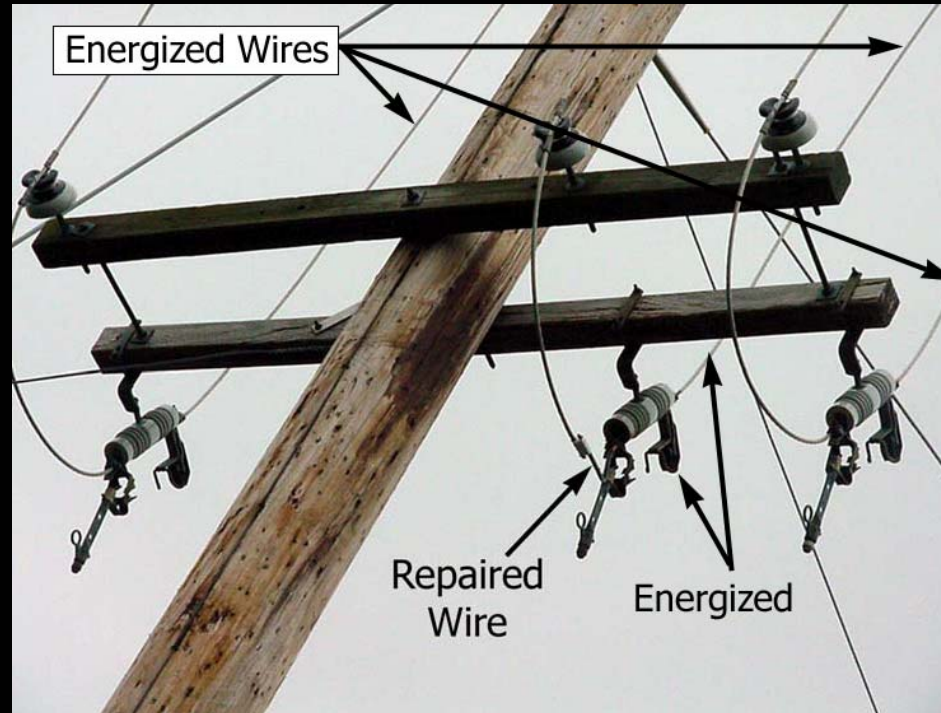


*This presentation is for illustrative and **general** educational purposes only and is not intended to substitute for the official MSHA Investigation Report analysis nor is it intended to provide the sole foundation, if any, for any related enforcement actions.*

# GENERAL INFORMATION

## Coal Mine Fatal Accident 2004-17



Operator:	Hobet Mining, Inc.
Mine:	Hobet 21 Surface Mine
Accident Date:	August 29, 2004
Classification:	Electrical
Location:	District 4, Boone County, WV
Mine Type:	Surface
Employment:	306
Production	14,000 Tons/Day

# ACCIDENT DESCRIPTION

The mine operator discovered that a burned fuse link on a high voltage, pole-mounted, disconnect had resulted in a gap of 8-9" between the base of the middle phase knife switch and the load-side conductor.

A high voltage crew (independent contractor), consisting of a foreman and a lineman, arrived the following day to correct the problem. The foreman used a hot stick to open the disconnects at the damaged area and prepared a piece of copper wire to splice into the gap.

The lineman climbed the pole to make the connections. Grounding jumpers were not hooked to the high voltage lines on the de-energized side of the disconnects prior to conducting the repair work.



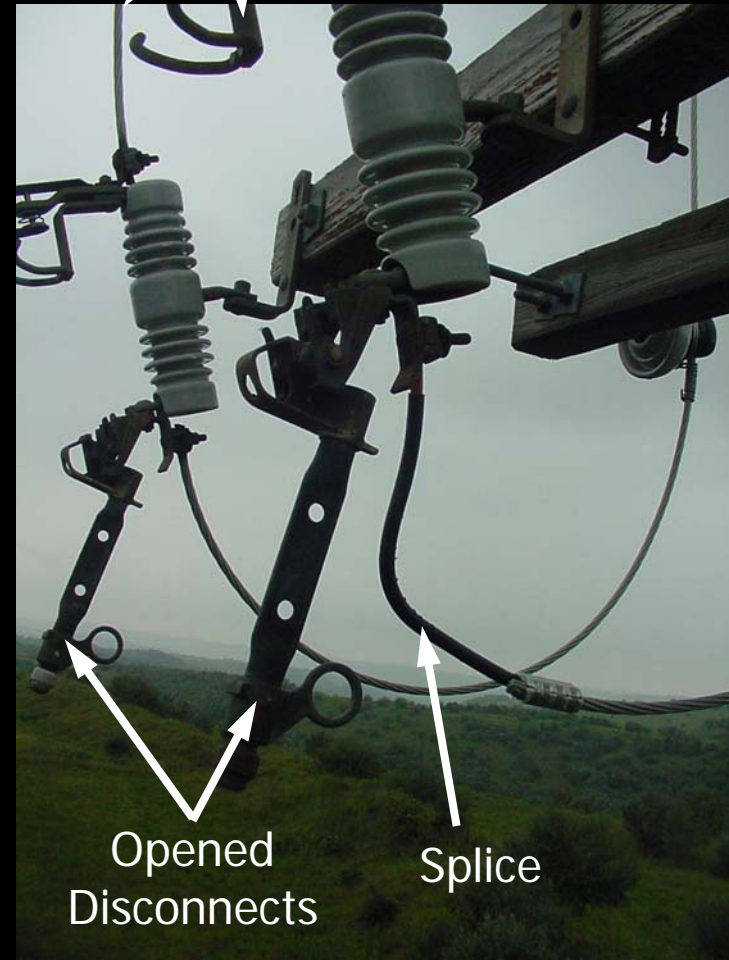
# ACCIDENT DESCRIPTION

The foreman watched from the ground as the lineman, who was not a certified electrician, installed the splice within close proximity to the line side of the disconnects, which were energized with 12,470 volts.

After the splice was complete, the foreman turned and started walking toward the truck. After taking several steps he heard an electrical arc as the lineman contacted high voltage electricity. The foreman turned toward the power pole and observed the lineman falling down the pole.

The victim was transported by helicopter to a hospital where he expired the following day.

Energized Load-Side Conductors



# ROOT CAUSE ANALYSIS

*Causal Factor:* Proper procedures were not followed in disconnecting, locking out, tagging, de-energizing, and grounding the 12,470 VAC circuit before electrical work was performed on the effected electric equipment and lines.

*Corrective Actions:* The contractor shall address the proper procedures for disconnecting, locking out, and tagging before electrical work is performed on the effected electrical equipment and lines. Under the operator's newly adopted policy (Electrical High Voltage Contractor Safety Program) a mine supervisor will go to the site of the electrical problem and discuss the contractor's plan to safely perform the repair. The contractor will be given information on the electrical distribution system for that area. The operator's Manager of Safety will provide the contractor with any Safe Job Procedures that Pertain to the electrical work that they are doing. The contractor will be expected to comply with the Safe Job Procedures while on mine property.

# ROOT CAUSE ANALYSIS

*Causal Factor:* The victim was incorrectly task trained by the contractor. They were trained that it is safe to perform work on high voltage power after de-energizing the set of disconnects mounted on the same pole where the repair work is to be performed. Contractor employees stated that it is normal company policy to perform repairs this way. Also the contractor could not provide MSHA personnel with a 5000-23 form to indicate that he received Newly Employed Experience Miner Training, and Task Training.

*Corrective Actions:* Training records were reviewed and all persons with training deficiencies received additional training as required. In addition, a new policy was implemented by the mine operator, addressing the training of independent contractors performing work on mine property. The operator is to receive the independent contractor's MSHA Training Plan Approval Letter prior to the independent contractor performing work on mine property. The operator is to receive a list of all contract employees' training and a list of their certification numbers, certified by MSHA and WVOMHST, to make pre-shift and on-shift examinations and to perform electrical work.

# ROOT CAUSE ANALYSIS

*Causal Factor:* Contractor employees entering mine property, proceeded to the work site, and performed repairs without making contact with the operator.

*Corrective Actions:* The operator has adopted new policy, which is outlined in the training plan, that requires contractors to stop at one of the operator's security offices and check in with the security officer. If the contractor is unable to provide their intended destination to the security officer, they will not be logged in and allowed on the property until the security officer is able to ascertain this information. If the contractor employees have not been hazard trained, the security officer will provide hazard training, log the individuals in, and have them sign and date a form attached as: High Voltage Electrical Contractor Check-In/Out Form. Upon arrival at the appropriate location, the Mine Clerk, Warehouse Clerk, or authorized employee will notify the Supervisor in charge of the electrical repair or project.

# ROOT CAUSE ANALYSIS

*Causal Factor:* The victim, an uncertified person, performed electrical work within close proximity to energized high voltage. Electrical power was deenergized at the pole mounted disconnects where the repair was being made rather than the substation or a set of disconnects located ¼ mile away.

*Corrective Actions:* The independent contractor's Employee Handbook & Safety Manual addresses electrical work performed (Awareness-Work Rules): A certified electrician will perform all electrical work according to MSHA standards. The mine operator's new policy and safety procedures for independent contractors performing electrical work on mine property is addressed in the training plan. The supervisor in charge of the electrical repair will request to see the contractor employees' electrical certification cards and a photo ID of all contractor employees who will be performing work for which certification is necessary. All affected persons were retrained in these requirements.



# ROOT CAUSE ANALYSIS

*Causal Factor:* Mine management was not aware that contract employees were on mine property to make the high voltage line repair. The Preparation Plant Manager was the only person of the mine management team that met the contract employees on mine property. He explained to the contractors that he was in the process of vulcanizing an overland conveyor belt and that power could not be interrupted at that time. He also told the contract foreman to report to the warehouse so a mine foreman could accompany them. However the contract foreman proceeded with the repair before reporting to the warehouse. This may be the reason why the incorrect set of disconnects were pulled at the repair site.

*Corrective Actions:* The mine operator's new training plan prevents communication problems. Upon arrival, a contractor must stop at a security office and notify the security officer of their destination. Upon arrival at the appropriate location, the Mine Clerk, Warehouse Clerk, or other authorized employee will notify the Supervisor in charge of the project. In addition, prior to performing any high voltage power line electrical repairs or maintenance, a mine supervisor will distribute a copy of safe work procedures to each high voltage power line electrical contractor and review it with them. Copies of this procedure will be issued to the Mine Manager and Preparation Plant Manager and reviewed with all mine supervisory employees.

# CONCLUSION

The accident resulted from failure to follow the proper procedures for disconnecting, locking out, tagging, deenergizing and grounding the electrical circuit before performing work.

Contributing to the accident was a lack of communication between the contractor and operator.

# ENFORCEMENT ACTIONS

104(d)(1) Citation was issued to Williams Electric Co. for a violation of 30 CFR 77.704-1(b) in that all power circuits were not deenergized on the power pole where electrical repairs were being performed by the lineman. The line side of the disconnects on the power pole remained energized at 12,470 VAC while repairs were made. The lineman, a non-certified electrician, while during the repair work, was under the direct supervision of a foreman for the independent contractor.

104(d)(1) Order was issued to Williams Electric Co. for a violation of 30 CFR 77.501 in that the disconnecting devices were not locked out and suitably tagged by the person who performed electrical work on the high voltage line disconnects at the power pole where electrical repairs were being performed by the lineman.

# ENFORCEMENT ACTIONS

104(d)(1) Order was issued to Williams Electric Co. for a violation of 30 CFR 48.27(c) in that the independent contractor failed to instruct linemen in safe work procedures while working on high voltage lines. They trained their linemen that it is safe to perform work on high voltage power after only deenergizing the set of disconnects mounted on the same pole where the repair work is to be performed.

104(d)(1) Order was issued to Williams Electric Co. for a violation of 30 CFR 77.704 in that the foreman for the independent contractor, while on mine property, did not properly deenergize and ground the high voltage lines before work was performed on a broken high voltage wire where the middle high-voltage phase burned in two at a set of visible disconnects.

# BEST PRACTICES

- Never perform electrical work without proper qualifications, certification, and training.
- Ensure that equipment is de-energized, locked out, and tagged before performing electrical work.
- Check for proper grounding of power conductors where required.
- Use proper equipment (gloves, etc.) when performing electrical work.
- Comply with the safety rules, such as 30 CFR 77.704-1(a) and (b), to protect yourself and others.