Plant Services

MOBIUS INSTITUTE

The dos and don'ts of condition monitoring

Mad skills: Making training a priority

In this Big Picture Interview, a Nissan PdM supervisor says get creative when it comes to skills development.

Brett Dyess, CMRP, is maintenance supervisor at Nissan North America's Canton, MS, plant. In a presentation at UE Systems' Ultrasound World conference in Florida last month, he discussed continued employee training as a vital component in sustaining an effective predictive maintenance program – and noted that training budgets (or a lack thereof) shouldn't dictate whether, when, where, or how workers are developing their skills. Dyess elaborated on the training imperative in a recent interview with Plant Services.

PS: At Ultrasound World, you mentioned that your plant conducts pre-employment skills assessments for all maintenance technicians as the basis for personalized training plans. Tell me more about those.

BD: When you interview with this company, you take a pre-employment test which goes over, maintenance-wise, 10 maintenance skills. We don't have crafts or specialists here. Some (employees) are better than others at different things, but all of us are multiskilled technicians. That's the reason for the pre-employment test and the preassessment. It assesses all your strengths in all the areas – mechanical, electrical, hydraulics, fluid power – all of the basic fundamentals that we deem necessary to do the best job. If you're good in this area, we might use you to train others, or (if you're lacking in an area) we'll educate you and develop a training plan based on that preassessment.

When we get that assessment back, we look at the needs in each area for that employee, and we also look at where they're going to be assigned inside the plant. Whereas one shop might require a greater need for pneumatics or electrical skills, one shop might require a greater need for mechanical. So we take the where they'll be assigned into account and we also look at failure history. If a shop is having a good bit of downtime in a certain area, whether it be mechanical or something like that, we take all those into account and lay out a training plan based on the courses we have available. We schedule out their time, and they take all these classes online, and then once they complete those, there's a hands-on class (taken in the plant's training center) that will give them an actual certification.

PS: And all technicians must have at least a Level 1 certification for a particular technology to perform rounds on it?

BD: As part of our standard operating procedures, for each technology that's used, we have a standard procedure on how to utilize the technology and run the route. One of the requirements is that to run this route, you must be at least certified Level 1 against that technology. That's just to ensure consistency and repeatability. For me, on the personal side, it also allows them more buy-in and ownership of that technology. It lets them confirm that they know what they're doing, they know how to do it; they can speak to it, talk about it; they know how to analyze it. They're not just out there as a bunch of minions taking readings every day.

PS: What does continued training look like for your plant?

BD: For example, with ultrasound

and infrared, the main technologies that we utilize, I don't want to have just one or two guys as specialists in those areas. I want all of my guys to be at least a Level 1 and a Level 2 if possible. For vibration or more specific or in-depth technology, we do send those guys away maybe for a four-day course or something off-site, and then they're responsible to bring back as much information as they can to help us develop some kind of intro-level class that we can do in-house.

If they want to learn more about a certain technology and budget-wise I can't provide that for them, and there's a YouTube video or they Google search it or find an abstract and read it, two or three hours a week, I tell them, educate yourselves, guys. I'm not here to tell you I can get you everything you need, but if you find another way to get it or there's a short webinar on it, and all you guys want it, I'll pull it up on the screen. And they create work orders for that. I know what they've done and when they did it. We do (also) have a relationship with our local community college; they offer workforce development classes that Nissan pays for. Those they do have to take at nighttime. Nissan will pay for them, but they have to be during non-work hours.

I don't require them to do two or three hours a week, but I've found that there is no need to do that because sometimes they actually will spend a little more than that.

PS: That's an interesting point, because one might think some employees would balk at the idea of a couple of hours of training each week or would be unwilling to follow through if it wasn't going to be strictly required. How do you get workers on board with your goals, your approach, your PdM efforts in general?

BD: I allow them to do a lot; I'm not a micromanager. I feel one of my strengths is understanding the people side of things so I have quarterly one-on-one (meetings) with all of my guys, and I tell them, "I'm not here to talk about business; I'm here to talk about anything you want to talk about. If it is business, that's fine, but I want to understand who you guys are, because if I know who you are here and I know who you are outside of here, what things you like, what you value most, then I can understand if I see something going on inside of here when you get to work. I know how to approach – I have to approach all of them in a different way. They like ownership. All of the contacts I have for our vendors, I have all that information posted downstairs, so if they're having an issue day to day, I don't make them come through me to contact the vendor for help. I allow them to contact the vendor, troubleshoot it, get it fixed, just let me know what went on.

I have a meeting with the technologists every week, and we'll discuss the previous week's KPIs; we'll go over any current weak signs or any issues they might be having, offering up stuff the technicians have told me – just an information-gathering, cross-functional process that we go through week to week. And I have a shift-start meeting every morning with all of the technicians. I'm pretty laid-back at that meeting. Sometimes we might sit in there and talk for a few minutes; sometimes it might be an hour long and we might be talking about work or something they need help with. … If there's anything going on PdM-wise, we just let 'em know, communicate it. ◻

The dos and don'ts of condition monitoring

Avoid these pitfalls to ensure that your condition monitoring program will be a success.

Setting up a condition monitoring program can be a daunting task that leaves you with more questions than answers. How can I get support for this new program? What kind of training will my people need? What will I do if I don't get the results I expect?

In a recent Plant Services webinar, Jason Tranter, CEO and founder of Mobius Institute, explored how to revive a struggling condition monitoring program and, if you're starting a new program, how to make sureit will be successful from the start. In his presentation, Tranter outlined the cause of many program failures. Here area few reasons why condition monitoring programs fail.

Jason Tranter, CEO and founder of Mobius Institute

INSUFFICIENT MANAGEMENT SUPPORT

Inadequate leadership can compromise belief in the program, the technology, and the philosophy of condition-based maintenance and reliability. If people don't understand the value, or they don't actually achieve that value, they will pull the plug on the program.

CONFUSING OR INACCESSIBLE REPORTING

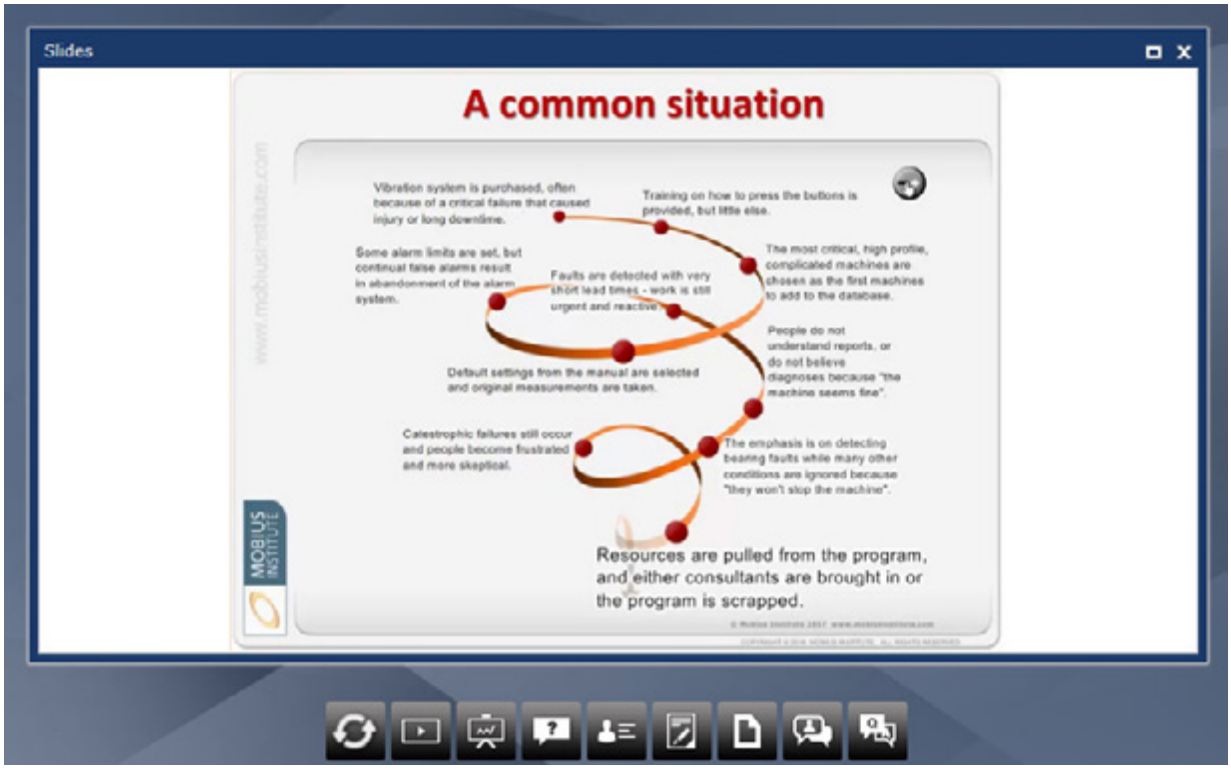
Another reason why programs fail to achieve desired results is because of confusing reports or failing to get the right information to the right people. Reports often contain a lot of technical data, and most people who receive that report simply don't need that data. If people don't receive actionable information in an accessible format that explains what all of the condition monitoring technologies are doing, then you're not delivering real value.

CM TEAMS OPERATE IN SILOS

Condition monitoring teams often operate in silos. For example, the vibration analysts aren't familiar with infrared, oil analysis, motor circuit testing, and other condition monitoring technologies. They don't consider other reliability issues. That's a big problem. People have to work together; they have to share what's happening and what their technologies are telling them about the machine and then come up with one plan of action.

CM ANALYSTS JUMP TO CONCLUSIONS

Another common issue is that condition monitoring analysts can jump to conclusions too easily. You cannot simply run one test and assume that you know what is wrong and what needs to be done to correct it. Because you can use multiple technologies in the various condition monitoring fields, there are ways to investigate what is really wrong, how serious it is, and what the appropriate recommendation should be. In all of the fields, there are additional investigations that we can go through. You have



to consider the cost justification of these additional investigations, but if you understand criticality, then you know whether it's worth spending that extra time.

LACK OF BELIEF IN PHILOSOPHY

Another issue with condition monitoring programs is that there can be a lack of belief or a lack of understanding in the philosophy of condition-based maintenance. There's no point in having a few condition monitoring or reliability personnel who understand the philosophy; everyone has to understand it. People have to understand criticality, the failure patterns, the PF interval, and why machines fail. If everyone doesn't understand these issues, then no one is going to believe in the philosophy and the program won't work.

LACK OF TRAINING

It is important to teach your people about both the philosophies and the technologies of CBM. Condition monitoring equipment has numerous features that can tell you a lot. Unfortunately, many people use only a fraction of those functions, and they don't fully understand what happens as rotating machinery and fixed equipment fails and as it starts to develop the root causes of failure. As a result, people miss faults; they miss the diagnosis; or they're not using the right technology. ☐

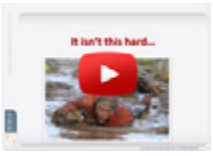
To learn more about condition monitoring, watch the on-demand webinar.

https://info.plantservices.com/mobius_augustl_2017_core-elements-of-a-condition-monitoring-program_pd_mnt

Additional Resources

FIVE ESSENTIAL ELEMENTS OF A RELIABILITY INITIATIVE

Building a reliability improvement initiative is not rocket science, but there are five key elements that are required to ensure the program will achieve the greatest benefit and be sustainable. Can you just focus on maintenance? No. Can you pass the buck to consultants? We don't think so. In this Webinar, we will reveal the five elements, justify why they are so important, and explain why (in our experience) the best programs are driven from within.



CLICK HERE >> http://bit.ly/2rW7neo

CONTAMINATION CONTROL: THE KEY TO GEARBOX RELIABILITY

If you are not controlling contamination of your lubricants, then you cannot achieve the maximum service life of your rotating machinery or your lubricants. Using lots of 3D animations and animated illustrations, this presentation will focus on gearbox lubrication, explaining why contamination reduces the life of the gears and bearings (and the oil itself), how much the service life is reduced, how to reduce contamination, and how to remove unavoidable (and avoidable) contaminants.

CLICK HERE >> http://bit.ly/2qNGSKl

BEARING FAILURE, DETECTION AND PREVENTION

In this webinar, we discuss the most common reasons why rolling element bearings fail, including lubrication problems, lubricant contamination, excessive loading, and installation and handling. Next, the webinar summarizes how a variety of condition monitoring technologies can be utilized to determine the condition of rolling element bearings, including basic and advanced vibration analysis, oil analysis, wear particle analysis, and thermography. And finally, and most importantly, we discuss how to make changes in order to extend the life of rolling element bearings through precision maintenance techniques.

CLICK HERE >> http://bit.ly/2rRZnLn

E-LEARNING: ILEARNRELIABILITY [ENTERPRISE]

iLearnReliability [Enterprise] provides reliability improvement training for reliability professionals, an entire industrial facility or your whole enterprise. iLearnReliability is unrestricted, online training that provides strategic guidance, plant-wide buy-in, and skills development. iLearnReliability™ includes awareness training for plant management, reliability program manager and technical skills training, and toolbox talks to build support and buy-in from the plant floor. Now you can now make "Reliability a Reality".

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