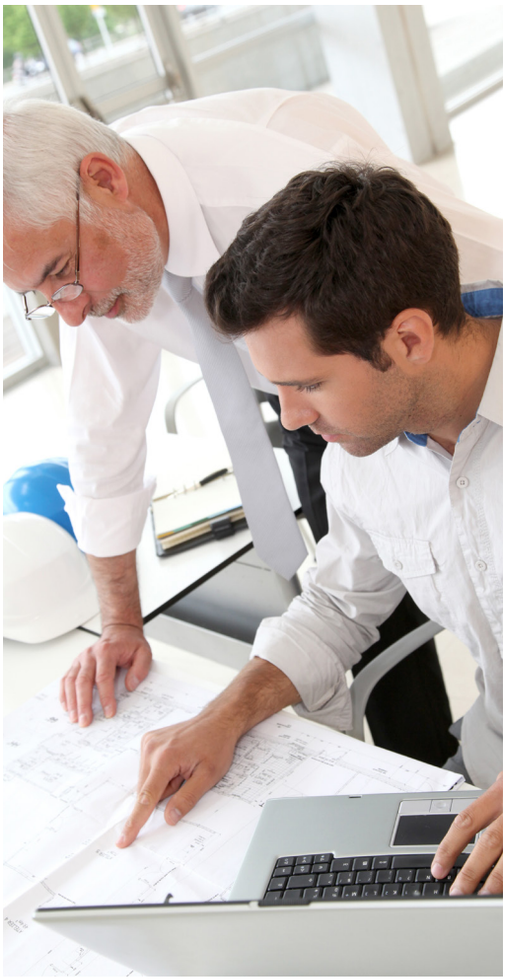
# MAINTENANCE BASIS OPTIMIZATION



- *Focuses attention on the maintenance activities which have the most effect on performance and reliability.*
- *Emphasizes condition monitoring tasks that help ensure potential failures are detected before they become functional failures.*

To reduce production costs and enhance performance and availability, maintenance managers are constantly pressured to review and update their maintenance programs based on failure history, changing operating circumstances, industry best-practices and new predictive maintenance technologies. Since all equipment eventually fails, a maintenance strategy that identifies common failure causes and provides the most effective solutions to prevent or remedy these failures will be the most beneficial.

PlantView® Maintenance Basis Optimization (MBO) supports and facilitates the two approaches to defining the maintenance requirements of a physical asset: Reliability Centered Maintenance (RCM) and Plant Maintenance Optimization (PMO). RCM is a system of *establishment*. It is often used to develop the initial maintenance program for an asset. It focuses on identifying which failures are the most common and present the most risk to the goal of preserving system function. PMO is a method of *review*. It is often used where there is a reasonably good maintenance program already in place and an experience base of plant operation and equipment failure characteristics.

By combining rigorous Reliability Centered Maintenance (RCM) analysis with pre-defined templates and a flexible approach to determining criticality that is typical of Plant Maintenance Optimization (PMO), PlantView/MBO helps develop a sound maintenance basis that balances maintenance tasks and equipment reliability. PlantView/MBO facilitates the definition and optimization of the required maintenance tasks for equipment. The results of an MBO analysis will allow maintenance managers to focus their resources on performing the right tasks on the right equipment at the right time.

**Benefits**

- Develops a documented basis for the maintenance program.
- Helps devise the simplest and most cost-effective means of maintaining equipment.
- Focuses resources on the right maintenance strategy.
- Eliminates unnecessary and ineffective maintenance tasks.
- Adjusts content and frequency of time-directed PM tasks.
- Reduces unscheduled breakdown maintenance.
- Applies pre-defined "best practices / industry standard" maintenance templates to standardize the maintenance basis for similar equipment across the fleet.

## Features

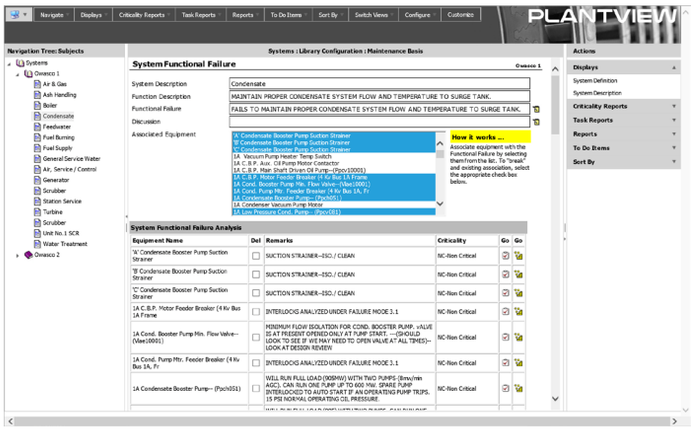
- **RCM:** Defines System Functions and Functional Failures and performs Failure Modes and Effects Analysis.
- **PMO:** Develops Maintenance Basis Templates based on Equipment Type that captures prior experience on predictive / preventive maintenance (PdM/PM) tasks and frequencies.
- Develops Equipment Type Templates that document the failure mechanisms for each equipment type and the degradation modes and mechanisms for each sub-component.
- Maintenance Basis Change templates provide documented history for equipment specific PdM/PM changes, as well as justification, analysis and approval to modify the maintenance basis.
- Reduces implementation time and cost by performing detailed analysis of individual equipment and then applying the same analysis to similar equipment.
- Generates System Reports: Criticality, FMEA Summary, Maintenance Basis, Task Details, Undefined Criticality and Operating Classification.
- Generates Equipment Reports: Task Details, Maintenance Change Requests, Failure Mechanism Defense and Degradation Mechanism Defense.

■ *Controls maintenance costs by reducing the number of maintenance tasks and increasing the intervals between tasks.*

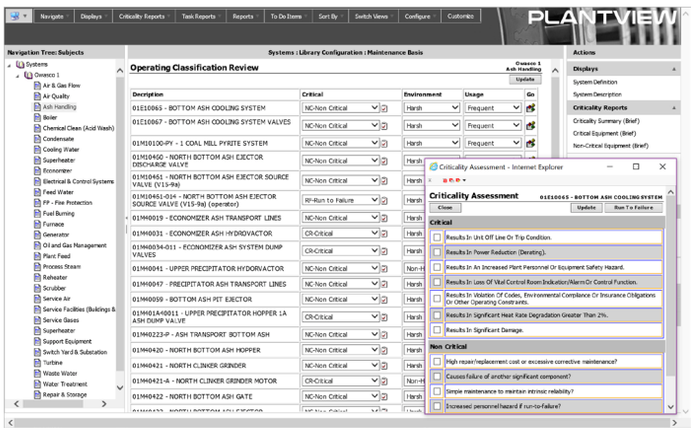
■ *Increases the useful life of the equipment by ensuring each asset receives the maintenance required for it to meet its design intent.*

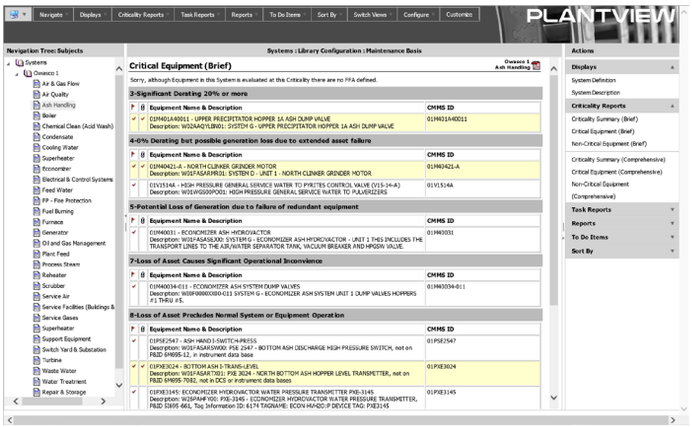
## MBO In Action

To achieve the goal of implementing a cost-effective maintenance program, it is necessary to select systems that have the largest impact on operations, safety and reliability. By using a logical step-by-step approach to determine the maintenance strategy for equipment in these systems, PlantView Maintenance Basis Optimization (MBO) allows you to document the basis for the maintenance program, more effectively manage change to the maintenance program and focus resources on doing the right task at the right time on the right equipment.

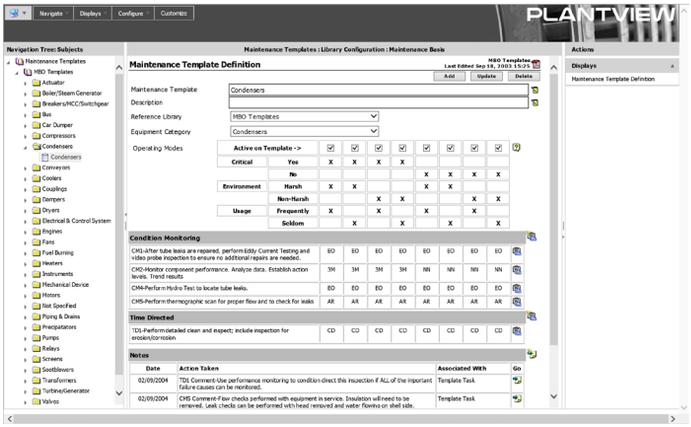



MBO supports several methods to determine Equipment Criticality and operational importance: 1) Classical RCM Analysis using System Functions, Functional Failures, Failure Modes and Effects Analysis (FMEA) for equipment associated with a functional failure, 2) Equipment based Failure Modes and Effects Analysis, 3) Critical/Non-Critical Questionnaire and 4) Equipment impact on Operations.

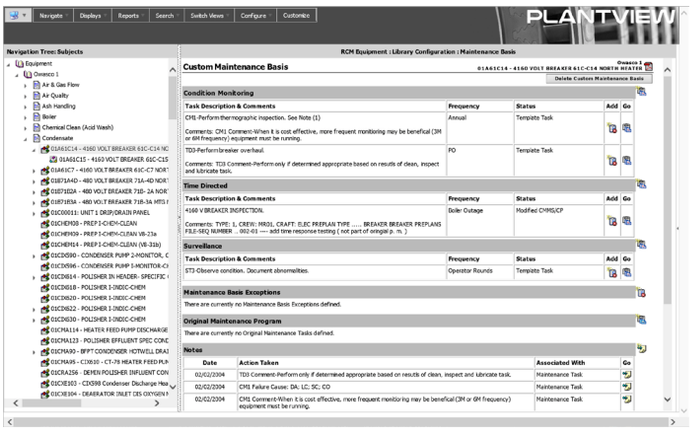




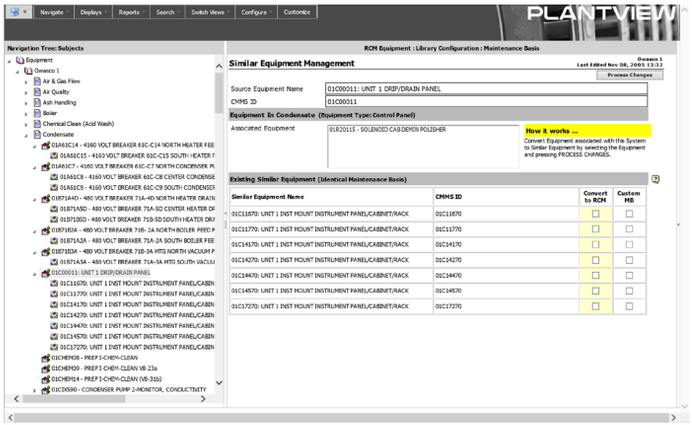

Once a component has been determined as critical or non-critical, the next step is to select the type of tasks to be performed and their associated frequencies. MBO uses maintenance templates based on the type of equipment to define an Initial Standard Maintenance basis.



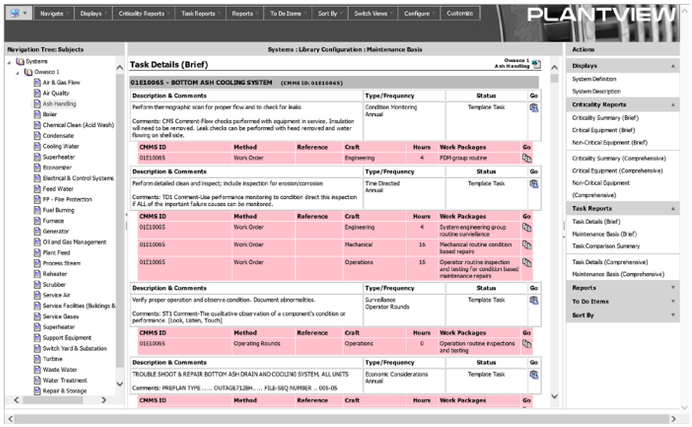

As required, copying and modifying standard templates for specific equipment produces a consistent, unique and traceable maintenance basis.




Associating a completed standard or custom maintenance basis to similar equipment establishes consistency and saves analysis resources.




The final step in the process is to reconcile this proposed maintenance basis with the existing maintenance program.




As operating experience is obtained, tasks and frequencies can be further optimized. Having the proper mix of predictive maintenance (PdM) and preventative maintenance (PM) tasks within the maintenance basis is essential to cost-effective maintenance.

PlantView/MBO is a comprehensive tool to help you establish, document, implement and maintain an effective maintenance strategy for your facility and equipment. It facilitates the application of industry standard best-of-breed maintenance practices to appropriate equipment in a systematic fashion. Well designed and implemented preventive and predictive maintenance programs can minimize unscheduled corrective maintenance, reduce equipment damage expenses and improve equipment availability.

## The PlantView® Suite

PlantView Logbooks is a part of a suite of integrated modules supporting the maintenance, operation, training and performance knowledge management processes that help facilities sustain optimal reliability, efficiency and safety. Each module automates information entry, storage, management and reporting for numerous facility functions. The software transforms internal work processes, enabling users to move efficiently from managing information to understanding the implications of that information, and ultimately to action. The PlantView Suite is divided into four disciplines: Maintenance, Operations, Continuous Improvement and Training. It consists of the following modules:

| | |
|---|---|
| **Maintenance** | |
| **Predictive Maintenance** | Facilitates condition-based maintenance by collecting and storing diagnostic technology results, and facilitating the analysis of multiple technologies into an overall assessment of the equipment. |
| **Maintenance Basis Optimization** | By combining rigorous Reliability Centered Maintenance (RCM) analysis with pre-defined templates and a flexible approach to determining criticality, MBO helps develop a sound maintenance basis that balances maintenance tasks and equipment reliability. |
| **Reports Library** | Serves as a basic document repository targeted for major equipment maintained on an annual basis. As reports are received from engineering teams, they are assigned a status and uploaded to PlantView. |
| **Engineering Inspections** | Standardizes the inspection of components and their associated evaluation criteria. Information is summarized in a grid representing the most recent evaluation that has been performed. |
| **Operations** | |
| **Operations Logbooks** | Replaces traditional paper logs, text documents, spreadsheets and home-grown portal solutions with a dedicated operator logs system. Assists in tracking and managing any problem from initial diagnosis all the way through remediation. |
| **Risk Assessment** | Supports Risk Informed Decision Making by using a 5x5 Risk Matrix that can be viewed across the enterprise to assess and prioritize risks. |
| **Reliability Index Module** | Replaces manual spreadsheets and monthly reports with a continuously updating Equipment Reliability Index that can provide a snapshot on a daily, weekly or monthly basis. |
| **System Health** | Keeps a running log of issues and concerns for a System or Program. Within a particular instance of a report, the responsible individual identifies issues, snapshots metrics and assigns action items. |
| **Continuous Improvement** | |
| **Event Reports** | When an event occurs at Site "A," other sites are notified through an event assessment providing a mechanism where the event is reviewed and it is determined if a similar event could happen at their site. |
| **Corrective Actions** | Documents how a particular problem/issue is corrected at a site. Once a Corrective Action Report (CAR) is created, it is assigned to a Champion and Team Leader until a solution is determined. |
| **Self-Assessments** | An Excellence Grid divides business objectives into categories, elements and sub-elements. Questions are defined with each, and an assessment is completed by multiple users. Management can use the results to focus on areas requiring improvement. |
| **Observations** | Observes activities to identify trends in safety, human performance and plant operations to prevent injuries and improve reliability. |
| **Training** | |
| **Automated Training Manager** | Creates training courses consisting of Lessons and Elements; each element has associated content, questions and skills. Profiles provide trainees with a cross-section of content focused on their job description. |

The PlantView® Suite can be installed in your own IT environment or externally hosted.
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