



Building a Preventative Maintenance Program

John Rael

Denver Beer Co.
Production Director



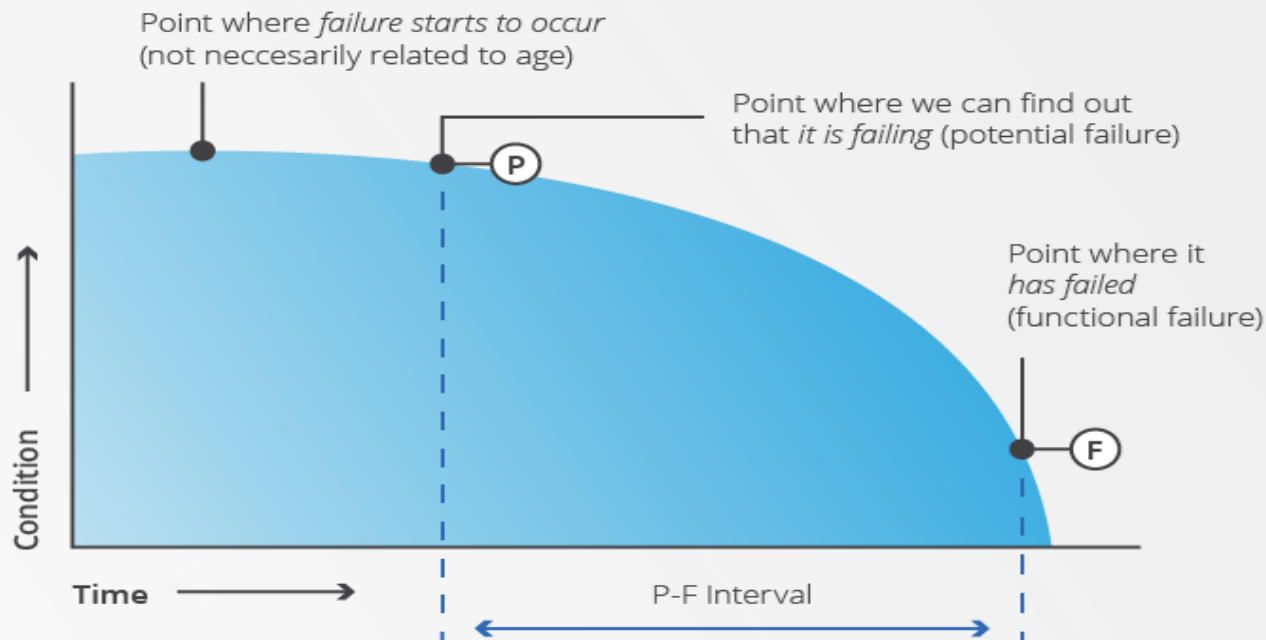
What are PM's?

The act of proactively monitoring equipment health to prevent unplanned, catastrophic machine failures

- Move from Reactive Maintenance to Proactive Maintenance Routines
 - Identify the Potential for Failure while machine is still operational
 - Repair Potential Failure prior to Total Failure



P-F Curve





Advantages to PM

Gives Us Time to Plan

- Align Labor
- Plan Production Outages
- Purchase Spare Parts
- Gameplan Around Safety



Why are PM's Important?

Reliability Defined:

- The quality of being trustworthy or of performing consistently well.

Costs of Downtime:

- Idle Labor
- Labor OT to cover lost production
- Failure to Meet Orders
- Material Out of Stocks
- Increased Repair Costs (Parts & Labor)



Run to Fail vs PM

Run to Fail when:

- High Equipment Redundancy
- Short Time to Repair

PM when:

- Low Redundancy
- High spare parts lead times
- Long repair time



Costs of Run to Fail

- Unplanned Downtime
- Spare Parts Stocking/Hoarding
- Overnight Shipping Parts
- Increased Labor Costs
- Overall Team Frustration



Spreadsheets vs. CMMS

CMMS Track and Manage Tasks

- Calendarized Tasks
- Runtime Counters
- Regulatory Traceability
- Periodic Clean, Inspect and Lubrication Tasks



CMMS Options

Cost

- As affordable as < \$100 annually
- Up to > \$25k annually

Things to Consider

- Types Users
 - Technicians
 - Maintenance Requesters
 - Planners or Managers
- Mobility options
 - Tablets & Phone options