Case 267. 60-year-old male plumber was electrocuted when he contacted a 120-volt energized electrical source while removing existing water pipes in the crawl space of a single-family residence.

60-year-old male plumber was electrocuted when he contacted a 120-volt energized electrical source while removing existing water pipes in the crawl space of a single-family residence. The decedent was a member of a two-person crew. He was using a Porter Cable Model 737 variable speed saw to cut piping in the crawl space, which had wet, damp sand. MIOSHA determined that an extension cord and portable GFCI in use appeared to be functional and in good shape; no defects were noted. MIOSHA photos taken in the crawl space show multiple locations of damaged NM/Romex style wiring. MIOSHA noted that it appeared that the electrical service was not grounded. The grounding electrode conductor came off the meter socket on west end of home, entered the crawl space, and was fastened to a ¾" galvanized water pipe. The home's piping system was being replaced. The piping system was interrupted by plastic bends and piping. The entry point of the ¾" PVC pipe water service was at the east end of home. One ground rod was driven at the east end of the home for grounding of the cable TV system and was not connected to the electrical service. The responding police officer, who was also a licensed plumber, speculated that the decedent was killed while reaching across energized wiring to cut out existing water pipes extending down through the floor. The incident occurred west of a PVC piping transition piece. The decedent had burn marks across his upper left shoulder and across his face and mouth area, consistent with contact with a wire or something in a generally linear direction. There were no exit or burn marks noted on his hands, feet or any other body part. The decedent's coworker had left the crawl space to remove pipe, and when he returned, he noted the decedent was not moving. His coworker yelled at him, crawled closer and noticed the saw was running in the dirt with the decedent's hand still on it. His coworker exited the crawl space and yelled to the homeowner to call 911. The coworker shut off all the breakers in the electrical panel on the porch. A neighbor and the decedent's coworker went into the crawl space and pulled decedent out of the space. EMS arrived and the decedent was transported to a local hospital where he was declared dead.

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

SERIOUS: GENERAL RULES, PART 1, Rule 114(1)

> A copy of the accident prevention program was not maintained at the jobsite.
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> No safety plan available to employees for recognition of hazards including electrical hazard procedures. Employees unable to access plan to verify safe work practice procedures.

SERIOUS: ELECTRICAL INSTALLATIONS, PART 17

- RULE 1724(2)

  Before work begins, a competent person shall ascertain by inquiry, observation, or instruments whether any part of an electric power circuit, exposed or concealed, is so located that, in performance of the work, contact by an employee, tool, or equipment can be made with the circuit.

  Observation and inspection of work space under home not conducted to identify unsafe electrical conditions prior to employees starting work. Employee electrocuted by exposed, 120 volt energized electrical source while removing existing water piping system.

- RULE 1724(3)

  An employee shall not be permitted to be in proximity to any part of an electric power circuit that he may contact unless the employee is protected against electric shock by de-energizing the circuit and locking out and tagging it, or unless the employee working on an energized circuit is guarded by insulation, insulated tools, or insulating matting or blankets sufficient to protect against the voltage involved.

  Employees using electric tools and hand tools not protected against electrical shock hazard while working in crawl space under home. Employee electrocuted by exposed, 120 volt energized electrical source while removing existing water piping system.