

Case 275. 41-year-old carnival worker contacted a 4800-volt overhead power line while disassembling a carnival ride.

A 41-year-old male carnival worker contacted a 4800-volt overhead power line while disassembling a carnival ride. The decedent was on an extended arm of the ride frame that measured approximately 1½-feet wide. The ride frame was approximately 35-40 feet above the ground. The ride was a vertical loop 58 feet 9 inches high with 5 cars that travelled around the inside of the loop. When the ride was taken down for transport, the loop separated at the top middle, and then each half folded half again while it lowered and swung out and around to come back in against the trailer. When the ride section folded and swung out, it reached 24 feet 8 inches from the side of the trailer. The operation of the ride folding up was controlled with hydraulic control levers mounted on the left front corner of the ride. The decedent called the site manager and asked him to help him lower the ride to make sure the ride section would clear the power line. When the site manager arrived, the decedent was already up on the ride section. The site manager was positioned at the hydraulic ride controls lowering the ride frame and could see the decedent. The power line had two 4,800 volt conductors located approximately 24 feet away from the trailer and approximately 36 feet 6 inches above the ground. The decedent used a 42-inch long notched wooden stick that was wrapped with approximately six to eight inches of electrical tape at the end of the stick. Holding the stick at the end wrapped with electrical tape, the notched end of the stick was used to hold the electrical line away from the lowering frame of the ride. This same work practice was used during the ride assembly. The sequence of events is unknown. Several possible incident scenarios have been developed. While the frame was being lowered, the decedent may have slipped on the frame or the frame may have bounced. The decedent may have received an electrical shock through the stick (a handprint was noted by responding police on the electrical tape). Another scenario would be that at some point, the energized 4,800-volt line came clear of the notch in the stick. The line may have swung away, and then back toward the ride frame and the decedent. He was unable to “catch” the line in the notch, and the energized line contacted the ride frame, and most likely, based on the pattern of electrical burn sustained by the decedent, contacted his upper body (40% body surface area). The electrical shock caused the decedent to be blown away from the ride frame and fall approximately 35-40 feet to the pavement below. The power line burnt through where it contacted the frame and broke into two sections that hung from nearby poles. There were burn and arc marks on the ride frame. The decedent was not using electrically rated personal protective equipment and was not wearing a fall protection harness. The decedent was declared dead at the scene.

MIOSHA Occupational Safety and Health Division issued the following Serious citations at the conclusion of its investigation.

SERIOUS: PERSONAL PROTECTIVE EQUIPMENT, PART 33

- **RULE 3308(1)**
There was no assessment of the workplace to determine if hazards that necessitated the use of personal protective equipment were present, or were likely to be present.

No hazard assessment conducted, Personal Protective Equipment Assessment – amusement ride sites.

- RULE 3390(1)

An employee was not safeguarded by a safety belt or safety harness secured to a lifeline or structure capable of sustaining the imposed load, when the employee's work station was more than 25 feet above the ground, floor, water, or other surface:

Employee standing on ride section, about 34 feet above the ground, without utilizing any approved fall protection.

SERIOUS: ELECTRICAL SAFETY-RELATED WORK PRACTICES, PART 40, RULE 4005(4)

When an unqualified person worked an elevated position near overhead lines, the person was not located so that the person and the longest conductive object he or she used could not come closer than the following distances to any unguarded, energized overhead line: (a) for voltages to ground of 50 kilovolts (kV) or less – 10 feet (ft.) or 305 centimeters (cm), and (b) for voltages to ground of more than 50 kV – 10 ft. (305 cm), plus 4 inches (in.) (10 cm) for every 10kV over 50kV:

Unqualified employee standing on ride section within about 1-foot of overhead power line.