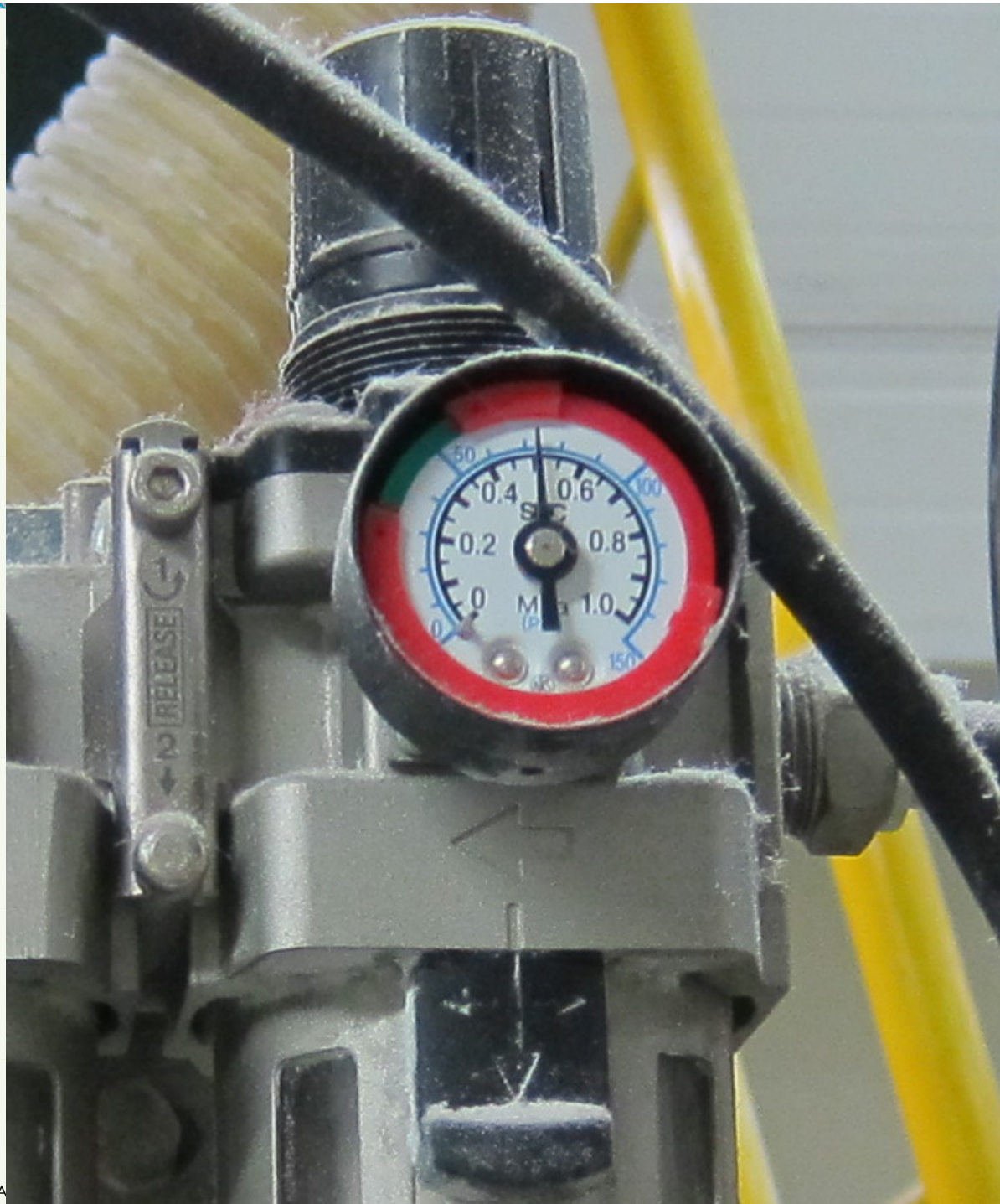
**Gaining agreement from all shifts**











## 6. Key Learning



- 1. Ensure Senior Management see Operator Equipment Management as a people (Operator & Team Leader) development process**
- 2. If necessary ensure regular weekly time for Operator Equipment Management through Cross-functional Team improvement activity**
- 3. Establish ownership in the workplace with properly structured Production Area Based Teams**
- 4. Use a structured stepped process with cycles spanning no longer than 12-14 weeks**



## 6. Key Learning (cont)



5. Use a mid-way presentation to gain agreement and a final presentation to capture learning and acknowledge success
6. It is the responsibility of Site Management (Leadership Team) to ensure all teams are successful – they achieve their mandate

## 6. Key Learning (cont)



**How do we develop the skills and habits of our people to find equipment defects at the earliest possible time?**



**Habit = 21 repeats with at least 5 sleeps in between!**

### **Learning:**

If we do weekly Clean for Inspections under the guidance of someone who knows what to look for, we should start to develop the habits to see equipment defects at the earliest possible time after about 6 months!

## 6. Key Learning (cont)



**Operator Equipment Management requires long term thinking with a passion for people development. Its rewards can be quite staggering:**

**Apart from a highly motivated and positive workforce, we have seen:**

<b>Maintenance Costs:</b>	<b>Down 30% - 50%</b> by extending life of components
<b>Capacity (OEE):</b>	<b>Up 25% - 50%</b>
<b>Quality:</b>	<b>Scrap &amp; Rework eliminated</b>
<b>Safety:</b>	<b>Zero Accidents or Incidents</b>

# Final Messages

*Unless the focus of your organisation's improvement journey is the on-going development of all your people through both Cross-functional Teams and Area Based Teams, your quest to achieve and sustain Operations Excellence will become a dream rather than reality.*

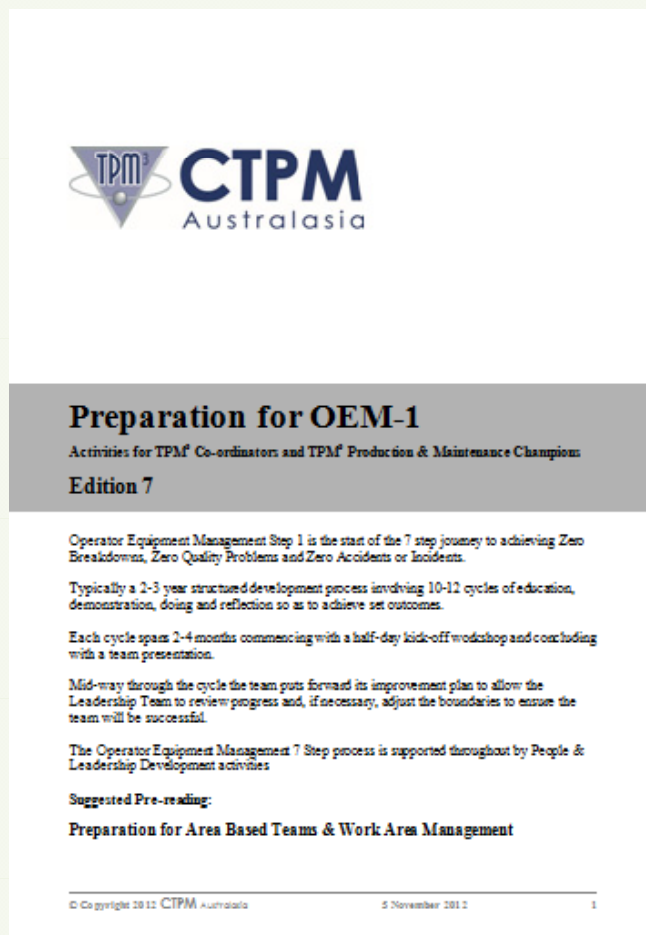
*The most successful sites are those that have fun making things happen*



# How can we help?

[www.ctpm.org.au](http://www.ctpm.org.au)

## Preparation for OEM-1





# *Question Time*



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