

Uptime: Ten Key Questions

Written by Bob Williamson, Contributing Editor
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"Maintenance" alone cannot make equipment and processes reliable. Often, a maintenance department is reacting to problems caused by decisions and/or actions of other departments. Further, in high-reliability plants, the maintenance department is NOT a "supplier" of maintenance services to the operations group "customer," but rather a "partner" WITH the operations group for improving equipment and process reliability. Given this perspective, I would ask my own 10 questions to answer the one asked at MARCON. (By the way, the "correct" answer for each of these is "yes.")

- 1. *How close to 100% reliability are your critical, constrained, high-risk equipment and processes? Are they doing what they are supposed to do first time, every time?*** 100% is attainable, desirable and the right goal for truly critical assets. A racecar that completes a 500-mile race within the planned finishing position is "reliable." But, don't confuse "reliability" with "availability." 100% reliability means that it does what it is supposed to do first time, when needed, with no unplanned downtime. Planned downtime for necessary preventive maintenance to improve or sustain the process reliability will reduce the calendar time availability.
- 2. *Is your reliability program driven by operations management versus maintenance department management?*** Reliable equipment as part of a process generates revenue and/or avoids penalizing costs in the cases of health, safety and environmental incidents. Unreliable equipment stalls a process, prevents revenue generation and reduces "return on capital assets."
- 3. *Are equipment and process performance data routinely collected and analyzed, root causes determined and corrective actions implemented and verified versus tracking and trending OEE calculations and other metrics' percentages?*** So often we become enamored with relative numbers (percentages) that are several levels removed from the actual results and the reasons or causes of good or bad performance. Numbers can look good but the actual results may not be so good. For example, the OEE percentage can decline while actual performance, reliability, costs and output have improved.
- 4. *Are the "risks" of mandated budget cuts evaluated and positively addressed before actual cutbacks of budgeted maintenance activities are made?*** A

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10%-across-the-board cutback can cause significant reliability damage unless the maintenance budget contains 10% discretionary spending on non-critical items. Arbitrary budgetary cutbacks happen all too often. PM and PdM activities get reduced, spare parts get outsourced and training gets slashed. Equipment breaks down more often, or downtime increases, costing the business more in higher unplanned expenses, as well as lost revenue and production. How would similar mandated across-the-board budget cuts be handled in safety and environmental areas?

5. Does your skills and knowledge capturing process effectively prevent a "brain drain" (knowledge loss) as senior talent retires or leaves? Is this knowledge documented and disseminated as "best practices?" Whether previously trained or not, the years of expertise accumulated by senior, highly experienced maintenance personnel is an extremely valuable commodity in today's era of skills shortages. If these skills and knowledge are allowed to leave a facility, how are newer employees to learn how to safely, efficiently and effectively perform the tasks of the job? Today, there is an especially powerful case for "procedure-based maintenance" versus "craft-based maintenance." Procedure-based maintenance is based on captured, documented and refined "best practices" that form the basis of formal training and qualification. Craft-based maintenance assumes that given sufficient craft skills training, personnel can figure out how to perform almost any job task.

6. Is reliability as important as safety, environmental, quality and human resources in your company's strategic planning and execution? Imagine the competitiveness of a plant that paid little or no attention to such issues. Employees and working conditions would be miserable, communities polluted and customers highly disappointed. Based on any number of laws and regulations, and the fact that dissatisfied customers can take their business elsewhere, this type of operating policy would be intolerable. Why then, is shoddiness of equipment maintenance and reliability tolerated? The problem is that maintenance is generally unregulated and invisible to the paying customers.

7. Are your operations and maintenance (O&M) costs per unit produced continually declining while the company's return on assets (return on invested capital) improving? Not so long ago, if manufacturing and operating costs increased they were just passed on to the customer. As competition grew and global competitiveness mushroomed, businesses had to find ways to reduce costs. Cost-cutting programs prevailed in the 80s, 90s and even today. Some businesses discovered that they could eliminate "non-value adding" costs while others "eliminated wasted efforts and inventory to reduce costs." Sustainability of cost-reduction efforts is of key importance! Changing work processes (methods and procedures) to more efficient ways often reduces costs. Successful plants have demonstrated continually declining operating and maintenance cost per unit produced. By using fewer capital assets or making the existing assets more productive their return on net assets also improved.

8. Do your operations managers routinely attend "Maintenance and Reliability Conferences" (such as MARTS and MARCON) with you? Informed operations managers want to understand what it takes to improve plant and process performance and reliability, especially in capitalintensive operations. Senior executives striving to generate shareholder value truly understand the importance of a reliable operation. They read the journals and attend educational events to learn what it takes. This enables them to lead the

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operation from a high-reliability perspective and make informed decisions. Are you helping to keep them informed?

9. ***Do your maintenance and reliability strategy and tactics focus on business-related results rather than on maintenance activities and initiatives in the hopes of improving performance?***

We are a culture of improvement initiatives, program-of-the-month and buzzwords. While some businesses have avoided these traps, many have bought them in big time. Major activities and initiatives typically consume large amounts of resources, including people, time and money. In resource-constrained businesses this is often a gamble for sustainable improvements to the bottom line: "Doing more with less." An alternative approach is one of "focused improvement" that uses proven tools in ways that guarantee improvements and a solid and sustainable ROI, rather than plant-wide implementation. Focus on specific constraints, such as production bottlenecks, high maintenance costs, high downtime and problematic equipment that affect your business.

10. ***Does the term "maintenance" in your company imply "sustaining a desired level of equipment and process performance (reliable equipment and processes)" rather than fixing things, painting things, moving things?***

We know that the best "value-added" work for our maintenance group is sustaining the desired level of performance of our equipment and facilities. Historically, however, "maintenance" has been side-tracked into "government jobs" for upper management, changing out lights and other odd jobs while the plant equipment suffered. Maintenance backlogs have become littered with hundreds of requests that seldom see the light of day because of reactive repairs, emergency work and top management's pet projects. All of this leads to the perception (and the reality) that this is what "maintenance" is all about. What if we could demonstrate the bottom-line value of real maintenance, i.e. preventive and predictive maintenance, planned and scheduled maintenance, proactive maintenance and reliabilitycentered maintenance? What if we outsourced everything that interfered with it? (*I recently was in a plant where production supervision and management are penalized if scheduled PMs are missed or deferred. The plant's equipment is extremely reliable because of that management mindset.*)

Creating a "reliability culture" that overcomes the inertia of the past, and overcomes the historical "maintenance mindset" is essential to improving the competitiveness of a capital-intensive business. It stands to reason that senior leadership must set the stage for improving reliability in the same way it leads improvements in safety, environmental, quality and human resource management. Policies are developed and communicated, new expectations set and accountabilities established for compliance to regulations, as well as conformance to principles promoted by a company's senior leadership team.

How's your company doing? Did you answer "yes" to the questions? Let's consider what's really at stake here.

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If our maintenance programs, activities and talents were focused on the essentials of a competitive business, our plants and processes would be extremely reliable, less costly and more productive. Unfortunately, many of our business and governmental leaders still don't understand the role that equipment and process reliability play in making us more competitive. While the U.S. has been ranked as "the most productive and competitive nation in the world" for 15 years in a row, we are still losing our edge. I am convinced that much of this is due to unreliable equipment and processes that stem from inadequate career education and training and ineffective maintenance.

Highly reliable plants result when there is a strong sense of partnership between operations and maintenance (i.e. teamwork focused on common goals). *Teamwork is the fuel that allows common people to achieve uncommon results. What makes this work is the prerequisite: Leadership creates the framework for teamwork to exist and thrive.*

Let's work
together

in our plants and facilities to achieve affirmative answers to these 10 questions.

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