DAY 3 Details of Maintenance Planning and Scheduling Training Power Point sold at BIN95.com (61 slides)

Maintenance Planning and Scheduling 3 Day Course
Presented by Mike Sondalini

At the next session …

What causes maintenance …
Defect Creation & Failure Initiation
Common Defect Management Strategies
Defect Elimination & Failure Prevention
Can we get 10,000% fewer errors?
(Two sigma to five sigma)
Use 'Human Error Rate Table' in the Workbook to calculate the chance of all 12 tasks being done right?
Use the equation … **Chance of Being Done Right = 1 – Chance of Being Done Wrong**.

What if there were 50 tasks involved in a job?
How can a Maintenance Planner increase the chance of the job being perfectly?
Reliability of Series Work Process
Parallel Process Reliability
Use Basic Statistical Control
('Six Sigma' method)
Control Charts Spot Variation <u>After</u> Its Happened
Control charts give feedback
Accuracy Controlled Enterprise (ACE) Standard Operating Procedures
Accuracy Controlled SOPs Prevent Variation
Standardizing Human Dependent Processes with Accuracy Controlled Procedures

They wrap-up the session …
Standardising Planning Procedures and Scheduling Procedures
<u>Activity 6</u> – This Activity Involves Developing a List of Tasks that can be Turned into a Standardised Maintenance Planning Procedure Based on ACE 3T Method
<u>Activity 7</u> –Planning Activity with Example B
Review and Discussion of Activity 8

A new lesson starts …
4 Levels of Key Performance Indicators
Measuring and Trending Processes
Trend to Monitor KPIs
Showing Progress
Use Visual Management to Show Status
Visual Management in All Occasions
Make things visual for operators and maintainers if you want them to understand what is happening

Planning and Maintenance Key Performance Indicators (KPI)

- Maintenance Effectiveness Indicators
- Equipment Performance Indicators
- Production Indicators
- Planning Indicators
- Job Quality Indictors
- Supplier Performance
- Inventory/Store Management
- Safety
- Top-performance Industry Benchmarks

DuPont KPI Expectations

Maintenance success is (ultimately) determined by decisions of craftsmen and supervisors

(Quote from Solomon Maintenance Practice Analysis Report)

Activity 8 – Setting, Measuring and Trending Performance Indicators

This Activity requires identifying KPI equations and where to find the data to measure the KPIs

They end for the day …

Scheduling work starts …

Work Scheduling

Work Scheduling is about …

- Time Management
- Use Visual Management
- Team / Relationship Building
- Production Requirements and Limits
- The Production Plan being the Maintenance Plan
- Manpower and Resources Scheduling
- Preparations before the Job Starts
- Addressing Onsite Issues & Changes in the Plan
- Monitoring Job Performance and Schedule
- Backlog Management

Scheduling in a Snap Shot

Scheduling Makes Available Time, Place and Resources to Do the Work

To Deliver The Maintenance Strategy You Need To Schedule It In.

What's on the Work Schedule

Scheduling also Means Rescheduling

One company put work into the backlog with a due-by-date and then never tracked its progress. None of the work ever got done on time. They were forever telling their customers that their jobs would be done as soon as they could be.

The scheduling method had defaulted to doing the oldest work first, and when anyone complained that a job was late, they would do that job next.

What would you do to solve this problem?
Display the Plan and Responsibilities
Team Building / Relationship / Partnership

- Identify planning/scheduling value add
- Bring groups together daily in a cooperative, professionally run meeting – Standardize on an agenda
- Request others' improvement ideas

Production: Short View; Maintenance: Long View.
There in lies the problem!
Make The Production Plan the Maintenance Plan

- Liaise with Production to include short and long term maintenance
- Schedule **all** maintenance into the Production Plan so it is visible
- Both groups work the same plan so each knows what the other is doing

Manpower Scheduling and Resources Scheduling
Preparations before Scheduling Starts

- Parts are in store and are the right ones
- Permits required are identified
- Work Pack complete
- Special tools/test equipment are available in time
- Production plant/equipment will be available
- Skilled people who can do the job well are available
- Specialist subcontractors can meet deadlines
- Job priorities are identified
- Completed jobs are removed from schedule

Preparations by the Equipment Owner Before the Job Starts

- Handover plan and isolation points drawings – process isolations, danger tagging, permits, etc
- Hazards removed from workplace
- Blank/spade flanges installed; process fluids drained
- Confined spaces made safe for entry
- Electrical safety isolations
- Plant/machine <u>proven</u> to be safe
- Handover/Safety permits signed-off

Preparations by Maintenance before the Job Starts

- Parts at work face
- Permits complete
- Work Pack complete
- Special tools at work face
- Equipment to do the job available
- Production plant available
- Isolated with safe access to work face

• Test equipment ready & calibrated
• All safe work systems in place

Their time today ends …

The last daily meeting …
Addressing On-site Issues and Changes in the Plan
"If It's Not Written, It's Not Real"

Ted asks an important question …
Work Through a Job Risk Analysis
Actions Following Job Completion
• Make it a job task to have:
• Clean and tidy work face
• Permits completed and closed
• Work Pack completed with full records
• Special tools clean and ready to return
• Plant and Equipment clean and ready to return
• Isolated with safe access at work face
• Test equipment clean and ready to return
• Work Order closed off with correct codes
• Remedial work recorded
• Engineering databases updated
• Lessons Learnt meeting
Monitoring Job Performance and Schedule
• Measure MTTR
Backlog Management
Managing Backlog involves getting the planning and scheduling right.
The key aspects of successful backlog management are:

»Setting objectives
»Setting/agreeing priorities
»Establishing the organisation's responsibilities and relationships
»Implementing the processes to met the objectives
»Measuring the performance
»Reviewing the performance, and
»Auditing the process

This framework for managerial action will produce a formal management system for the control of maintenance backlog, and is an essential component in managing maintenance.

The details of managing backlog involve:

»Managing work requests.
»Developing work orders, job preparation and repair procedures.

»Work scheduling.
»Job execution and follow up of work in progress

·The first step in managing the backlog requires that the work be properly identified and prioritized by maintenance and operations together.
(For more see ***'Manage Backlog, a Start in Managing Maintenance!'*** article in Work Book)

Planning Backlog Management
Activity 9 – Scheduling to Get the Job Done Right First Time
Review of Activity 9

Ted finishes …
The Purpose of Planning Maintenance
•Maximum trade 'tool time'
•Work done 'right-first-time'
Maintenance Planning Course Key Issues
•Aim for efficient & effective use of maintainers
•Poor planning/scheduling means poor performance
•Equipment reliability is what maintenance offers
•All work is a series process that carries big risks
•Build work task accuracy into the SOPs
•Production & Maintenance partnership works best
Activity 10 – Trainee Work Assessment
We offer on-going contact and support through work assessment.
Send us hard-copy samples of work packs and we will offer advice and suggestions.