Weekly Safety Tip

New OSHA Arc-Flash Guidance

SAFETY TIPS

New OSHA Arc-Flash Guidance

Safety Council OF NORTHWEST OHIO

OSHA's new guidance, issued on November 25, targets two major causes of arc flash injuries and fatalities. The first is that manufacturing work as de-energized without following proper lockout/tagout procedures, leaving workers without the right PPE. And the second is believing in myth that low voltage (120/208, 277) isn't dangerous – leading to energized work done without adequate protection or justification.

Derek Sang of Bulwark FR offers some analysis of the changes, grounded in two myths:

Myth 1: De-energized Equipment Equals Safety

De-energizing equipment is only step toward achieving and ***Electrically Safe Working Condition*** (**ESWC**) and does not eliminate electrical hazards. Proper procedures, such as lockout/tagout and verification of de-energization must be followed.

Myth 2: Justified Energized Work is Safe

Even when work is justified (e.g. critical operations where de-energization is impractical), it is not inherently safe. Strict safety protocols, including the use of AR PPE, administration controls, and risk mitigation measures, are essential.

Regarding the importance of AR PPE, Sang says: "Workers often assume they don't need arc-rated PPE if not performing energized work. This is incorrect. PPE must be work during tasks near potential electrical hazards to mitigate risks in both energized and de-energized scenarios."

The guidance makes it clear that low voltage, including 120/208, can sustain arc flash, produce molten metal, ignite flammable clothing, and cause severe or fatal injury.

All energized work over 50V requires an energized work permit and almost all work requires PPE including arc rated clothing.

OSHA also notes the significant majority of tasks that claim to be de-energized do not qualify as such. They do not meet either LOTO (OSHA) or ESWC (NFPA 70E), and thus require PPE, including arc rated clothing. OSHA recently made NFPA 70B - maintenance of electrical gear - a standard as well.

In the landscape of OSHA regulatory requirements that can be cited:

- This guidance is not a standard or regulation, and creates ***no new legal obligations.***
- It ***contains recommendations*** as well as descriptions of mandatory safety and health standards.
- The ***recommendations are advisory in nature, informational in content***, and are intended to assist employers in providing a safe and healthful workplace.

If you access OSHA webpages, you can review and download several new resource materials:

guide for employers

Common Electrical Work Myths

Establishing Boundaries Around Arc Flash Hazards

Being Aware of Arc Flash Hazardous

Attribution: from a December 2024 article in ***EHS Today*** by **Adrienne Selko**

David A. Varwig, CSP-retired and SCNWO Board Member *for* ELSMART

Weekly Safety Share

Being Aware of Arc Flash Hazards

SAFETY & HEALTH SHARE

Here is the important content in a recently issued bulletin by Federal OSHA as OSHA 4475-11 2024

Being Aware of Arc Flash Hazards

Anyone who works around energized electrical equipment is at risk of arc flash hazards. It is important to identify, assess, and control these hazards to maintain a safe work environment

What is an Arc Flash?

An electric arc is an electrical explosion that produces a bright flash gas, where temperatures can **exceed 35,000 °F** (19,400 °C), nearly four times the heat of the sun's surface. The energy released in the arc vaporizes the metal conducting the electricity and produces an explosive arc blast with deafening noises, supersonic concussive forces, and super-heated shrapnel.

Arc flash incidents can ignite clothing, cause structural fires, and produce particles of molten metal, resulting in severe or fatal burn injuries. At these high temperatures, most items within 3 feet (0.9 meters), including skin and flammable clothing, will burn, melt, or vaporize. Most arc flash burn injuries are a result of the arc igniting **flammable clothing** and not from the arc itself.

Damaged electrical boxes.

Causes

There are several conditions that contribute to arc flashes. Faulty, damaged, dirty, or improperly maintained electrical equipment increases the risk for an arc flash incident to occur while the magnitude of the electrical energy/voltage increases its severity. Any inadvertent movement within the restricted or arc flash boundaries, especially when conductive tools are used, also increases the likelihood of an arc flash incident.

Prevention Methods

Methods to prevent arc flashed include:

- Using of lockout/tagout procedures, in compliance with 29 CFR 1910.147, and ensuring the deenergization of electrical equipment is the strongest mitigation measure against all electrical hazards as it eliminates and removes the hazard entirely.
- Identifying and using approach boundaries for qualified and unqualified employees (For more information on Approach Boundaries, see: Establishing Boundaries Around Arc Flash Hazards).
- Maintaining electrical equipment as required by 29 CFR 1910.334, reduces the risk of an arc flash incident from occurring.
- Applying safe work practices to deenergize and test for the absence of voltage and the use of personal protective grounds in compliance with 29 CFR 1910.333. Notably, arc flashes can occur at voltages below 240V.
- Conducting an arc flash risk assessment to assess the potential for an arc flash hazard, determine the available incident energy of the exposed energized electrical conductor or part, and help in determining and selecting appropriate arc-rated PPE.
- Using and maintaining arc-rated PPE, and insulated tools in compliance with 29 CFR 1910.137 and 29 CFR 1910.335.
- Training workers, in compliance with 29 CFR 1910.332, to ensure they are aware of the hazards they are likely to face and the means to mitigate their risks.

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