

(g) No person shall be permitted to ride the rim of any bucket or on the top of a loaded bucket.

(h) The number of persons permitted to ride in cages, skips, or buckets shall be limited so as to prevent overcrowding.

(i) Persons shall not be permitted to ride on a cage, skip, or bucket with tools or materials, except when necessary to handle equipment while in transit. Materials shall be secured to prevent shifting while being hoisted.

(j) The speed of buckets transporting persons shall not exceed 500 feet per minute and not more than 200 feet per minute when within 100 feet of any stop.

(k) A notice of established speeds shall be posted in clear view of the hoistman.

(l) Conveyances being lowered in a shaft in which men are working shall be stopped at least 15 feet above such men and shall be lowered further only after the hoistman has received a signal that all men who may be endangered by the conveyance are in the clear.

(m) No skip or bucket shall be raised or lowered in a slope or shaft until it has been trimmed to prevent material from falling back down the slope or shaft.

(n) Measures shall be taken to prevent material from falling back into the shaft while buckets or other conveyances are being unloaded.

(o) Properly attached safety belts shall be worn by all persons required to work in or over any shaft where there is a drop of 10 or more feet, unless other acceptable means are provided to prevent such persons from falling into the shaft.

§ 77.1908-1 Hoist operation; qualified hoistman.

Hoists shall be under the control of and operated by a qualified hoistman when men are in a slope or shaft.

§ 77.1909 Explosives and blasting; use of permissible explosives and shot-firing units.

Except as provided in § 77.1909-1, only permissible explosives and permissible shot-firing units shall be used in sinking shafts and slopes.

§ 77.1909-1 Use of nonpermissible explosives and nonpermissible shot-firing units; approval by Health and Safety District Manager.

Where the Coal Mine Health and Safety District Manager has determined that the use of nonpermissible explosives and nonpermissible shot-firing units will not pose a hazard to any person during the development of a slope or shaft, he may, after written application by the operator, approve the use of such explosives and shot-firing units and issue a permit for the use of such explosives and devices setting forth the safeguards to be employed by the operator to protect the health and safety of any person exposed to such blasting.

(Pub. L. No. 96-511, 94 Stat. 2812 (44 U.S.C. 3501 et seq.))

[36 FR 9364, May 22, 1971, as amended at 60 FR 33723, June 29, 1995]

§ 77.1910 Explosives and blasting; general.

(a) Light and power circuits shall be disconnected or removed from the blasting area before charging and blasting.

(b) All explosive materials, detonators, and any other related blasting material employed in the development of any slope or shaft shall be stored, transported, carried, charged, and fired in accordance with the provision of Subpart N, "Explosives and Blasting," of this Part 77. Except as provided in paragraph (c) of this section, all shots shall be fired from the surface.

(c) Where tests for methane have been conducted and methane has not been found and only permissible blasting units are being employed, shots may be fired from an upper level of the slope or shaft.

(d) Except as provided in paragraph (c) of this section, all men shall be removed from the slope or shaft prior to blasting.

(e) Blasting areas in slopes or shafts shall be covered with mats or other suitable material when the excavation is too shallow to retain blasted material.

(f) Where it is impracticable to prepare primers in the blasting area, primers may be prepared on the surface and

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carried into the shaft in specially constructed, insulated, covered containers.

(g) No other development operation shall be conducted in a shaft or at the face of a slope while drill holes are being charged and until after all shots have been fired.

(h) The sides of the slope or shaft between the overhead platform and the bottom where men are working shall be examined after each blast and loose material removed.

(i) Loose rock and other material shall be removed from timbers and platforms after each blast before men are lowered to the shaft bottom.

§ 77.1911 Ventilation of slopes and shafts.

(a) All slopes and shafts shall be ventilated by mechanical ventilation equipment during development. Such equipment shall be examined before each shift and the quantity of air in the slope or shaft measured daily by a certified person and the results of such examinations and tests recorded in a book approved by the Secretary.

(b) Ventilation fans shall be:

- (1) Installed on the surface;
- (2) Installed in fireproof housing and connected to the slope or shaft opening with fireproof air ducts;
- (3) Designed to permit the reversal of the air current, and located in an area which will prevent a recirculation of air from the slope or shaft or air contamination from any other source;
- (4) Equipped with an automatic signal device designed to give an alarm in the event the fan slows or stops which can be seen or heard by any person on duty in the vicinity of the fan, except where fans are constantly attended.

(5) Offset not less than 15 feet from the shaft; and

(6) Equipped with air ducts which are fire resistant and maintained so as to prevent excessive leakage of air;

(i) Flexible ducts shall be constructed to permit ventilation by either exhausting or blowing methods and when metal air ducts are used, they shall be grounded effectively to remove static and other electrical charges;

(ii) Ducts shall extend as close to the bottom as necessary to ventilate properly.

(c) A qualified person, designated by the operator, shall be assigned to maintain each ventilating system.

(d) The fan shall be operated continuously when men are below the surface. Any accidental stoppage or reduction in airflow shall be corrected promptly; however, where repairs cannot be made immediately, development work below the surface shall be stopped and all the men not needed to make necessary repairs shall be removed to the surface.

§ 77.1912 Ladders and stairways.

(a) Substantial stairways or ladders shall be used during the construction of all shafts where no mechanical means are provided for men to travel.

(b) Landings at intervals of not more than 30 feet shall be installed.

(c) Shaft ladders shall project 3 feet above the collar of the shaft, and shall be placed at least 3 inches from the side of the shaft.

§ 77.1913 Fire-resistant wood.

Except for crossties, timbers, and other wood products which are permanently installed in slopes and shafts, shall be fire resistant.

§ 77.1914 Electrical equipment.

(a) Electric equipment employed below the collar of a slope or shaft during excavation shall be permissible and shall be maintained in a permissible condition.

(b) The insulation of all electric conductors employed below the collar of any slope or shaft during excavation shall be of the flame resistant type.

(c) Only lamps and portable flood lights approved by the Bureau of Mines or the Mine Safety and Health Administration under Part 19 and Part 20 of this chapter (Bureau of Mines Schedules 6D and 10C) shall be employed below the collar of any slope or shaft.

§ 77.1915 Storage and handling of combustible materials.

(a) Compressed and liquefied gas, oil, gasoline, and other petroleum products shall not be stored within 100 feet of any slope or shaft opening.

(b) Other combustible material and supplies shall not be stored within 25 feet of any slope or shaft opening.