

Introduction



Background

- CAES failed due to:
 - Focused on equipment hierarchy \$M
 - Focused on criticality \$M
 - Data gathered was not implemented. \$M
 - No change to work plans.
- Refocused to Equipment Strategy Optimisation
 - Targeted to maintenance tasks
 - Adopted PM Optimisation and 80/20 approach
 - Dedicated team of 10 @ \$1200k/year

Objectives

- Consistent strategy across all sites
- Remove duplicated tasks
- Remove non-productive tasks
- Reduce invasive tasks
- 80% planned work

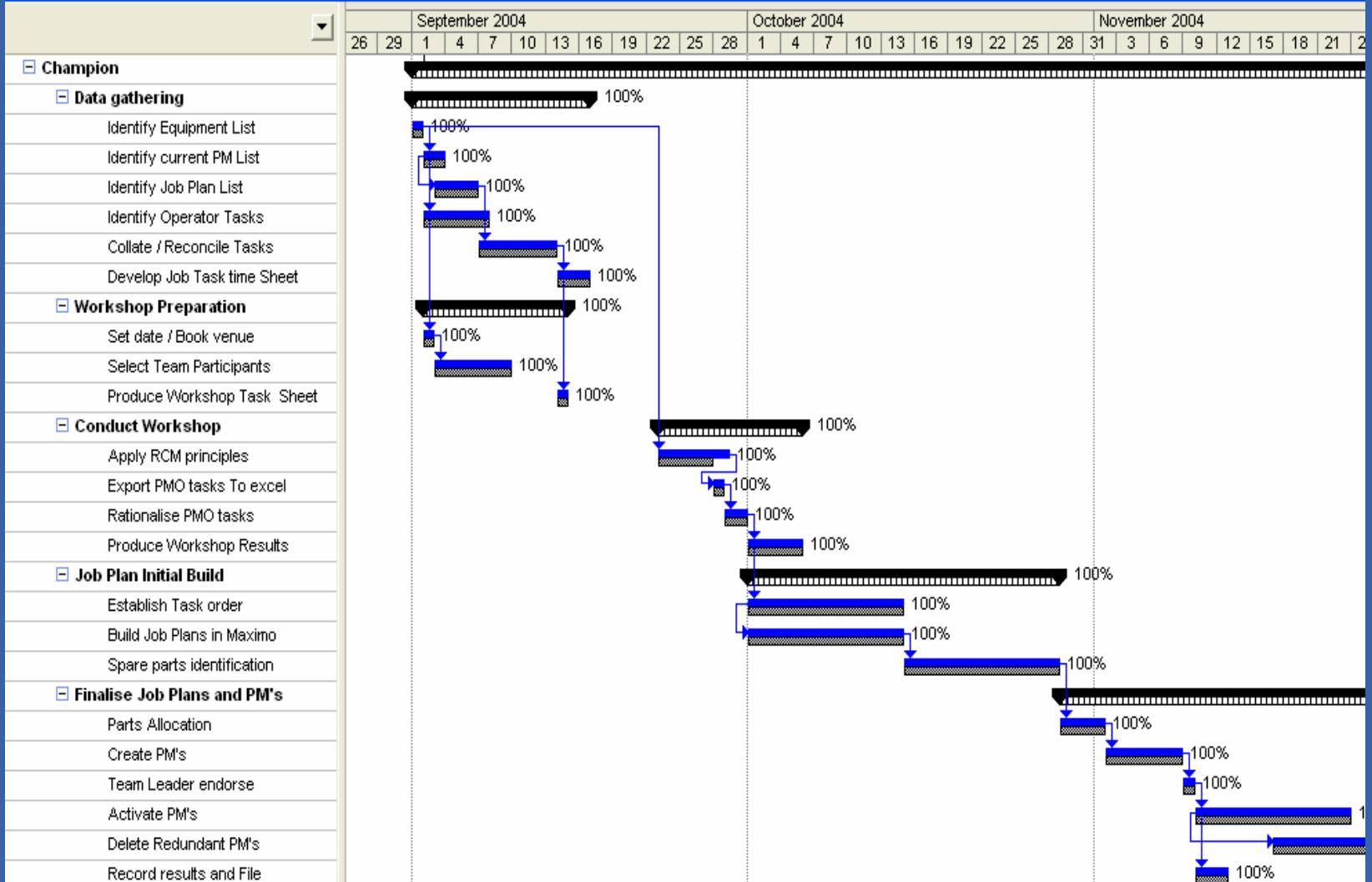
What is PM Optimisation

- PMO refers to preventative or planned maintenance optimisation
- To optimise equipment maintenance, we identify the failure modes for each existing task and then modify or add tasks which when performed at the correct service interval, will prevent the failures
- Thus we **only do what needs to be done, when it needs to be done**

The 4 stages of PMO

- Look at the equipment history
 - what tasks are we currently performing
 - what failures have occurred
- Conduct a workshop
 - Operators, maintainers, planners and engineers
 - Review tasks assign failure mode
- Combine tasks into a maintenance strategy
 - Condition monitoring
 - Maintenance
 - Operator
- Initiate the new plans and delete the old ones
 - CMMS entry and spare parts allocation
 - Operating manual update

PMO project plan



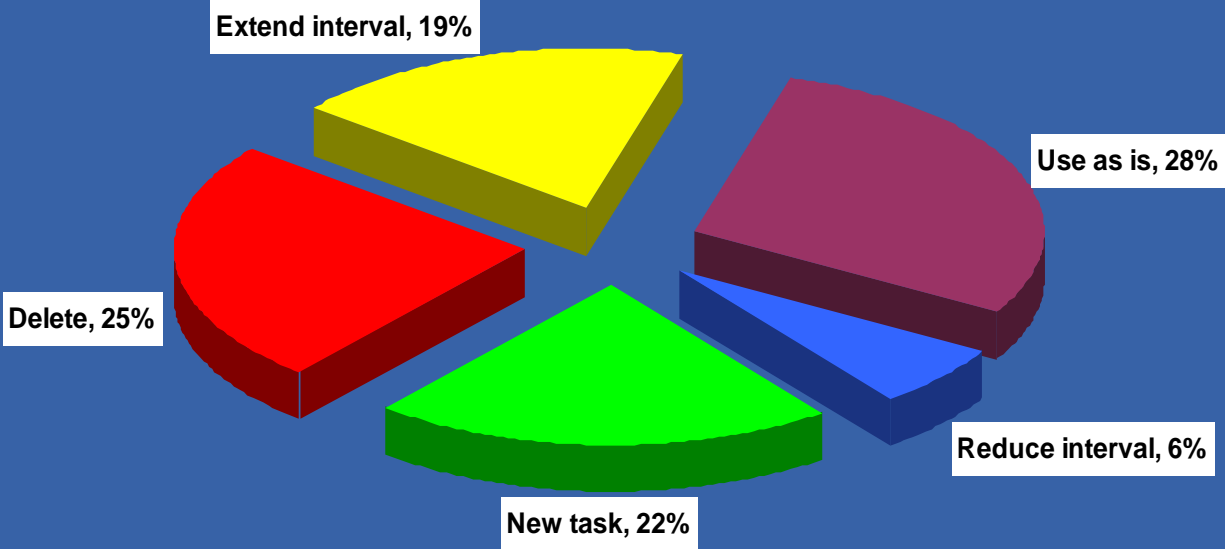
PMO status

Project progress report

	Complete	Finish date	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05
Overall Equipment Program	50%	27/09/06						
Air compressors; PD, jet and beam pumps; Fans; Ruston & GE turbines & compressors; Turbo exp	69%	16/03/06						
Solar turbines	24%	13/05/05						
Boilers; Alternators; HV power; ESPs; Valves; Meter stations	39%	27/09/06						
Waukesha, Superior, Caterpillar engines; Recip compressors; Centrif pumps; DJ50 turbines & compressors	46%	12/07/06						
Production Sites Program	28%	24/04/06						

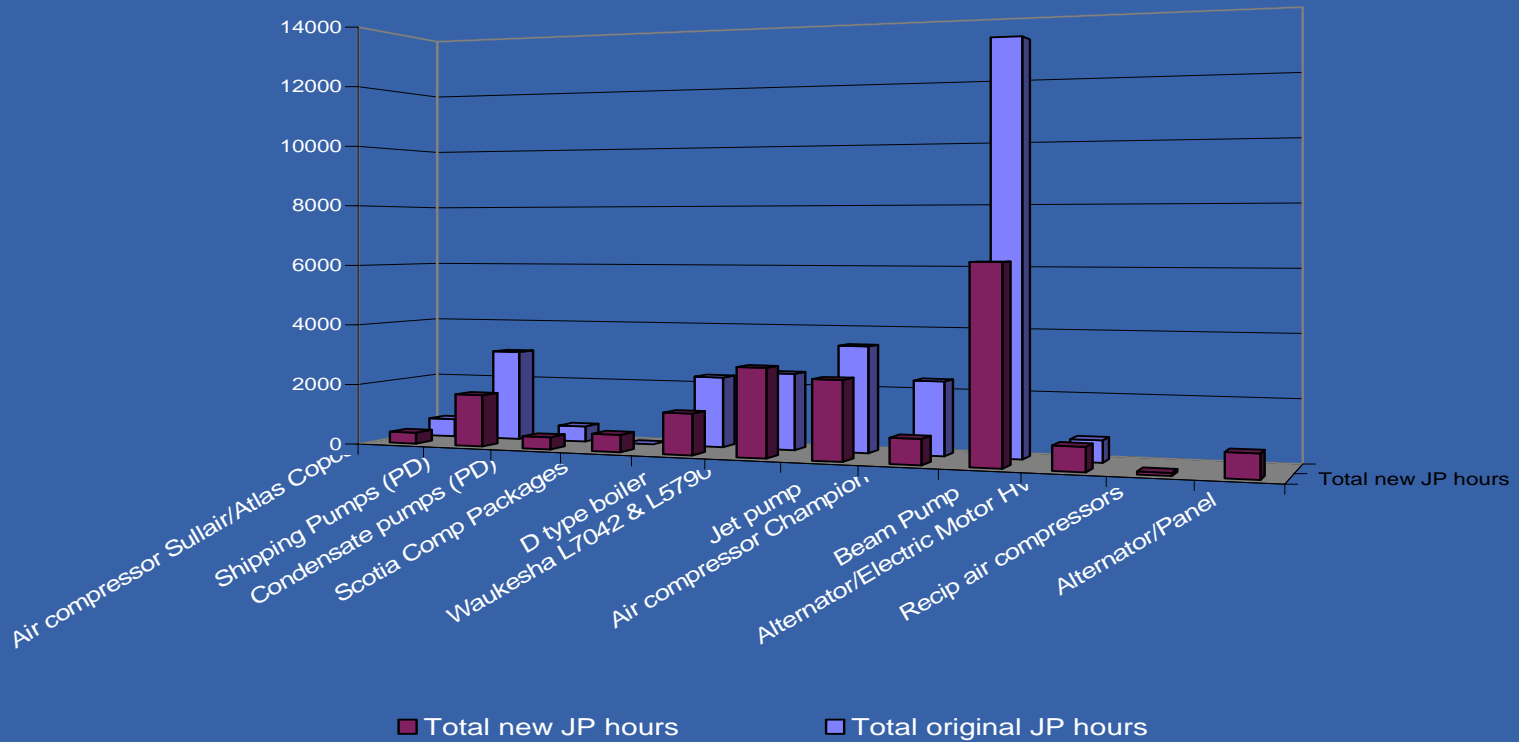
Results

Overall Workshop Results



Results

PMO Results and Stats



Total hours assessed = 54,000 hrs

Net reduction = 16,000 hrs (28%)

Cumulative labour saving of \$1.7m pa

Known issues

- Securing field personnel to attend workshops
- Field focus on individual maintenance costs rather than uptime/reliability improvement
- Equipment defects will negate maintenance strategy improvements

Known issues

- The new plans are not perfect
 - Some failure modes may have been missed
 - Some spare parts incorrect or not assigned
 - Job plans do not have equipment specific detail
- Recording calibrations in Maximo
- Statutory was not included in initial scope
- Old habits are hard to change
- Monitoring of operator task compliance

Continued improvement

- Change request process implemented
- Continue PMO review process
 - Monitor failures and update equipment strategy
 - Improve Job plans by including equipment specific detail
 - Update spare parts as required
- Provide CMMS services
- Integrate condition monitoring services

Summary

PM Optimisation is the means to

- working smarter and more efficiently
- improving overall equipment effectiveness
- improved utilisation of personnel, more time for training, PM backlog reduction

PMO is already proving its worth in eliminating duplicate and unproductive tasks, whilst improving the quality of value adding tasks