352.241 Explosives and blasting devices in mines.

(1) Explosives or detonators carried anywhere underground by any person shall be in containers constructed substantially of nonconductive material, maintained in good condition, and kept closed.

(2) When explosives or detonators are transported underground in cars moved by means of a locomotive or rope, or in shuttle cars, they shall be in substantial covered cars or in special substantial covered containers used specifically for transporting detonators or explosives.

(a) The bodies and covers of the cars and containers shall be constructed or lined with nonconductive material.

(b) If explosives and detonators are hauled in the same explosives car or in the same special container, they shall be separated by at least a four (4) inch substantially fastened hardwood partition or the equivalent.

(c) Explosives, detonators, or other explosive items shall not be transported on the same trip with men.

(d) When explosives or detonators are transported in special cars or containers in cars, they shall be hauled in special trips not connected to any other trip. However, this does not prohibit the use of the additional cars as needed to lower a rope trip or to haul supplies including timbers. Materials so transported shall not project above the top of the car. Exposed highly flammable materials such as oil or grease shall not be hauled on the same trip with explosives.

(e) Explosives or detonators shall not be hauled into or out of a mine within five (5) minutes preceding or following a man trip or any other trip.

(3) Explosives and detonators shall be transported underground by belt only under the following conditions:

(a) In the original and unopened case, in special closed cases constructed of nonconductive material, or in suitable individual containers;

(b) Clearance requirements shall be the same as those for transporting men on belts;

(c) Suitable loading and unloading stations shall be provided; and

(d) Stop controls shall be provided at loading and unloading points, and an attendant shall supervise the loading and unloading of explosives and detonators.

(4) Neither explosives nor detonators shall be transported on flight or shaking conveyors, scrapers, mechanical loading machines, locomotives, cutting machines, track drills, or any self-propelled mobile equipment. However, this does not prohibit the transportation of explosives or detonators in special substantial covered containers as used in subsection (2) of this section in shuttle cars or in equipment designed especially to transport explosives or detonators.

(5) When supplies of explosives and detonators for use in one (1) or more sections are stored underground, they shall be kept in section boxes or magazines of substantial

construction with no metal exposed on the inside, located at least twenty-five (25) feet from roadways and power wires, and in a reasonably dry, well-rock-dusted location protected from falls of roof. In pitching beds, where it is not possible to comply with the location requirement, the boxes shall be placed in niches cut into the solid coal or rock.

(6) When explosives or detonators are stored in the section, they shall be kept preferably in separate boxes or magazines not less than five (5) feet apart; if kept in the same box or magazine, they shall be separated by at least a four (4) inch substantially fastened hardwood partition or the equivalent. Not more than a forty-eight (48) hour supply of explosives or detonators shall be stored underground in any one (1) section in the boxes or magazines.

(7) Explosives and detonators stored near the working faces shall be in separate closed containers, and shall be in a location out of line of blast not less than fifty (50) feet from the face and fifteen (15) feet from any pipeline, powerline, rail, or conveyor; except that if kept in niches in the rib, the distance from pipeline, powerline, rail, or conveyor shall be at least fifteen (15) feet. Explosives and detonators, when stored, shall be separated by a distance of at least ten (10) feet.

(8) Explosives and detonators shall be kept in their containers until immediately before use at the working faces.

(9) Only nonmetallic tools shall be used for opening wooden explosives containers. Tools or other materials shall not be stored with explosives or detonators.

(10) All explosives used underground in underground mines, except in sinking shafts and slopes from the surface, shall be of the permissible type, specifically designed and manufactured for underground use, and shall be used as follows:

(a) Fired only with electric detonators of proper strength;

(b) Fired with a permissible shot-firing unit of adequate capacity to fire all caps; however, if firing is done from the surface when all men are out of the mine, the firing unit does not need to meet specifications of permissibility;

(c) Where the coal is cut, shots shall not be fired if the blast hole is drilled beyond the limits of the cut;

(d) Boreholes shall be cleaned, and they shall be checked to see that they are placed properly and are of correct depth, in relation to the cut, before being charged;

(e) All blasting charges shall have a burden of at least eighteen (18) inches in all directions if the height of the seam permits;

(f) Boreholes shall be stemmed with at least twenty-four (24) inches of incombustible material, or at least one-half (1/2) of the length of the hole shall be stemmed if the hole is less than four (4) feet in depth unless other permissible stemming devices or methods are used;

(g) Examinations for gas shall be made immediately before firing each shot or group of multiple shots and after blasting is completed;

(h) Shots shall not be fired in any place where methane greater than one percent (1%) can be detected with approved gas detection devices when tested at a point not less than twelve (12) inches from the roof, face, or rib;

(i) Charges exceeding one and one-half (1-1/2) pounds, but not exceeding three (3) pounds, shall be used only if boreholes are six (6) feet or more in depth, the explosives are charged in a continuous train, with no cartridges deliberately deformed or crushed, with all cartridges in contact with each other, and with the end cartridges touching the back of the hole and the stemming respectively. However the three (3) pound limit does not apply to special solid rock work if the mine is evacuated or if approved by the department;

(j) Shots shall be charged and fired by certified shotfirers designated by the mine foreman;

(k) Boreholes shall not be charged while any other work is being done at the face, and the shot or shots shall be fired before any other work is done in the zone of danger from blasting except that which is necessary to safeguard the employees;

(l) Only nonmetallic tamping bars shall be used for charging and tamping boreholes. This does not prohibit the use of a nonmetallic tamping bar with a nonsparking metallic scraper on one (1) end;

(m) The leg wires of electric detonators shall be kept shunted until ready to connect to the firing cable;

(n) Shots shall not be fired from the power of signal circuit while any men are in the mine;

(o) The roof and ribs of working places shall be tested before and after firing each shot or group of multiple shots;

(p) Ample warning shall be given before shots are fired, and care shall be taken to ascertain that all persons are in the clear. Men shall be removed from adjoining working places when there is danger of a shot blowing through;

(q) Mixed types or brands of explosives shall not be charged or fired in any borehole;

(r) Mudcaps (adobes) or other unconfined shots shall not be fired underground in a mine;

(s) Before blasting, the continuity of the blasting circuits shall be tested with a permissible blaster's galvanometer specifically designed for this purpose;

(t) No instantaneous detonator shall be connected in a circuit containing short-period delay detonators. The first charge in a sequence shall be initiated by a short period delay detonator having a nominal delay period of not less than twenty-five (25) milliseconds;

(u) All short period delay detonators shall be wired in series;

(v) Each primer shall be made with care to insure that the detonator is inserted properly and does not protrude from the wrapping and that the leg wires are

secured to the cartridge in a manner so that the detonator will not become dislodged in handling and charging;

(w) In making a primer, a powder punch of nonsparking material shall be used. The hole in the cartridge shall be at least one-half (1/2) inch deeper than the detonator used. Rolling the end of a cartridge to receive a detonator is prohibited;

(x) The primer shall be placed in the borehole first pointing outward and the rest of the charge shall be pushed in a continuous train to the back of the borehole to prevent cuttings from getting between the cartridges; and

(y) Suitable clean-up of loose coal and coal dust with adequate rock-dusting or wetting down at the face of each working place shall be completed prior to charging shot holes.

(11) Blasting cables shall be:

(a) Well insulated and as long as may be necessary to permit the shotfirer to get in a safe place around a corner;

(b) Short-circuited at the battery end until ready to attach to the blasting unit;

(c) Staggered as to length or the ends kept well separated when attached to the detonator leg wires; and

(d) Kept clear of power wires and all other possible sources of active or stray electric current.

(12) Where misfires occur with electric detonators, a waiting period of at least five (5) minutes shall elapse before anyone returns to the shot. After the failure, the blasting cable shall be disconnected from the source of power and the battery ends short-circuited before electric connections are examined.

(13) Explosives shall be removed by firing a separate charge at least two (2) feet away from, and parallel to, the misfired charge or by washing the stemming and the charge from the borehole with water, or by inserting and firing a new primer after the stemming has been washed out.

(14) A very careful search of the working place and, if necessary, of the blasted material after it reaches the surface shall be made after blasting a misfired hole, to recover any undetonated explosive.

(15) The handling of a misfired shot shall be under the direct supervision of the mine foreman or a competent person designated by him.

Effective: July 15, 2002

History: Amended 2002 Ky. Acts ch. 355, sec. 17, effective July 15, 2002. -- Amended 1996 Ky. Acts ch. 308, sec. 37, effective April 9, 1996. -- Amended 1982 Ky. Acts ch. 370, sec. 5, effective July 15, 1982. -- Amended 1980 Ky. Acts ch. 204, sec. 1, effective July 15, 1980. -- Amended 1976 (1st Extra. Sess.) Ky. Acts ch. 8, sec. 25. -- Amended 1976 Ky. Acts ch. 174, sec. 15. -- Created 1972 Ky. Acts ch. 303, sec. 22.

Legislative Research Commission Note (4/9/96). The action taken with respect to this statute by 1996 Ky. Acts ch. 308 was to have become effective April 8, 1996, under Section 51 of that Act. The Act, however, did not become effective until April 9, 1996, when the Governor's signed copy of the Act was filed with the Secretary of State.