

Case 449. 44-year-old journeyman electrical lineman was electrocuted when he contacted an overhead wire energized 7,600 KV to ground.

A 44-year-old male journeyman electrical lineman was electrocuted when he contacted an overhead wire energized 7,600 KV to ground. The decedent was a member of a three-person work crew consisting of himself, another journeyman lineman (crew leader) and an apprentice lineman. The crew was scheduled to remove an existing pole transformer and then reinstall it on a new wooden pole. The crew had set the new electrical pole inside the energized upper primary lines prior to transferring electrical equipment from the old pole to the new pole. The new pole was to be attached with a horizontal guy wire to the next westerly pole (Pole 2). The decedent, working from a bucket truck, had installed the pole to pole guy wire hardware at the top of the new pole. It was discovered that Pole 2 would be in contact with the other wires due to the angles. The crew leader instructed the decedent to lower the bucket while the other crew members prepared Pole 2 to re-route the guy wire to the opposite side. The decedent elevated the bucket and was holding a loose, ¼-inch copper ground wire. He was not wearing his rubber gloves or rubber sleeves; the decedent's rubber gloves were found in the bucket along with his rubber sleeves and storage bag. The electrocution may have occurred by either arcing electrical current or by direct contact to the energized 7,600-volt line to his right shoulder. There were burns across his chest terminating at his left hand. His coworkers lowered the bucket to the ground using the ground controls, rotated the bucket and pulled the decedent from it. Emergency response was called and first aid given at the scene while awaiting emergency response arrival.

MIOSHA Construction Safety and Health Division issued the following Serious violations to the company at the conclusion of its investigation.

SERIOUS: PERSONAL PROTECTIVE EQUIPMENT, CS PART 6, RULE 408.40617(2): An employer shall require each employee to wear personal protective equipment as prescribed by the manufacturer when required by any Michigan Occupational Safety and Health Act (MIOSHA) rule.

Employee not wearing proper insulating rubber gloves and insulating rubber sleeves. Employee located and working within the minimum approach distance of overhead energized electrical conductors/lines.

SERIOUS: POWER TRANSMISSION AND DISTRIBUTION, CS PART 16

- RULE 1926.952(a)(2): Briefing by the employee in charge. The employer shall ensure that the employee in charge conducts a job briefing that meets paragraphs (b), (c), and (d) of this section with the employees involved before they start each job.

Not all employees onsite attending job briefing.

- RULE 1926.959(d)(2): Observer. A designated employee other than the equipment operator shall observe the approach distance to exposed lines and equipment and provide timely warnings before the minimum approach distance required by paragraph (d)(1) of this section is reached, unless the employer can demonstrate that the operator can accurately determine that the minimum approach distance is being maintained.

No observer present to view the minimum approach distance to energized electrical conductors/lines. While using Altec AM55 aerial bucket truck, the employee came into minimum approach distance of an energized 7.6kv single phase leg of a 13,200-volt system. Employee in aerial bucket truck was bare-handing a ¼ inch copper ground wire at time of incident.

- RULE 1926.960(b)(3)(i)(e): Except as provided in paragraph (b)(3)(ii) of this section, at least two employees shall be present while any employees perform the following types of work: Other work that exposes an employee to electrical hazards greater than, or equal to, the electrical hazards posed by operations listed specifically in paragraphs (b)(3)(i)(A) through (b)(3)(i)(D) of this section.

One employee working from an elevated Altec AM55 aerial bucket truck exposed to overhead energized electrical conductors/lines. Employee was within minimum approach distance while holding a ¼-inch ground wire bare-handed and received an electrical shock. Two other employees on-site not in view of exposed employee while working from elevated aerial bucket truck.

- RULE 1926.960(c)(1)(iii): The employer shall ensure that no employee approaches or takes any conductive object closer to exposed energized parts than the employer's established minimum approach distance, unless:

(A) The employee is insulated from the energized part (rubber insulating gloves or rubber insulating gloves and sleeves worn in accordance with paragraph (c)(2) of this section constitutes insulation of the employee from the energized part upon which the employee is working, provided that the employee has control of the part in a manner sufficient to prevent exposure to uninsulated portions of the employee's body), or

(B) The energized part is insulated from the employee and from any other conductive object at a different potential, or

(C) The employee is insulated from any other exposed conductive object in accordance with the requirements for live-line bare-hand work in 1926.964(c).

Employee approaching energized electrical conductors/lines closer than the employer's minimum approach distance. Employee came within minimum approach distance of energized 7.6kv single phase leg of a 13,200-volt system. Employee in aerial bucket truck was bare-handing a ¼ inch ground wire at time of incident.

- RULE 1926.960(d)(2): Requirements for working without electrical protective equipment. When an employee performs work near exposed parts energized at more than 600 volts, but not more than 72.5 kilovolts, and is not wearing rubber insulating gloves, being protected by insulating equipment covering the energized parts, performing work using live-line tools, or performing live-line bare-hand work under 1926.964(c), the employee shall work from a position where he or she cannot reach into the minimum approach distance, established by the employer under paragraph (c)(1) of this section.

Employee working within minimum approach distance without protective equipment. No proper electrical protective equipment including but not limited to: personal protective equipment, rubber insulating gloves/sleeves, and insulating equipment covering energized parts, live-line tools, etc. Employee was holding a ¼-inch copper ground wire with bare hands within the minimum approach distance at time of incident.

SERIOUS: AERIAL WORK PLATFORMS, CS PART 32:

- RULE 408.43207(1): An employer shall provide the operator of an aerial work platform with an aerial work platform permit.

No verification of aerial work platform permit provided by employer on/off site. Employee located within the Altec AM55 aerial bucket truck received electrical shock from energized 7.6kv single phase leg of a 13,200-volt system. Employee was not wearing appropriate and required personal protective equipment required by the manufacturer; Altec.

- RULE 408.43207(8): An employer shall provide each employee who will operate the aerial work platform with instruction and training regarding the equipment before a permit is issued or reissued. Such instruction and training shall ensure that each operator is in compliance with the minimum following provisions:

(a) Is instructed by a qualified person in the intended purpose and function of each of the controls.

(b) Is trained by a qualified person or reads and understands the manufacturer's or owner's operating instructions and safety rules.

(c) Understands by reading or by having a qualified person explain all decals, warnings, and instructions displayed on the aerial work platform.

(d) Reads and understands the provisions of this subrule and subrules (1) to (7) and (9) of this rule or be trained by a qualified person on their content.

No verification of training related to Altec AM55 aerial bucket truck. Employee located within the Altec AM55 aerial bucket truck received electrical shock from energized 7.6kv single phase leg of a 13,200-volt system.

- RULE 408.43209(2): A qualified lineman or a qualified line clearance tree trimmer shall maintain distances as prescribed in Table 2 when performing work from an aerial work platform on or near an exposed power line, unless any of the following conditions exist:

(a) The employee is insulated or guarded from the energized part by gloves or gloves and sleeves, as provided for and prescribed in Construction Safety Standard Part 6. "Personal Protective Equipment" and Construction Safety Standard Part 30. "Telecommunications."

(b) The employee is insulated, isolated, or guarded from any other conductive part.

(c) The energized part is insulated from the employee.

Employee working within Altec AM55 aerial bucket truck received electrical shock from energized 7.6kv single phase leg of a 13,200-volt system. Proper clearance distance as prescribed in Table 2 not maintained; employee was holding a ¼-inch copper ground wire bare-handed at time of incident.

- RULE 408.43209(4): Employees shall use insulated bucket, gloves and sleeves that are rated at more than the voltage to be worked on or that with which they might come into contact, to comply with subrules (2) and (3) of this rule.

Employee located in the area of a primary zone was not wearing proper rubber insulating gloves and sleeves. Employee working from within Altec AM55 aerial bucket truck received electrical shock from energized 7.6kv single phase leg of a 13,200-volt system. Employee was holding a ¼-inch copper ground wire bare-handed at time of incident.