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Electrical Safety for Contractors

MSHA 1020 (BP-20)

Contractors performing services or construction at a mine fall under the jurisdiction of the Federal Mine Safety and Health Act of 1977 (Mine Act). This means that contractors must comply with the Mine Act and the safety and health standards contained in Title 30 Code of Federal Regulations (30 CFR).

The Mine Safety and Health Administration (MSHA) is the Federal agency which administers the provisions of the Mine Act and enforces its requirements. MSHA issues citations and orders to contractors for violating safety and health laws. Each violation cited will result in the assessment of a civil penalty.

Contractors who perform work on mine property must be informed of hazards which exist on the property and are specific to the mine's operations.

Contractors and contractor employees have been injured and killed while performing work on mine property, such as construction and maintenance activities.

Remember to:

- Always obtain directions to the work area and information concerning potential mine hazards.
- Conduct work area examinations.
- Make sure equipment is safe to operate.
- Wear appropriate protective equipment.
- Wear safety belts and lines.

Many electrical accidents in mines occur when people perform jobs for which they're not qualified.

These people are working on or near energized conductors; they're operating equipment or working too near energized lines; they're working on equipment with inadequate frame grounding; or they're working around defective splices or insulation. The following safety tips are designed to help increase your safety awareness when working around electricity. These items are generic and applicable to most types of electrical systems when on or off mine property.

GENERAL SAFETY

- ✓ **ALWAYS** treat electricity with respect.
- ✓ **ALWAYS** be sure that all electric equipment frames and enclosures are effectively grounded.
- ✓ ALWAYS assume that all electrically-powered devices and power lines are energized (hot).
- ✓ **ALWAYS** follow all safety rules and procedures – short cuts can kill.
- ✓ **ALWAYS** report any unsafe conditions immediately, and remove defective equipment from service.
- ✓ ***REMEMBER*** – *Only qualified electricians/ helpers should do electrical work.*

WORK PRACTICES

- ✓ **ALWAYS** deenergize equipment and use lockout and tagout procedures to ensure that equipment is not accidentally started while troubleshooting or attempting to make repairs - make sure equipment is grounded.
  - ♦ Electricians or mechanics may sometimes be called on to perform jobs during which energized circuits and/or machinery motion are required for making certain tests and adjustments. Such work (without lockout) should be performed only when absolutely necessary and then **ONLY BY TRAINED AND QUALIFIED PERSONS** using appropriate tools and equipment.

- ✓ **ALWAYS** block equipment against inadvertent movement.
- ✓ **ALWAYS** use the right tools for the job.
- ✓ **ALWAYS** use proper tools and personal protective equipment when operating disconnect switches to avoid injury from arcing or electrical contact.

POWER LINES

- ✓ **ALWAYS** be careful around power lines.
- ✓ **ALWAYS** keep mobile equipment such as cranes and trucks at least 10 feet away from any hot line.
- ✓ **NEVER** touch equipment operating near power lines.
- ✓ **NEVER** allow equipment to touch exposed high- or low-voltage power lines; overhead lines may be covered and appear to be insulated – but most are uninsulated.
- ✓ **ALWAYS** pay attention when carrying any long pieces of pipe, steel, or wood in the vicinity of overhead lines.

ELECTRICAL INSTALLATIONS

- ✓ **ALWAYS** stay out of electrical enclosures unless you're an authorized and qualified person. Electrical enclosures in substations are dangerous.
- ✓ **ALWAYS** be careful around mills, crushers, and processing plants. These installations have many potential electrical hazards.
- ✓ **ALWAYS** make sure electrical conductors, enclosures, and switchgear are protected from mechanical damage.

FUSES AND BREAKERS

- ✓ **ALWAYS** check for overheating wiring, melted insulation, or damaged wiring and equipment if fuses blow or breakers open constantly.
- ✓ **ALWAYS** make sure that circuit protection is appropriate for the equipment in use.
- ✓ **NEVER** change instantaneous settings on breakers unless you're an electrician.
- ✓ **NEVER** "wire out" or "bridge out" fuses. This practice can lead to potential electrocutions or fires.

TRAILING CABLES

- ✓ **ALWAYS** maintain cables in good condition; watch for cuts in insulation. A person touching a cable at such a place will be exposed to system voltage.
- ✓ **ALWAYS** use proper equipment to handle trailing cables.
- ✓ **NEVER** run over trailing cables with mobile equipment.
- ✓ **ALWAYS** be careful around trailing cable reels. The cable's under constant tension and can move or flex if the machine moves or stops. This motion of the cable can throw you to the ground.

BATTERY CHARGING

- ✓ **ALWAYS** wear appropriate personal protective equipment when working around batteries. Battery acid is a water-sulfuric acid mixture that when contacted can severely damage your skin and eyes.
- ✓ **ALWAYS** make sure battery charging takes place in a well-ventilated area. Battery charging produces explosive hydrogen gas.
- ✓ **ALWAYS** keep batteries clean and chargers well-maintained to minimize possible fire and explosion hazards.

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U.S. Department of Labor
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