Improving Safety does not compete with Productivity and Profitability Goals

Today's economic climate places production optimization as a top priority for all steel mills. At the same time, with an increasing number of accidents occurring in the Steel Industry, Safety must be addressed fully and with an equal sense of urgency. A proper risk assessment can help identify and remedy vulnerabilities in an equipment control system.

When properly implemented, a risk reduction program can correct process inefficiencies, prevent serious accidents, and their related equipment downtime, personnel injuries, legal actions, increases in workers compensation premiums, as well as improve environmental concerns.

The tip of the iceberg: in general, for every 1 Euro of worker's compensation costs, there is another 5-6 Euro of associated costs with each accident. Well-designed Safety circuits will reduce risk, improve productivity and ultimately increase your bottom-line. Safety should be the cornerstone of any loss prevention program.

Now the hard part: Risk is subjective. Risk is perception. In other words, one person's idea of risk can be different from another person, thus the level of acceptable risk can vary. One way to mitigate such variability is by instituting objective risk assessment protocols and models.

Risk assessment is divided into two phases.

1. Risk analysis: the process by which the intended use of the machine (and foreseeable misuse), the tasks and hazards, and the level of risk are determined.

2. Risk reduction: the process of choosing and applying methods for mitigating hazards and hazardous situations identified during the risk analysis. Consult the appropriate documentation within the ISO, EN, ANSI, CSA and OSHA safety standards for detailed information on risk assessment models. There are also risk assessment professionals that can be brought into your mill to conduct risk seminars and assist your workforce in making the mill a safer and more productive workplace.

When in doubt, engineer it out. The above risk assessment process will identify areas of concern that may be eliminated by simply removing the hazard all together. For the most part, all mills have well documented procedures for Lockout Tagout (LOTO), but it is prudent to revisit these simple, but critical, activities from time to time. Listening to worker suggestions is a good place to start. One example of a seemingly benign device, but found predominantly throughout many mills, are ball valves used as energy isolation devices. Adequate training and constant awareness is needed when relying on the long bleed-down time associated with a ball

valve's small vent port. Depending on the volume of the circuit, it could take several minutes before a ball valve dissipates hazardous energy compared to a handful of seconds associated with a large exhaust capacity energy isolation device.

A new frontier in the world of Safety revolves around safeguarding during temporary stops. These are stops not included in the normal LOTO procedure. Mills need to keep production running and international safety standards address this economic reality with alternative lockout measures. You may have applications that are safety protected with electrical door interlocks, light curtains, safety mats, limit switches or other devices that temporarily stop a machine or process, but care should be taken to understand the complete circuit and how these devices are connected. An example of a temporary stop controlled by an electrical interlock would be the in-process inspection area on a galvanizing line.

Safety does not end at the wire. Even if there is a dual channel electrical safety switch, the question must be asked; what does the wire control? If that wire is connected to a pneumatic valve that controls hazardous energy, then the pneumatic valve should be control reliable. What is a control reliable pneumatic valve? In basic terms, it is a redundant (dual) valve with status monitoring. Depending on the application, Category 3 or Category 4 protection may be needed. Piping two valves together in series, or in parallel, is not an acceptable substitute for the higher level of protection outlined in the various safety standards. In many cases, the solution may be as simple as installing a control reliable valve at the starting point (air entry) of the air circuit.

SMART Safety. Pneumatic safety valves are getting smarter. Safety valves are already communicating with process controls systems. Some valves even have internal diagnostics that signal the process control system when a potential valve failure may be approaching. In the future, Safety will have an increasingly interactive role in Industry 4.0. ROSS Controls is at the forefront of this revolution as we constantly develop new valve technology to push the safety curve higher. Like most Steel Mills: **The Goal is Zero Harm**.

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