

Hazards to workers on the ground if guy wires contact energized lines

Working on or near energized high-voltage lines is inherently dangerous because these lines are typically uninsulated and contact will result in the immediate transfer of electrical energy leading to severe injury, or electrocution. It's important to take special precautions when conductive objects, like guy wires, are near energized lines.

Background

Guy wires are installed on poles to help support the pole and the weight of lines and other equipment installed on the pole. Workers are exposed to electrical hazards if there is a potential for a guy wire to contact an energized line, for example, when:

- Installing a new guy wire on a pole with energized lines
- Adjusting the tension to remove slack from a guy wire
- Replacing a guy wire after an incident or natural disaster

To protect employees, guy wires must be either effectively grounded or have properly positioned insulators to block the flow of electric current so that employees on the ground are protected.

OSHA has recently investigated several fatality cases where employees were killed when working on guy wires that contacted an energized line. In some of

these cases, OSHA investigations revealed the guy wires were not grounded and had insulators positioned incorrectly. Some insulators were placed too high up above energized lines (see Figure 1). In one case, a **fatality occurred** when two linemen were tightening a guy wire. As they were working on the guy wire, the pole suddenly shifted, causing the guy wire to contact an energized line. One lineman was electrocuted, and the other was hospitalized with severe injuries.

Properly positioned insulators can protect workers

If an ungrounded guy wire contacts an energized line, then properly positioned insulators block the flow of electricity down the guy wire to the ground level (see Figure 2).

Employers must always ensure employee protection by performing adequate risk assessment. Guy wire energization hazard can be controlled by either installing

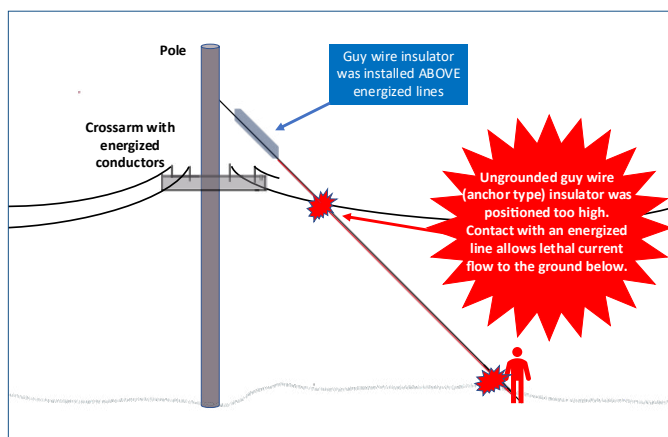


Figure 1. Illustrates how improper positioning of guy wire insulators can create a significant hazard.

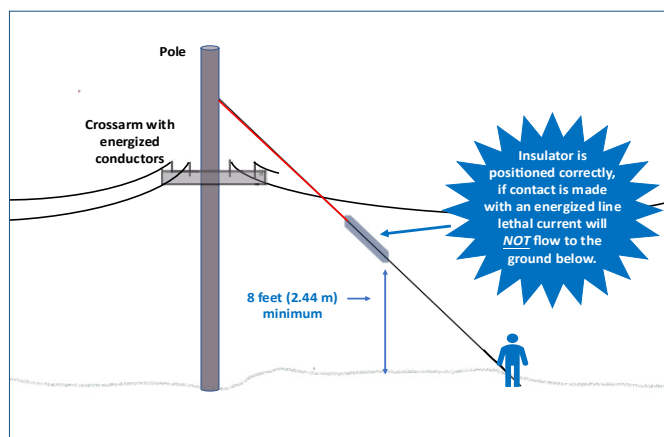


Figure 2. Illustrates guy wire insulator positioned to prevent energization to the ground.

insulators, or effectively grounding guy wires. Employers should also ensure insulators are positioned properly on existing guy wires. If employees are working on existing guy wires which are neither grounded, nor have properly placed insulators, then the employer must use properly rated (for the voltage involved) electrical protective equipment. OSHA recommends employers follow relevant guidelines in consensus standards, such as the National Electrical Safety Code (IEEE, NESC-C2), which recommends ungrounded guy wires have insulators installed to prevent electric current from traveling down the guy wire to below 8-feet (2.44 m) above the ground level (see Figure 2).

Applicable OSHA Requirements could include:

- 29 CFR 1926.960 & 1910.269(l), Working on or near exposed energized parts
- 29 CFR 1926.962 & 1910.269(n), Grounding for the protection of employees
- 29 CFR 1926.964 & 1910.269(q), Overhead lines and live-line barehand work
- 29 CFR 1926.97 & 1910.137, Electrical Protective Equipment

Also refer to the consensus standard on Guy Wires: IEEE 2023 National Electrical Safety Code C2-2023; Part 2 Safety Rules for Overhead Lines.

How OSHA Can Help

We have compliance assistance specialists throughout the nation who can provide information to employers and workers about OSHA standards, short educational programs on specific hazards or OSHA rights and responsibilities, and information on additional compliance assistance resources. Contact your local OSHA office for more information www.osha.gov/contactus/bystate.

OSHA's On-Site Consultation Program offers no-cost and confidential services to help small and medium-sized businesses find and fix workplace

hazards. On-Site consultation services are separate from enforcement and do not result in penalties or citations. To locate the nearest Consultation office, visit: www.osha.gov/consultation or call 1-800-321-OSHA (6742).

Workers' Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information on workers' rights, OSHA's Whistleblower Protection Program, and other services, see www.osha.gov/workers or www.whistleblowers.gov.

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's workers by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

This Hazard Alert is not a standard or regulation, and it creates no new legal obligations. It contains recommendations as well as descriptions of mandatory safety and health standards [and other regulatory requirements]. The recommendations are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. The mention of any non-governmental organization or link to its website in this Hazard Alert does not constitute an endorsement by OSHA or NIOSH of that organization or its products, services, or website.

