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CMRP: A MAINTENANCE MILESTONE

Fifty-nine members of the reliability and maintenance community became Certified Maintenance and Reliability Professionals (CMRP) last month when they passed the comprehensive examination given by the SMRP Certifying Organization at the Ninth Annual Conference of the Society for Maintenance & Reliability Professionals (SMRP).

The examination is designed to validate the examinee's skills and knowledge in five interrelated work processes: Equipment reliability, manufacturing process reliability, work management, business and management, and people.

Individuals who pass the test and agree to abide by certain guidelines for professional conduct become certified and can proudly add the initials CMRP after their names. They have the right to a large measure of personal pride because their proficiency in maintenance and reliability management is at a professional level certified by their peers as represented by SMRPCO.

Because I participated in the development of the examination, I was not eligible to obtain certification by examination. However, through SMRPCO "grandfather" provisions, I can use CMRP in my byline, and I am proud to do so. Not having sat for the examination, my sense of pride is different from those who did. I feel proud to have the privilege of working with SMRPCO in the development of the CMRP process.

In my estimation, the person deserving the greatest sense of pride in CMRP is Brad Peterson, a fellow founding member of SMRP. Without his vision, leadership, sense of purpose, and years of hard work as chairman of the committee, there would be no CMRP. His insistence on rigorous process development and excellence of execution was essential to making CMRP unique in several ways:

- ⇒ Independence—SMRPCO is a practitioner-based organization without ties to any commercial venture.

- ⇒ Body of knowledge—SMRPCO recognizes management and manufacturing skills as well as the technical aspects of maintenance and reliability.
- ⇒ Validation—SMRPCO validated each step of the process with input from a broad cross section of the maintenance and reliability community.
- ⇒ Certified process—SMRPCO work was conducted according to National Organization of Competency Assurance guidelines with the intent to have the process certified by that organization.
- ⇒ Continued enhancement—SMRPCO has a plan to continue to enhance the value of certification to practitioners who have become certified.

This article has been reprinted from Maintenance Technology Magazine; November 2001 Issue; Volume 14, Number 10. For more information about SMRPCO and the certifying exam please visit www.smrpc.org.

I believe SMRPCO's CMRP is a profession milestone in which all present and future participants can take pride.



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We are a consulting group for industrial organizations working to improve profitability, efficiency and equipment reliability. Our Mission is to improve our clients' production equipment health, by tapping the desire, creativity and dedication of all plant staff, and our vision is to be the firm consistently chosen by companies serious about making change; because our values of integrity, content knowledge, advanced practices and compassion for the workforce match the values of our clients.

THE OPERATIONAL RELIABILITY MATURITY CONTINUUM: PART 6 PREVENTIVE MAINTENANCE

BY DAVE ARMY



competencies.

All too often, Companies and alas, managers want to go right to the pinnacle of reliability technology. They go out and beg borrow or steal predictive technologies, condition monitoring, RCFA (Root Cause Failure Analysis) RCM (Reliability Centered Maintenance) and any other myriad of Stage 3 and 4 techniques. In fact, you probably already know about these tools and, if you don't already own them, have been casting an eye at them sort of the same way I look at the Sharper Image Catalog around Christmas.



These initiatives are all well and good, but remember, they will generate new tasks for your maintenance staff. If you're well under control and planning and executing work in accordance with long-range and weekly schedules, then you may be ready for the "big time."

I once remember visiting a client at a large generating facility. They had a crew of people (4 of them) who's only mission in life was to conduct vibration, oil and thermal analysis of rotating equipment and switchgear. One day I sat down and talked with the lead. He told me all the great things they were doing and finding out. When I asked him what they were doing with the results, he sadly stated that "very little" was being done. No one had the time or resources to act on his findings. After all, the equipment wasn't broken yet! I concluded my visit by asking the manager

why he didn't reassign those 4 valuable resources, since no one did anything with their input, why waste everyone's time? A perfectly logical question, from my point of view.

At another plant, I was told that they (the maintenance organization) were fully involved in an oil analysis program with one of their suppliers. Samples were dutifully taken for analysis, sent to the supplier and then analyzed. The results were then sent back to the site and filed by the Maintenance Clerk, never to see the light of day again. With nothing better to do, I asked to look at these files. After a few hours of review, I noticed the iron content was getting higher and higher in one of the ball mills. Hmmmm, what could this be indicating. Over lunch, I mentioned my observation to the Maintenance superintendent. Lo and behold the offending mill was scheduled for a major inspection the next week. Results, a damaged gearbox that was getting ready to fail catastrophically.

What does all of this prove? Well, to me, it points out that in order to make the finer points of PM work, you've got to be in touch with the Stage 1 basics. When you are comfortable with planning, scheduling and executing that schedule, it makes it possible to add new activities to your list, without interrupting schedule. Most condition monitoring and predictive activities identify degradations in equipment of systems, prior to failure. Therefore, there is ample time to plan, schedule and execute, prior to failure. That's why we do it.

Next issue I'll talk about starting Preventive Maintenance activities during Stage 1 implementation. It's pretty simple and not all that difficult.

As a final thought, what is it with the word preventative? I've never been able to figure it out.

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It seems that every time I get the nod to write another of these articles, I'm in the garage working on my old Triumph TR-6. Nothing earthshaking this time around, just doing the quarterly checks, changing oil, and getting it ready for hibernation for the winter. I spend more time working on this car than I do driving it. While my hands were busy doing all of the small items of check and test that I've done so many times before, I wandered back mentally to several clients that I've visited in recent years. Somewhere during each of those visits the topic of preventive maintenance pops up with the ultimate question, "How much PM should we be doing?"

"The right amount", is generally my answer; but how do we know what the right amount of preventive maintenance should be? How do we measure what we do in PM so that we know we are doing the right amount? What are the indicators that tell us we are OK? Long ago, someone told me that you can't do too much PM. I guess that sounds like one of those basic truths in life that all would agree with - if you have an unlimited budget. Just like anything in excess, you can overdo PM.

One of the main problems with most organization's approach to PM is that they do not measure the results of PM properly. We usually see "PM compliance" as the only indicator of success, the number of PM's completed within the specified period of time. This is purely quantitative. Where are the qualitative measures of the process? If quality is not measured, how do you really know if its is working or not?

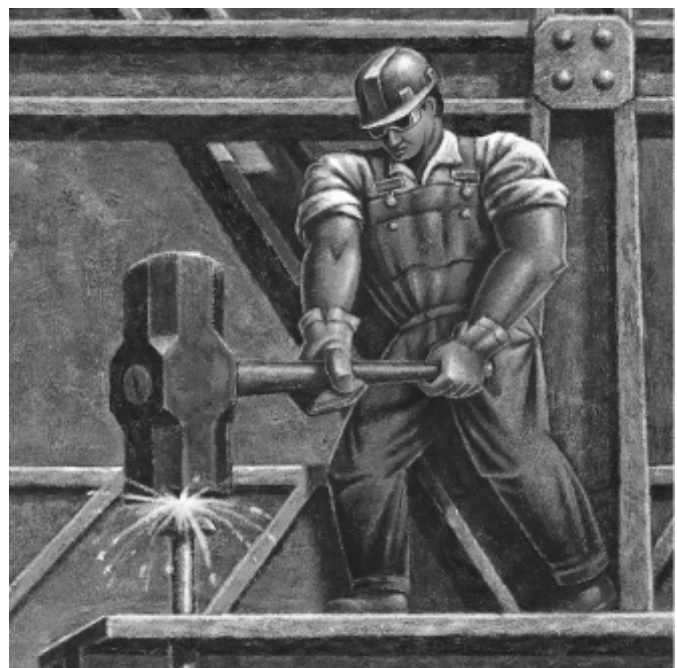
Qualitative measurement of PM is necessary, but elusive to track. The best method we know to gauge this part of the process is to look at the number of defects or corrective items found within the specified period of time (just as PM compliance is measured) and look at the ratio of defects or items found to PM's performed. You should be getting a number approaching 4 defects or follow-up items found per PM completed. We call this measure "PM effectiveness."

This number can give you insight into a variety of issues and will help you to improve and /or streamline your PM process. First, and most obviously, if your number of defects found is very low, questioning whether the PM's have been actually performed is the first order of business. Satisfied that this isn't the issue, the next point to consider is that your PM frequency is too short. It isn't unusual to find that PM's have not been updated since their initial start-up on a given equipment center. What may have been a problem machine at first dictated that frequent inspections were in order. However, as time and work progressed, the machine problems may have been

straightened out and the defects corrected such that there was no longer a need for the short interval frequency of the inspection. As most organizations do not have a dynamic PM program whereby frequencies of inspection are adjusted to PM results, etc., the PM remains as it was originally designed. Multiply this example by the number of different PM's that you do on an annual basis, and you can see the net effect of the problem; too many hours spent needlessly on PM. If your organization is struggling with trying to find more time to do PM's, this may be part of your issue.

As you apply this process, be mindful that you will need to see a trend of few defect discoveries before you change your frequency on a given inspection. With careful data keeping, it will become obvious which of these inspections can indeed be stretched out. Do this stretching iteratively. Don't simply double the time between PM or you may well get yourself into a significant increase of breakdowns sending you back to where you've been before setting the PM up initially. PM timing is a balance in finding just how long you can go between inspections before a breakdown occurs, or damage is done due to a missed oil change, for example.

So, what's the right amount of PM work? As we assess organizations, we use 35% of available hours as a benchmark for PM hours (including PdM). However, within your own organization, this should be done by evaluating you own process using the guidelines that have been suggested. Measurement of the Qualitative portion of the PM equation is an essential for the success of the program.





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**THE OPERATION RELIABILITY
 MATURITY CONTINUUM**

