

CHECKING THE SHOT

- ✓ **ALWAYS** measure the resistance of cap circuits and blasting caps with a blasting galvanometer.
- ✓ **NEVER** let a battery used to charge a blasting galvanometer come into contact with blasting cap wires.
- ✓ **ALWAYS** use a multimeter to test for stray current and current leakage.
- ✓ **NEVER** have any electric wires or cables near blasting caps (except the leadline) when getting ready to connect the leadline to the circuit.

FIRING THE SHOT

- ✓ **ALWAYS** make certain the blast area is clear of miners and equipment.
- ✓ **ALWAYS** use audible warning signals, and verbal and hand signals to make sure the blast area is clear.
- ✓ **ALWAYS** be sure the blast area and all access roads are adequately guarded.
- ✓ **ALWAYS** provide and use adequate protection from flyrock.

POSTSHOT SAFETY

- ✓ **ALWAYS** disconnect the leadline from the blasting machine and shunt the ends immediately after a blast.
- ✓ **NEVER** reenter the blasting area until all smoke, fumes, and dust have cleared.
- ✓ **ALWAYS** check faces and muck piles for misfires.
- ✓ **NEVER** handle a misfire in any way unless you're an experienced blaster.

- ✓ **ALWAYS** look for burning blasting materials. Clear the area immediately if you find any burning blasting materials.
- ✓ **ALWAYS** check highwalls for loose debris. Correct these problems before resuming work.
- ✓ **ALWAYS** sound an audible all clear signal to indicate the blast site and all access roads are clear and safe.
- ✓ **ALWAYS** wait at least one hour before going back on a shot when a misfire is detected.

Blasting and Explosives for Metal/Nonmetal Contractors

Best Practice Series BP-32



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 that 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.



Remember to:

- **NEVER** smoke or use open flames near explosive materials.
- **NEVER** transport detonators with other explosives.
- **ALWAYS** stop blasting operations if a storm is in the area.
- **NEVER** run equipment over loaded boreholes.
- **ALWAYS** provide adequate protection from flyrock.
- **NEVER** reenter the blasting area until the "all clear" is given.

Every part of the blasting cycle has the potential for serious accidents or injuries. Historically, the principal causes of surface metal/nonmetal blasting-related accidents include: premature detonation, impacting (drilling into) explosives, flyrock, cap or detonator accidents, extraneous electricity, improper transportation or handling of explosives, and improper guarding. The best practices listed on this card are generic and apply to all types of surface metal/nonmetal mining.

MAGAZINE SAFETY

- ✓ **NEVER** store detonators in the same magazine with other explosive materials.
- ✓ **ALWAYS** keep blasting caps under lock and key.
- ✓ **ALWAYS** keep magazines locked.
- ✓ **NEVER** use explosive materials that have become water soaked – even if they appear to have dried out.
- ✓ **ALWAYS** handle packages of blasting supplies carefully – don't throw or drop them.

- ✓ **NEVER** reuse packaging from explosive materials.
- ✓ **NEVER** smoke or use open flames anywhere near explosive materials.
- ✓ **ALWAYS** store explosives in their respective ATF approved magazines.

TRANSPORTING EXPLOSIVES

- ✓ **ALWAYS** transport explosives to the blast site in a timely manner.
- ✓ **NEVER** transport detonators with other explosives.
- ✓ **ALWAYS** maintain vehicles used to carry explosives in good condition. Make sure that the cargo space in the vehicle is properly maintained and complies with appropriate requirements.
- ✓ **ALWAYS** make sure the vehicle used to carry explosives is equipped with appropriate fire extinguishers or a fire suppression system. Check to see that fire extinguishers are charged and accessible.
- ✓ **NEVER** carry passengers when transporting explosives.
- ✓ **NEVER** transport explosives with other sparking materials.

DRILLING

- ✓ **NEVER** drill into explosive materials or into any hole that has contained explosive materials.

For additional information on drilling safety see Best Practice Card MSHA 1031, "Drilling for Metal/Nonmetal Contractors."

LOADING

- ✓ **ALWAYS** check holes for proper depth or obstructions before bringing explosive materials to the blast site.
- ✓ **ALWAYS** make sure the blast area is clear before loading a shot.
- ✓ **ALWAYS** continually check the weather around the blast site for storms and lightning.
- ✓ **ALWAYS** follow proper procedures when making up primers.
- ✓ **NEVER** prepare primers until right before placing them in the boreholes.
- ✓ **NEVER** use electric blasting caps during dust, snow, or electrical storms.
- ✓ **ALWAYS** stop blasting operations if a storm is in the area.
- ✓ **NEVER** force explosive materials into blocked boreholes.
- ✓ **ALWAYS** be alert for holes that have voids or open bottoms.
- ✓ **ALWAYS** use care when loading boreholes to minimize the potential of damaging insulation on leg wires.
- ✓ **NEVER** let connections touch the ground.
- ✓ **NEVER** use splices in boreholes.
- ✓ **NEVER** use tamping tools that may generate sparks, heat, or electrical current.
- ✓ **NEVER** load boreholes near electric power lines if there's any possibility that leg wires could contact power lines.
- ✓ **NEVER** run equipment over loaded boreholes.
- ✓ **NEVER** use electric blasting caps near radio transmitters or any source of static electricity.

Arrive Home Alive

U.S. Department of Labor
Mine Safety and Health Administration
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