

### **Track 5 – Work Management Abstracts**

**Paper:** Improved Scheduling Performance Using RCFA

**Level:** Fundamentals

**Presenter(s):** Keith Berriman, Agrium

**Abstract:**

Agrium has been working to improve its Asset management practices for several years. A common work flow for work order management was developed and implemented at all sites. In 2005 a central planning and scheduling group was formed to support this. The goal was to provide full time planning expertise and develop job plans for maintenance work that could be re-used for future repairs. The work scheduling would also be coordinated to take advantage of production outages and shared resources. Two years later the two manufacturing units had not realised a significant improvement in maintenance performance. We used the Cause Map approach to review the scheduling process and identify problems and solutions. Many of these are somewhat obvious but critical. Major findings were: Poor backlog management, reactive culture (can't say no to new work that interrupts the schedule) poor communication between production and maintenance, poor co-ordination of production outages and maintenance work. Presentation will review initial plans and issues, review the cause maps and solutions developed to make improvements and the results of these.

**Paper:** Applying Lean Flow Tools to Maintenance Planning

**Level:** Advanced

**Presenter(s):** Mike Bresko, General Physics Corporation

**Abstract:**

This presentation is a unique combination of Lean Enterprise and Maintenance practices. It describes how to improve the Maintenance Planning Process by applying concepts and tools from Lean Enterprise and explains how some commonly-held beliefs lead to planning rework and waste. It focuses on how maintenance activities such as downdays and outages are planned. It reviews the concepts of the Seven Deadly Wastes, especially the waste of overproduction to show why planning jobs too early can paradoxically cause more work and poor planning. It will explain how the Lean tools of Group Technology and Cell Design can be used to streamline planning process practices; and illustrate these concepts in practice with examples.

**Paper:** Level of Planning Detail

**Level:** Fundamentals

**Presenter(s):** Bob Doherty, US Sugar Corporation

**Abstract:**

When implementing a Planner/Scheduler – Work Control system, you hear the same thing from most companies, “Our tradespersons are very experienced and very capable.” You also hear, “We do not want to insult the intelligence of our tradespersons with petty details.”

If the first statement is true, then why are the Actual Hours versus Estimated Hours ratio exceeding the 15% “Best Practice” metric variance? If the second statement is true, then why are 70% of equipment breakdowns self-induced? Something is wrong with the process, not the people.

If planning and scheduling is to be efficient and effective, there must be clearly defined guidelines on how much detailed planning is really necessary. The goal of planning is delay avoidance. There are many factors that affect how the level of detail is determined. With all these factors staring companies in the face, the simple answer is “Plan for the New Guy”. If you plan for the new guy, you are building a detailed job library in your CMMS or even with just a paper filing system. The goal is knowledge transfer from the heads of individuals, whether they are planners, supervisors, or tradespersons into a common repository for all to use now and in the future.

A job library is extremely important due to the aging workforce. The average age of a tradesperson as of 2005 was 48 years, and the average experience as a tradesperson is 23 years. It would be tragic if all that knowledge were lost. Think of it as losing the hard drive on your computer. In this presentation, the “Level of Detail” for planned work will be discussed. Included will be some very useful tools and ideas to assist the maintenance planner improving their estimating ability.

**Paper:** Using Data to Improve Maintenance

**Level:** Fundamentals

**Presenter(s):** Earl Hill, Loma Consulting

**Abstract:**

Traditionally maintenance departments have been better at turning wrenches than in documenting work or collecting data. In today's "lean" world, continuous improvement is needed. One of the best means to accomplish this task is through the collection of various types of data and processing the data into meaningful results. The paper will explore a set of examples where data was collected for equipment. The data includes maintenance history (both corrective and preventive), selected as-found conditions, as-left conditions, and operational data such as operations counts. The paper will discuss typical problems with data, how to use "good" data to improve maintenance tasks. Some of the outputs of the data review can include degradation rates, failure rates, and better maintenance strategies. The overall goal of the paper is to demonstrate to potential equipment and maintenance analysts the value in collecting data such as as-found and as-left conditions, operational data, and in using that data effectively.

**Paper:** Work Management-Utilization of Resources

**Level:** Advanced

**Presenter(s):** Richard Rosales, ABB Reliability Services

**Abstract:**

The work management process has been used by many companies as a means of coordinating maintenance activities. In some cases companies have used the work management process to assign work to maintenance employees with limited understanding of the impact the work management process can have on asset reliability. This article covers some of the key areas addressed when utilizing an effective work management process. The work management process primary focus is to minimize/eliminate waste of time, ensure work is performed to accepted standards, to capture specific work information for purposes of analysis, and provide a means of developing performance measures for continuous improvement.

**Paper:** Planning & Scheduling Seminar/Game (presented for 2 sessions)

**Level:** Fundamentals

**Presenter(s):** Steve Nelson & Leslie Skelly, Reliability Management Group(RMG)

**Abstract:**

A hands-on interactive exercise designed to illustrate the advantages of establishing effective processes for planning and scheduling of maintenance work, coordination between Operations and Maintenance, and Storeroom effectiveness. During this two hour hands on workshop, participants will be divided into five-person “crews” consisting of a Maintenance Foreman and four craftpersons. Each crew will attempt to fix “machines” utilizing a poor, but quite typical planning and scheduling process in the first round. Round Two demonstrates the advantages of having an effective work management process in place, with Maintenance, Operations and Stores all on the same page. This training session is conducted by Reliability Management Group (RMG), a consulting firm internationally recognized for assisting their clients in implementing effective and sustainable work management processes.

The objective of RMG’s Planning & Scheduling Seminar/Game is to provide an experiential learning and illustrate potential and measurable improvement opportunities through a game play experience. This game encourages participants to openly discuss ways to enhance strategies for implementing chosen maintenance and reliability goals within their companies. The Planning & Scheduling Game and Seminar will:

- Demonstrate the importance of good Planning & Scheduling practices
- Illustrate the impact of communications and teamwork on costs and reliability
- Exhibit how good Planning & Scheduling processes support production goals and schedules
- See how a good process and good communication allows employees to be successful in the workplace, which is the most effective way to improve culture
- Show how good planning and scheduling fundamentals capture knowledge before it is lost forever as people retire

RMG highly recommends having a good representation from all levels of a plant.

- Corporate management – Executive level
- Site management – Management level
- Reliability Personnel – Middle Management
- Engineers – Middle Management
- First-line Supervisors – Middle Management
- Craft (Operations, Maintenance, I&E, Stores) – Hourly

**Paper:** Open Satellite MRO Storerooms - a Paradigm Shift

**Level:** Fundamentals

**Presenter(s):** John Kubenka, CH2M Hill & Ronnie Caldwell, South Carolina State Ports Authority

**Abstract:**

Spare parts and inventory are the life blood of maintenance organizations. A low value spare part can cause thousands of dollars in downtime if it is not in stock when needed. Conversely, inflated quantities of spare parts occupy precious space and affect plant finances. Other pressures for spares are accuracy in inventory quantities, ease and expediency of craftspeople obtaining needed parts, and proper documentation of issued parts to appropriate work orders/assets.

Debates continue on the best practices to accomplish these sometimes conflicting priorities. Some of these center on open versus closed storerooms, central versus satellite storerooms, maintenance department versus procurement department control over storerooms, rebuilds versus new items, internal versus external management of storerooms, etc.

Ten years ago, the S. C. State Ports Authority changed from a central, closed storeroom to satellite, open storerooms. Spare parts inventory became a part of the CMMS and management of this inventory changed from Procurement to Maintenance. This process eliminated storeroom attendants, put the spare parts nearer the asset utilizing the parts, and placed control of spare parts in the hands of the people who need and use them: maintenance. This has caused a paradigm shift in the way craftspeople and maintenance supervisors handle spare parts. The result of this paradigm shift has been the creation of 29 well maintained open satellite storerooms that meets the needs of the maintenance department.

**Paper:** Master Records are Not Optional! Get the Detail Work Behind You

**Level:** Fundamentals

**Presenter(s):** Todd White, Management Resources Group, Inc.

**Abstract:**

In the United States alone there is a \$738 billion dollar potential annual benefit from improved asset reliability (calculated from Department of Commerce current-cost net stock of private fixed assets in 2003 (total \$4.9 trillion)). Executive leadership at all organizational levels is beginning to see the financial opportunity, seeking to understand the hidden dollars and saying we have to have reliable equipment and processes. Traditionally executives have not been steeped in the Engineering and Maintenance processes or systems that support and drive reliability. As such, they are typically unaware of the “gaps” in such systems and struggle to understand why actionable data is not readily available to support business decisions (As is often said, you can’t manage what you can’t measure.). One major area of contention and concern is the impact that the quality and availability of the Master data records contained in the management systems has on the ability to aggregate meaningful data.

Master records and foundational data are the building blocks of any Enterprise Asset Management (EAM) or Computerized Maintenance Management System (CMMS). Absent an adequate foundation, all management systems fail to live up to their expectations. It is simply not possible to aggregate meaningful transactional data (routine adding, removing or changing data in a data base) to drive business decisions when the rudimentary elements of the transactional data are absent or suspect. Master records (“original” information and data elements) and foundational data must be in place to maximize the return on investment. Foundational or detail work, as mentioned in this article, refers to the population of all necessary master data to support a robust and efficient system implementation.