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The system you choose should have a routine for developing and scheduling PM tasks. Then you have to implement the CMMS.

One very important aspect of a computerized maintenance management system (CMMS) is its ability to handle preventive maintenance (PM) procedures. This critical component, as well as the scheduling and planning functions discussed in a previous article (MT 12/97, pg 14), are key checkpoints for the selection of a CMMS. Here are some guidelines for evaluating PM procedures and for implementing a CMMS.

PM schedules must be established before plant management can determine the overall workload of the maintenance staff. A survey of plant equipment allows personnel to determine the frequency and schedule dates for PMs and to compile complete PM data records, as shown in the sections "PM Establishment and Flow Procedure" and "PM Data Worksheet."

The CMMS under evaluation should have tools in place to develop, maintain, and schedule this preventive maintenance. These questions should be asked in the CMMS selection process:

- Does it have a separate module for maintaining and scheduling PM work orders?
- Are forms developed for establishing PM tasks and entering the information into the CMMS?
- Does the PM module have the ability to link specific job plans for performing these PM activities?
- Many PM tasks are not equipment specific. Does the CMMS have PM route capabilities where you can schedule multiple equipment PM tasks such as lubrication and greasing routes?

- Does it have a PM activate routine that allows review of PM tasks due and creates PM work orders with associated job plans?

Preventive maintenance is an ongoing program that must be audited continuously for continuity and validity. Among the reports that should be available in the CMMS to review and adjust the PM program are estimated PM man-hours by craft between dates, PMs by frequency and area, PMs by craft, and PMs by equipment.

Inventory systems

The plant's maintenance storeroom is set up to provide maintenance personnel the parts and materials required to keep the plant's facilities and production machinery running efficiently.

Proper management and control of maintenance storeroom parts and materials will ensure that (1) the parts are there when needed, (2) redundant items are not being purchased, (3) items will be automatically re-ordered as needed, (4) obsolete items are reported upon for deletion, (5) cost-effective methods are being used for purchasing lot type items, (6) item usage costs are being documented and reported to management, and (7) parts and materials costs are being allocated against equipment and accounts as used.

Important inventory management questions to ask about the CMMS you are considering include:

1. Is a form developed for compiling inventory information and is this form compatible with the CMMS data entry inventory screens?
2. What tools are available for establishing and maintaining maintenance inventory?
3. Does the CMMS allow review and adjustment of inventory before automatic reorder?
4. Does it contain inventory search and sorting capabilities by part or material categories?
5. How does the CMMS handle inventory stock item types such as nonstocked, vendor stock, maintenance stock, etc.?
6. Does it offer stocking classification codes such as general supplies, safety, insurance, obsolete, etc.?
7. Does it offer ABC inventory value by usage capabilities?
8. Can spare parts be committed to work orders?
9. Can spare parts be looked up via the equipment record screen and are the number of spare parts required per piece of equipment maintained in this record?
10. What procedures are in place for issuing and posting inventory items against work orders or accounts? Are parts issued against a work order so material costs are tracked back to a job and subsequently to an equipment number? Can parts be returned and credited against a work order number?
11. What reports are available for maintaining and controlling inventory costs? Among them should be:

- Equipment spare parts cross referenced to an inventory catalog that also references warehouse and stock bin location
- Inventory value report, sorted with group totals by stock classification code (general supplies, PPE, maintenance stock, insurance, obsolete, etc.)
- Nonequipment usage report, sorted by stock type and usage in descending order
- Equipment usage report, sorted by usage in descending order
- Stock-out report, sorted by inventory item number with highest to lowest stock-out occurrences

- Slow moving inventory by value report, sorted by value in descending order
- Surplus/obsolete inventory report, sorted by vendor and value in descending order
- Usage by location reports, sorted by stockroom and bin location.

With the major CMMS components evaluated, the next step is developing an implementation plan. This involves both personnel and hardware/software considerations.

Staffing for implementation

Choosing an implementation staff will depend on the size and scope of your organization. Among things to consider will be:

- Who will input information into the CMMS? If it is to be built through manual data entry, you should consider a data entry clerk and develop forms for input. If file data transfer from an existing software program is feasible, you must decide who will develop the translation and transfer formats.
- Who will survey and obtain equipment specifications, PM requirements, and spare parts information?
- Who will survey your on-site maintenance inventory?
- Who will develop and manage PM requirements?
- Who will manage and coordinate planning and scheduling functions? This includes maintenance as well as production personnel.
- Who will maintain the inventory system?
- Who will maintain the CMMS network, including data backups?

Hardware and software considerations include whether the CMMS will be networked and what the plat- form will be, the number of workstations necessary, and the hardware requirements.

Implementing the system

Once you have determined which CMMS best fits your needs, you should decide how you will implement the system. Consider the following guidelines:

- Software training. No matter what system you purchase, your personnel should be well schooled on their level of use in the system.
- Account codes and system tables. Account codes are usually the first thing required to be

entered into the CMMS. Once the codes are established, system tables should be established.

- Tables. These are used throughout most systems to provide look-ups for quick data entry, to validate choices, and to provide searching and sorting options. Some of these tables can be built as you enter data for that particular module, but all tables should be reviewed and built.

- Equipment records. Before any work orders or PM records can be built you will have to establish your equipment records.
- Preventive maintenance records. Before you can determine your maintenance workload, PM requirements have to be identified. At a minimum, daily, weekly, and monthly PM records should be established prior to implementing work order planning and scheduling.
- Work order planning and scheduling. Once your equipment and PM records are established, you should be able to implement the work order system. At this time, you should review staffing requirements and work order planning and scheduling flow procedures.
- Inventory records. It is not absolutely necessary to establish inventory records before implementing the work order system. However, most systems allow you to cross reference spare parts to equipment and allocate them to work orders.

Issues associated with maintenance inventory management will be discussed in a future article. CMMS selection issues associated with work management functions were discussed in a previous article (MT 12/97, pg 14). **MT**

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