World-Class Maintenance: Putting Your Facility on The Road to Success

Would you like your maintenance operation to rank among the best anywhere? It can happen. Benchmarks to identify world-class maintenance management have been widely accepted ever since a landmark study conducted in the 1980s by A.T. Kearney Co. That research produced "a mountain of maintenance and operational data," recalls Dale Blann, who is CEO of Marshall Institute, Inc. (Raleigh, N.C.), a maintenance training and consulting firm. Blann and his colleagues have adapted benchmark data into programs designed to assess maintenance activities and assist organizations in their drive for excellence.

The world's best manufacturers — those enjoying the highest productivity and output quality — invariably display maintenance that is well-planned, fully integrated, and proactive.

One immediate conclusion was there is a high correlation between maintenance operational "style" and overall plant performance. Facilities that ranked worst in overall efficiency also tend to have a "reactive" character — a "fix-and-repair" approach. At the other end of the spectrum, the world's best manufacturers — those enjoying the highest productivity and output quality — invariably display maintenance that is well-planned, fully integrated, and proactive.

Superiority in maintenance is also characterized by a high level of preventive maintenance (PM) and planned maintenance as percentages of the total work. "In the best plants," says Blann, "at least 80 percent of all maintenance tasks are preplanned a day or more in advance — meaning, they can be pre-staged with the correct materials, skills, tools, and parts for the most appropriate timing."

Case in point — Near the top of the heap in the Kearney study was South Carolina's *Alumax*: Fully 90 percent of its work was found to be preplanned; only 2 percent came by "surprise."

Another correlation occurred between high efficiency and "highly effective yet non-hierarchical" supervision. Blann explains: "These top facilities tend to push decision-making as low as they can. Their mechanics are highly autonomous."

Still another mark of excellence is the high skill levels of their technicians — the result of the facility's deep commitment to training and development.

The Bottom Line: "We know what world-class maintenance looks like," says Blann. "We've measured it, and we can correlate it with good manufacturing performance."

The question becomes, then, how to use the data to achieve excellence in your own shop. Blann has distilled his advice into three statements that describe the three operational stages of the journey to world-class performance.

Beginning with the basic level, he tells managers to ...

"Get your act together." In every extraordinary shop, he says, you will consistently observe certain core functions working well. They are:

1. ***Computer-Based Maintenance***. Your software management program should be fully integrated and completely functional. It should have a strong work-order module that is able to manage all labor and is linked to parts and inventory. It should assist you in scheduling, keep tabs on PM, and serve as an interactive technical database of repair histories. It should be producing key management data such as lifecycle cost and mean time between failures to show you how you're doing and where your performance needs to improve.

2. ***Preventive Maintenance.*** You need true, state-of-the-art PM as opposed to the more-prevalent "check-the-belts" kind, done by rote and too often falling short of its potential.

3. ***Adequate Data.*** Mediocre shops tend to overlook the value of printed references, says Blann. Hardware manuals, as-built schematics, blowup diagrams, maintenance recommendations, and replacement parts lists are invaluable to smooth-running maintenance organizations.

World-class operations keep a complete resource library on hand for constant access and updating. "It's not uncommon," says Blann, "for a top-quality organization to input all parts lists and diagrams into an online database that technicians can easily access in the field."

Although that data entry effort may take time, it pays off over the equipment's life, providing convenience, repair efficiency, and vastly improved equipment reliability.

Says Blann, "It's a shame that many departments use the excuse that 'all the manuals are kept in engineering so they won't get dirty.' Maintenance is an information-intensive endeavor, but I see shops allowing vital data about past repairs to slip through their fingers. It's impossible to do *quality* maintenance on sophisticated equipment without constantly improving the information."

4. *Inventory Issues.* Proper control over parts and materials is now a well-established science. Its principles apply virtually anywhere. By improving your methodology, your efficiency gains can be enormous.

Blann's advice for the second stage of the journey is ...

"Go beyond the boundaries." As you get better at performing the basics, you can begin looking for ways to integrate maintenance *laterally* with other plant functions. Do this "by forming productive partnerships with Production, Engineering, Operations, Purchasing, Transportation, Warehousing — with every segment of your facility's operation," says Blann.

Getting "beyond the boundaries" also means no longer thinking of Maintenance as a function that's remote and autonomous from other plant functions.

"You will find that 'average' companies are woefully inadequate at merging and in forging relationships across departmental lines," he observes. "To reach world-class performance, you need strong partnerships that put a high premium on working closely together."

Of course, mutual support cuts both ways: Your peers in Production, Engineering, and Transportation will all find that there is a limit to what can be achieved, short of your boost to equipment reliability.

Partnering like this also raises Maintenance from being perceived as a peripheral "fixer" functionary, to a prime mover and key factory resource. Input from Maintenance becomes indispensable to Operations. Your views will be calculated into every decision from equipment design to purchasing, production methodology, training, and scheduling.

Blann's stage three advice is ...

"Fix the process, not just the problem." With the first two stages in place, you are ready to take on high-concept initiatives such as reliability-centered maintenance (RCM), root-cause failure analysis, and total productive maintenance (TPM).

"It isn't that you *must* postpone these higher tasks," he explains. "But, by tackling the more difficult *after* you put the infrastructure in place, you will maximize the return and minimize headaches. Your prior successes in partnering will carry over, and your project teams will possess greater confidence and skill."

An ultimate payoff will come with the successful implementation of either TPM or RCM. Each is

The Case File Comment

■ **Was management justified in firing Parker for failing to disclose his prior treatment for panic disorders?**

■ **Yes.** The arbitration board upheld Parker's termination. "Material information" (i.e., information related to a significant medical or health condition) that the employee provided in the health inventory was inaccurate. The board did not accept his claim that he had forgotten what happened over the intervening years, however. Seeking treatment from a psychiatrist is not something likely to be forgotten, the board concluded. The fact that the employer made applicants explicitly aware that they would be terminated if they provided false information also helped the company's case.

Union contracts commonly call for progressive discipline, and termination over false information would normally be considered too harsh if the information hasn't harmed the employer or someone else. A termination for falsification depends upon the surrounding circumstances.

Factors to consider include:

- ✔ *The substantive nature and seriousness of the false information*
- ✔ *The employee's responsibilities*
- ✔ *Length of service*
- ✔ *How other similar falsifications have been handled by the employer*
- ✔ *Whether the falsification involved was a first offense or there were prior instances of falsification*

Employers may face negligent hiring/retention lawsuits for having the wrong person on a job. The courts typically expect companies to exercise "reasonable care under the circumstances" when hiring. Management needs to consider the potential risk for injury to third parties. Health issues are also relevant if there is a potential danger to the employee and co-workers. You should always make it clear to applicants that omitting, misrepresenting, or falsifying information can lead to rejection or termination of employment.

How can you determine that applicants are being untruthful? One way would be to ask them to fill out two separate application forms. Have them fill out one standard form when they first visit your company. Then, ask your short-list applicants to return for a second interview a few weeks later. At this interview, give these applicants a second application form — one that's organized differently from the first but covers the same information. Comparing the two forms for discrepancies may allow you to detect a memory lapse or deliberate falsifications. ■

Some details of this case have been fictionalized.
The case citation is available on request.

regarded as a high-order methodology for achieving high equipment effectiveness and reliability.

TPM in particular is far-reaching and often difficult to introduce. Yet its basic concept, he notes, is simple:

What impacts Maintenance more than anything is what operators do to the equipment" (in terms of good or bad care). Studies have shown that roughly 37 percent of equipment reliability problems are associated with operators, environment, and procedures.

To carry out TPM, you need to shatter departmental barriers and reconfigure plant staff into cross-disciplinary, responsibility-sharing teams. "It's a true paradigm shift," Blann says. "In fundamental ways, you're altering concepts about what Maintenance can achieve and why."

Not every world-class plant embarks on TPM or RCM specifically, but every great productive organization does succeed in doing profound grassroots change. The old inefficiencies, "turf" barriers, static habits, redundancies, and assorted wastes must all be systematically squeezed from the production process.

"You have to remove any disconnects that have been hampering the way you work," he says. "All resources must be made productive, efficient, and effective.

"If you can achieve these things, at that level," he concludes, "then you are world class.

"When we look into organizations that have actually succeeded in these higher-level concepts, we invariably find operations functioning efficiently in every phase. They have excellent computerized maintenance management, they have equipment data streaming in; they've got the partnerships working, and they achieve superior process management and control. With all of these going well, I would be hard put to see how they could not be world-class organizations."

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Driving While Distracted: The Danger of Cell Phones in Vehicles

Do you have employees who keep in touch with you by cell phone at remote locations and on the road? There are more than 95 million of these phones in use in the United States alone, says the Cellular Telecommunications Industry Association (CTIA). Wireless technology — particularly cell phones and handheld organizers — increases our productivity. But that enhancement may be coming at a price.

In fact, employees who use this technology while driving may be placing themselves, their employer, and others at risk. In effect, they are driving while distracted (DWD).

The National Highway Traffic Safety Administration (NHTSA) has been looking at this issue and reports that "drivers' use of wireless phones in moving vehicles is contributing to crashes." And this finding agrees with an earlier study that found the risk of collision is four times higher when a cell phone is being used.

"If we underestimate this potential risk to highway traffic safety and do not moderate drivers' use of in-vehicle systems," says Rosalyn G. Milman, deputy administrator of the NHTSA, "the price may be very steep, indeed."

A case in point: In one traffic fatality case involving a work-related call on a personal cell phone, the parties settled out of court for $500,000.

Moving Toward Solutions

What can we do to minimize the risk? The CTIA recommends that drivers use a hands-free cell phone. These units are mounted in the vehicle and equipped with a microphone and speaker.

The NHTSA cautions against thinking that these units are a total solution, however. Their rationale? NHTSA scientists say there are three types of driver distractions: manual, visual, and mental. And since drivers still need to think about driving, operating the phone, and holding the conversation, the opportunities for mental distractions are still present.

Both the NHTSA and the CTIA recommend that calls made while driving be reserved for urgent messages. Longer calls should take place only when the vehicle is safely parked. Both groups recommend that drivers minimize, avoid, or interrupt cell phone use in high-traffic areas and during inclement weather.

◆ *To obtain a copy of the NHTSA's report, "An Investigation of the Safety Implications of Wireless Communications in Vehicles," call (202) 366-9550. It is also available online at* www.nhtsa.dot.gov. ■

"What makes you think we've got a fire problem, Pete?"