

### **33 Electrocution---Inspection #1343126 David H Elliot Construction**

A **27 year old male** was electrocuted when he contacted an energized component of an overhead power line during the task of relocating an energized 13.8 kV distribution line from a wood pole to a steel utility pole. The employer had been contracted to install new power poles and relocate the two perpendicular existing three-phase, 13,800-volt (phase to ground) powerline onto the new pole 50-55 feet above ground level.

Prior to the accident the crew had installed the new junction pole adjacent to the old wood pole. After installing the pole, the victim (lineman) and an apprentice transferred the top three-phase and neutral electrical lines. Then the lineman transferred the first phase on the bottom fiberglass cross arm and installed the cutout. The lineman had installed conductor covers (line hoses) on both sides of all 6 phase lines on both the steel and wood poles. The lineman had jumpers that connected the top 3 phase lines to the bottom perpendicular 3 phase lines. The lineman had insulating blankets over the insulators that were not being worked on.

At the time of the accident, the two workers were in different truck-mounted aerial buckets. The trucks were positioned in a manner that would allow work to be performed on both sides of the cross arm. The victim and the apprentice lineman could then attach the energized conductors to the insulators on their respective sides of the cross arm. The two men raised the middle conductor from the insulator on the wood pole and moved it to the middle insulators on the fiberglass cross arm. The apprentice secured the conductor in the insulator on the steel pole with the fiberglass cross arm on his side of the pole. After he finished the work on his side of the steel pole he covered the conductor and insulator with an insulating blanket.

The victim started to wire the conductor to the insulator, which means an aluminum wire is wrapped around the conductor and insulator. The victim had begun to wrap (in a circular motion) the 6 inch tail around the conductor to properly secure the wire when he apparently touched an energized component. It was also determined that his back/shoulder was

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in contact with a metal bolt on the fiberglass cross arm that was grounded which allowed current to flow across his body therefore electrocuting him.

The lineman (the victim) was wearing rubber sleeves, Kimar class 3 gloves that were covered by a pair of leather protectors that meet the ASTM f 696 standard. The left hand leather gloves had burn marks on the outside of the glove on the thumb, index finger, and middle finger. The left hand interior Kimar glove had burn marks on the inside of the glove and no external heat damage on the outside of the glove. The right hand glove had heat damage and was tacky/sticky on the outside of the glove.

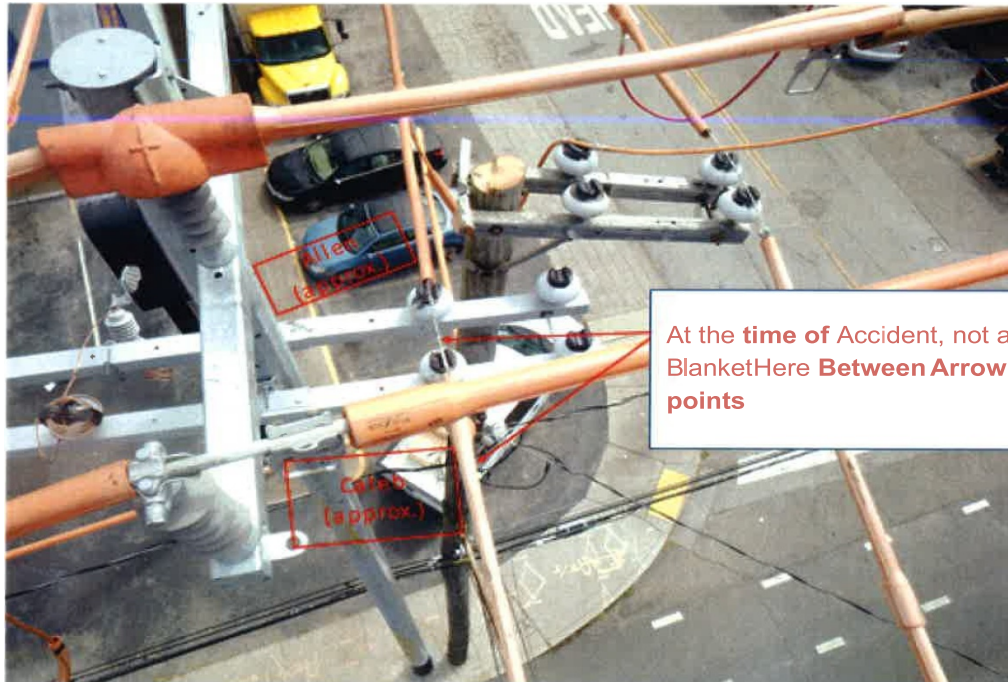
Another theory of what happened was that high temps that day caused sweat to pool inside the victim's gloves and somehow in the process of wrapping the conductor around the insulator, the sweat dripped onto the energized line creating a path to ground through the victim since he was also touching the metal bolt on the pole.

#### **Citation(s) as Originally Issued**

A complete inspection was conducted at the accident scene. Some of the items cited may not directly relate to the fatality.

No citations were issued as a result of this inspection.

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**Description:** This photo shows the insulator where point of contact was made. Not visible from the photo, but the aluminum wire was burned in two at the (blue arrow)



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**De cription:**

This photo shows the bolt that secured the fiberglass cross arm to the utility pole (blue arrow) that was the ground point of contact.

