DELTA

ASSET RELIABILITY

Asset Management & Reliability Specialists

...making a difference

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UNDERSTANDING RELIABILITY

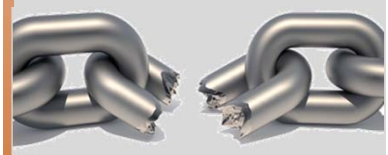
Practical Training delivered by Practitioners, for Practitioners.

Understanding Reliability

What every Maintenance & Reliability practitioner needs to know.

Plant **Reliability** is the foundation on which Asset Management is built. The best developed **Asset Strategy** will prove ineffective if your plant behaves in an unpredictable manner. Unforeseen failures foster a self reinforcing reactive maintenance culture.

An understanding of reliability methodologies, tools and techniques will help **break the reactive maintenance cycle**.



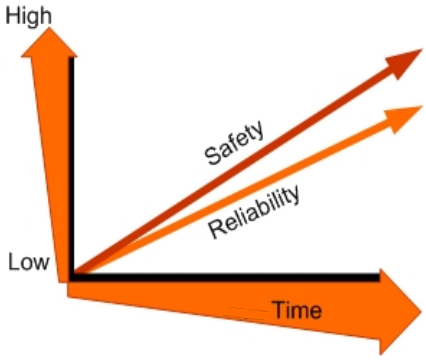
Asset Management is recognised as a key element in an organisation's ability to sustain and grow their business in an increasingly competitive global marketplace.

A well designed and executed Reliability Initiative provides the foundation for a successful Asset Management Program. Understanding your plant's process and equipment from an operations and maintenance perspective can reduce the facility's annual maintenance budget while simultaneously **increasing product** throughput.

Built on our experience in Asset Management & Reliability Improvement, Delta Asset Reliability is able to offer a tailored modular training course in Understanding Reliability which brings operations, maintenance and management personnel together to build a common base from which to implement an effective reliability improvement strategy.

The material targets staff at all levels and attendees will understand how they are able to influence, and directly affect, the reliability and performance of an asset, plant, facility or organisation. Most importantly, it is a proven first step in the **cultural change** of a workforce with the goal of **sustainable** reliability improvement.

The course is delivered in a modular fashion, incorporating breakout group activities at every stage to reinforce the concepts presented.



Covering the structured methods that both big and small companies can use to build their reliability improvement strategy.

Predictive / Condition based Maintenance (PdM / CM) | Condition Monitoring System Design & Implementation
Reliability Engineering (RE) | Root Cause Analysis (RCA) | Asset Management
Failure Investigations | Education, Training & Development

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About the presenter - Daré Petreski

Daré is a Certified Maintenance & Reliability Professional (CMRP) with over 25 years' experience in multiple technique Condition Monitoring, Maintenance, Reliability and Asset Management, encompassing hands-on Implementation, Management, Group Training & Staff Development.

He is experienced in Vibration Analysis, Infra-Red Thermography, Oil/Wear Debris Analysis & Acoustics- Ultrasonics and has led many organisational initiatives in the planning, designing, implementation & expansion of predictive/ condition based maintenance & reliability programs.

He has presented papers at multiple Maintenance & Reliability conferences, both in Australia and overseas. His skills cover Asset Management, Reliability Centred Maintenance (RCM), Predictive Maintenance / Condition Monitoring (PdM / CM), Failure Modes, Effects, Criticality Analysis (FMECA), Root Cause Analysis (RCA) and Reliability Engineering (RE).

Daré is soundly respected by his peers in industry, both here in Australia and overseas and is well prepared to deliver practical and knowledgeable training in all areas of Reliability strategy.

Learning Objectives

- Why Maintenance can only impact part of operational reliability & OEE
- An appreciation of the roles of both operations & maintenance in reliability of a facility
- Understanding the human factors that influence reliability
- Appreciation of Reliability Engineering principles & Improvement strategies
- An overview of different improvement methodologies and their limitations
- An introduction to applying Root Cause Analysis methodologies
- The impact of lubricant cleanliness and contamination control
- How to really get "the basics right"

Who is this Training Suitable for ?

This course is designed for those responsible for improving equipment and operational reliability including:

Reliability Managers
Reliability Engineers & Technicians
Condition Monitoring Technicians
Continuous Improvement Leaders
Maintenance Managers & Supervisors
Maintenance Superintendents
Graduate & Process Engineers

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01. Introduction to Reliability

- Comprehensive overview
- Asset Life Cycle
- Reliability Engineering
- Reliability Tools of Trade
- Summary

02. Human Error

- Human Performance
- Types of Error
- Error Management
- Calculating Error Probability

03. Communication

- The "Plan"
- Communication Methodology
- Types of Communication
- Simple Financial Example

04. Criticality Ranking

- Understanding of Criticality
- Why Rank Criticality
- Ranking Criteria
- Practical Group Exercise
- Criticality Analysis
- Criticality Distributions

05. Visual Inspection Techniques

- Technology Free Inspections
- Insights on visual inspection techniques
- From Data to Wisdom
- Visual Inspection Techniques
- Case Study

06. Condition Monitoring

- Defining Condition Monitoring
- Vibration Analysis
- Oil & Wear Debris
- Infrared Thermography
- Motor Current Analysis
- Acoustic / Ultrasonic Emissions
- Non Destructive Testing

07. Correlation of Techniques

- Understanding correlation of techniques
- Standard Condition Monitoring Practices
- Asset Health Assessment
- Case Study

Experience Counts...

"In theory, there is no **difference between theory and practice.** But in practice, there is…. "

Jan L.A. Van De Snepscheut

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08. Root Cause Analysis (RCA)

- RCA insights
- RCA Process Flow
- Various RCA Methodologies
- Case History
- Practical RCA Group Exercise

09. Asset Management

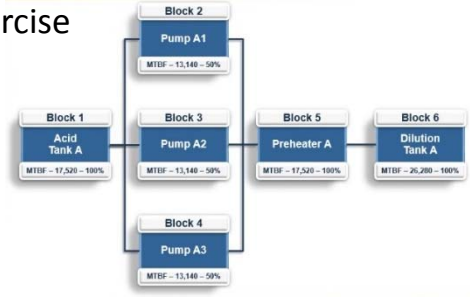
- Beginning of Asset Management
- Evolution of PAS 55 to ISO 55000
- Asset Maintenance Management Strategies
- Defining physical & Non physical Assets

10. Reliability Engineering

- Reliability Metrics
- Distributions
- P-F Interval/Curve
- Calculating Reliability

11. Reliability Block Diagrams

- Series Reliability
- Parallel Reliability
- System Reliability
- Reliability Block Diagram Group Exercise



12. Contamination Control

- Identifying Contaminants
- Sources of Contamination
- ISO Cleanliness Codes
- Contamination Control
- Case Study

13. Rolling Element Bearing Failure Investigation

- Defining Bearing Failure
- Bearing Failure Modes

"I have personally listened to Daré present at conferences, and would rate him as the best I've heard in this field, and without a doubt the most energetic and interactive. His passion and enthusiasm are contagious. He has an uncanny ability to explain the material through powerful visuals that bring clarity to the nearly incomprehensible. His PowerPoints are the best I have seen in both content and format as he is always thinking of new ways to get the message through."

Clyde Volpe
Director - Vibration Institute of Australia

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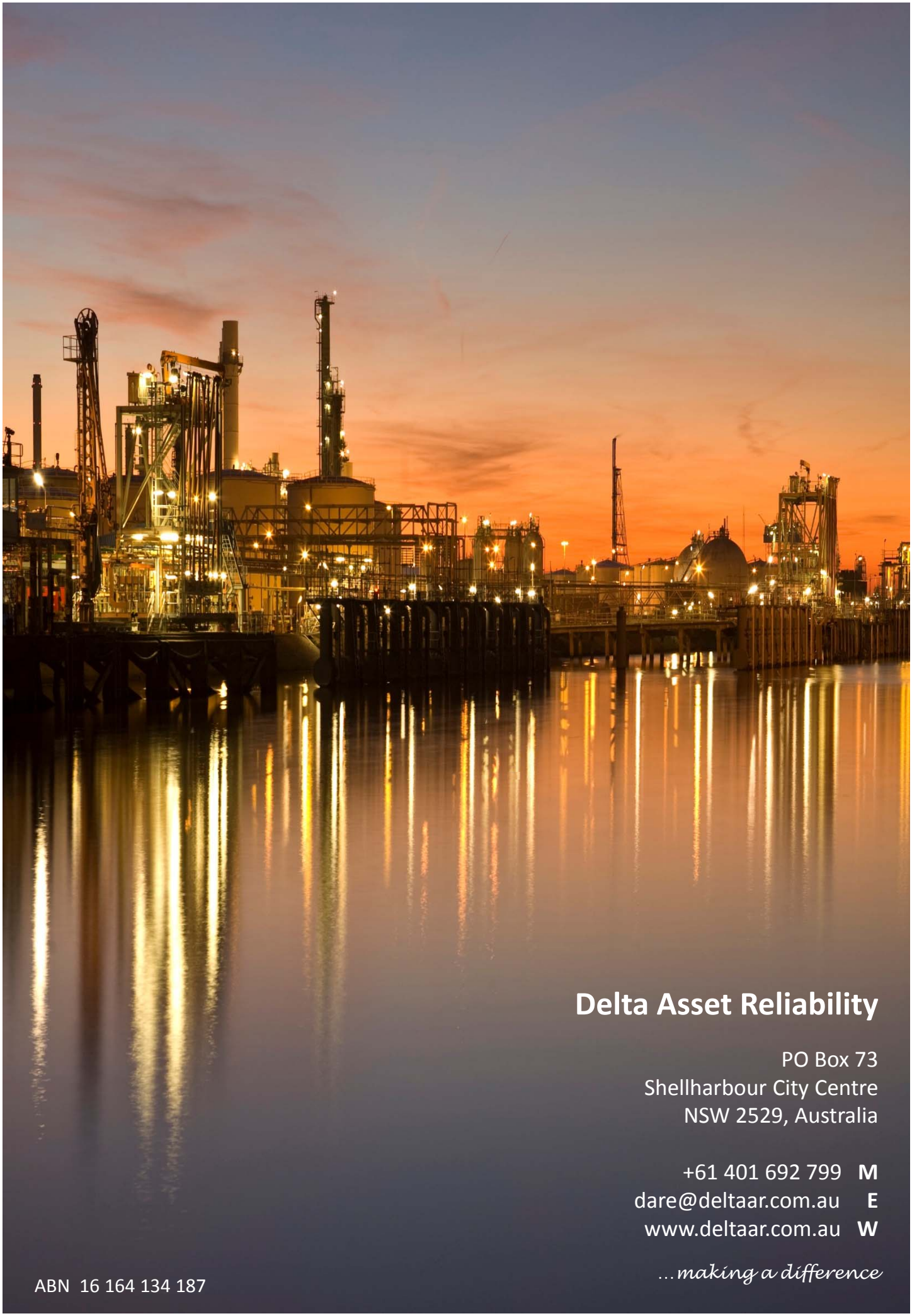

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