If equipment failure makes any of these consequences likely, run to failure is not recommended. In a typical plant 50% of maintenance is reactive. In an ideal plant 10-25% of maintenance would still be reactive or run to failure. The run to failure of a drainage pipe, e.g. pipe collapse, is unlikely to be acceptable as it could lead to pipe blockage and/or subsidence of the surrounding ground.
Advantages:

a) Low cost
b) Less staff

This approach works well if equipment shutdowns do not affect production and if labor and material costs do not matter
Disadvantages:

a) Increased cost due to unplanned downtime of equipment
b) Increased labor cost, especially if overtime is needed
c) Cost involved with repair or replacement of equipment
d) Possible secondary equipment or process damage from equipment failure
e) Inefficient use of staff resources

3.7 Preventive Maintenance (PM)

Also referred to as Time-Based Maintenance.

3.7.1 Preventive Maintenance Philosophy

a) Schedule maintenance activities at predetermined time intervals
b) Repair or replace damaged equipment before obvious problems occur

PM consists of regularly scheduled inspection, adjustments, cleaning, lubrication, parts replacement, calibration, and repair of components and equipment. It is performed without regard to equipment condition. PM schedules periodic inspection and maintenance at predefined intervals in an attempt to reduce equipment failures for susceptible equipment. As equipment ages the frequency and number of checkpoints may need to be reevaluated using the age exploration process. This process uses PT&I and other methods to extend the period between PM tasks while maintaining equipment condition.

This process can result in substantial maintenance savings. These savings are dependent on the PM intervals set, which can result in a significant decrease in inspection and routine maintenance; however, it should also reduce the frequency and seriousness of unplanned machine failures for components with defined, age-related wear patterns.

Traditional PM is keyed to failure rates and times between failures. It assumes that these variables can be determined statistically, and therefore one can replace a part due for failure before it fails. PM assumes that the overhaul of machinery by disassembly and replacement of worn parts restores the machine to like-new condition with no harmful side effects and that the new components are less likely to fail than the old components of the same design.

Failure rate, or its reciprocal, mean-time-between-failures, is often used as a guide to establishing the interval at which maintenance tasks should be performed. The major weakness in the application is that failure rate data determines only the average failure rate. In reality, failures are equally likely to occur at random times and with a frequency unrelated to the average failure rate.