



Maintaining Your PM Program



FROM OUR HAND TO YOURS™

Creating an Asset registry

- Asset name
 - Stick to a scheme. How will you be naming your assets?
 - Inclusion of location
- Serial and model numbers
 - This is important for identifying parts down the road
- Associated parts
 - Many assets can share spare parts. Cost savings if identified.
- Manufacturers PM recommendations
 - Good starting point. Will require modifications



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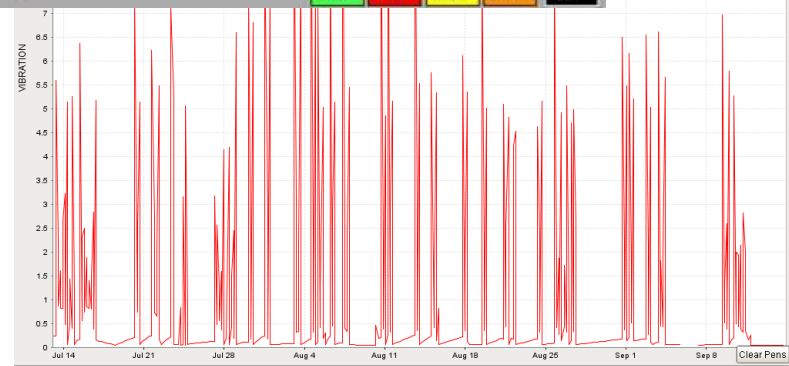
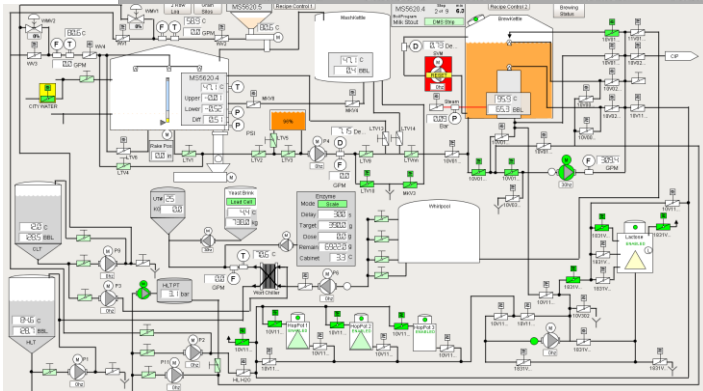
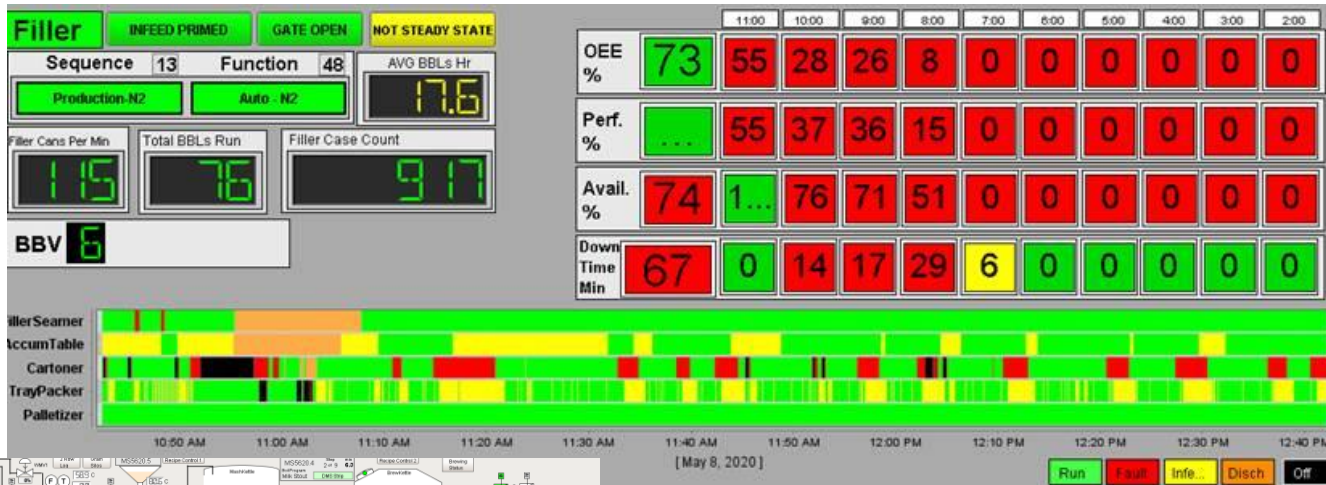
Preventative Maintenance Triggers

- Machine runtime
 - Usage based – How long has the equipment been running?
- Calendarization
 - Time based - The manual told us that we need to perform this inspection quarterly
- Condition Based
 - Vibration Analysis, Thermal Analysis, etc.
- SCADA generated maintenance triggers
 - Can incorporate all the above.



What is SCADA?

Supervisory Control and Data Acquisition



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Adjusting your PM frequency

- Equipment failures
 - Do equipment failures happen between PMs?
 - RCA?
- Machine inspections
 - When you or your team performs inspections, is there anything that requires attention?
- Equipment Manual vs Observation & Experience
 - You may need to adjust your PMs based on your particular installation



Key Performance Indicators

- Mean Time Between Failure (MTBF)
 - Expected time between failures
- Overall Equipment Effectiveness (OEE)
 - Quality% x Availability% x Performance%
 - 99% x 85% x 95% = 79.9% OEE (world class is 85%)
- Downtime
 - Daily unplanned downtime
- PM%
 - PM completion %

80/20 rule

- 80% of your maintenance should be planned
 - Preventative, Predictive, Condition Based.
 - Maintenance that can be scheduled to mitigate the impact on production
- Leaving 20% of your maintenance unexpected or unplanned.
 - Cost
 - Impact to labor
 - Impact to production
 - Impact to scheduling



How do you delegate PM responsibilities?

- Level 1 (CLI)
 - Maintenance that does not necessarily require specialized skills or tools (Cleaning, Inspection, Lubrication)
- Level 2 Maintenance
 - Maintenance that requires specialized skills/tools (replacing fuses, chains, precise measurement. In depth understanding of machine operation)
- Level 3 Maintenance
 - Maintenance that requires qualified technician such as HVAC or electrician.



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Periodic Inspections vs Overhauls

- Occasionally there is need for major equipment overhauls. What makes these different than everyday PMs?
 - Can require support from a specialist
 - Can require specialized tools or skills
- Manufacturer recommends overhauls
 - Talk to your manufacturer for recommended overhaul based on your usage. They may recommend a modified overhaul that can be friendlier to the pocketbook.



Make it *Your* program

- Your facility is the only one like it
 - There are many preventative guidelines out there. Find one that fits your operation and strive to improve it.
- Your staff have unique skills and knowledge
 - Utilize your staff. You may be surprised with the wealth of knowledge already present at your facility
- Ask Questions
 - Of your neighbors
 - Friends
 - Manufacturers



**If you don't schedule time
for equipment maintenance,
your equipment will
schedule it for you.**

-Unknown



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