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M A G A Z I N E



Keep the Tools Sharp

Testing Todd

Feature Column by Todd Kolmodin, GARDIEN SERVICES USA

Quality is not just an action; it is a way of life. We can say we are quality conscious but as the days pass the discipline can fade. The tools become worn, dull, and finally discarded. This is common in the human psyche; when we do not keep focused or refresh on disciplines, we tend to “forget,” skip steps, or ultimately stop the practice entirely. So, we must revisit the tool shed periodically to make sure our tools are razor sharp and at the ready.

In the quality arena, that means brushing up on work instructions, maintenance procedures, training reviews, and overall workplace awareness. We can do this in a variety of ways. This month I’ll outline a few ideas that have worked well for me in the past and may be useful to you as well.

Training

This goes without saying. We cannot produce a product or manage day-to-day operations unless we know what we are doing, right? Having a robust training program is a must. This should include the use of procedures or work instructions. Employees should be able to reference these documents any time they have questions on any of the tasks they are required to perform. However, just having the documentation available is not enough. There should be a periodic review of the employee against the work in-

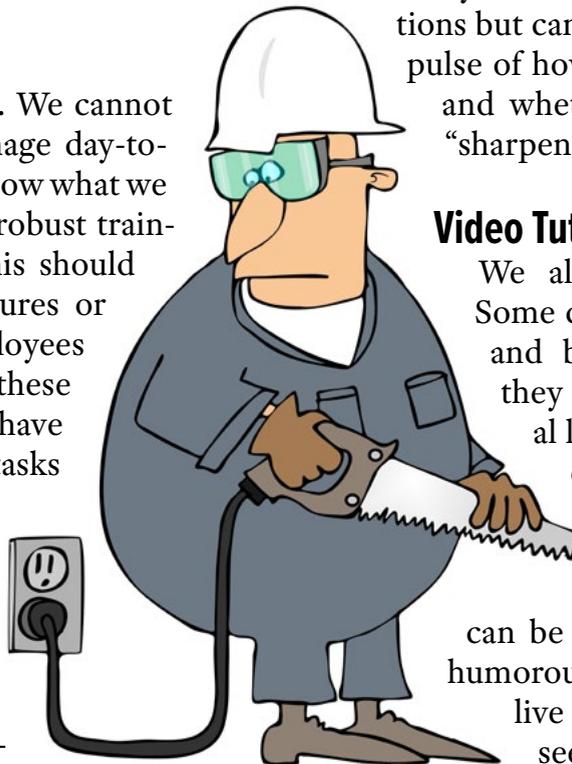
struction and/or procedure. Just training or scoring them once and setting them free is not enough and can result in difficulties in the later rounds. Employees should be reviewed at least annually for continued proficiency. This is where inconsistencies can be uncovered and corrected.

Quizzes

Creating and providing random quizzes regarding employee tasks or company procedures is a great way to keep important items at the forefront of awareness. These could be compiled as excerpts from specific work instructions, workflow reviews, customer interaction, or company policies. These don’t necessarily have to be performance evaluations but can be more about gauging the pulse of how a specific item is working and whether there needs to be any “sharpening.”

Video Tutorials

We all learn in different ways. Some can simply read a document and be totally fine with it—off they go. Others tend to be visual learners, thus video tutorials can be a strong tool to help these learners. There are many options out there to create tutorials. They can be basic PowerPoint tutorials, humorous doodle videos, or even live footage videos. The options seem endless. This engages the



students/employees into the activity and provides a strong vector for learning.

Audits

Audits usually strike fear and anxiety when the term is even mentioned. However, this activity is not intended to be feared. This is a valuable tool to review a process, work instruction, or even a production area. The idea is to ascertain whether everything is working as intended and identify any possible challenges that require attention. This can simply be employees in a certain workspace reviewing their tools and supplies, equipment, and general work environment. It also can be more in-depth to review key performance indicators (KPIs) to see whether predetermined outputs are being maintained.

QMS Review

Finally, the actual system should receive periodic reviews. This is a requirement in ISO9001. If the tool shed is in disrepair, how can we tune up our operations? Work instructions, procedures, and company policies should be reviewed to make sure they are always ready to support the team that needs them. We need to make sure our team has the tools they need when they need them.

Stay sharp, my friends! **PCB007**



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Tiny, Wireless, Injectable Chips Use Ultrasound to Monitor Body Processes

Widely used to monitor and map biological signals, to support and enhance physiological functions, and to treat diseases, implantable medical devices are transforming healthcare and improving the quality of life for millions of people. Researchers are increasingly interested in designing wireless, miniaturized implantable medical devices for in vivo and in situ physiological monitoring. These devices could be used to monitor physiological conditions, such as temperature, blood pressure, glucose, and respiration for both diagnostic and therapeutic procedures.

Researchers at Columbia Engineering report that they have built what they say is the world's smallest single-chip system, consuming a total volume of less than 0.1 mm³. The system is as small as a dust mite and visible only under a microscope. In order to achieve this, the team used ultrasound to both power and communicate with the device wirelessly. The study was published online May 7 in *Science Advances*.

"We wanted to see how far we could push the limits on how small a functioning chip we could make," said the study's leader Ken Shepard, Lau Family professor of electrical engi-

neering and professor of biomedical engineering. "This is a new idea of 'chip as system'—this is a chip that alone, with nothing else, is a complete functioning electronic system. This should be revolutionary for developing wireless, miniaturized implantable medical devices that can sense different things, be used in clinical applications, and eventually approved for human use."

The design was done by doctoral student Chen Shi, who is the first author of the study. Shi's design is unique in its volumetric efficiency, the amount of function that is contained in a given amount of volume. Traditional RF communications links are not possible for a device this small because the wavelength of the electromagnetic wave is too large relative to the size of the device. Because the wavelengths for ultrasound are much smaller at a given frequency because the speed of sound is so much less than the speed of light, the team used ultrasound to both power and communicate

with the device wirelessly. They fabricated the "antenna" for communicating and powering with ultrasound directly on top of the chip.

(Source: Columbia University)

