SAFETY

Risk assessment on work performed on machinery

We do not want to seem pedantic by speaking once again about risk assessment. Actually, we would like to focus our attention on a new, little-explored frontier that a surveillance control agency in the Lucca area has highlighted in the field of roll converting machinery.

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As usual, we will not insist on the legal prescriptions, although in Europe, the assessment that we will be speaking about is governed by law at least on machines and plants.
Risk assessment today: physical objects, risk families, tasks.
Synthetically, today risk assessment in the workplace is organized as follows.
The inherent risks of certain physical objects are assessed: the workplace, machines and plants, electrical systems, places where explosive atmospheres may be created, etc.
Separately, the risks connected to certain operations or to particular sources are considered: manual load handling, work at height, artificial optical radiation, noise, etc.
Synthetically, such risks lead us back to the tasks that ultimately represent the persons working in the company (each worker has a unique task and is hence exposed to the risks of that precise task).
If everything works properly, the result is interesting. We would like to underscore that the attribution of risk to individual tasks is fundamental for the health protocol and for the information/training of the workers.
However, this approach that we can call "traditional" IS NOT completely effective!

RISKS OF THE ACTIVITY. Let's consider a roll converting line (from the unwinder up to the log saw), and let's suppose that the machine was manufactured using the top level of safety available at the time.
As is well known, such a machine presents several different types of residual risks, some present also when the machine is not running (cutting oneself on the log saw blade), others present when there is a man-machine interaction during the preparation phases (being drawn by the rolls during web thread). Technical norms and the best technology allow limiting such risks, reducing the gravity of eventual damages and/or the probability of an accident. But in many cases they leave residual risks. There are then situations ascribable to the machine itself (replacement of the embossing rolls, but also reel loading) where risks are present also for ancillary operations such as mechanical load handling.
How such residual risks become concrete, however, does not depend so much on the design engineer's choice but rather on how the machine is used. That is, they depend on how activities on the machine are performed - from reel loading to web thread, to roll or blade replacement. The performance of such activities that ideally depends on and is under the control of the company using the machinery, is often left up to individual operators who, in turn, choose different solutions based on personal inspiration and not on a concrete assessment of the risks involved. It follows that: 1. there are residual risks that are known only generically and we do not really know how these concretely manifest themselves; 2. since the risks are not well known, the prevention measures are often generic; 3. operators act in non-uniform ways, exposing themselves to different levels of risk for the same activity.

OPERATING INSTRUCTIONS FOR THE ACTIVITIES. In the course of the last ten years, several companies in our field have attempted to fill this void in safety by developing operating instructions for those activities retained - wrongly or rightly so - the most dangerous. The authors of this article have participated in this effort.
It is not our intention to discuss the quality of the operating instructions that were developed, but rather to speak about the logical project that led to their compilation. There is one critical point that is comprised of two important aspects: one concerns concrete prevention and the other, the protection of the company in case of an accident: 1. of course, if the risks of the activity are not punctually assessed, it may happen that, in setting up the operating

instructions, we forget to mention a certain risk situation, or that we choose operations that do not represent the best choice in terms of safety and health; 2. furthermore, in case of an accident, we risk falling into the issue of "lack of risk assessment", exposing the company and its organization to possible disputes.

ASSESSING THE ACTIVITY'S RISKS. At this point we must ask ourselves if and how it is possible to assess the risks of work activities performed on the machines and plants in the tissue field, from transport systems of raw materials to the palletizers of the finished product. We must immedia-tely clarify a point: we must refer only to known activities, relatively repeatable and repeated, like the ones mentioned above for a roll line. We must per force exclude occasional, non-repeatable activities like the ones that characterize, for example, maintenance in case of failure.
Let's go back to the assessment. It is necessary that someone performs the activity and observes his actions - and that his actions are observed by others - in order to understand to what risks he is effectively exposed, if it is possible to avoid exposure and/or what may be the best measures to mitigate risks. Hence, observe in order to assess but also to compare different operating practices that may be present within the same company.
From the above it stems that in the assessment, the operators performing the activity object of the assessment must be involved, those who are usually in charge of such activity and... someone who possesses the following two characteristics:
1. is not directly involved in the activity object of the analysis, but has a wider vision of safety issues;
2. knows how to "dominate" the risk estimate and assessment methodology.
The temptation, encountered in some contexts, to wholly delegate assessment activities to directly interested personnel must be totally avoided. Saying: "the department must assess the risks and define the safest operating modalities" is wrong. We mention this not for a philosophical reason, but rather because we have repeatedly witnessed this. Those working in a given context tend to take certain conditions for granted that instead are not. And in so doing, often some important dangers/risks are not identified.
An example related to the detergent packaging sector:
a machine that straightens upended containers during format change requires the replacement of all sectors of a circular element that rotates around a horizontal axis.
This operation cannot be performed with the machine sectioned because, after the replacement of one sector, the rotating element must move by one step in order to expose the subsequent sector to the operator in charge. So we work with the machine guards open and, before each sector replacement, the operator puts the machine in emergency mode to ensure that it will not move. It is not obvious to any of the persons involved that in case of lack of the emergency actuation, the machine could move not only due to a voluntary actuation from panel, but also due to a failure or malfunctioning of the PLC (untimely start-up).
It is difficult enough to have to remember to push the emergency button each time (this is repetitive work), and if the risk of untimely start-up is not overtly stated, such action may also seem superfluous. It is true that untimely start-up is rather improbable, but the consequence would be the amputation of both upper limbs just below the elbow: this is the high-gravity risk of the entire operation. In the case in point, the operators and the department's personnel had not identified the danger that we have described.

CONCLUSIONS. There would be a lot more to say on the subject, and more generally, on the ability of workers to autonomously identify the risks they are exposed to.
We feel, however, that an activity such as the one described above already constitutes a concrete step forward in further improving the safety in a field such as ours, where today we can safely state that machinery and systems are characterized by a level of safety that is very near to the maximum level technically attainable. We must remember that acci-dents continue to happen and that behavioral errors are becoming their most relevant cause. •