PETRO1
TECHNICAL CONSULTANCY FOR OIL & GAS INDUSTRY

Maintenance Cost Management

Based on ISO 55000

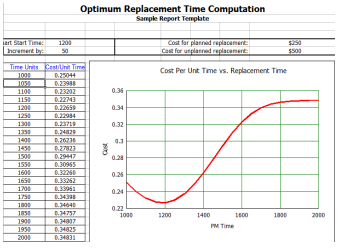
Learn best practices maintenance costs and decision making to reduce costs, introduction to elements of the new ISO55000 that requires a defensible budget and risked based decision making and traceability and finally different tactics to reduce different costs: energy, downtime, labour and spares.

OPTIMIZING PREVENTIVE MAINTENANCE DECISION

Including Repair or Replace Decisions

Increase awareness on how to make more effective decisions on when to carry out maintenance, whether to replace, repair or upgrade and more value from a company's assets and thus contributing to lower operating costs.

27th – 31st July 2015, Bangkok, Thailand (5 Days)



Media Partners:

WorldOils

VungtauHR® Vì cộng đồng phát triển

OilVoice

PTIT FOCUS http://www.ptit.org Gateway to Thailand Petroleum and Petrochemicals

PetrolPlaza

OILFIELD CONFERENCE

Program Overview

This practical 3 days maintenance cost management workshop will cover all aspects of cost management. When we conduct maintenance we spend money, therefore the maintenance function has to strive to reduce the level of maintenance that is carried out to reduce costs at the same time meeting business objectives.

The new ISO 55000 for Asset Management requires that companies must develop defensible maintenance budgets and that assets must deliver value and decisions made must be traceable and auditable.

This workshop looks at different maintenance costs, how to develop maintenance budgets and how to report and reduce these costs, including a performance management system designed to meet the organization.
We will also cover financial decision making in maintenance to reduce whole life cycle costs

Attend this course to Master:

- How to evaluate projects in terms the financial people to understand.
- How to evaluate different options proposed using life cycle costing concepts.
- Discuss what are OPEX and CAPEX and where money is spent and controlled
- Understand tactics to reduce costs of unreliability, energy costs, spares costs and labour costs.
- Introduction to ISO55000, what it means and how to implement.
- Structured decision making based on business drivers.
- How to build a defensible budget to conform to ISO 55000 Asset Management system.
- How to prioritize which projects to implement.
- Understand how ageing assets are being managed
- Explore, apply and benchmark international case-studies, examples, best practices strategies that can be apply immediately in your workplace.

PRACTICAL INVOLVEMENT:

Having the ability to implement directly once you are back at your workplace is crucial for every participant. During the 3 days training, practical involvement and exercises will be share. Participant will be involved in exercises on evaluating different options for an improvement project (a bad actor) using life cycle principles.

- How and when to use discount factors with exercises.
- How to evaluate value of additional redundancy.
- Calculating productivity improvements.
- Energy target & monitoring including cusum plots.
- Calculating ABC for stock control & calculating key KPIS.
- Evaluating projects using financial language.

Group activities:

- Create a defensible budget for a pump and a repair, replace decision.

This program is intended

This training course:

- Plant Mangers
- Maintenance Planners
- Maintenance Engineers
- Maintenance Managers
- Reliability Engineers
- Project Engineers/Managers
- Financial Personnel
- Managers, Engineers, supervisor who budget and control costs.
- Anyone who carries out maintenance as they are spending money.

MAINTAINENCE COSTS MANAGEMENT (3 Days)

Topic 1 Introduction to Cost Management

Key features for excellence

Outline of ISO55000 and the requirements for cost management

Costs Management and the model of excellence

Making profit and breakeven points

A model for cost control and why/where we spend money

Direct and indirect costs

Topic 2 Budgeting Formats

Definition of a Budget

Financial and Activity Based Budgeting

Cost categories, Costs Centres, Cost Elements

OPEX and CAPEX

Short term and long term forecasting

Topic 3 Creating the Defensible Budget

Approaches to budget creation

How to build a defensible budget

Focusing on critical assets

Topic 4 Whole Life Costing

The whole life model and when to use

Different end of life drivers

The key drivers and the process

Estimating potential benefits

Case Study and Exercises

Topic 5 Different Decision Models

Replace or repair

Replace with a superior unit

Replace like for like

Evaluating whether to mothball

Design modifications

Case studies and exercises

Topic 6 Justifying Projects (Financial Appraising)

Financial metrics for evaluating projects (discounted and non-discounted models)

Time value of money

Discounting Factors and when to use

Project prioritisation

Exercises

Topic 7 **Reducing Costs of Unreliability**

Ice berg model (direct and indirect costs)

How to calculate the costs of unreliability

Reducing the costs of unreliability through reliability and maintainability

Topic 8 **Reducing Costs through PM Optimisation**

When to use MTBF in calculations

PM Optimisation

Relationship between PMs and Corrective Maintenance

Topic 9 **Reducing Stock Holding Costs**

Opportunities & tactics to reduce costs

What is the ABC in our CMMS and when do we use it

Identifying excess costs

Topic 10 **Reducing Manpower Costs**

Tactics to reduce costs

Outsourcing pro & cons

Topic 11 **Reducing Energy Costs**

Target and Monitoring Techniques

Exercise

Topic 12 **RAM Modelling**

Overview of RAM Modelling

Modelling different configurations

Obtaining life cycle costs

Topic 13 **Reducing Turnaround and Shutdown Costs**

Prerequisite of an effective shutdown

Identifying critical and sub critical activities

Minimising costs

Topic 14 **Cost Performance Management System**

An introduction to the principles of a performance management system

Key Performance Indicators

Agreeing targets for achievement, taking action

Report formats including dashboards

Topic 15 **Managing Ageing Assets the UK Experience**

Overview of the UK's HSE KP4 to managing ageing assets

Typical Findings

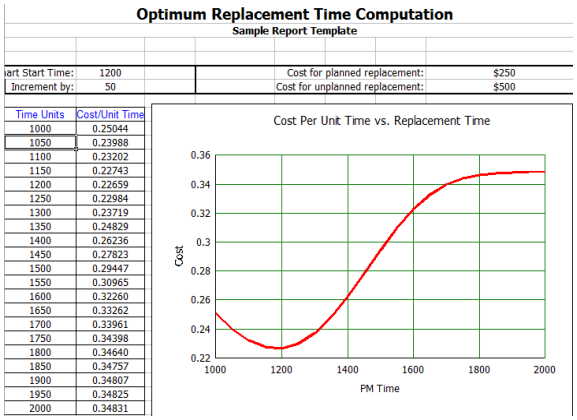
Sample check lists

Topic 16 **Workshop Review**

Delegates Action Plans

OPTIMIZING PREVENTIVE MAINTENANCE DECISION

Including Repair or Replace Decisions (2 Days)

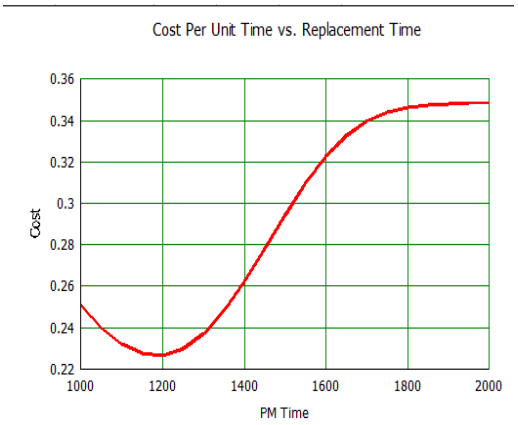


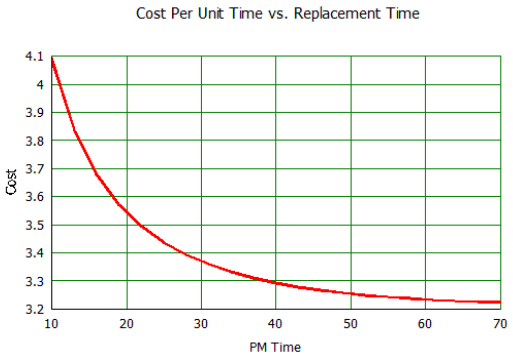
Optimum Replacement Time Computation

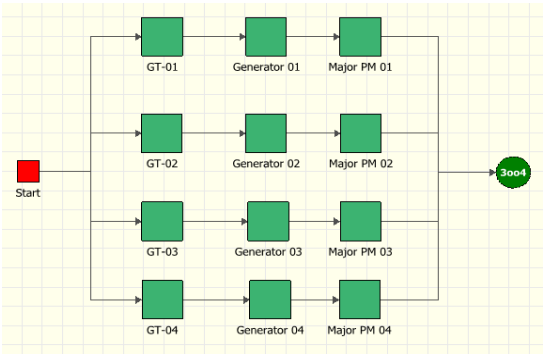
Sample Report Template

art Start Time:	1200	Cost for planned replacement:	$250
Increment by:	50	Cost for unplanned replacement:	$500

Time Units	Cost/Unit Time
1000	0.25044
1050	0.23988
1100	0.23202
1150	0.22743
1200	0.22659
1250	0.22984
1300	0.23719
1350	0.24829
1400	0.26236
1450	0.27823
1500	0.29447
1550	0.30965
1600	0.32260
1650	0.33262
1700	0.33961
1750	0.34398
1800	0.34640
1850	0.34757
1900	0.34807
1950	0.34825
2000	0.34831







This 2 day workshop is concerned with making more informed decisions on when to carry out maintenance based either on costs or availability.

We will look at risk and risk management tools and criticality and prioritization to focus our improvement effort. In RCM studies, people frequently base maintenance task frequencies on MTBF. We will demonstrate that MTBF has no value in selecting task frequencies. Frequently maintenance is carried out too early or too late.

We also cover life cycle approach decisions to evaluate alternative options, repair, replace or upgrade.

Attend this course to Master:

- The importance of understanding patterns of failures and what each means.
- How to optimize maintenance actions based on costs.
- How to evaluate different strategies based on availability, e.g. RTF, Safe Life, Cost Effective Life and a PdM policy.
- How to analyze an existing maintenance strategy, including how to extract the data from the CMMS.
- How to optimize function testing of instruments using reliability data.
- How to evaluate different design configurations.

This training course is design for:

- Maintenance Mangers
- Maintenance planners
- Maintenance Engineers
- Project and design engineers who have interest in how to evaluate maintenance strategies including repair – replace decision.

OPTIMIZING PREVENTIVE MAINTENANCE DEICISION

Session 1: Overview of Risk and Reliability

- Common issues
- Risk exposure
- Criticality Analysis and Prioritisation and how to use the information
- Reliability Centred Maintenance with and without statistical analysis, criticality and costs
- FMEA
- Generic Strategies &Templates

Session 2: Introduction to Replacement Decisions

- Principles of optimisation
- Understanding life limiting characteristics
- Evaluating RTF versus FTM versus RTF
- Exercise

Session 3: Failure Analysis Basics

- Reliability theory to enable understanding of this workshop including different the bath tub curve and different failure patterns
- Probability plotting using the normal probability paper and Weibull paper
- Exercise

Session 4: Optimising Replacement based on Costs

- Criteria to apply PM
- How to perform an optimisation using the plots from session 3 (a manual approach)
- How to use Weibull software tool
- Evaluate costs of different strategies
- Demonstration of how MTBF has little value in determining when to replace items,
- How to evaluate if PM is effective
- Case study – petrochemical plant

Session 5: Optimising Replacements based on Availability

- Introduction to modelling and optimisation
- How to evaluate different maintenance policies using RAM Modelling techniques
- For different PM frequencies a comparison on outputs achieved of the availability achieved, downtime, number of failures

Session 6: Introduction to Repair versus Replace Decisions

- How to make decisions based on life cycle costing
- Deciding on the factors to consider
- A step by step approach
- Exercise evaluate options for a bad

Session 7: Getting Reliability Right in the Design Phase

- What happens in projects
- What are best practices to ensure fir equipment installed
- Verifying the design performance
- Evaluating different equipment configurations

Session 8: Optimising Instrumented Protective Systems

- The concepts behind evaluating function testing intervals for instrument trips using reliability data, hidden and evident failures and these are dealt with
- Understanding RBDs to model systems
- Where do we get the reliability data
- Exercise using excel and RAM Software
- Case study

Session 9: Getting Better Data for Decision making

- Typical issues
- Using Failure Coding System
- ISO14224
- Data Feedback Model

Principal Program Facilitator

David Thompson, RAMsoft UK

David extensive experience covers all aspects in Maintenance, Reliability and Operation management. His area of strength covers specifically in maintenance management audit reports , RCA , Shutdown planning and failure code systems ,CMMS , KPIs , Spares Optimization , RCM and RAM Modelling

RAMsoft, UK
For the past 40 years, David had been actively involved in:

- Conducted over 400 audits including fast track audits, in-depth audits and distance audits in maintenance management
- Developed Policy and procedures documents for a number of Oil & Gas Companies.
- Currently working for Worley Parsons in UK writing document for a number of FEED projects worldwide.
- Wrote standard and guidelines on many topics on maintainability, RCA, workpacks, Shutdown planning and failure code systems.
- Wrote over 400 audits reports covering excellence in Maintenance management and in specialist topics spares, CMMS , KPIs and Reliability Management system.
- Presented Papers at several Maintenance & Reliability Symposiums in Europe, Malaysia and Brazil.
- Online distant learning instructor for Robert Gordon University in Assets integrity and Reliability Management.
- Undertaking a major CMMS data Cleansing Project as part of a CMMS upgrading.

Symposiums

- European & world Maintenance Congress 2007
- Applied Reliability Symposiums – Europe 2009, Brazil 2008, Asia 2006,2007, 2010.
- Presented paper at the Applied Reliability Symposium Singapore 2013 (4th Year)

David has worked for many blue chip companies either directly or through a consulting role.

David,s International Clients : Nippon Oil , Talisman , Petrofac , State Oil Dubai Petroleum , Novartis , EGGBOROUGH POWER STATIONS , Chinese Oil & Gas company ,worley parsons , sabic, Qatar petroleum , Scottish power , wood group , shell Nigeria , Hunstsman , ENI oil , Saudi Aramco and SONANDOL P&P

David has conducted many audits of maintenance practices and CMMS use spanning the last 20 years. David has a particular interest in helping companies collect better data and to try and make reliability of interest to the regular maintenance engineer by concentrating on applications rather than complex mathematical theory.

David is a certified instructor in RCA, and Reliability Methods and Techniques. David has developed and delivered training programs world wide including both offshore and onshore facilities topics include Maximo CMMS, RCM, FMECA, Weibull Analysis, RAM Modelling, Reliability Growth, Analysis, and Fault Tree Analysis, Incident / Root Cause Analysis, work planning and control, spares optimisation. In addition David has conducted training in many other maintenance management topics

Early days
David initially started in the steel making and mining sectors and for the past 15 years in the oil & gas sector. David was the UK partner for Reliasoft one of the worlds leading reliability engineering companies, and is currently part of a team to implement improved Asset Reliability in the Middle East, including RAM and RCM studies.

PETRO1
TECHNICAL CONSULTANCY FOR OIL & GAS INDUSTRY

PETRO1 provides Oil & Gas Trainings & Consultancy services ranging from Petroleum Engineering, Exploration & Production, Subsurface and business related activities in the oil & gas industry. We had successfully made impact to petroleum professional mainly the Top 50 Oil & gas players in the south East Asia Region.

- Total E&P
- Petronas
- Murphy Oil
- JX Nippon
- Scomi Oil
- Hess
- Saipem
- Mubadala Petroleum
- Bureau Veritas
- Pertamina
- Petrofac
- Keppel Corporation
- Singapore refining Company
- Salamander Energy
- Binh Son Refining
- PTT Global
- Newfield
- Brunei Methanol
- Technip
- Premier Oil
- SGS
- Halliburton
- Brunei LNG
- Shell Chemical
- Worley Parson
- China university of petroleum Beijing
- Thaioil
- Star Petroleum
- Jurong Shipyard

Investment Packages

Bangkok, Thailand	Maintenance cost management (27th – 29th July)	Optimizing preventive maintenance decision (30th – 31st July)	3 Days + 2 Days (27th – 31st July) 5 Days
Standard Price	SGD 2495 ( )	SGD 2195 ( )	SGD 4299 ( )
Early Bird Price	SGD 2295 ( )	SGD 1995 ( )	SGD 4099 ( )

REGISTER 3 SENT THE 4TH FREE

- Please note that all registration must be made at the same time to qualify.
- Early Bird Promotion Deadline – 25th May 2015

Please Note that a SGD$40 will be incur for Administration Fee.

Delegate Details

1. Name:_____Mr☐Mrs☐Ms☐Dr☐

Job Title: _____

Email : _____

Contact No: _____

Department:_____

2.Name:_____Mr☐Mrs☐Ms☐Dr☐

Job Title: _____

Email : _____

Contact No: _____

Department:_____

3.Name:_____Mr☐Mrs☐Ms☐Dr☐

Job Title: _____

Email : _____

Contact No: _____

Department:_____

Head of Department:_____

Invoice Details

Invoice Attention to:_____

Company:_____

Industry:_____

Address:_____

Postcode:_____ Country:_____

Telephone:_____ Fax:_____

Email:_____

Authorized Signature:_____

REGISTRATION FORM

PROGRAM DETAILS

Venue: Bangkok, Thailand
Date: 27th – 31st July 2015

REGISTER NOW
CONTACT: kelvin
MAIN: +603 7727 3952
FAX: +603 7722 5278
Email: registration@petro1.com.my

Payment by credit card

Please Debit my credit card:

☐ VISA ☐ MASTERCARD

Card Number: _____ - _____ - _____ - _____

Security Code: ☐☐☐☐ Expiry Date: ☐☐☐☐

Named printed on card:_____

Signature:_____

REGISTRATION DEADLINE

As an internationally operating training organization, PETRO1 would appreciate receiving registrations at least one (1) month prior to course commencement. Registrations after this date will be accepted provided that places are available. We strongly recommend early enrolment to avoid disappointment!

Payment Method

By cheque/ Bank Draft: Made Payable to PETRO1 SDN BHD
By Direct Transfer: Please quote invoice numbers on remittance advice.

ACCOUNT NAME : PETRO1 SDN BHD
BANK : HSBC Amanah Malaysia Berhad
ACCOUNT NO : 054 – 048061 – 701 (SGD)
SWIFT CODE : HMABMYKL

All bank charges to be borne by payers. Please ensure that PETRO1 SDN BHD received the full invoice amount.
*** Credit card payment will include a charges 2.8%**

Payment Policy: Upon receipt of a completed registration form, it confirms that the organization is registering for the seat(s) of the participant(s) to attend the conference or training workshop. Payment is required with registration and must be received prior to the event to guarantee the seat. Payment has to be received 7 working days prior to the event date to confirm registration.

Venue: All of our training courses are held in 4 – 5 star venues.
The course fee does not include accommodation or travel cost. It's recommended to book the hotel room early as there are only limited room available at the discounted corporate rate.

DATA PROTECTION

The information you provide will be safeguarded by Petro1 that may be used to keep you informed of relevant products and services. We take it seriously when it come s to protection of our client data.

Cancellation & Substitutions: Upon receipt of a completed registration form, it confirms that the organization is registering for the seat(s) of the participant(s) to attend the conference or training workshop. Should you be unable to attend, substitutes are always welcome at no additional cost. Please inform us as early as possible. Payment is non-refundable if cancellation occurs 7 working days prior to event commencement. However a substitute is welcome at no additional charges. If cancellation occurs 5 working days prior to the registration date and there is no substitute, the organizer reserves the right to charge 50% of the total investment from your organization.

PETRO1 SDN BHD is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. PETRO1 SDN BHD shall assume no liability whatsoever in the event this training course is cancelled, rescheduled or postponed due to a fortuitous event, Act of God, war, fire, labor strike, extreme weather or other emergency.

Walk in Registration: Walk-in participants with payment will only be admitted on the basis of seat availability at the event and with immediate full payment.

Program Change policy: The organizer reserves the right to make any amendments and/or changes to the workshop, venue, facilitator replacements and/or modules if warranted by circumstances beyond its control.