

# ULTRASOUND PROGRAM MATURITY MATRIX CHART

Sound Guidance Towards A World Class Ultrasound Program

		Level				
		I	II	III	Best Practice	World Class
People	Training	No Training	Basic knowledge of ultrasound equipment & operation	Ultrasound inspectors achieved Level I ultrasound certification	Ultrasound inspectors obtained Level II ultrasound certification	Ultrasound inspectors obtained Level II ultrasound certification and are certified against a corporate ultrasound training standard
	M&R Personnel	No one using ultrasound	No one dedicated to using ultrasound but it is a shared & available tool for adhoc use	One person assigned to CBM tools including ultrasound	A dedicated Reliability Technician using ultrasound routes in combination with other technologies	Corporate expectation of the use of CBM is present and staffing ratios for corporate CBM personnel coincide
	% Buy in for CBM Program	No understanding or buy in for CBM	24% or Less of the organization understands CBM or its value	25% to 50% of the organization understands CBM or its value	Site level understanding of value and buy in for CBM	Corporate buy in with usage standards
	Continuing Education Efforts	None	Training budget used ad hoc as request	Training gaps identified and traditional training sourced to meet the need	Individually tailored training plans with hands on, face to face and eLearning	Individual training based on needs and with application and coaching followed by CMRP/CMRT Certification
Process	CBM Program	No formal CBM program established	CBM program in place with limited time dedicated to data collection & analysis	CBM program in place with dedicated technicians collecting and analyzing	Formal CBM program established with routes, data collection, analysis, documentation, reporting, as well as follow up	CBM program established with routes, data collection, analysis, documentation, reporting, as well as follow up and linked through the corporate level with knowledge sharing and standardization
	% Corrective Work from CBM Finds	None	1% to 15%	16% to 25%	26% to 35%	Greater than 35%
	Documentation	Does not document CBM finds	Little to no documentation of CBM findings	Documentation of CBM findings and sharing of "big saves"	Documents all CBM finds along with downtime cost avoidance with continuous sharing at the site level	Documents CBM finds along with downtime cost avoidance and shared at the divisional or corporate level
	% Failure Maintenance	Everything is fixed only when it breaks	Greater than 70% less than 100%	Greater than 15% less than 69%	Greater than 5% but less than 15%	Less than 5%
	% CBM Recommendations Implemented	Few, less than 15%	Greater than 15% but less than 50%	Greater than 50% but fewer 90%	90%-100%	90%-100% with sharing to other sites and departments that could leverage the information
	Work Execution Process for CBM Corrective	Verbal assignment of non planned corrective work in the week of execution	Corrective work scheduled work one week in advance	Corrective work is planned and scheduled one week in advance	Corrective work is planned, scheduled, and kitted multiple weeks in advance	Corrective work is planned, scheduled and kitted with a four week rolling schedule
	Mean Time To Implement	Greater than 45 days	35-45 days	25-34 days	14 to 25 days	10 to 14 days
	Root Cause Analysis of CBM Findings	No culture of root cause analysis for CBM identified potential failures	Root cause only done when leadership requests	Root cause is done but implementation and follow up is inconsistent	Root cause processes exist that define RCA tools, triggers, resources, expectations, and follow up	Corporate reporting process exists and findings and solutions are documented & shared at the corporate level
Tools	Ultrasound Instruments	Not used	Analog or Digital ultrasound instruments used but no routes created	Digital ultrasound instruments with data storage used and basic routes created	Digital ultrasound instruments with data and sound recording used with extensive routes where data is collected and analyzed on a regular basis	Digital ultrasound instruments with data and sound recording used with extensive routes where data is collected and analyzed and trended using corporate standards
	Ultrasound Applications	Not used	Only compressed air/gas leak detection	Compressed air/gas leak detection and some mechanical applications	Compressed air/gas leaks, mechanical inspection routes, ultrasound assisted bearing lubrication, electrical, & steam (if applicable)	Compressed air/gas leaks, mechanical inspection routes, ultrasound assisted bearing lubrication, electrical, & steam based on corporate standards
	CBM Tools Used	Not used	Only basic CBM tools used with no formal routes	Ultrasound & Vibration or Ultrasound & Infrared used with some routes	Ultrasound, Vibration, Infrared, MCA, used complimentary to each other	Ultrasound, Vibration, Infrared, MCA, used as well as others and data from all CBM tools resides in one database
	Technology Justification	No business case has been developed	A business case has been built using initial cost savings targets	An evergreen business case has been built using on going cost savings	Plant controller and M & R Manager sharing with the organization the realized savings	Results and best practices are being shared at the corporate level through best practice
Metrics	ROI	Minimal to no ROI	4 to 1	6 to 1	8 to 1	16 to 1
	% of Plant Air Leak Survey Completed Annually	Not Measured	<50%	50%-75%	75% to 99%	100%
	% of Steam Trap Survey Completed Annually	Not Measured	<50%	50%-75%	75% to 99%	100%
	Cost Savings Reporting	Not Measured	Annually	Semi-Annually	Quarterly	Monthly