



PLANNERS'

SCHOOL™

PLANNERS' SCHOOL

Level 1 & 2 Training Courses for Maintenance and Reliability Professionals

Facilitated by:

COVARIS
progress through knowledge engineering

Produced by:

 **the
eventful
group**

WHAT IS PLANNERS' SCHOOL?

Planners' School comprises two distinct and complementary levels.

LEVEL

1

Level 1 (Fundamentals of Work Management) is an introductory level, suitable for planning practitioners who are starting out or for those wanting to brush up on the basics.

LEVEL

2

Level 2 (Introduction to Asset Management) is for maintenance and reliability professionals who already have experience in a planning role and want to further develop and fine tune their skills.

WHO ATTENDS?

More than 5000 students have participated in public and private courses from these companies:

ABB Australia	Brisbane City Council	Fonterra Co-operative Group (NZ)	Marley (NZ)	Primary Producers Co-op	Tenon Limited (NZ)
AGL	Caltex Refineries	GEMCO - Groote Eylandt Mining Company Limited	Mars Australia	QR Limited	The Bega Co-operative Society
Alcoa World Alumina	Carter Holt Harvey	General Cable (NZ)	Midland Brick	Queensland Alumina	The Laminex Group (NZ)
Alstom Power	Cement Australia	General Mills Australia	MM Kembla Products	Queensland Health	Totalfab
Amcor Fibre Packaging	Central Norseman Gold	Gippsland Water	Mt Arthur Coal - BHP Billiton	Queensland Rail	Toyota
Anglo Coal	Centurion Transport	Gladstone Port Authority	Multiserv	Redland Water & Waste	Transfield Services
Anglogold	CEQUENT	Goodman Fielder	Napier City Council (NZ)	Rio Tinto Alcan	Transgrid
ANSTO	Coca Cola Amatil	Hawker De Havilland	National Foods	Rio Tinto Coal Australia	Transpower (NZ)
Argyle Diamonds	ConocoPhillips	Henry Walker Eltin	National Power Services	Rio Tinto Energy Resources of Australia	TRUenergy Yallourn
Australia Post	CS Energy	Holcim (NZ)	New Hope Coal Australia	Royal New Zealand Air Force	United Group Resources
Australian Country Spinners	CSIRO	Impact Fertilisers	New Zealand Defence Force	Royal New Zealand Navy	Vector Limited (NZ)
Australian Paper	CSR PGH	Integrated Chemical and Environment Systems	New Zealand Steel	SA Water	Visy
BHP Billiton Cannington Mine	Dalrymple Bay Coal Terminal	Interlink Roads	Northgate Minerals Corporation	SCA Hygiene (NZ)	Wesfarmers Curragh
BHP Billiton Illawarra Coal	Dampier Salt	James Hardie	NRG Gladstone Operating Services	Silcar - Loy Yang Power	Woodside Energy
BHP Billiton Mitsubishi Alliance Coal	Darwin Power & Water Corporation	Kalgoorlie Consolidated Gold Mines	OneSteel	Silcar Pty Ltd	Xstrata Zinc
BHP Billiton Olympic Dam Operations	Diamond Power	Kimberly-Clark Australia	Owens-Illinois	Simplot Australia	Zinifex
BHP Billiton Yabulu Refinery	Electrolux (NZ)	Land Headquarters (Army)	P&O Ports	Skilled Group	
Blair Athol Coal	Energy Brix Australia	Leviathan Resources	Pacific Steel	Southern Cross Operations	
Blue Circle Southern Cement	EnergyAustralia	Liddell Coal Operations	Pan Pac Forest Products	SPC Ardmona Operations	
Bluescope Steel	Esso Australia	Loy Yang Power	Parmalat Australia	Stanwell Corporation	
BMA Peak Downs Mine	ETSA Utilities	Mackay City Council	Patrick Corporation	Sun Metals Corporation	
Boeing Australia Limited	Fisher & Paykel Healthcare	Maintenance Systems Solutions	Patrick ESD	SunRice	
Boral CMG SA	Fletcher (NZ)		Patrick Terminal	Sydney Water Corporation	
Boyer Smelters	Fluor Global Services		Pilbara Rail	Tarong Energy Corporation	
	Fonterra Brands			Tenix Defence	

1 LEVEL

FUNDAMENTALS OF WORK MANAGEMENT

What you can expect to take away:

- Review the organisational design and clarify roles for different stakeholders
- Improve communication between planners, supervisors and operations
- Understand what the asset information system has to provide and how to set it up
- Register plant and equipment correctly to ensure they are covered by the maintenance system
- Improve planning of work to deliver labour efficiencies
- Tune the preventive maintenance strategy to reduce failures with optimal procedures
- Ensure parts management supports work on time with minimal stock holdings
- Align your maintenance and production schedules ensuring cost-effective access to equipment
- Deliver cost reduction through improved labour utilisation and proactive maintenance
- Resource scheduling to better package work and optimise availability
- Transition from breakdown maintenance to planned maintenance
- Correct management of engineering stores
- Develop meaningful KPIs and act on them
- Accurately analyse your risks and costs
- Implement a continuous improvement program that involves all stakeholders working together

1 LEVEL

COURSE OUTLINE

The End-to-End Work Management Process

- Work flow - what does good work management look like, balance of work types and proactive maintenance, work orders and their status, safety and maintenance
- Reactive maintenance compared to the preferred state of mixed preventive/predictive maintenance plus proactive continuous improvement
- The integrated maintenance team - roles of planners, supervisors, team leaders and others plus how they support each other

Identifying Work & Maintenance Planning

- Identifying and prioritising work - communicating and acting on risk, different views from operator and maintainers and how to bridge the gap
- Defining work priorities in terms of risk - examples to take back and apply
- Planning lead-time and managing the backlog - which jobs to plan first and major culture change with better management of the total workload
- How to select and then plan jobs - examples of task lists, estimation and linked documents
- Role of the supervisor/team leader in scoping work and the role of the planner in planning the job - who does what and why?
- Materials management in planning - ensuring parts will be available when required
- Aligning with modern Enterprise Asset Management (EAM) systems

Maintenance Scheduling

- What does scheduling mean, how to schedule a job and what are the benefits for the team with all work in the schedule?
- Budget management and cost control - what is driving the money - plant breakdowns or the team in control
- Standard meetings - getting everyone on board with the same schedule and set of priorities by improved communication and confidence in the decisions made
- Purpose of the forward log - changing from a reactive culture to one in control where workloads match what the teams can do
- Greater insight into priorities and using systems to organise work in accordance with them

Maintenance Work Execution

- Engagement with the team - communication and dispatching the right work to the right person
- Minimum standard of workmanship - examples of what goes wrong
- Coping with breakdowns - what is a true emergency and what can be scheduled in the future plus coping with the break in the schedule
- Safety and work - how safety can be planned into a job and obligations to ensure work is undertaken safely
- Returning plant to service - ensuring plant is fit and safe to operate
- Cancelling work - why it is necessary sometimes
- Parts and time management - how to get the costs of the job fed back accurately and with minimum effort
- Closing out the work order - what information is needed, problem codes and their purpose, examples of simple codes that work and what is an appropriate degree of feedback?
- Feedback - how the information supplied back from the team will be used

1 LEVEL

Transition from Breakdown Maintenance

- Overview of the improvement process - don't start a project until it is planned and able to be supported, what are the milestones and what are the deliverables?
- Equipment lists in the maintenance system - what does a good hierarchy look like and why is it necessary, how will the hierarchy and equipment codes be used?
- Asset criticality - the process of determining what is important and how much investment in maintenance is appropriate
- Preventive maintenance job plans - use of standards, what do good job plans look like, necessary estimation, condition monitoring and assessment inclusions
- Delivering the improved PM schedule - how the schedule is the driver of good maintenance, design considerations to be made, comparing poor and good implementations
- Measuring progress and bringing the people with you - essential relationships with operations, effective feedback and managing risk in the project

Spares Management

- Overview of spares management - essential information and processes
- Parts information - catalogue and inventory, refurbishment strategies, item descriptions and BOMs
- Stock management - stock levels, risks of stock out, min/max and other strategies, bin management, stock taking, stores organisation and turnover analysis
- Procurement - purchase orders, receipting and financial management - balance sheet management vs. expense as you go
- Consumption - goods issues and returns, picking stores from the warehouse including barcodes

Reporting & KPIs

- Developing KPIs for your organisation - essential requirements to specify a KPI, inputs and calculations and what makes KPIs effective
- Lead vs. lag KPIs - getting the balance right and knowing what you want to achieve
- Sample KPIs - graphical reports from case studies with discussion on what they tell us about the maintenance teams' performance
- Monthly reporting - advising on budget control, plant reliability and continuous improvement
- Reliability department support - how can reliability engineers help the maintenance team, what is their role and what data do they need?

Case Studies & Exercises

- Most major sections have specific exercises associated with them - you'll have time to discuss the material with your peers, share experiences and think about the gap between what you have and what the course represents as good practice
- All slides and training materials are based on proven experience over 30 years of maintenance improvement across most industries - many slides have case study examples covering real-life situations, screen shots of EAM systems and true data from actual operations
- The two-day course finishes with a real life exercise - this case study actually happened and represents one of the greatest challenges in modern maintenance: how to keep an aged manufacturing plant with a long-term work force in business and reliably producing
- Be on your mettle - there is only one winning team in the final exercise: you have to apply what you have learned in order to be the best

2 LEVEL

INTRODUCTION TO ASSET MANAGEMENT

What you can expect to take away:

- What does a good organisation look like in how it structures its operations, maintenance, reliability, supply, engineering and asset management teams?
- Embedding continuous improvement in the delivery of maintenance work - defining the right work to prioritise and how to enable the improvement process
- Team work between maintenance and reliability - how the two teams support each other and deliver measurable improvement
- Understand the nature of data and how to read different kinds of reports - single measurements, time trends and spectral
- Setting up a condition monitoring system in a structured way - what information to manage, standards to follow and what should be the intended outcomes?
- Assessing the return from condition monitoring and if it is delivering the expected benefit
- Reviewing a detailed reliability report - what is advised on where to improve critical plant and what are the problems which need to be addressed?
- How a reliability engineer uses data to forecast improvements in complex equipment if changes are made to its design or maintenance
- Total strategy for defect elimination through analysing failures, RCA, 5Y and fishbone analysis for multi-cause incidents
- Using FMEA to improve the preventive maintenance strategy - what is a practical approach and what reports does it provide to lift reliability performance?
- Implementing ten principles of Operator Driven Reliability to address simple preventable defects in the assets
- Undertaking front-line observations of possible problems and what to look out for

2 LEVEL

COURSE OUTLINE

Work Management Support

- Embedding continuous improvement into maintenance workflow - where is improvement needed and what are the organisational benefits?
- How maintenance and reliability interact with standard meetings and reports to improve plant performance
- Lifting the data awareness and utilisation of reporting within a business - what are expectations set by ISO 55000 and other authoritative standards?
- Linking reliability improvement with cost control and more effective safety management - determining a balanced measurement approach for corporate reporting

Reliability Department

- Overall organisational design setting out the roles of maintenance, operations, reliability, engineering, supply and asset managers - who does what and how do they work together?
- The key reliability processes which need to be present in an operation - what is the function of the reliability department and who are the stakeholders it provides a service to?
- Implementing reliability improvement - information which needs to be managed, stakeholder engagement and technical support requirements
- Key reliability reports to the maintenance department with implications for operations and the marketing group - what is the risk in the plant and what is the likely future performance?

Using Measurements for Plant Improvement

- Measurement types - single measurements, real-time trends and spectral data
- Managing measurement history and files - how can the asset information system help and what other satellite systems may be needed?
- Tracking alarms - determining if these are getting better or worse, is the plant in control or not?
- Example reliability study - what does it say about which equipment is critical, what are the problems and are maintenance resolving them and what is the likely future performance?
- Understanding complex systems of equipment - where to invest in either PM improvement or change out of poor performing components

Condition Monitoring

- Setting up a condition monitoring system - machinery information required, ISO 17359, end-to-end processes which establish a comprehensive strategy appropriate for the equipment
- Documenting the condition monitoring approach - methods applied, logic for the decisions taken, expectations of skills and data management and intended reporting
- P-F curve - considering the effectiveness of different measurement methods in early warning of problems
- Asset criticality - selecting the right monitoring approach for a given operational priority
- Managing alerts - ensuring correct response, tracking history and monitoring risk in the operation
- Assessing the return from condition monitoring - is it worthwhile, what is the balance between cost of work and outcomes derived?

2 LEVEL

Defect Elimination

- Handling failures of equipment - don't throw the broken bit in the scrap bucket, forensics of failure and why there is money to be saved by understanding a broken bolt
- Failure investigation techniques - RCA logic, 5Y and multi-cause analyses - what is appropriate and when to apply different techniques
- A defect elimination program - developing and communicating the strategy, involving the stakeholders and developing competencies across the teams
- Estimating remaining life of assets - based on the defect rate when is the economic time to change out or invest in the equipment?

Maintenance Strategy Improvement

- Improvement of preventive maintenance procedures - where to start and what to look for, what is the trade-off between OEM recommendations and a targeted study?
- Application of Failure Modes and Effects Analysis (FMEA) - understanding the process as defined by the standards, talking through an FMEA with the maintenance team and what reports will help improve the maintenance strategy?
- When is there a need for a total review of the maintenance strategy - what triggers a top level review and how can a major improvement program be justified?
- How does the maintenance team specify its improvement requirements - what is needed to load a maintenance strategy into the EAM system?

Operator Driven Reliability

- 10 principles of operator care - ensuring the plant runs trouble free between maintenance periods and improving the interface between maintenance and operations
- Front-line observations of the equipment - what operators should be looking out for, samples to consider adapting for your own operation and using log sheets to record data
- How operators should specify work and accept their equipment back from maintenance
- What does a tactical improvement plan from the operators look like - how should they form such a plan and how should it be implemented?

Case Studies & Exercises

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- The two-day course finishes with a real life exercise - many pieces of equipment across an aged factory are presented. Reliability and performance information about the critical assets have been documented. Maintenance strategies have been written from a recent improvement project. What strategy will you put forward to improve this factory and allow it to continue to compete in a tough international market?

MEET YOUR INSTRUCTOR



Peter Durrant commenced a dedicated maintenance career as an electrical fitter and an electronics technician. Peter holds a Diploma of Engineering and an MBA in Technology Management. He worked his way up through the ranks in the Navy to hold senior engineering roles both at sea and ashore with the submarine arm. After the Navy, Peter transitioned through facilities maintenance in the service sector to senior management roles in the resource sector with WMC Limited. Peter has also consulted and contracted in various maintenance and asset management appointments across industry. Peter has a broad, balanced view of the maintenance craft. Peter has significant experience in work management and the behavioural aspects of sustainable organisational change with operators and maintainers.

PRIVATE ONSITE TRAINING

Looking for a specific training plan for your team? Both Planners' Level 1 and 2 are offered onsite to meet your company's schedules, goals and budgets. Additionally, we can customise any of the course content based on your specific needs.

Many of our customers have utilised this option, either from one plant or facility, or to bring personnel from multiple plants or facilities to one onsite training.

Whether you have 15 or 500 people to train, we can tailor an onsite training course that works for you.

**Please contact Claire Sauerman
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for private onsite training options.**



www.plannersschool.com.au/

