Electrical Safety Case Study #1

A 30-year-old male electrical technician was helping a company service representative test the voltage-regulating unit on a new rolling mill. While the electrical technician went to get the equipment service manual, the service representative opened the panel cover of the voltage regulator's control cabinet in preparation to trace the low-voltage (120 V) wiring in question (the wiring was not color-coded). The service representative was not using PPE.



Worker was performing testing on the circuit without PPE.

What should have been done before the cover was removed?

The service representative climbed onto a nearby cabinet in order to view the wires. The technician returned and began working inside the control cabinet, near exposed, energized electrical conductors. The technician tugged at the low-voltage wires while the service representative tried to identify them from above.

Suddenly, the representative heard the victim making a gurgling sound and looked down to see the victim shaking as though he were being shocked. Cardiopulmonary resuscitation (CPR) was administered to the victim about 10 minutes later. He was pronounced dead almost 2 hours later as a result of his contact with an energized electrical conductor.

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List the procedures and steps that should have implemented to prevent this accident.
What personal protective equipment should have been used?

Electrical Safety Case Study #2

worker was attempting to correct an electrical problem involving two non-operational lamps. He examined the circuit in the area where he thought the problem was located. He had not shut off the power at the circuit breaker panel and did not test the wires to see if they were live. He was electrocuted when he grabbed the two live wires with his left hand. He collapsed to the floor and was found dead.



prevent this accident?
Describe the steps in the procedures

Electrical Case Study #3

An oriented-strand board manufacturer operated its plant on a 24-hour, 7-day work week with two 12-hours shifts. Shift changes occurred at 8:00 am and 8:00 pm. At approximately 8:30 pm on January 18, 2001, a wet hog, which was located in a wood room, dropped off line and would not operate.

The wet hog was used to grind tree bark and wood residue into a wet fuel used in wet-fuel burners in the plant. The wet hog was not essential to the operation of the plant, and whether or not it was operating had no effect on other operations in the plant.

An electrician was assigned to repair the hog. At approximately 10:30 pm, he entered the motor control room and opened a 2300-volt motor circuit breaker. He caused an electrical fault in the circuit breaker, apparently by contacting energized parts inside the circuit breaker cubicle, and the ensuing electric arc burned the employee and ignited his clothing.

He sustained burns over 90 percent of his body, 60 percent of which were third-degree burns. Even thought he was badly burned, he departed the motor control center and walked approximately 43 meters to the first aid room. A nearby employee doused the remaining flames with water from a water cooler.

Two emergency medical technicians who worked at the plant went to the first aid room and administered first aid to the injured employee. Emergency medical services arrived a few minutes later and transported the electrician to a hospital where he was admitted for treatment. The electrician died the next day at 12:11 pm.

What actions could have been implemented to prevent this fatality?

Electrical Case Study #4

A sole owner (without employees) of a contracting firm was performing maintenance and repair work for a cork processing company.

He was working on the motor for a Nu Vac 480-volt, 14.9-kilowatt pneumatic roof-mounted conveyor system. He found the motor to be running roughly. As he was examining it, the motor tripped the electric starter.

He went to the electrical room on the third floor of the building to open the Square D 60-ampere, standard-duty disconnect switch rated at 600 volts. An explosion and electrical fault occurred, involving not only the switch but also a portion of the surrounding electric equipment.

The ensuing electric arc burned the contractor. He was hospitalized with first- and second-degree burns to his right hand and arm and his face.

The company processed cork, including grinding, sifting, and blending cork. Because of inadequate housekeeping, combustible cork dust was present throughout the electrical room. The open-type electric equipment was unsuitable for use in Class II, Division 1 or 2 locations.

what procedures and policies could have been put in place to prevent this injury?