

MRO Spares Optimisation

Ensuring that you have the right item on the right time at the right place to minimise downtime while gaining a productive advantage in the most cost effective way

Prince Hotel & Residence,
Kuala Lumpur

11th & 12th November 2008

"By economy and good management - by a sparing use of ready money and by paying scarcely anybody - people can manage to make a great show with very little means."

Jo William Makepeace Thackeray

Spare parts play an important role in maintaining, ensuring and reinforcing the reliability of the machine. Without good spares management, total capital costs can still be excessive no matter how low the maintenance or operations costs are.



Facilitated by world-class course facilitator:

Carter McNabb Partner
GRA Australia

Carter is a founding partner of GRA, an expert consulting firm specialising in demand, inventory and supply chain optimisation. Carter has consulted extensively in the United States, Latin America, Asia and Australia to manufacturing, distribution, retailing and aftermarket organisations. He also authors and runs the 'Managing Supply Chain Inventory' and 'Network Modelling' courses within Monash University's Supply Chain & Logistics Masters Program and delivers courses in Forecasting and Inventory Management.

Key reasons why your organisation would benefit from this course:

- **Reducing** inventory replenishment purchase orders by proper scheduling
- **Re-organising** your inventory space by eliminating obsolete and surplus stock
- **Increasing** reliability while fostering efficient spares planning
- **Improving** stock holding confidence and reducing uncontrollable spares stock
- **Eliminating** exposure to risk of extended downtime through lack of spares in inventory
- **Improving** communications between operations, maintenance, engineering, inventory and material planning departments
- **Benchmarking** against experienced and renowned regional and international organisations through successful case studies

marcusevans courses are thoroughly researched and structured to provide intense and intimate practical course to your organisation. Our format:

- An in-depth tailored program to address market concerns
- Interactive roundtable discussions and breakout sessions to provide actionable learning
- Pre-course questionnaires to allow you to tailor the program to address your individual concerns
- Comprehensive course documentation

Pre-course questionnaire

To ensure that you gain maximum benefit from this event, a detailed questionnaire will be sent to you to establish exactly what your course needs are. The completed forms will be analysed by the course facilitator. As a result, we ensure the course is delivered at an appropriate level and that relevant issues will be addressed. The comprehensive course material will enable you to digest the subject matter in your own time.

***Early Bird & Group Discounts**
Ask about our savings

Testimonials from past participants of past marcusevans Inventory Management and Maintenance events:

"There is a good interaction among the participants and a good exchange of information."

Pilipinas Shell Petroleum Corp

"Gives new insight to warehouse design and planning based on actual case."

Petronas Ammonia Sdn Bhd

"A well presented set of foundational knowledge and information on inventory management."

Intel Technology Asia

"The event have provoked a new perspective of the inter-phase between operations, maintenance and engineering departments."

Nigerian National Petroleum

"It was indeed a very good opportunity to get some clarifications on maintenance misunderstanding concepts."

Oman Polypropylene

"The event has given a comprehensive overview of RCM and how it can be applied more effectively using a very pragmatic approach to RCM."

Petronas Carigali Myanmar Ltd

Tuesday 11th November 2008

Exploring different spares management methodologies

A productive maintenance operation employing planned and scheduled maintenance activities are mainly supported by a well-managed storeroom that provides parts and materials whenever needed. An ineffective spares management process will result in at least 15% - 35% of machine down time, often due to the lack of necessary parts and materials to perform repairs correctly and quickly the first time.

To help participants successfully address these challenges, a range of different maintenance philosophies and strategies will be explored.

- Utilising Operational Equipment Effectiveness (OEE) disciplines to benchmark your current performance
- Employing Level of Repair Analysis (LORA) to determine what to do in-house and what should be outsourced
- Evaluating your 'maintain' and 'replace' strategies via Life Cycle Costing (LCC) methodologies
- Employing Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) data to determine whether you should overhaul the item to 'as new' or wait until failure and then respond very quickly
- Determining your approach in terms of your maintenance philosophies. For example, if you have a 'preventive' maintenance approach, is it based on inspection and/or condition monitoring, or is it based on time or duty cycle overhauls?

Once these maintenance philosophies and strategies have been explored, specific management methodologies and techniques will be discussed in the following sessions.

Session One

Spares Initial Provisioning

This session will assist in determining the range and quantities of items (i.e., spares and repair parts, special tools, test equipment, and support equipment) required to support and maintain your equipment or machinery the initial period of service.

- Identifying and differentiating provision strategies for critical, non-critical and consumable spares
- Building your spares management on consumption rate and procurement lead time via Re-order Level (ROL)
- Establishing Proper Order Quantities for slow-moving and normal spares

Session Two

Spares Demand Planning

Spares have often been influenced by long lead times, unpredictable demand spikes, ever-changing prices and low usage rates, thus making them difficult to secure in a timely manner. Carter will explore strategies where spares planners are able to manage accurate spares demand planning and forecasting.

- Planning projected delivery dates properly to prevent critical maintenance need for spares
- Tracking spares movement history to plan for delivery lead time
- Time Phased Replenishment Planning (TPRP)

Session Three

Spares Inventory Optimisation & Stocking Strategies

The replenishment of spares in inventory maintains the reliability level in your plant. On the other hand, the lack of proper replenishment strategy will result in overstocking and deficiency. This process involves managing spares inventory levels, lead times, ordering policies and storage while increasing maintenance service levels. In current times now, your plant cannot depend on a single replenishment strategy. Here, this session presents how several replenishing schedules can assist you in minimising individual spares inventory problems.

- Lead time analysis: To stock or not to stock?
- Utilising different replenishment strategies to fit different spares management needs
 - ABC analysis cycle counting
 - JIT (Just-In-Time)
 - Dual re-order points
 - Economic order quantity
 - Two-bin method
 - Forward exchange practices
 - Vendor Managed inventory
 - Consignment stock from the OEM

Session Four

Repairable & Rotable Item Management

Repairable items that are typically repaired and returned to service as repaired or overhauled and rotatable items that need periodic replacement must be managed properly to maintain the levels of these items to be held in store.

- Appointing single entry point to provide easy information access of spares repaired and returned
- Setting up inventory information system for repair history to make repair/replace decisions
- Calculating spares values after repair-and-return to store

Why you cannot miss this event

In today's demanding and highly competitive market, spares management are becoming more complex, making it critical for plant operations to find solutions that will assist in synchronising its processes. Spares are not only significant business expenses but the lack of appropriate parts can result in costly downtime.

Many plants' experiences show that for every spare used, five or more parts are held in stores, which perhaps may not be used. At the same time, ordering more than needed (for 'just-in-case' scenarios) have been occurring problems for them, mainly due to improper or lack of confidence in forecasting its spares requirements. At the same time, with the extended lead-time of purchasing spares have affected the plant maintenance and turnaround cycles thus delaying the production time, which can be quite costly.

Space is always a constraint in any spares storeroom environment. With shrinkage and depreciation factoring in, the cost of procuring, storing, deploying and managing spares inventory can easily cost as much as 40 - 50% of annual inventory values. Also, It is not unusual to see an average of 20 - 30% of maintenance people's time to be used for finding parts and material.

This interactive and productive 2 day course will look at strategic insights and in-depth processes that support effective spares management to provide for efficient maintenance planning, scheduling and equipment reliability improvement.

Conducted by a world-class course facilitator, this course will benefit you and your organisation through lively series of short participative sessions and transfer of ideas. Take charge of your Spares Management and be successful in it by attending this 2-day dynamic and yet resourceful event.

Who should attend

Heads of Departments, Directors, Senior Managers, Managers, Supervisors, Engineers of

- Spares Management
- Maintenance
- Engineering
- Purchasing / Procurement
- Finance
- Material Planning
- Operations
- Quality Control
- Warehouse / Inventory

From the following industries:

- Oil & Gas
- Chemical / Petrochemicals
- Energy & Utilities
- Mining
- Steel
- Coal
- Aluminium
- Electrical and Electronics
- Automotive
- Heavy Industries
- Heavy Manufacturing
- Pharmaceutical / Medical
- Airlines

marcus evans would like to thank everyone who has helped with the research and organisation of this event, particularly the course leaders, who have kindly committed and supported the event.

Session One**Critical Spares Management as a preventive measure against excessive equipment downtime**

Critical spares are items that may not be in use often but must be kept in stock due to its availability are influenced by order, manufacture and delivery times. As the costs of these critical spares are usually high, there must be a proper critical spares management in place. In this session, Carter explains how you can fully utilise critical spares management.

- Connecting spares management with your plant maintenance practices and requirements
- Pinpointing spares turnover rate by specific spare parts to obtain spares prioritisation
- Collaborating with your maintenance team to decide adequate stock level
- Applying algorithms to calculate critical stock levels
- Utilising preventive and reactive maintenance stocking considerations

Session Two**Estimating the spares value and hidden cost to obtain true inventory costing**

The costs of holding spares must be accounted as part of the decision-making operating process, as the true carrying cost can be as high as 30% - 40% of the purchase cost per item per year. Here, we calculate the cost of capital accumulated in spares based on different conditions to store spare parts and materials inventory.

- Considering warehouse space operation cost, property tax, energy cost, insurance, space occupancy, inventory tax and cost of labour as hidden inventory cost

Session Three**Handling obsolete and surplus stock to release much-needed space in your spares inventory**

Over time, stores accumulate spares that are no longer needed. Whether managers realise this or not, keeping unnecessary spares is costly. Spares overhead is probably the highest cost, as it becomes dead capital for the business. This session explores the need for spares managers to look at recuperating their non-moving (excess, slow-moving, dead, obsolete etc.) stock.

- Evaluating total cost of holding spares in storage to ascertain lost capital
- Identifying and retrieving your obsolete and surplus spares to dispose and save money at least once a year
- Recouping your initial capital expenditure by returning to vendors for credit
- Organising a periodic disposal plan to release obsolete and surplus stock in inventory

Session Four**Evaluating cost saving considerations to reduce inventory expenditure wastage**

To reduce these growing costs, spares inventories must be kept low while accommodating cost saving considerations that are up to standard service level and low stock outs. Here, we look into what other efforts can be made to curb or control unnecessary costs of spares inventories.

- Standardising plant equipment within plants so that spares can be shared between the warehouses
- Locating your spares warehouses at key areas to easy accessibility
- Consolidating spares and suppliers to keep the number of your suppliers low and gain better prices and service
- Scheduling consignment arrangements to occur at the same time

Professional In-House Courses

If you have a number of delegates with similar event needs, then you may wish to consider having a professional in-house course delivered locally on-site. Course can be tailored to specific requirements.

Please contact **Sarah Faradilla** on +603 2723 6600 or email sarahf@marcusevanskl.com to discuss further possibilities.

About your course facilitator:

Carter McNabb Partner
GRA Australia

Carter McNabb is a founding partner of GRA, an expert consulting firm specialising in demand, inventory and supply chain optimisation. With a 12-year history and a team of 40 professionals, GRA is Australia's premier supply chain consultancy and services clients throughout the Asia Pacific region.

GRA's clients include:

- The Australian Defence Forces
- QANTAS
- Toyota Australia
- Amcor Fibre Packaging
- Cummins Engine
- Honda Australia
- The Super Cheap Auto Group
- OneSteel
- Wesfarmers Industrial & Safety
- Nestle Australia
- Cadbury Schweppes
- Australia Post

For the last 17 years, Carter has helped Maintenance, Repair & Overhaul (MRO) organisations in North America, Asia and Australia deliver rapid and sustained inventory reductions, service level improvements and supply chain cost reductions through the practical application of advanced forecasting, inventory and supply chain optimisation processes, techniques and systems.

He has worked within Retail, Distribution, Manufacturing and Service/Repair organisations in industries ranging from Fast Moving Consumer Goods (FMCG) to Auto Parts to Defence at both the strategic and operational levels, and his focus areas include:

- Service Parts & Rotable/Repairable Item Management
- Maintenance, Repair & Overhaul (MRO) Supply Chain Management
- Demand Management
- Sourcing & Procurement
- Production
- Warehousing & Distribution
- Inventory
- Transportation
- Strategy, Planning & Execution

In addition to his extensive industry experience, Carter also authors and delivers Masters courses entitled "Managing Supply Chain Inventory" and "Supply Chain Network Optimisation" within Monash University's Logistics & Supply Chain Management Post Graduate Program. He presents in Melbourne University's annual Logistics & Supply Chain Management Executive Development Program, as well.

With a series of published articles and white papers, press quotes and frequent speaking engagements; Carter is a recognised expert in the field. Importantly, he brings a healthy blend of theory and practical, proven experience to the subject of demand, inventory and supply chain optimisation.

Program schedule**Day one & two**

0830	Registration and coffee
0900	Morning session begins
1030-1050	Morning refreshments and networking break
1300	Networking luncheon
1400	Afternoon session begins
1530 -1550	Afternoon refreshments & networking break
1700	Course concludes