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June 26, 2017

SCI Safety Tip: Safety 2017: Human factors in risk assessment

By: Emily Scace, Senior Editor, Safety

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Risk assessment is a tool that many safety professionals are familiar with and use on a regular basis. But according to Gary Higbee, EMBA, CSP, the traditional methods for performing risk assessments are incomplete and fail to capture significant hazards. In a session at Safety 2017, the annual professional development conference of the

American Society of Safety Engineers (ASSE), Higbee spoke to an audience of safety professionals about these shortcomings and how to overcome them in a session titled “Rethinking Risk Assessment: Adding the 3rd Dimension.”

Traditionally, risk assessments consist of a two-dimensional matrix. For a given task or operation, a safety professional assigns a rating to both the probability and the potential severity of an injury or incident. The intersection between the two dimensions becomes a risk rating. For example, an operation with a high probability of injury and the potential to cause a fatality or serious injury would be placed in the highest risk category, while a task with a negligible chance of minor injury would be considered low risk.

These ratings can be color-coded, with high-risk operations in red, moderate risk in yellow, and low risk in green. Safety professionals often use this method to prioritize safety efforts and hazard abatement: red items receive top priority, while green items do not require action.

SCI Safety Slogan

**A mistake you see
but do nothing to fix,
becomes your
mistake too.**

James Lehrke-SCI

Higbee, a senior consultant with SafeStart, contends that this method, while an important starting point, fails to consider the myriad human factors that affect safety. He recommends adding these human factors as a third dimension to gain a fuller picture of the true risk involved in an operation.

SafeStart research has shown that the mental states of rushing, fatigue, complacency, and frustration increase the risk of injury. By attempting to understand when these factors are at play, safety professionals can assign them a rating that can be analyzed along with the traditional probability and severity ratings. With this additional information, said Higbee, operations that looked to be low- or moderate-risk in a traditional risk assessment begin to seem more hazardous and in need of additional safety controls.



Risk is dynamic, noted Higbee. Human factors don't only add a third static dimension to the risk assessment matrix; they also affect the other two variables. For example, if a worker becomes complacent, the probability that he or she will make an error during a task—and thus the probability of an incident—increases. Likewise, a worker who is rushing to complete a hazardous operation might put himself at risk of a more severe injury than he would otherwise be exposed to.

Higbee conceded that human factors can be difficult to quantify; however, a relative awareness of when a worker might be distracted by personal issues or rushing because of a production delay can help provide a more accurate snapshot of risk and alert employers to the need for additional protective measures. A distracted or fatigued worker might be reassigned to a less hazardous task, or supervisors might be directed to hold pre-shift meetings with a crew working overtime to emphasize the importance of following safety procedures and working deliberately.

Higbee recommended four "critical error reduction techniques," or CERTs, to address the risks of human factors:

1. **Self-trigger on the mental state or amount of hazardous energy so you don't make a critical error.** For example, train workers to recognize the signs of fatigue and take specific steps to mitigate the risk if they notice themselves or a coworker exhibiting them. Or when a task exposes workers to a large amount of hazardous energy, train them to stop and assess their mental state before proceeding.
2. **Analyze close calls and small errors to prevent agonizing over big ones.** A near miss is an opportunity to recognize and understand a risk that previously went unnoticed. Investigate what went wrong and how to prevent or mitigate that risk in the future.
3. **Look at others for the patterns that increase the risk of injury.** Higbee gave the example of noticing a car driving erratically and using that as an opportunity to examine your own driving behaviors. A similar logic can apply in the workplace.

Work on habits. Train employees to consistently take actions that provide a greater degree of safety and leave less to chance. If safe practices become automatic, mental states have less potential to cause risky behavior.

SCI OSHA News: US Labor Department's OSHA publishes proposed rule on beryllium exposure

Rule would modify standards for construction, shipyard sectors in January 2017 final rule

Source: osha.gov

Date: June 23, 2017

WASHINGTON – The U.S. Department of Labor's [Occupational Safety and Health Administration](http://www.osha-slc.gov) today announced a proposed rule that would modify the agency's recent beryllium standards for the construction and shipyard sectors. Representatives of the shipyards and construction industries, as well as members of Congress, raised concerns that they had not had a meaningful opportunity to comment on the application of the rule to their industries when the rule was developed in 2015-16. This proposal provides a new



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Seven Tips to Stay Hydrated

1. Eat a balanced diet with plenty of fruit and vegetables.
2. Drink fluids at regular intervals during the day.
3. Water is the best choice for hydration, (not soda, Gatorades, PowerAde’s, energy drinks etc.) without adding calories to your diet.
4. Milk is around 85% water and a good source of protein and calcium. Check the label for calories, as these will vary according to the type of milk you choose.
5. Thirst is not a very good indicator of your level of hydration. By the time you feel thirsty, you’re probably already getting dehydrated.
6. A more reliable indication of hydration in healthy people is the color of your urine. In general, the lighter the color, the better hydrated you are.
7. Don’t overdo it! Although unusual, it is possible to become unwell by drinking too much water or other fluids.

opportunity to comment on the rule for those industries and the public. The new proposal would make changes to the rule only for the shipyard and construction sectors. The general industry standard is unaffected by the proposal.

The proposal for shipyards and construction would maintain the requirements for exposure limits (permissible exposure limit of 0.2 µg/m³ and short-term exposure limit of 2.0 µg/m³), which will continue to protect workers from a serious beryllium-related lung disease known as chronic beryllium disease. The proposal instead revises the application of ancillary provisions such as housekeeping and personal protective equipment in the January 2017 final standards for the construction and shipyard industries. OSHA has evidence that exposure in these industries is limited to a few operations and has information suggesting that requiring the ancillary provisions broadly may not improve worker protection and be redundant with overlapping protections in other standards. Accordingly, OSHA is seeking comment on, among other things, whether existing standards covering abrasive blasting in construction, abrasive blasting in shipyards, and welding in shipyards provide adequate protection for workers engaged in these operations.

The [Notice of Proposed Rulemaking for Occupational Exposure to Beryllium and Beryllium Compounds in Construction and Shipyard Sectors](#) will be published in the Federal Register on June 27, 2017. OSHA encourages the public to participate in this rulemaking by submitting comments during the 60-day comment period. [Click here for information on submitting comments on the proposed rule and requesting public hearings.](#)

On Jan. 9, 2017, OSHA issued a final rule that established new protections for workers who are exposed to beryllium in general industry, construction, and shipyards. Beryllium is a lightweight metal used primarily in specialty alloys and beryllium oxide ceramics. It is also present as a trace material in metal slags.

OSHA also announced it will not enforce the Jan. 9, 2017, construction and shipyard standards without further notice while determining whether to amend the Jan. 9, 2017, rule.

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