



# GETTING BACK TO BASICS WITH ‘LEAN’

The Chelsea maintenance LEAN journey  
so far.....engaging our people

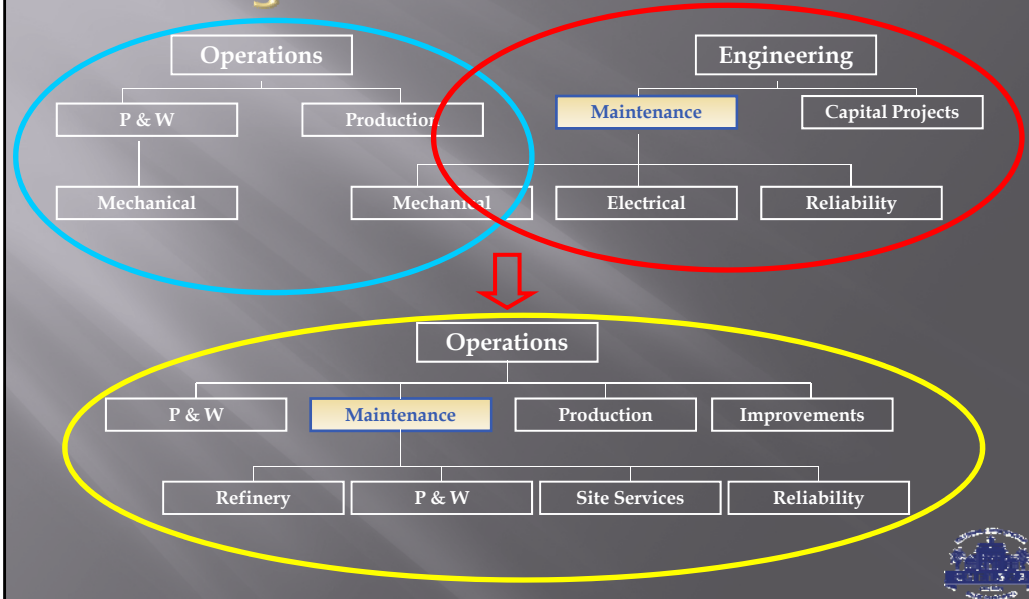


## Getting Back to Basics

- Organisational Alignment
- Introduction to LEAN / TPM<sup>3</sup>
- Maintenance Self Assessment Surveys
  - Part A – Lost Time & Type of Work
  - Part B – 10 Elements of Maintenance excellence
- Establishing meaningful measures
- Planning & Scheduling
- Training
- Improved performance & reliability
- Improvements



## Organisational Structure




## Introduction to LEAN

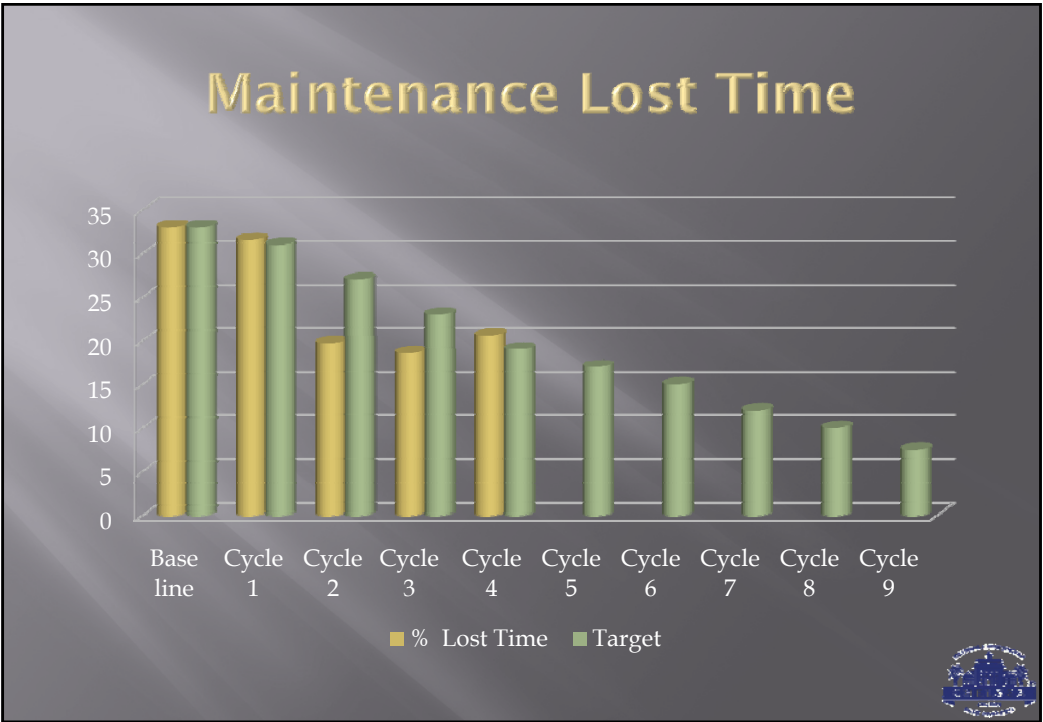
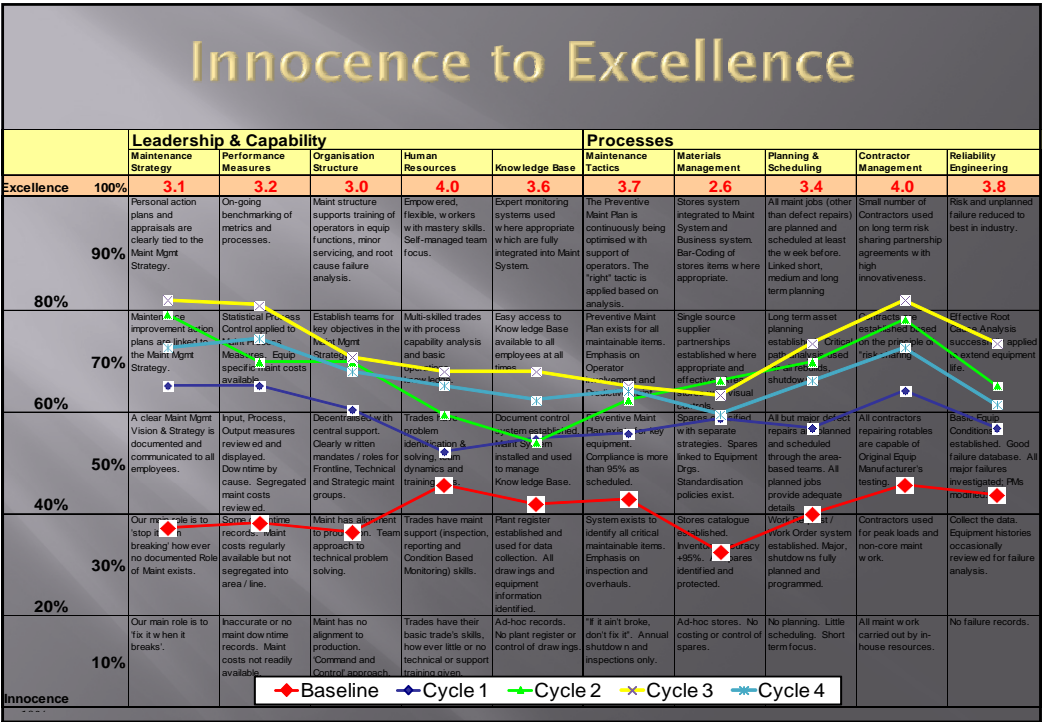
- MEM – Maintenance Excellence Management
  - 100% maintenance personnel
- MELT – Maintenance Excellence Leadership Team
  - Team leaders & managers – 8 personnel
- MAM – Maintenance Area Management
  - Teams of 4 – 8 personnel, 5 teams
- MIT – Maintenance Improvement Team
  - Team of 4 -8 personnel



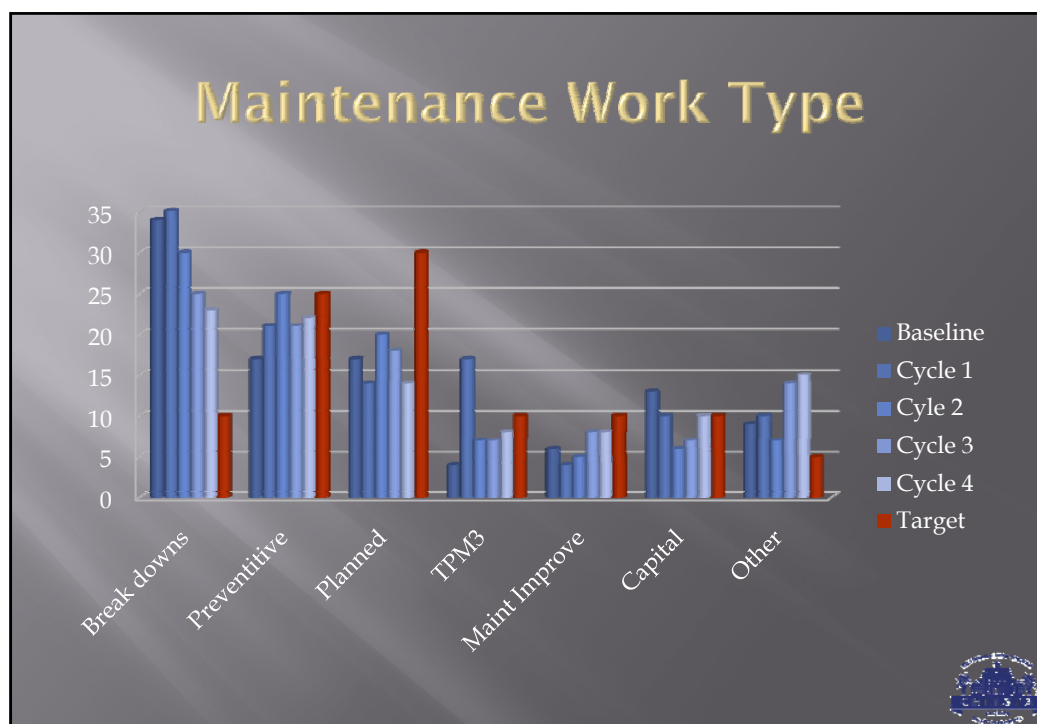
## 10 Elements of Maintenance Excellence

The diagram illustrates the 10 Elements of Maintenance Excellence, organized into three main categories: Processes, Capability, and Leadership. At the top is a blue oval labeled 'Support TPM³'. Below it is a column of five vertical bars representing 'Processes': Maintenance Tactics, Materials Management, Planning & Scheduling, Contractor Management, and Reliability Engineering. These are grouped by a bracket on the right. Below the Processes are two horizontal bars representing 'Capability': Knowledge Base and Human Resources, also grouped by a bracket on the right. At the bottom are three horizontal ovals representing 'Leadership': Organisation Structure, Performance Measures, and Maint Ex Mgmt Vision & Strategy, grouped by a bracket on the right.

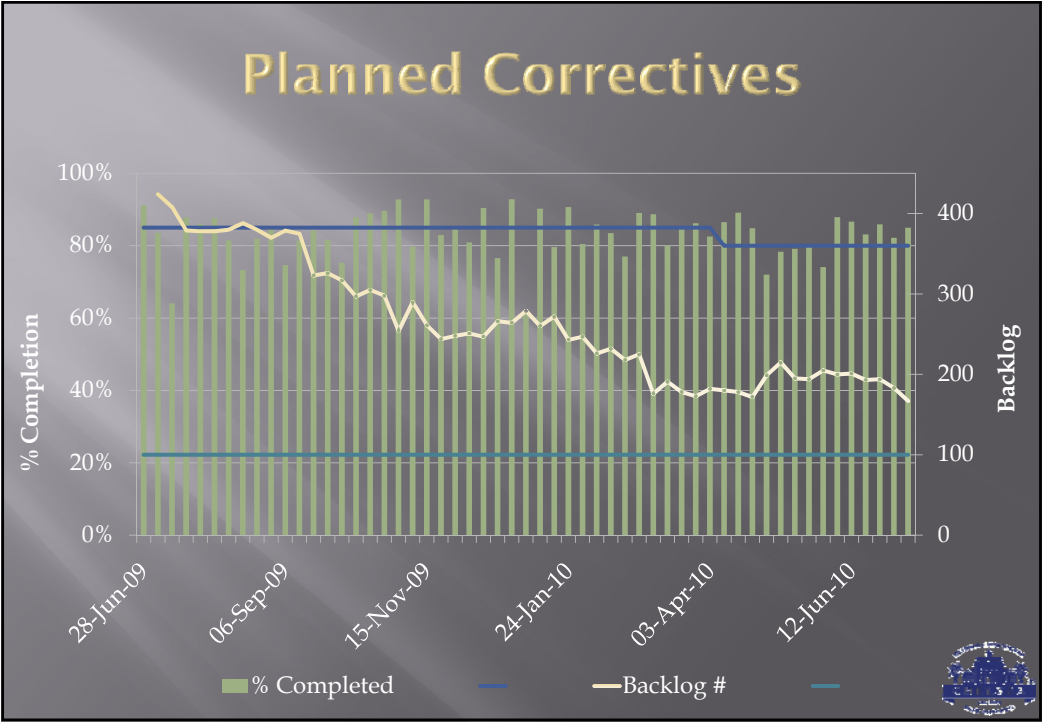
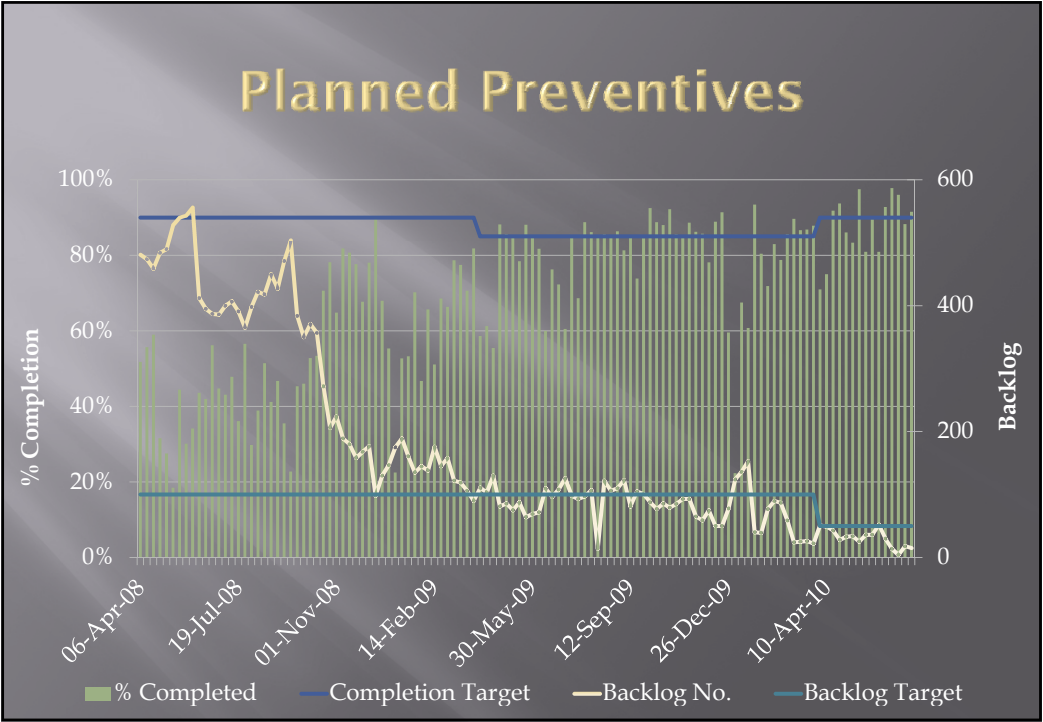








- ### Meaningful Measures
- ❑ Develop and communicate Vision & Strategy
  - ❑ Site Safety Health & Environment lead and lag indicators
  - ❑ Planned preventive task completions & backlog
  - ❑ Planned corrective task completions & backlog
  - ❑ % of labour required to complete PM tasks
  - ❑ Plant performance, Refinery & Packing Overall Equipment Effectiveness
  - ❑ Maintenance departmental budgets



## Computer Maintenance Management System Training

- ▣ Level 1 - Introduction with basic overview of functionality
- ▣ Level 2 - Raising & closing of jobs, entering transactions
- ▣ Level 3 - Job Request module with some basic search functions
- ▣ Level 4 - Utilisation of search fields and running basic reports
- ▣ Level 5 - Searching for spares and assigning these to jobs
- ▣ Level 6 - Planning and Scheduling
- ▣ Level 7 - Adding and editing Planned Maintenance tasks
- ▣ Level 8 - Advanced reporting




## Refinery Operator Training

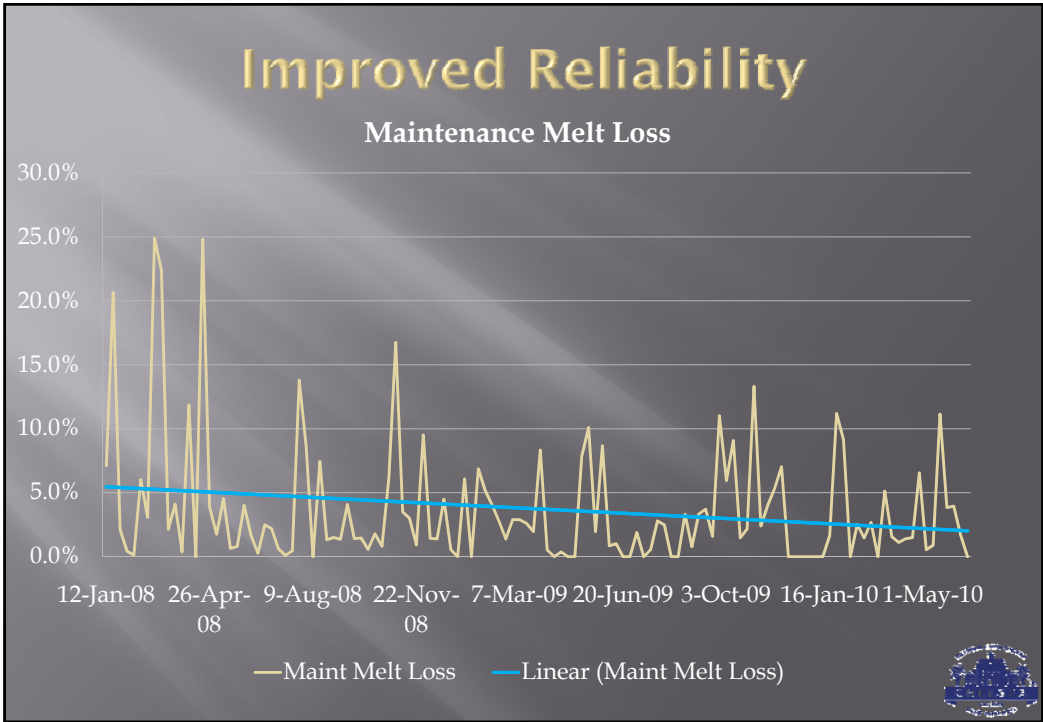
- ▣ Two 1½ hour sessions per week on same topic
- ▣ 24 topics covered over 6 month period
- ▣ 90% attendance
- ▣ Excellent feedback and interaction
- ▣ Engagement through better understanding of processes



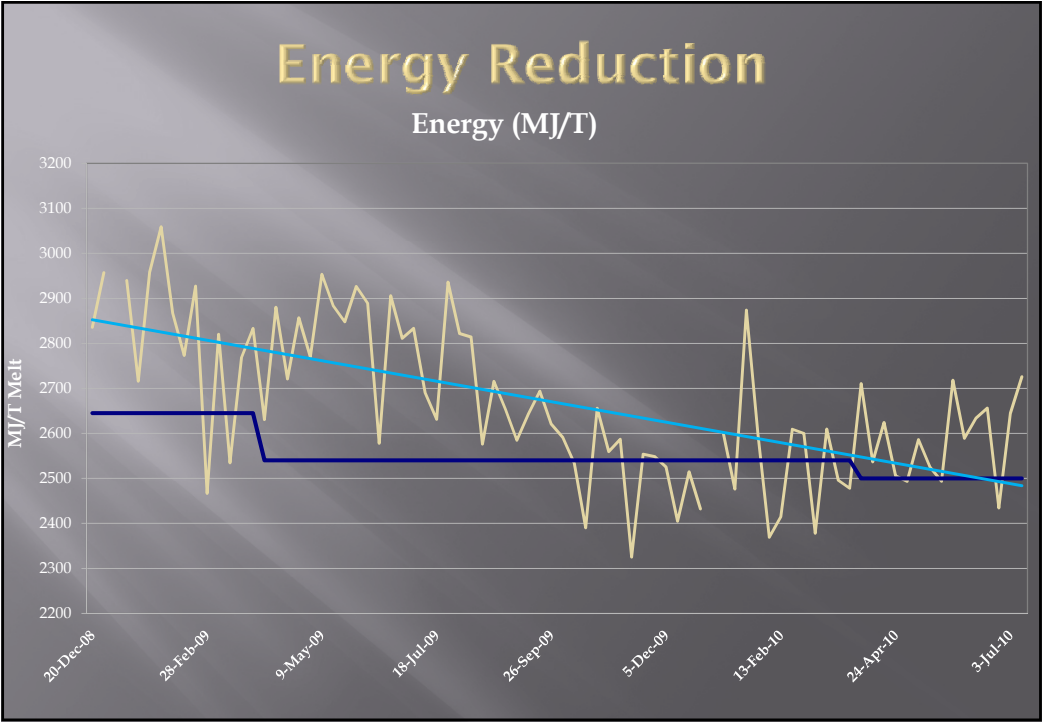
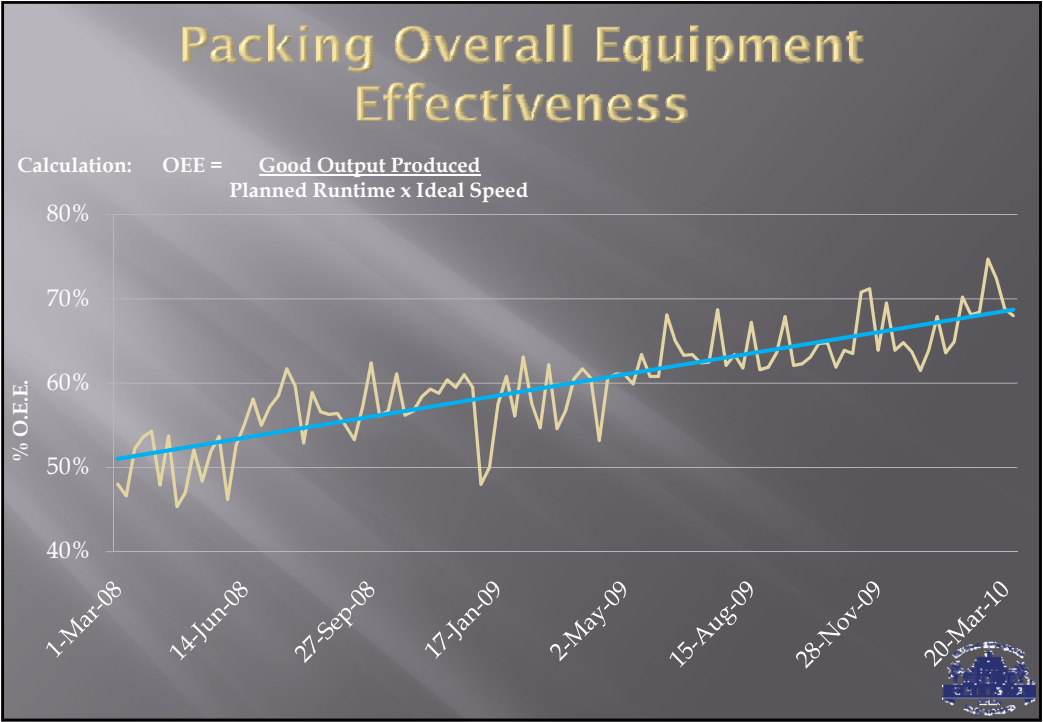
## Industrial Maintenance Round Table

- Quarterly meetings with representatives from 30 leading industries with presentations and discussions on key subjects.
- Monthly common interest work groups focusing on issues raised at quarterly meeting, attended by managers, team leaders & trades personnel.









# Maintenance Area Management Improvements



Original packing machine O&M manuals storage



O&M Manuals storage after MAM Cycle



# Maintenance Area Management Improvements



Cable storage or lack of



New cable storage rack after MAM cycle



# Maintenance Area Management Improvements



Electrical workshop work bench



Work bench with new cupboards and paint after MAM cycle



# Maintenance Improvement Team



Original Dangerous Goods store



Dangerous Goods store after MIT Cycle





# Maintenance Improvement Team



Inaccessible corner of No.2 Engineering store



Accessibility and easy identification after MIT Cycle



# Maintenance Improvement Team



No.2 Engineering 'Junk' store



No.2 Engineering store post MIT cycle





## Continuous Improvements Embedded as Standard Practice



Liquor Filter press



Same filter press after 2 week  
service



## Achievements to Date

- ▣ Level 2 of the 5 Level Milestone awards after 18 months
- ▣ Overall Equipment Effectiveness in packing areas improved from 47% to 65%
- ▣ Energy consumption reduced, gas & electricity
- ▣ Improved engagement & ownership
- ▣ Improved culture survey results & performance of maintenance personnel
- ▣ Improved maintenance planning and scheduling
- ▣ Reduced backlog of Preventive & Corrective maintenance tasks
- ▣ Improved utilisation of CMMS (Mainpac)
- ▣ Elimination of safety risks
- ▣ Housekeeping standards significantly improved
- ▣ Improved communication between operators & maintenance
- ▣ 100% involvement by maintenance personnel
- ▣ Maintenance Improvement Team reduced bearing stock value by \$22k
- ▣ Maintenance Improvement Team reduced V belts stock by 80%



## What's next?

- ❑ Continue to enhance maintenance areas
- ❑ Continue to support TPM<sup>3</sup> activities
- ❑ Continue to work through the 10 elements of maintenance excellence
- ❑ Continue to improve maintenance efficiencies
- ❑ Continue to develop and train maintenance personnel
- ❑ Providing operator training
  - OEM 3 – lubrication principles
  - OEM 4 – basic machine conditions
- ❑ Implement stores management strategy
- ❑ Complete Asset Criticality Assessment
- ❑ Continuous improvement embedded as part of what we do in every day work

