For some items, failure is not related to age, and consequently, timed maintenance can often result in unnecessary maintenance. PM can be costly and ineffective when it is the sole type of maintenance practiced.

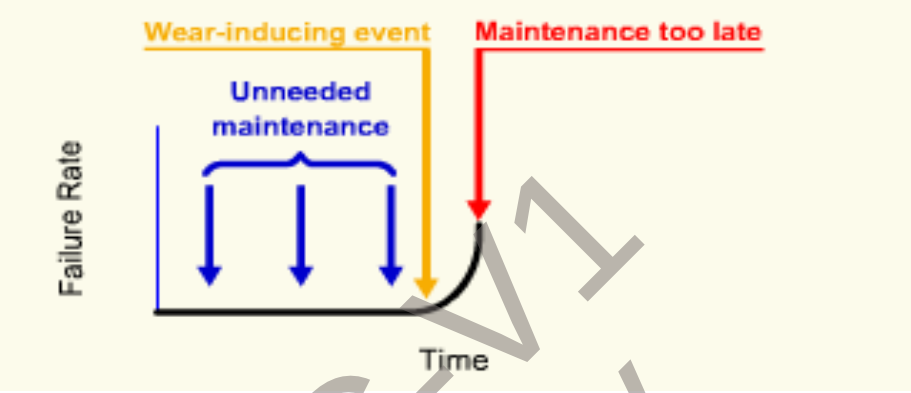

Figure 3-3: Condition based maintenance philosophy

Preventive maintenance is time-based instead of condition-based. It often takes place before there is a problem or after the damage has grown.

Advantages:

a) Cost effective in many capital intensive processes
b) Flexibility allows for the adjustment of maintenance periodicity
c) Increased component life cycle
d) Energy savings
e) Reduced equipment or process failure
f) Estimated 12% to 18% cost savings over reactive maintenance program

Disadvantages:

a) Catastrophic failures still likely to occur
b) Labor intensive
c) Includes performance of unneeded maintenance
d) Potential for incidental damage to components in conducting unneeded maintenance
e) Preventive Maintenance Criteria

Preventive maintenance criteria reflect the age-reliability characteristics of the equipment based upon the equipment history. They are not necessarily related to mission criticality. The selection process guides the determination of the type of task which, will be done, but is less helpful in establishing task frequency or periodicity.

3.7.2 Preventive Maintenance Tasks

Although numerous ways have been proposed for determining the correct periodicity of preventive maintenance tasks, none are valid unless the in-service age-reliability characteristics of the system or equipment affected by the desired task are known. This information is not normally available and shall always be collected for new systems and equipment. PT&I techniques should be used as an aid in determining equipment condition vs. age.

Careful analysis of similar kinds of hardware in industry has shown that, overall, more than 90% of the hardware analyzed showed no adverse age-reliability relationship. This