

Use powerful maintenance strategy, methods and practices that create productive, problem-free operations and reliable production assets

# Mastering Industrial Plant Maintenance Management

Melbourne, Victoria – 2, 3, 4 February 2011, Vibe Hotel, Carlton

Perth, Western Australia – 16, 17, 18 March 2011, Technology Park, Bentley

Sydney, New South Wales – 18, 19, 20 May 2011, Vibe Hotel, Goulburn Street

Brisbane, Queensland – 31 Aug, 1, 2 September 2011, Regatta Hotel, Toowong

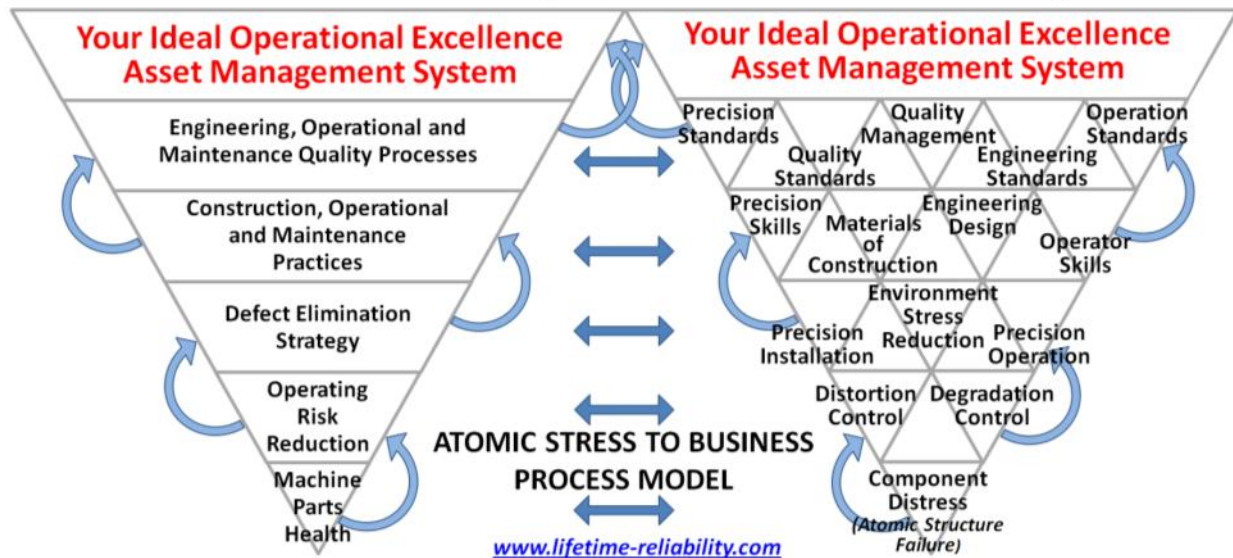
*(Save money and run the course in-house if you have 4 or more people.)*

## How to make equipment more and more reliable and rapidly move your operations towards world-class maintenance performance

Maintenance that does not make you a lot of operating profit from your plant and equipment is a poor sort of maintenance. This course is crammed with insights into the reliability understandings and behaviours that get operational excellence performance and deliver world-class maintenance results.

The Mastering Industrial Plant Maintenance Management course introduces you to the Plant Wellness Way of building component-based maintenance strategy. You are taught a simple, risk-based, six-step methodology to make your plant and equipment outstandingly reliable. Learn how to use and tune your business systems and work processes to create outstanding operational excellence and world-class maintenance performance.

### The Plant and Equipment Wellness Way



Over the three days of the course you will discover how to use the Plant Wellness Way methodology from the ground up and build the fewest, yet perfectly ideal, asset maintenance processes your operation needs for world-class performance. You learn exactly how to find the least cost, right maintenance and operating strategies that make your equipment run breakdown-free, produce at maximum sustainable capacity with first-pass quality throughput, and make non-stop high operational profits.

When done well your new maintenance strategies deliver the six purposes of maintenance – equipment reliability, failure avoidance, defect elimination, least operating costs, risk reduction and maximum production. Fail to achieve one of



them and your maintenance efforts will not get the big pay-offs that they should. Mastering Industrial Plant Maintenance Management the Plant Wellness Way focuses your maintenance on maximising operating profit by driving reliability growth at every stage of the business life-cycle. The training course shows and explains how to select and use 'just-right' maintenance strategy and methods that help you to achieve:

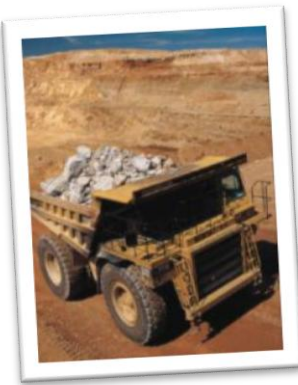
- zero breakdowns,
- steady production at maximum sustainable capacity,
- equipment that makes first-pass quality product,
- sustained, high plant availability,
- soaring equipment reliability,
- high energy efficiency from equipment,
- ever falling maintenance costs,
- a continual improvement culture.

## The best strategies, methods and practices to lift your operation to new heights of performance

You learn how to focus your maintenance methods and practices on defect removal and failure prevention in every phase of the life-cycle. You learn critically important requirements for maintenance success and exactly what to do to drive your equipment reliability higher. Understanding how to intentionally make your business processes and production equipment more and more reliable turns average organisations into world-class organisations. This maintenance improvement course is packed with new reliability insights and techniques that you can use every day in your operation to make your products less costly, faster, safer, waste-free and with zero breakdowns.

## Push the boundaries of what is possible

The course challenges existing mindsets, questions common paradigms and introduces the key improvements that turn operations around fast. If you think it takes years to have outstanding maintenance success you will be happily surprised at how simple and quick it is with the Plant Wellness Way to maintenance management mastery. Becoming world-class at industrial plant and equipment maintenance needs to take just a matter of months. Low maintenance costs, high equipment reliability, high plant availability and sustainable production rates can be yours much faster than ever because you build only the smallest system you need for world-class maintenance performance.



## How to use maintenance to get higher returns-on-investment from your operating plant

Achieving the least unit cost of production is a strategic business imperative and a project investment necessity. Your maintenance management should be focused on delivering maximum returns to your business in ways that secures its future success while ensuring current operating profitability. Plant and Equipment Wellness driven maintenance maximises return on investment from your plant and equipment by improving productivity in your operation through reducing the cost of maintenance, boosting output and lifting plant uptime.

Reliability is central to maintenance success and the course makes sure you understand the key reliability principles. The information and techniques you learn are at the forefront of modern maintenance and reliability practices. In future you will do maintenance differently to what you do now because you will know better, simple, yet powerful techniques from your training with us at this seminar. You'll learn the best methods to rapidly focus your maintenance efforts for highest productivity and profits.

## Details on Your Presenter



**Mike Sondalini** B Eng (Hons), MBA, CP Eng.: The seminar presenter, Mike Sondalini, uses his extensive practical industrial equipment expertise and business experience to take attendees through a carefully structured coverage during which they learn the key knowledge, understandings and skills that deliver practical and valuable contributions to improve asset productivity, reduce maintenance costs and maximise production performance and quality. In engineering and maintenance since 1974, Mike's career extends across original equipment manufacturing, beverage production, steel fabrication, industrial chemical manufacturing, quality management, project management, industrial asset management and industrial training. He uses his years of experience as a maintenance manager in business to focus on the critical success factors of what to do, and how to

### MORE TRAINING

NSW – VIC – QLD – WA

**Mastering Maintenance Management the Plant Wellness Way**

**Maintenance Planning and Scheduling for Reliability**

**Success with Life Cycle Enterprise Asset Management**

**Applied Reliability Engineering for Operating Plants**

**Change Management for Operating Plant Reliability Improvement**

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[www.lifetime-reliability.com](http://www.lifetime-reliability.com)



do it quickly and well. He shows you how you and your people can make wise asset management decisions, effectively use your resources, work expertly in the least time necessary, and continually improve your operation's productivity, efficiency and effectiveness.

## Content of the Plant and Equipment Wellness Way to Maintenance Management Mastery Training Course

The best maintenance processes prevent failure by use of systematic inspection, detection, and correction of embryonic failures before they develop into problems. Attend this training course to discover and to learn how to use the most successful failure prevention principles and the simplest appropriate condition checking practices for building the smallest, successful maintenance management system in your company.

### Day 1 – Key Risk and Reliability Concepts for Plant and Equipment Wellness Success

#### Operating Risk Identification

- The Creation of Reliability
  - The vital few reliability concepts
  - Improving equipment reliability
- Two Reliability Engineering Insights
  - Series systems
  - Parallel systems
  - Reliability Properties 1, 2, 3
- Process Mapping for Reliability
  - Equipment
  - Work activities
- Physics of Failure (PoF)
  - Materials atomic limitations
  - Design materials selection
- Degradation Curve Causes
  - Rate of equipment failure
  - Sensible condition monitoring
- Variability and Defect Creation
  - Defect generation model
  - Defect elimination strategy
- Instantaneous Cost of Failure
  - Breakdowns go business-wide
  - Cost surge from failure

- Calculating DAFT Costs
- Life-Cycle Costs and Profits
  - Design = operating costs
  - Maintenance ≠ reliability

#### Operating Risk Rating

- Atomic Stress to Business Process
  - One universal life cycle model
  - Design fewer, smaller processes
- The True Causes of Failure
  - What Deming saw
  - Humans are over half the problem
  - Business process are the rest
- Business Tendency to Failure
  - Measure your business inclination for failure
  - Measure your process SD
- Risk and Probability of Failure
  - Frequency reduction strategies
  - Consequence reduction strategies
- Calibrating your Business Risk Matrix
  - Make your business risks visible
  - Understand your choices
- Operating Risk Assessment

- Setting your risk boundary
- Doing a PEW Criticality Rating
- Building Your Business Tool Kit
  - What quality really is
  - Business risk reduction first

#### Operating Risk Controls

- Process Map to See the Truth
  - Use Series Reliability Property 1
  - Use Series Reliability Property 2
- PoF Analysis finds what FMEA Can't
  - PoF Analysis Methods explained
  - Requirements for powerful PoFA
- Power Law Implications of Risk
  - Interactions within a system
  - Havoc by mysterious free-agents
- Risk Reduction Strategy Choices
  - Consequence management
  - Chance management
- Selecting Risk Management Strategies
  - 8 questions to answer
  - 9 steps to great strategy
- Q&A Forum with Attendees

### Day 2 – Introducing a Powerful Plant Wellness Operating and Maintenance Strategy

#### Introducing Risk Controls

- Organisational Structure Problems
  - A work process is a series design
  - Designs that support your people
  - How teams create reliability
- Reliability Principles in Team Creation
  - Use parallel teamwork
  - Why autonomous teams are best
- Accuracy Controlled Enterprise (ACE)
  - Design SPC into work processes
  - Standardise on the best way to work
- Accuracy Controlled Procedures
  - Writing standards into procedures
  - The 3Ts of precision workmanship
  - Adding 3Ts into procedures
- Useful Key Performance Indicators
  - Measure what matters at all levels
  - Turning data into information
  - Present information visually
- Mining Maintenance History

- Use the information you have
- A timeline is most useful
- View failure modes' distribution

#### Reliability Growth

- Reducing Equipment Parts Failure
  - Weibull Analysis ≠ Reliability
  - Limitations of Series Reliability Property 2
- Reliability Growth Cause Analysis
  - Minimise stress in parts
  - Precision reduces stress
- Crow-AMSAA Growth Plots
  - Collecting suitable data
  - Log-Log plots in Excel
- CM and Predictive Maintenance
  - CM ≠ less maintenance
  - Choosing easy CM technologies
  - Selecting parts replacement
- Preventive Maintenance Strategy
  - PM activities ≠ Reliability

- Selecting PM frequency

#### Risk Continual Improvement

- Failure Root Cause Analysis
  - Latency root causes explained
  - Series Reliability Property 3
  - Only 5-Why when there is evidence
- Degradation Management
  - Condition monitoring of degradation
  - Standardised operation = Reliability
- Deformation Management
  - Set high reliability standards
  - Common errors causing equipment deformation
  - Learn by Creative Disassembly
- Precision Maintenance
  - 13 precision maintenance must-dos
  - Introducing precision maintenance to the workforce
- Lubrication Standard
  - Lubrication cleanliness



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|---|--|---|
| <ul style="list-style-type: none"> <li>• Lubrication management</li> </ul>  | <ul style="list-style-type: none"> <li>• Shaft alignment limits</li> </ul>   | <ul style="list-style-type: none"> <li>• Control of bearing vibration</li> </ul>  |
| Balancing Standard <ul style="list-style-type: none"> <li>• Balance limits</li> <li>• Common errors causing out-of-balance</li> </ul> | <ul style="list-style-type: none"> <li>• Common errors causing misalignment</li> </ul>                                 | Maintenance Work Quality Assurance <ul style="list-style-type: none"> <li>• Setting accuracy control standards</li> <li>• Writing ACE procedures</li> </ul> |
| Alignment Standard  | Bearing Vibration Standard <ul style="list-style-type: none"> <li>• Common errors causing bearing vibration</li> </ul> | Q&A Forum with Attendees  |

**Day 3 – Practice and Application Day: Bring it together Under the Plant Wellness Umbrella**

Examples and/or practical use of the following techniques and methods will be performed by Attendees:

- Selecting ‘Just-Right’ Maintenance Strategy
- Business Process Mapping
- Reliability Calculations
- Risk Reduction Effectiveness Rating
- Practical Equipment Criticality
- Simple Ways of Failure History Analysis
- PoF / FMEA – Parts Hardware Level Analysis
- Maintenance Strategy Selection
- Reliability Growth Cause Analysis
- Weibull Charts and Crow-AMSA Plots
- Writing Accuracy Controlled Procedures
- 5-Why Root Cause Analysis with Latency

Open Discussion Forum with Attendees

**Book Today to be Sure of Your Seat**

Register immediately for the course if you want to be sure of a seat. Seating is limited to a maximum of 10 people and seats are allocated on a first-come-first-served basis. Complete your registration form, then chose your payment option and fax it to us at (+61 8) 9457 8642 or scan it and email to [info@lifetime-reliability.com](mailto:info@lifetime-reliability.com). Book yourself and your key people into the course now; don’t delay. Contact us now on mobile 0402 731 563 or email us to confirm places are still available.



**A 100% Money Back Guarantee**

All Attendees are afforded maximum protection at our seminars, courses and workshops by a 100% Money Back Guarantee. If, for whatever reason, you believe your expectations have not been met, your attendance fees will be totally refunded in full. As further compensation you are also allowed to keep all materials handed out during the presentation. (Guarantee is subject to booking fee being received by the due date.)

**More Course Information and Details**

Unless otherwise advised well in advance of the training date, courses in Perth, Western Australia are run at Technology Park, Bentley (Opposite Curtin University). In Brisbane courses are held at the Regatta Hotel, Toowong. In Sydney we use the Vibe Hotel on Goulburn Street, and in Melbourne the Vibe on Carlton. Confirmation of registration will be emailed to the email address on the registration form and includes all venue details.

On the first-day venue doors open from 8.00am with the course starting at 8.30am and finishing at 4.30pm each day. Included in the price are course notes, arrival tea/coffee, morning and afternoon tea/coffee with finger food and a light buffet lunch. Morning and afternoon teas are 15 minutes and lunch is 45 minutes duration. Parking is available free at the Perth venue. Please check local road maps, or the venue website, to find parking nearby at other locations.

Confirmation of your registration goes by email to the address on the registration form and includes all venue details.

Substantial and comprehensive course notes and the full PowerPoint presentation are given to every attendee for future reference and unlimited use within their company.

A certificate of training is sent to participants following the course.





## Your Course Registration Form and Payment Details

### 1 - Select Your Course: **Mastering Industrial Plant Maintenance Management**

- Melbourne, Victoria – 2, 3, 4 February 2011, Vibe Hotel, Carlton
- Perth, Western Australia – 16, 17, 18 March 2011, Technology Park, Bentley
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- Brisbane, Queensland – 31 Aug, 1, 2 September 2011, Regatta Hotel, Toowong

**2 - Registration Fee:** AUD\$2,700 plus GST \$270  
**Total payment is \$2,970**

Attendees get a full set of course notes and workbook, a softcopy of the PowerPoint course and workbook with unrestricted usage rights within their company, along with morning tea, lunch, afternoon tea provided each day.

### 3 - Register:

**By Phone:** (+61) 0402 731 563  
**By Email:** [info@lifetime-reliability.com](mailto:info@lifetime-reliability.com)  
**By Fax:** (+61 8) 9457 8642  
**By Post:** General Training Pty Ltd,  
 PO Box 2091,  
 Rossmoyne, Western Australia, 6148

### 4 – Pick Payment Option and Make Payment:

#### A. Electronic Fund Transfer to:

Bank: National Australia Bank  
 Branch: Bull Creek Branch Office  
 Shop 33 Stockland Bull Creek  
 Cnr South Street and Benningfield Road  
 Bull Creek, WA 6149  
 Account: General Training Pty Ltd  
 BSB No: 086-138  
 Account No: 580663221  
 Swift Code: NATAAU3306P

#### B. Cheque in favour of 'General Training Pty Ltd'

#### C. Credit Card secure online at [www.paymate.com.au](http://www.paymate.com.au) with Visa or MasterCard (3% bank charges apply)



On-line Payment email address: [info@lifetime-reliability.com](mailto:info@lifetime-reliability.com)  
 for Order/Item # - Maintenance Management

**D. Purchase Order:** .....  
 (Only in Australia)

**Cancellation Policy:** Substitute delegate welcome. 80% refund prior 14 days, 70% refund 7-14 days prior, 50% refund within 7 days. Full refund if course cancelled, or free registration to next, or another course of equal value.

### 5 - Delegate Details (One form per person attending):

Name: .....  
 Job Title: .....  
 Company: .....  
 Street/Box: .....  
 Suburb: .....  
 Zip/Post Code: ..... State/Country: .....  
 Email: .....  
 Phone No: .....

**6 - How did you find out about the course?** .....