



ARE YOU READY FOR UPCOMING OSHA CHANGES?

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Latest OSHA regulatory change includes complex calculations for utilities

THE AUG. 31 DEADLINE FOR 1910.269 is right around the corner. For those in compliance, it will be just another day on the job site.

Many of those who have not finalized their arc rating calculations and purchases of personal protective equipment (PPE) for employees, are having to invest significant effort to meet the deadline.

With Occupational Safety and Health Administration's (OSHA) 1910.269 changes, employers must assess workplace risks, measure potential electrical arcs and equipment

ratings needed and pay for the PPE necessary to protect employees.

Nearly 20 lives will be saved and 118 serious injuries will be prevented annually because of the revisions to the 40-year-old electric power generation, transmission and distribution work standard, estimates the Occupational Safety and Health Administration (OSHA).

In a nutshell, the revised OSHA 1910.269 requires employers:

- ▶ Ensure employees exposed to hazards from flames or electric arcs are properly protected. Make sure employees do not wear clothing that

could melt onto their skin or that could ignite and continue to burn when exposed to flames or the estimated heat energy;

- ▶ Ensure that the outer layer of clothing worn by an employee is flame resistant under certain conditions; and

- ▶ With certain exceptions, ensure that employees exposed to hazards from electric arcs wear protective clothing and other protective equipment with an arc rating greater than or equal to the hazard/risk category.

The rule change is nothing new for



utilities such as Minneapolis-based Xcel Energy, which has purchased PPE gear for its employees for years.

"Xcel Energy has been providing FR (flame resistant) shirts for the last 10-11 years, so this isn't any big change for us," said Tony Leeling, electric operations manager at Xcel Energy in Littleton, Colo. "There's a different calorie value to calculate, but we're really ahead of the curve on this."

Employers will be required to perform a visual check of employee clothing, to look for tears and replace that clothing. Those checks are routine for Xcel Energy.

"It's always been required that we make crew visits to check for FR clothing, to make sure it's not worn out and make sure it's being used," says Leeling. "We proactively replace torn up clothing throughout the year."

At Ozarks Electric in Fayetteville, Ark., the OSHA changes are already part of their safety program, as well.

"The commitment to safety comes from the top and we are very proactive in our safety program," says Roger Stegeman, Ozarks' job training and safety coordinator. "The changes that came about in the construction and general industry standard were not changes for us because we were

already implementing them."

Safety leaders at American Electric Power (AEP), a major investor-owner electric utility based in Columbus, Ohio, testified at OSHA hearings when the rules were being created and helped the government entity determine the feasibility of the changes.

As members of Edison Electrical Institute (EEl), AEP was part of a larger group voicing its concerns to OSHA.

"Through EEl, we were fortunate to comment as an organization and get more attention as an industry," says Ken Frazier, AEP's vice president of safety and health. "We were able to implement it without too much to-do."

Not everyone is ready for the rule revision, however, says Hugh Hoagland, senior consultant at ArcWear, which performs 95 percent of the industry's arc testing, and a partner at e-Hazard.com, an electrical safety training company. ArcWear provides consulting and testing of PPE, fall protection and arc flash clothing. Hoagland has been busy hosting training sessions and attending statewide safety conferences to educate employers about the rule change.

While these utility companies are in compliance with the rule changes, there are others that have not yet

adopted the revisions.

Depending on state rules, it's probably in the range of 25 percent that are not ready for the deadline, Hoagland says. "However, there is still some liability to not following it," he says.

CALCULATING THE RISK

While much of the attention on 1910.269 has focused on employers paying for PPE, utility experts say it's the new calculations that are the greatest challenge with the rules revisions. Employers must measure the arc exposure risk and inform employees of those risks.

Ozarks Electric's Stegeman, considered by many to be an expert on utility-related OSHA rules, said the simple answer to whether the new calculations have been a challenge, is "yes."

"OSHA has provided an appendix to aid employers in the determination of minimum approach distances in Appendix B to 1910.269 and Appendix B to Subpart V of Part 1926," Stegeman says. "In the preamble to the regulation from page 20480, OSHA states that 'The Agency understands that estimating incident heat energy demands some electrical engineering expertise.'"

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ArcWear's Hoagland is seeing the same from the companies with which he consults.

"There are so many modes of operation in electric utility, so they have to make a lot of assumptions; it's really a difficult task," says Hoagland. "We have several engineers who help do those. There are a lot of consultants out there. The problem is that most of the consultants who provide these kinds of services use software packages that are designed for industrial applications. So they can wind up being high-mark calculations that are not reasonable from the standards perspective. We recommend that companies look at OSHA recommended software, or they look at the National Electric Safety Code, NESC, and use those tables."

PPE CLOTHING

Once arc risks have been calculated, employers need to determine the PPE needed by employees. Employee clothing must have an arc-rated caloric value that is equal to or more than the caloric value of the risk.

Most companies are tackling this issue with a multilayer clothing system, Hoagland says.

"From the utilities' perspective, they often think about a three-tiered or a four-tiered system. Tier one is a base layer, t-shirt that's arc rated and possibly high-vis, so they're in compliance all the time with FR. Second notch up would be have that as a system with a shirt, that usually gets you somewhere between 8-12 (calories). The next step is to add a coverall to the shirt or shirt and t-shirt and that will usually get you to 25 and then add a winter wear on top of that will typically get you to 40 or more, or you could put on a flash suit."

Companies are making a couple different mistakes when it comes to providing employees PPE, including

overprotecting with values, mixing brands, offering too many clothing choices and not making sure high-visibility vests are arc rated.

"If you get that vest and it's flame resistant polyester and it's not arc rated, which are still common out there, they're not really flame resistant," Hoagland says. "Just make sure that your vest, if you're exposed to arc flash potentials, that it absolutely is an arc-rated vest."

He suggests sticking with one company, such as Bulwark or Carhartt for workers' PPE needs. Mixing brands can make calculations more difficult and even lower protection.

Layering arc-rated t-shirts and shirts with coveralls to increase the caloric value is best, instead of outfitting workers in flash suits or winter wear, Hoagland recommends.

"One of the big mistakes I see is people trying to overprotect," he says. "Looking at the research we've collected, sweaty coveralls drop their protection by about 50 percent. So you don't want to overprotect, but you want to protect to the hazard. That's one of the things I see people doing, is they pull in extra PPE and then either the guy or gal doesn't wear it because it's too hot, or they try to say, 'the outer shell's got to have the arc rating and we don't care what you wear underneath.'"

Face shields and arc-rated gloves are another part of the updated rules.

"There is now a requirement that they have to provide a face shield for open-air arcs that are 9 calories or greater. They have to provide protection for any other arc where there is 5 calories or greater. So it's going to be a lot more face shields and hoods that will be used for that new legal requirement," Hoagland says. "You need to make sure that if you're doing work that has a shock hazard that you actually have shock protection in your glove and additional arc rating if needed."

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j****13	Joe	Active	Active	12/31/2015	\$500.00
t****11	Trevor	Active	Active	12/31/2015	\$500.00

An example of BSE's Employee Allowance Service.

DISTRIBUTORS

Many distributors and manufacturers of PPE clothing and equipment are assisting utilities with the change, providing a number of different services.

Bulwark, for example, has hosted training seminars for customers, where layering clothing has been a hot topic.

"The new standards are requiring end users to be more detailed in their approach to potential exposure, and that is the reason for the focus on layering as it provides an avenue to meet protection requirements without the hassle of "bee keeper" suits which are cumbersome and uncomfortable to work in," says Zeke Mader, a certified trainer for Bulwark.

Border States Electric, one of the country's largest electrical distributors, sells safety products from 52 different vendors, ranging from safety glasses to lockout/tagout devices. BSE sales teams have assisted customers with

ArcWear's compliance tips for 1910.269

- Don't mix brands unless you have proper data
- Don't overprotect
- Use OSHA recommended software for calculations
- Make sure your high-vis vest is arc rated
- Don't have too many PPE choices for employees, it complicates layering systems

coordinating industry training, leveraging relationships with manufacturers and providing guidance to help customers deploy a comprehensive FR-clothing solution in conjunction with their overall safety program. Last year, BSE piloted an online compliance management system with a local electric co-op.

In Minot, N.D., customers' logoed PPE clothing is stocked at the local BSE branch. The program began a year ago, includes a website created for the client and ensures one-day delivery for in-town orders.

"We fill in-town orders today and out-of-town orders tomorrow," says Chad Schell, manager for BSE's Minot, N.D., branch.

This summer, the company launched a company-wide version of the system, which allows customers to use

BSE's e-commerce website to manage employees' PPE compliance.

"We've really dug into it during the past year," says Kyle Schmidt, BSE's safety market specialist.

TRAINING

Bulwark isn't the only company to provide training to utilities on the rule changes.

Groups such as EEI and National Rural Electric Cooperative Association (NREA) have sponsored events, as well.

"We have done several information sessions; a webinar and four day-and-a-half-long classes taught by David Wallis, the author of the new rule, recently retired from OSHA," says Martha Duggan, NREA's senior principal of regulatory affairs. "We've also had sessions at TechAdvantage earlier this year on the new rule. In addition, two groups of co-op folks came together as a working group to read and digest the rule. The first group (safety professionals) created a large spreadsheet summarizing the rule. The second group, co-op attorneys focused on the information-sharing portion of the rule and developed tools for co-ops to use during implementation."

The training, calculations and procedural changes are worth the effort, utilities and utility partners say.

"We care about each other and also care about our customers and we want them to get home safely at night," BSE's Schmidt says. **EE**