

Uptime: Growing Your Own Part III

Written by Bob Williamson, Contributing Editor
Monday, 14 March 2011 09:55



Recently released unemployment figures tell us that the overall U.S. job picture remains bleak. Yet despite reports of so many Americans seeking work, manufacturing and maintenance skills shortages are at an all-time high.

Skills and knowledge required in our arena differ significantly from most other jobs. The shortages we're confronting stem from decades of dwindling vocational-technical education and an overemphasis on "college" diplomas, coupled with increasing numbers of retiring/aging Baby Boomers. The really bad news: Things will get worse before they get worse. That's because of two generations that have not been seriously exposed to careers in manufacturing and maintenance, and a troubling decline in apprenticeship programs in maintenance trades and crafts.

["Growing Your Own: Part I"](#) (MT, January 2010) explored proven ways to define entry-level requirements, look for candidates, interview and check references and assess for demonstrated ability. As part of assessing for demonstrated ability, we outlined a straightforward process that can be developed in your plant or facility to see if the candidates can actually demonstrate the skills and knowledge with a "potential to succeed" as a maintenance technician in your maintenance job roles.

["Growing Your Own: Part II"](#) (MT, February 2010) covered the next step: where to start, planning and preparing for training and conducting on-job basic maintenance-skills training program using in-house talents.

Here in Part III, the focus is on the nuts and bolts of defining job-specific maintenance skills and knowledge that will form the final stage of a results-oriented training and qualification process

for your plant or facility.

Breaking down the job

Maintenance jobs are huge—*with activities all over the plant on all types of equipment*. Many maintenance people will say, “You just have to work here to get the experience of working on all of this equipment. That’s how we learned in the first place.” Sorry, but that approach to building maintenance skills and knowledge is inefficient, ineffective and truly misses the mark. In today’s fast-paced, global marketplace, we need reliable equipment and processes to help us compete. To get there, we need very efficient results-oriented training and qualification processes. The key here is to FOCUS.

Exactly how do we keep training “focused?” Start with the job description for a targeted position. Look for a “job-safety analysis” for maintenance duties. The goal here is to define what the maintenance technician MUST know and do as part of the job. These are “job-performance requirements.” Then, look for specific equipment that the person must master to become a qualified maintenance technician—*if not in the documents describing the job role, look in the equipment manuals*. Consider this excerpt from a maintenance technician’s job description:

“The maintenance employee must be able to use all maintenance shop equipment, including horizontal band saw, pipe cutter/threader...”

Let’s take training for operating the horizontal band saw as an example. The job role is “maintenance technician;” the activity is “shop work;” the duty is “operating a horizontal band saw.” For training and qualification purposes, the duty should then be broken down into tasks and eventually into a procedure. Breaking the job into these smaller units makes an excellent foundation for training employees, as well as for trainees demonstrating when they are qualified.

For example, a maintenance technician’s job duty-task listing would look like the following:

Job Role: *Maintenance technician*

Activity: *Shop work*

Duty: *Operating a horizontal band saw*

Tasks:

- 1. Identify the type and shape of material to be cut.*
- 2. Select and install the proper blade.*
- 3. Cut the material.*
- 4. ...*

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Each of these three tasks can be broken into a specific step-by-step procedure. Be sure to include specific procedures in your training. The following example defines the procedure for HOW the task is accomplished:

Job Role: *Maintenance technician*

Activity: *Shop work*

Duty: *Operating a horizontal band saw*

Task 3. *Cut the material.*

Tools & supplies required: *Material support stands, pencil, tape measure, gloves, safety glasses...*

Safety note: *Wear safety glasses when operating this equipment. Wear gloves when handling material. Do not touch the moving saw blade. Comply with safety placards on the equipment...*

Procedure:

Step 1: *Get support stands if material being cut is more than 4 feet long or weighs over 10 pounds.*

Step 2: *Make sure the vise is set to the proper angle to be cut. Adjust the angle by loosening the bolt on top of the fixed jaw, adjusting the angle, then tightening the bolt. Close the vise to assure the movable jaw aligns with the fixed jaw.*

Step 3: *Mark material to be cut.*

Step 4: *Tightly clamp material to be cut in the vise. Make sure blade aligns with the cut mark on material.*

Step 5: *Raise the saw blade above the material.*

Step 6: *Start the saw.*

Step 7: *Slowly lower the blade onto material.*

Step 8: *Allow the blade to cut through the material. Do not add pressure.*

Step 9: *When the cut is finished, turn off the saw, unclamp and remove the material.*

Step 10: *Clean up any saw-cut debris and remaining materials.*

Standard: *The cut will be made at the proper length (+/- 0.03 inch) and the proper angle (+/- 1 degree).*

When a task is defined in this manner, it makes training of employees extremely consistent. It also makes the training very efficient and effective and—*this is extremely important*—provides a template for determining when the employee is truly QUALIFIED to perform the task on his/her own.

Beware of “common knowledge”

Sometimes there will be detailed procedures on file in the plant. Other times, there are “assumed” procedures—*common-sense procedures*. This is where trainees can get into trouble. What might be common knowledge to a skilled maintenance technician is often a total unknown to a trainee. Or the trainee may have seen someone somewhere else perform a similar task and, consequently assumed (now assumes) that method to be the proper way of doing things, or at least close enough. Beware of those “*we’ve always done it that way*”

procedures. Reinforce the need to

“do it right the first time, every time.”

Training should strive for consistency of task performance and avoid individual variations when carrying out critical tasks on critical equipment. Define a “best practice” procedure based on experience in your plant or follow the OEM’s recommended procedure.

Concentrating on results

Remember to FOCUS your training and qualification processes on results rather than merely on setting up a training program. Here are six critical success factors for keeping your maintenance training focused on results:

1. Training must address skill gaps in your workforce.
2. Training must address the most critical equipment and processes first.
3. Training must address specific equipment needs, problems, causes and corrective action(s).
4. Training must show a return on the investment: Equipment runs better, problems are eliminated, productivity is increased, safety is improved, etc.
5. Training must improve the efficiency and effectiveness of the maintenance technician: Mean time to repair (MTTR) is reduced, rework calls are eliminated, injuries and accidental damages are eliminated, etc.
6. Training must make sense; build on skills and knowledge the employee already has; and develop person-to-person and crew-to-crew consistency of task performance.

Improving job roles

Many times, we see maintenance job roles and responsibilities based on tradition—*i.e., we’ve always done it that way.*

Job descriptions often remain unchanged (and on file) for decades. Meanwhile, plant-floor performance expectations, activities and equipment have changed, sometimes radically. This disconnect can hurt individual technician productivity, prolong maintenance and repairs and increase operating costs. Are your job roles and responsibilities outdated?

At the risk of stirring up things with some traditionalists out there, the question must be asked: “Why do we still have ‘jurisdictional boundaries’ around maintenance jobs—*between mechanical and electrical, for example*?” Sometimes the separation is defined in labor agreements. Other times it’s based on the differences between hardware and electron flow. Then again, the separation between an electrician’s work and that of a mechanic often is based on worker safety.

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Regardless of the original reasons for jurisdictional types of boundaries, they can result in severely reduced productivity and increased costs for a business. (*IMPORTANT NOTE: I merely said they "CAN" result...*)

I've had this discussion with tradespeople, craftworkers, maintenance mechanics, electricians, managers and union leaders for three decades. Now, in our efforts to recapture our nation's competitiveness, it's time to dredge it up again: When an employee is trained to do a job properly, the risk of damage and injuries is reduced significantly. Think about it.

The infrastructure to deal with the growing maintenance skills shortage has virtually disappeared from our educational-system landscape. Why, then, can't we train and qualify today's maintenance technicians and those of the future using an up-to-date model—*"multi-skill maintenance"*

—for example? To me, this type of maintenance, which blends skills and knowledge across traditional boundaries, makes perfect sense. Actually, much of America's industry has run with "multi-skill" maintenance workforces for generations: It's nothing new. Growing your own multi-skill maintenance technicians might make sense to you, too, if you consider the evolution of the technologies in our plants, facilities and integrated equipment.

Next month, in "Growing Your Own: Part IV," we'll discuss how to develop multi-skill maintenance job roles. **MT**

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