

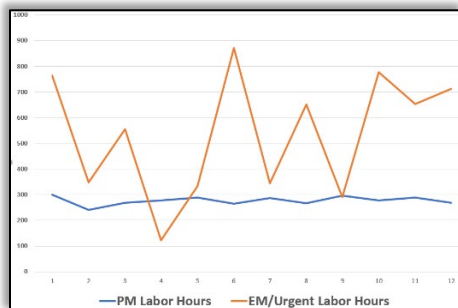
# Tool-Box Talk

## Preventive Maintenance 101

**Preventive Maintenance** - Actions performed on a time- or machine-run-based schedule that detect, preclude, or mitigate degradation of a component or system with the aim of sustaining or extending its useful life through controlling degradation to an acceptable level.  
(Definition Source: SMRP Best Practices)

### Fundamentals of PM

- All Equipment PMs are focused on specific "Failure Modes"
- All PM Procedures should have the following:
  - Step by Step Instructions (initial each step)
  - Specifications
  - Space available for extra information
    - Condition as found
    - Condition as left
    - Recommendation to changes to Procedure
- When a PM Work Order is given to Maintenance Techs the following should be attached:
  - Equipment Failure history since last PM Executed
- If a piece of critical equipment fails between PM cycles an RCA should be initiated
- Post the following metric in Maintenance Shop on a line graph
  - PM Labor Hours vs EM/Urgent Labor Hours



### Steps to take if PMs are not Effective or meeting expectations

**Step 1:** Acknowledge you have a problem with your PM Program not meeting expectations

*"you cannot solve a problem without admitting you have a problem"*

**Step 2:** Create a PM Optimization Team - Assemble a team of Maintenance Techs, Maintenance Supervisor and operators for the team.

**Step 3:** The PM Optimization Team establishes their Vision, Mission, and Guiding Principles approved by Maintenance, Production and Plant Leadership and meet weekly for 30 minutes max **(FOCUS)**


**Step 4:** Identify the equipment experiencing the most losses, ie. OEE, Production loss, EM/Urgent Labor hrs., etc.

**Step 5:** Implement PM Optimization Process on the first asset or area. (review Tool Box Talk – 103 PM Optimization)

**Step 5:** Post a Dashboard to measure progress and effectiveness of the Program



**Step 6:** Create a PM Problem/Solutions Board using the A3 Approach to problem solving

<p><b>Problem:</b></p> <p>Line 3 - Gearbox Failure (Asset Criticality - High)</p> <ul style="list-style-type: none"> <li>Production Losses - 330 Unit</li> <li>4 Hours downtime (\$7450)</li> </ul>  <p>Asset Number: AP-1021</p>	<p><b>Resolution:</b></p> <ol style="list-style-type: none"> <li>Replaced Gearbox to specifications</li> <li>Sent gearbox out for rebuild and forensics</li> <li>"ED Root Cause", why it failed, replaced parts returned for view by all Maintenance Techs</li> <li>Review all PM frequencies on gearbox</li> <li>Review post oil sample results</li> <li>Cost of Gearbox Replacement, Labor \$200, Gearbox \$500</li> </ol>
<p><b>Root Cause:</b></p> <p>The Facts-</p> <ol style="list-style-type: none"> <li>Known gearbox noise</li> <li>Reported on daily check list for 2 weeks</li> <li>Production needed to run, could not take downtime to replace gearbox</li> </ol>	<p><b>Measurement /Sustainment:</b></p> <ol style="list-style-type: none"> <li>PM Compliance +/-10% of time frequency on critical assets</li> <li>Oil Sample Time from Sample taken:                     <ul style="list-style-type: none"> <li>To Results Received and Review Measured</li> <li>If re-sample - require 2 steps to re-sample</li> <li>If end of space found, CM WO written, Replacement Planned and Scheduled</li> </ul> </li> </ol>

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