“So, What is RCM3?”

Published on July 2, 2016 by Carlo Odoardi, MEng

Of late, many people are asking me to describe RCM3. In particular, they want me to frame it in reference to RCM2 - something the world has been familiar with for many years. The following is a brief explanation of RCM3 in relation to two recently announced courses on the subject.

Introducing RCM3...

The world of maintenance continues to evolve and develop and is currently in its 4th Generation with the focus very much on Technological advancements through The Internet of Things (IoT), Predictive Analytics, Interconnectivity, Defect Elimination, Standardization through adopting International Standards (i.e. ISO 55000 and ISO 31000), Renewables, Social and Organizational Responsibility and Managing Physical and Economic Risks. RCM3 brings maintenance mainstream and aligns with organization’s physical asset management and risk management strategies through addressing the 4th Generation requirements.

The application of RCM3 changes the way organizations think about their operations and maintenance (O&M). Not only does it challenge the traditional approach to equipment maintenance by moving you from a breakdown and repair mentality, it creates a new culture of risk-based asset management. It revolutionizes views about
maintenance and how maintenance, operations and engineering should work together to drive asset performance through full asset life-cycle.

RCM3 builds on the very robust RCM2 methodology with a refreshing new look on how to manage the risks associated with protective devices and how to manage the risks associated with preserving asset functions. The risk-based decision logic optimizes the maintenance program (develop the minimum amount of safe maintenance required to preserve the asset functions) while managing the physical and economic risks. Below is an example of an RCM3 Information Worksheet using the Corporate Risk Matrix for risk identification by the RCM3 Team.

The RCM3 introductory course redefines our understanding of physical and economic risk management. It completely transforms the way how organizations and O&M groups view the development of maintenance programs. Especially their roles and responsibilities in that process.

The introductory course applies best practices by addressing the nine steps of RCM3 using a real life, case study approach. The participants will explore the techniques required to define a risk-based maintenance program in a logical and structured way that recognizes the risks associated with equipment failures using the following RCM3 Decision Diagram.

This leads to the recording of the minimum justifiable and defensible 'safe' work that must be done by the company. These decisions are made by the RCM analyst Team/Group (i.e. Subject Matter Experts) who are led by an Aladon Certified RCM3 Facilitator. The decisions are intrinsically tied back to the Risk Matrix used during the Function, Failed States and Failure Modes definition phase. They are captured on a Decision Worksheet (see below) and the Function, Failed States and Failure Modes are recorded on the Information Worksheet shown above.

Most important is what RCM3 does for us through its transformative process. The RCM3 review group must first assess and agree upon an 'Inherent Risk' that is reasonably likely for each credible Failure Mode uncovered on every asset within the boundary of the analysis. Then, by further applying the RCM3 process, this metric triggers what the RCM3 review group must do to reduce the 'Inherent Risk' to a tolerable level, if needed. Afterward, the RCM3 Team re-assesses the risk of whatever approach is agreed upon (usually cost-effective mitigating PM tasks selected to be used) in order to arrive at a 'Revised Risk' metric. This must satisfy our maximum tolerable risk in the corporate risk matrix.
Essentially, RCM3 is like a super-charged, risk-reducing focusing tool. It adds significant value to the organization because, in the discovery process, we disrupt the status quo & innovate better work management methods. By exploring various optimization approaches, we achieve the ‘Right Work at the Right Time, Done the Right Way, The First time’.

**BY PARTICIPATING YOU WILL:**

- Develop a greater awareness of the importance of the risks associated with equipment failure-how to manage them in an effective way.
- Learn the RCM3 language and its importance to maintenance, operations and engineering and their understanding of equipment operation and maintenance.
- Be able to evaluate maintenance and operational strategies that are technically feasible and worth doing while maximizing safety and environmental compliance.
- Be prepared to participate in an RCM3 analysis session as a subject matter expert.

**RECOMMENDED PARTICIPANTS:**

- Plant Managers
- Operators
- Maintenance trades
- Planners, Schedulers
- Operations Managers, Supervisors
- Maintenance Managers, Supervisors
- Engineering Managers
- Engineers
- Safety Managers
- Safety Officers

**PREREQUISITE:**

- Understanding of equipment maintenance and operations

**COURSE INCLUDES**

- Course Manual: Based on the successful RCMII textbook by John Moubray together with the expanded RCM3 methodology, Aladon provide a comprehensive 150 page course manual (Risk-based RCM by Marius Basson and Theuns Koekemoer) that will be released in book format soon.
- Benzene Storage & Delivery System Case Study
- RCM3 Decision Diagram and Consequence vs. Probability Risk Matrix
- Break-out Exercises and Solution Sets
• A brief review of the difference between RCM2 & RCM3
• All Lunch meals & break snacks, coffee or tea and all drinks
• Free Parking and Free WIFI at the state-of-the-art Bentley Systems Canada training facility
• A Certificate of Completion for your HR department or your personal portfolio

COURSE OPTIONS:

• Hold an exclusive course at your facility for your employees (up to 20 delegates)
• Host a course at your facility for your employees and invite participants from other companies
• Attend this public course hosted by COCO NET Inc., Aladon Network member.

MAXIMUM NUMBER OF PARTICIPANTS: 20

“So, what is the ‘Advanced RCM3 Facilitator Course’?”

Note that this course is also a requirement for becoming a Certified RCM3 Facilitator in the Aladon Certified Facilitator Program.

An RCM3 analysis conducted by a competent facilitator significantly increases asset performance while improving safety and environmental compliance and reducing risk (physical and economic) and unexpected costs. A qualified facilitator will maximize the quality and consistency of the asset reliability program and support the resulting cultural change. During the Advanced RCM3 Facilitator training the concepts of RCM3 are reinforced and the participants apply these by practicing their facilitation skills in a controlled, coached environment.

The Advanced RCM3 Facilitator Course is a 10 day private or syndicated course introducing the 47 skills necessary to successfully lead an RCM3 analysis. An experienced Aladon Certified RCM3 Practitioner will teach you to understand the competencies of an RCM3 Facilitator through classroom application and mentoring using a real world case study and a Zero-Based Case Study on an actual piece of plant equipment.

As an Aladon Certified Facilitator you will be eligible for ‘Associate’ membership in The Aladon Network where you can further develop your skills, share ideas and experiences with our Aladon Network members and Certified Aladon Practitioners.

The Aladon Certified Facilitator Program assists you in taking all of your RCM3 classroom training to the next level in your organization. The program is designed to provide the appropriate amount of coaching and
mentoring to build your competency to the quality levels expected by the Certified Practitioners in The Aladon Network itself. Once you pass the technical audits for RCM3, and the certification exam, you will be recognized as an Aladon Certified Facilitator and an ‘Associate Member’ in The Aladon Network. This certification not only elevates your credibility within your company but also with your peers in industry and academia around the world.

**BENEFITS OF CERTIFICATION**

- Opportunity to benchmark the quality of your RCM3 analysis.
- Recognition of your status as an Aladon Certified Facilitator.
- Discounts on Aladon training and events.
- Associate membership to The Aladon Network and online community where you can share ideas, tips, techniques and brainstorm about the future of reliability in the industrial world.
- Annual membership includes a technical audit every two years.

**CERTIFICATION REQUIRES AND INCLUDES:**

- Successful completion of the RCM3 facilitator course
- Pass the technical audit of a recent RCM3 analysis
- Pass the facilitator exam
- Certificate and letter of achievement
- Associate membership in The Aladon Network (includes first year membership fees)

For those who already have experience as an RCM3 Facilitator, the certification process is as simple as booking your technical audits and writing the certification examination.

RCM principles are at the heart of modern day asset management, asset performance, reliability and maintenance. The Advanced RCM3 Facilitator course provides an excellent opportunity to exercise these concepts with a recognized thought leader in the field – **Aladon Certified RCM3 Practitioner, Carlo Odoardi** - carlo.odoardi@cogeco.ca

**BUSINESS CASE JUSTIFICATION & COURSE BROCHURE**

If you need help justifying this course, please, download this [business case letter](#) and revise as needed. Also, this is the [Course Brochure](#).

**BY PARTICIPATING YOU WILL:**

- Develop a greater awareness of the importance of the risks associated with equipment failure how to manage them in an effective way.
- Review the RCM3 language and its importance to maintenance, operations and engineering and their understanding of equipment operation and maintenance.
- Develop maintenance and operational strategies that are technically feasible and worth doing while maximizing safety and environmental compliance.
- Acquire the 47 competencies required to successfully lead an RCM3 analysis (more mentoring may be required).
- Learn to manage subject matter expert participants in RCM3 analysis sessions.
- Gain an in-depth understanding of the RCM3 concepts and methodology.
• Learn how to generate consensus regarding technical problems and their solutions.
• Apply the methodology through mentored formal case studies and on real assets to ensure sensible and defensible results.
• Develop your facilitation skills in a controlled, mentored environment.
• Understand how to use Reliability Engineering Workbench (REW) RCM3 software to facilitate an RCM3 analysis.
• Get a 30-day free trial of REW RCM3 software.

RECOMMENDED PARTICIPANTS:

• Maintenance and Operations Supervisors
• Reliability Improvement/Change Leaders
• Maintenance Supervisors
• Reliability Engineers / Specialists
• Reliability Core Team Members

PREREQUISITE:

• RCM2 or RCM3 (preferred) Introductory Course: Delegates who attended an RCM2 Introductory Course may require additional coaching during the course.

COURSE INCLUDES

• Facilitation Reference Guides
• RCM3 Reference Posters
• RCM3 Case Studies (Turbo Gen Lube Oil system), Exercises and Solution Sets
• REW Software Training Guide for RCM3 Software
• Break-out Exercises and Solution Sets
• A brief review of the difference between RCM2 & RCM3
• All Lunch meals & break snacks, coffee or tea and all drinks
• Free Parking and Free WIFI at the state-of-the-art Bentley Systems Canada training facility
• A Certificate of Completion for your HR department or your personal portfolio

COURSE OPTIONS:

• Hold an exclusive course at your facility for your employees (up to 10 delegates)
• Host a course at your facility for your employees and invite participants from other companies
• Attend this syndicated course hosted by Lubrigard Ltd. & COCO NET Inc., Aladon Network member.

MAXIMUM NUMBER OF PARTICIPANTS: 10

Hope to see you at the courses!!

Carlo Odoardi, M.Eng.
Principal Member, The Aladon Network

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Install our *FREE* app: RCM Guru at [www.tinyurl.com/co-rcmguru](http://www.tinyurl.com/co-rcmguru)

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**ADDENDUM**

Both of these RCM3 Certification Courses qualify as credit for the Reliability and Maintainability Implementation Certificate at the University of Tennessee.

For more information, go to: [http://www.thealadonnetwork.com/products-services/](http://www.thealadonnetwork.com/products-services/)