5 Ways to Measure Your Condition Based Monitoring Maturity Matrix

Allied® Inspired Reliability

	Elements	LEVEL 1 NOT ENGAGED	LEVEL 2 EXPERIMENTING	LEVEL 3 ENLIGHTENED	LEVEL 4 GOOD PRACTICE	LEVEL 5 BEST PRACTICE
PdM MATURITY ELEMENTS	**Quartile Coverage**	Spot Checks	4th Quartile	3rd Quartile	2nd Quartile	1st Quartile
	Expectations	Troubleshoot	Optimize Run-to-Failure Strategy	Do more PdM	Enable Proactive Workflow Model	Early elimination of defects and root casues
	Employee Certificaitons and Qualifications	Nothing formal	Level I certification by technology supplier	Level II certificaiton with written practices	Level III certifications to international Standard	Advanced standards created and MOC process used for changes
	Standards and Controls	Nothing formal	No alarms to overall alarms	Alarms present, but are generic or overall alarms	Alarms present, both standard and statistical	Alarms prsent, both standard and statistical with review process
	Alarming Methods	Nothing formal	No alarms to overall alarms	Alarms present, but are generic or overall alarms	Alarms present, both standard and statistical	Alarms present, both standard and statistical with review process
	Missed Opportunity/ Investment	Limited and informal RCA	RCA only when prompted, informal in nature	RCA only required on high profile failures	RCA activity based on good triggers (E.g. Criticality)	RCA on failures of all monitored equipment
	# of PdM Technologies	1 Technology	2 or less technologies	Minimum of 3 technologies	Minimum of 5 technologies, fully utilized (e.g. electrical and mechanical infrared)	Minimum of 5 technologies, fully utilized with integrated NDT program
	Technology Integration	None	None	Minimal integration	Fully integrated (database)	Fully integrated (database)
	Types of PdM Tools	Vibration pens, spot radiometers, single channel analyzer	Simple, free oil analysis, possible single channel vibration	Single channel vibration, airborne ultrasonics, infrared camera, paid oil analysis	Motor testing, oil analysis, medium voltage monitoring	ODS/modal capabilities,online monitoring of critical equipment
	Operations Involvement	None	Limited, more interested in focusing on missed opportunities	Some buy-in, looking at PdM metrics but not utilizing	Good integration, reviewing Asset Health, understand importance	Fully integrated, operations accountable for reliability efforts
SUPPORTING WORKFLOW ELEMENTS	**Schedule Compliance**	Less than 50%	Less than 60%	Average 60 - 70%	Average 70 - 80%	Average 80 - 90%
	Work Order Creation	No PdM Work Orders	Reports created, limited Work Orders	Most PdM findings generate Work Orders	All PdM findings generate Work Orders	All PdM findings generate Work Orders
	Technology Specific Workflows	Nothing formal	Nothing formal	Exist and are typically followed	Exist and are always followed	Exist, refined and always followed
	Metrics/Justification	Nothing formal	Possibly tracking production outputs	Tracking availability and quality (lagging indicators)	OEE, product quality, metrics are reliable and accurate	Track lagging and leading indicators and take corrective actions
	Resource Allocation	None	PdM technicians frequently pulled off task to perform maintenance	Dedicated resources to PdM effort, rarely pulled off task to perform maintenance	Dedicated resources, never pulled off task, beginning multi-discipline training	Dedicated resources, multi-discipline trained to increase effectiveness
	Requalification/ Commissioning	None	Spot check based on request	Completed on only high criticality machines	Completed to established criteria (e.g. top 75% of equipment in PdM program)	Completed to established criteria (e.g. all equipment in PdM program)
PREVENTATIVE MAINTENANCE PROCEDURES	**Failure Mode Driven**	No PM Tasks are mapped to the prevention or detection of a specific failure mode	A few PM tasks are mapped to the prevention or detection of a specific failure mode	Some PM tasks are mapped to the prevention or detection of a specifc failure mode	Most PM tasks are mapped to the prevention or detection of a specific failure mode	All PM tasks are mapped to the prevention or detection of a specific failure mode
	Scheduling Discipline	PM worked into the schedule where possible	PM completed within the month they are scheduled; completed within +/- 40% of allotted time	PM scheduling occurs +20% / -20% of scheduled time and frequency	PM scheduling occurs +10% / -10% of scheduled time and frequency	PM scheduling occurs +10% / -0% of scheduled time and frequency
	Feedback Mechanism	No feedback from crafts	A few PM procedures have craft's feedback when returned	Some PM procedures have craft's feedback when returned; critical feedback is processed by Planner	Most PM procedures have craft's feedback when returned; most feedback is processed by Planner	All PM procedures have craft's feedback when returned; all feedback is processed by Planner
	Repeatability	PM details left to the interpretation of the crafts	Some PM procedures have detailed task and steps	Most PM procedures have detailed tasks, steps and some have instructions where needed	Most PM procedurdes have detailed tasks, steps and instructions ensuring repeatability	All PM procedures have detailed tasks, steps and instructions ensuring repeatability
	Quantitative Inspections	Some are quantitative, most aren't	Most PM tasks require at least one measurement of some kind	Most PM tasks are quantitative with detailed maximum and minimum values	Most PM tasks are quantitative with detailed maximum and minimum values and actions items when limits are reached	All PM tasks are quantitative with detailed maximum and minimum values and actions items when limits are reached
RESULTS / SCORECARDS	**ROI**	Negative to Zero	Minimal to no ROI	4:1	8:1	16:1
	% Failure Maintenance	> 70%	> 50%	< 40%	< 25%	< 15%
	PM/PdM Balance	< 25% Overall	< 35% overall	> 50% Overall 15% PdM 35% PM	> 65% Overall 25% PdM 40% PM	> 80% Overall 45% PdM 35% PM
	Asset Health	Not measured	Not measured	Exists on critical assets > 65% Green	Exists on all assets > 75% Green	Exists on all assets > 80% Green
	Route Adherence	Not measured	< 50%	> 70%	> 85%	> 90%
	% PdM Recommendations Implemented	< 15%	< 30%	> 50%	> 75%	> 90%

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