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# Safety Climbs to the Next Plateau with Reliability

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**Why reliability belongs in all aspects of an organization**

For many years Reliability has been the cornerstone for attaining continuous improvement in industry. Companies have adopted many of the available improvement processes such as reliability centered maintenance (RCM), Root Cause Analysis (RCA), lean manufacturing, total productive maintenance (TPM), and the like. Some have taken combinations of these initiatives in an effort to customize a program to fit their particular organization, all in an effort to gain an edge on the competition. These efforts have allowed continuous improvement to be realized in many organizations through greater equipment availability. Rotating equipment that once was repaired annually is now running for several years before repairs are needed. Fixed equipment has gained in the same manner. The “annual” turnaround has become the “five year” turnaround.

The bottom line gains are substantial because spare parts, downtime, and manpower are reduced. There are other gains that have naturally fallen to the bottom line as a result of these efforts such as a higher quality product produced, less energy usage, less property damage, less environmental mishaps, and less employee injury. When the results of high reliability impact an organization to this magnitude it should be obvious that reliability is a must in an organization not a luxury. Because safety is a key performance indicator for most organizations and reliability is a tool for continuous improvement, it only makes sense if one affects the other that a merger takes place.

**Merging Reliability into Safety**

Let’s take a look at safety and how reliability fits. Safety responsibilities fall into areas such as injury, personal protective equipment (PPE), lock out tag out, job safety analysis (JSA), material safety data sheets, hazardous risk assessments, permits, compliance, and many other areas. The same reliability tools used on equipment to enhance reliability can impact safety.

One of the areas where reliability can aid safety is in safety meeting content. It seems the range is enormous from company to company when it comes to safety meeting content. Some companies have elaborate safety contact initiatives with videos and demonstrations while others are as just meeting compliance with minimal contact.

I have witnessed weekly safety contacts using a safety contact card. The card consisted of 12 safety topics. The supervisor would ask the employee to read the short paragraph on a topic such as proper lifting techniques. After the paragraph was read the employee was asked to sign the back of the card. This safety contact program was weak at best. When the supervisor adds the “just hurry up and sign it” tone and attitude it is evident to all that this is merely a device to use against the employee if they are later injured. The safety contact assures the management that the supervisor met company compliance.

Scenarios like this are not uncommon. By enhancing the content of safety contacts using the employee job tasks and relating the job task to equipment, process, or human reliability the employee will over time change the way they approach their daily tasks.

For example a mechanic uses a screwdriver to replace worn V-belts. Instead of loosening the motor to relieve the belt tension the mechanic uses the screwdriver to force the new belt over the sheave without loosening the motor. The safety contact could be about reducing hand injury and the effects of such methods of installation to the overall reliability of the asset.

The hand injury in many cases comes from the screwdriver slipping which is the safety side of the contact. The reliability side of the contact is explaining that improper belt installation will shorten the mean time between failures (MTBF) of the equipment. The screwdriver will produce nicks which in turn will leave sharp edges that can damage the belt material shortening the life. The sheave to sheave alignment will not be checked which means if the alignment is off not only is the belt affected but the bearing life is also compromised shortening the life of the driver and the driven. Premature failure means human intrusion which equates to elevating the possibility of human error and injury.

**Topics for a Safety and Reliability meetings:**

There are many topics that can add both safety and reliability value. Listed below are some potential topics that can make a difference during daily work activities.

Performing a basic failure analysis
How to identify a critical communication juncture
How to identify critical human error junctures
Techniques for minimizing the effects of time pressure
Techniques to reduce daily work stress
How to manage human error in a distractive environment
Techniques for avoiding error when a sudden change in work direction occurs
How vibration affects your safety and equipment

**What kind of returns should be expected?**

By wrapping reliability and safety topics together the process of educating the workforce begins. Constant reinforcement and instant feedback of the safety and reliability topics will help to shift the paradigm to a safety and reliability culture.

Focusing on chronic past events, measuring the frequency of those events over a year, and multiplying the frequency by its impact on the organization will generate a value for each event type. The sum of all event values will be the overall potential gain for the organization.

Knowing the specific events that have occurred and the value of each event gives you a Root Cause Analysis (RCA) candidate list. Perform RCA (a reliability tool) on each of the identified events and eliminate or reduce the occurrence rate. The return should be the value assigned or the percentage solved of the original yearly impact value. The return should be no less than 600% to a 1000%.

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Mark Latino is President of North American operations for Reliability Center, Inc. (RCI). Mark came to RCI after 19 years in corporate America. During those years a wealth of reliability, maintenance, and manufacturing experience was acquired. He worked for Weyerhaeuser Corporation in a production role during the early stages of his career. He was an active part of Allied Chemical Corporations (Now Honeywell) Reliability Strive for Excellence initiative that was started in the 70's to define, understand, document, and live the reliability culture until he left in 1986. Mark spent 10 years with Philip Morris primarily in a production capacity that later ended

in a reliability engineering role. Mark is a graduate of Old Dominion University and holds a BS Degree in Business Management that focused on Production & Operations Management.