(2) Within nine months after the operative date of this subchapter, all areas from which pillars have been wholly or partially extracted and abandoned areas, as determined by the Secretary or his authorized representative, shall be ventilated by bleeder entries or by bleeder systems or equivalent means, or be sealed, as determined by the Secretary or his authorized representative. When ventilation of such areas is required, such ventilation shall be maintained so as continuously to dilute, render harmless, and carry away methane and other explosive gases within such areas and to protect the active workings of the mine from the hazards of such methane and other explosive gases. Air coursed through underground areas from which pillars have been wholly or partially extracted which enters another split of air shall not contain more than 2.0 volume per centum of methane, when tested at the point it enters such other split. When sealing is required, such seals shall be made in an approved manner so as to isolate with explosion-proof bulkheads such areas from the active workings of the mine.

(3) In the case of mines opened on or after the operative date of this subchapter, or in the case of working sections opened on or after such date in mines opened prior to such date, the mining system shall be designed in accordance with a plan and revisions thereof approved by the Secretary and adopted by such operator so that, as each working section of the mine is abandoned, it can be isolated from the active workings of the mine with explosion-proof seals or bulkheads.

(Pub. L. 91–173, title III, § 303, Dec. 30, 1969, 83 Stat. 767.)

REFERENCES IN TEXT

For the operative date of this subchapter, referred to in subsecs. (b), (*l*), (*o*), (q), (r), (t), (y), and (z)(2), (3), see section 509 of Pub. L. 91–173, set out as an Effective Date note under section 801 of this title.

BELT HAULAGE ENTRIES FOR VENTILATION

Pub. L. 110–161, div. G, title I, § 112(a), Dec. 26, 2007, 121 Stat. 2168, provided that: ''Not later than June 20, 2008, the Secretary of Labor shall propose regulations pursuant to section 303(y) of the Federal Mine Safety and Health Act of 1977 [30 U.S.C. 863(y)], consistent with the recommendations of the Technical Study Panel established pursuant to section 11 of the Mine Improvement and New Emergency Response (MINER) Act (Public Law 109–236) [enacting section 963 of this title], to require that in any coal mine, regardless of the date on which it was opened, belt haulage entries not be used to ventilate active working places without prior approval from the Assistant Secretary. Further, a mine ventilation plan incorporating the use of air coursed through belt haulage entries to ventilate active working places shall not be approved until the Assistant Secretary has reviewed the elements of the plan related to the use of belt air and determined that the plan at all times affords at least the same measure of protection where belt haulage entries are not used to ventilate working places. The Secretary shall finalize the regulations not later than December 31, 2008.''

§ 864. Combustible materials and rock dusting

(a) Accumulations; maintenance

Coal dust, including float coal dust deposited on rock-dusted surfaces, loose coal, and other combustible materials, shall be cleaned up and not be permitted to accumulate in active workings, or on electric equipment therein.

(b) Abatement of hazards in active working areas

Where underground mining operations in active workings create or raise excessive amounts of dust, water or water with a wetting agent added to it, or other no less effective methods approved by the Secretary or his authorized representative, shall be used to abate such dust. In working places, particularly in distances less than forty feet from the face, water, with or without a wetting agent, or other no less effective methods approved by the Secretary or his authorized representative, shall be applied to coal dust on the ribs, roof, and floor to reduce dispersibility and to minimize the explosion hazard.

(c) Rock dusting of all areas of underground mines; exceptions

All underground areas of a coal mine, except those areas in which the dust is too wet or too high in incombustible content to propagate an explosion, shall be rock dusted to within forty feet of all working faces, unless such areas are inaccessible or unsafe to enter or unless the Secretary or his authorized representative permits an exception upon his finding that such exception will not pose a hazard to the miners. All crosscuts that are less than forty feet from a working face shall also be rock dusted.

(d) Distribution of rock dust; places, quantities

Where rock dust is required to be applied, it shall be distributed upon the top, floor, and sides of all underground areas of a coal mine and maintained in such quantities that the incombustible content of the combined coal dust, rock dust, and other dust shall be not less than 65 per centum, but the incombustible content in the return aircourses shall be no less than 80 per centum. Where methane is present in any ventilating current, the per centum of incombustible content of such combined dusts shall be increased 1.0 and 0.4 per centum for each 0.1 per centum of methane where 65 and 80 per centum, respectively, of incombustibles are required.

(e) Limitation of applicability

Subsections (b) through (d) of this section shall not apply to underground anthracite mines.

(Pub. L. 91–173, title III, § 304, Dec. 30, 1969, 83 Stat. 774.)

§ 865. Electrical equipment

(a) Allowable equipment; replacements; maintenance; permits for noncompliance; renewals; limitations; list of electric face equipment; survey of new and rebuilt equipment; publication of results

(1) Effective one year after the operative date of this subchapter—

(A) all junction or distribution boxes used for making multiple power connections inby the last open crosscut shall be permissible;

(B) all handheld electric drills, blower and exhaust fans, electric pumps, and such other low horsepower electric face equipment as the

Secretary may designate within two months after the operative date of this subchapter which are taken into or used inby the last open crosscut of any coal mine shall be permissible;

(C) all electric face equipment which is taken into or used inby the last open crosscut of any coal mine classified under any provision of law as gassy prior to the operative date of this subchapter shall be permissible; and

(D) all other electric face equipment which is taken into or used inby the last crosscut of any coal mine, except a coal mine referred to in paragraph (2) of this subsection, which has not been classified under any provision of law as a gassy mine prior to the operative date of this subchapter shall be permissible.

(2) Effective four years after the operative date of this subchapter, all electric face equipment, other than equipment referred to in paragraph (1)(B) of this subsection, which is taken into or used inby the last open crosscut of any coal mine which is operated entirely in coal seams located above the watertable and which has not been classified under any provision of law as a gassy mine prior to the operative date of this subchapter and in which one or more openings were made prior to December 30, 1969, shall be permissible, except that any operator of such mine who is unable to comply with the provisions of this paragraph on such effective date may file with the Panel an application for a permit for noncompliance ninety days prior to such date. If the Panel determines, after notice to all interested persons and an opportunity for a public hearing under section 804 of this title, that such application satisfies the provisions of paragraph (10) of this subsection and that such operator, despite his diligent efforts, will be unable to comply with such provisions, the Panel may issue to such operator such a permit. Such permit shall entitle the permittee to an additional extension of time to comply with the provisions of this paragraph of not to exceed twenty-four months, as determined by the Panel, from such effective date.

(3) The operator of each coal mine shall maintain in permissible condition all electric face equipment required by this subsection to be permissible which is taken into or used inby the last open crosscut of any such mine.

(4) Each operator of a coal mine shall, within two months after the operative date of this subchapter, file with the Secretary a statement listing all electric face equipment by type and manufacturer being used by such operator in connection with mining operations in such mine as of the date of such filing, and stating whether such equipment is permissible and maintained in permissible condition or is nonpermissible on such date of filing, and, if nonpermissible, whether such nonpermissible equipment has ever been rated as permissible, and such other information as the Secretary may require.

(5) The Secretary shall promptly conduct a survey as to the total availability of new or rebuilt permissible electric face equipment and replacement parts for such equipment and, within six months after the operative date of this subchapter, publish the results of such survey.

(6) Any operator of a coal mine who is unable to comply with the provisions of paragraph (1)(D) of this subsection within one year after the operative date of this subchapter may file with the Panel an application for a permit for noncompliance. If the Panel determines that such application satisfies the provisions of paragraph (10) of this subsection, the Panel shall issue to such operator a permit for noncompliance. Such permit shall entitle the permittee to an extension of time to comply with such provisions of paragraph (1)(D) of not to exceed twelve months, as determined by the Panel, from the date that compliance with the provisions of paragraph (1)(D) of this subsection is required.

(7) Any operator of a coal mine issued a permit under paragraph (6) of this subsection who, ninety days prior to the termination of such permit, or renewal thereof, determines that he will be unable to comply with the provisions of paragraph (1)(D) of this subsection upon the expiration of such permit may file with the Panel an application for renewal thereof. Upon receipt of such application, the Panel, if it determines, after notice to all interested persons and an opportunity for a public hearing under section 804 of this title, that such application satisfies the provisions of paragraph (10) of this subsection and that such operator, despite his diligent efforts, will be unable to comply with the provisions of paragraph (1)(D), may renew the permit for a period not exceeding twelve months.

(8) Any permit or renewal thereof issued pursuant to this subsection shall entitle the permittee to use such nonpermissible electric face equipment specified in the permit during the term of such permit.

(9) Permits for noncompliance issued under paragraphs (6) or (7) of this subsection shall, in the aggregate, not extend the period of noncompliance more than forty-eight months after December 30, 1969.

(10) Any application for a permit of noncompliance filed under this subsection shall contain a statement by the operator—

(A) that he is unable to comply with paragraph (1)(D) or paragraph (2) of this subsection, as appropriate, within the time prescribed;

(B) listing the nonpermissible electric face equipment being used by such operator in connection with mining operations in such mine on the operative date of this subchapter and the date of the application by type and manufacturer for which a noncompliance permit is requested and whether such equipment had ever been rated as permissible;

(C) setting forth the actions taken from and after the operative date of this subchapter to comply with paragraph (1)(D) or paragraph (2) of this subsection, as appropriate, together with a plan setting forth a schedule of compliance with said paragraphs for each such equipment referred to in such paragraphs and being used by the operator in connection with mining operations in such mine with respect to which such permit is requested and the means and measures to be employed to achieve compliance; and

(D) including such other information as the Panel may require.

(11) No permit for noncompliance shall be issued under this subsection for any nonpermis-

sible electric face equipment, unless such equipment was being used by an operator in connection with the mining operations in a coal mine on the operative date of this subchapter.

(12) Effective one year after the operative date of this subchapter, all replacement equipment acquired for use in any mine referred to in this subsection shall be permissible and shall be maintained in a permissible condition, and in the event of any major overhaul of any item of equipment in use one year from the operative date of this subchapter such equipment shall be put in, and thereafter maintained in, a permissible condition, unless, in the opinion of the Secretary, such equipment or necessary replacement parts are not available.

(b) Notification of permits

A copy of any permit granted under this section shall be mailed immediately to a representative of the miners of the mine to which it pertains, and to the public official or agency of the State charged with administering State laws relating to coal mine health and safety in such mine.

(c) Gassy mines; maintenance of equipment

Any coal mine which, prior to the operative date of this subchapter, was classed gassy under any provision of law and was required to use permissible electric face equipment and to maintain such equipment in a permissible condition shall continue to use such equipment and to maintain such equipment in such condition.

(d) Location of nonpermissible power connection units

All power-connection points, except where permissible power connection units are used, outby the last open crosscut shall be in intake air.

(e) Mine map; contents; modifications

The location and the electrical rating of all stationary electric apparatus in connection with the mine electric system, including permanent cables, switchgear, rectifying substations, transformers, permanent pumps and trolley wires and trolley feeder wires, and settings of all direct-current circuit breakers protecting underground trolley circuits, shall be shown on a mine map. Any changes made in a location, electric rating, or setting shall be promptly shown on the map when the change is made. Such map shall be available to an authorized representative of the Secretary and to the miners in such mine.

(f) Repairs; deenergizing of equipment; authorized personnel; locking out of disconnection devices

All power circuits and electric equipment shall be deenergized before work is done on such circuits and equipment, except when necessary for trouble shooting or testing. In addition, energized trolley wires may be repaired only by a person trained to perform electrical work and to maintain electrical equipment and the operator of such mine shall require that such person wear approved and tested insulated shoes and wireman's gloves. No electrical work shall be performed on low-, medium-, or high-voltage distribution circuits or equipment, except by a qualified person or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified person. Disconnecting devices shall be locked out and suitably tagged by the persons who performed such work, except that, in cases where locking out is not possible, such devices shall be opened and suitably tagged by such persons. Locks or tags shall be removed only by the persons who installed them or, if such persons are unavailable, by persons authorized by the operator or his agent.

(g) Periodic examinations; maintenance; records; accessibility

All electric equipment shall be frequently examined, tested, and properly maintained by a qualified person to assure safe operating conditions. When a potentially dangerous condition is found on electric equipment, such equipment shall be removed from service until such condition is corrected. A record of such examinations shall be kept and made available to an authorized representative of the Secretary and to the miners in such mine.

(h) Electrical conductors

All electric conductors shall be sufficient in size and have adequate current-carrying capacity and be of such construction that a rise in temperature resulting from normal operation will not damage the insulating materials.

(i) Electrical connections

All electrical connections or splices in conductors shall be mechanically and electrically efficient, and suitable connectors shall be used. All electrical connections or splices in insulated wire shall be reinsulated at least to the same degree of protection as the remainder of the wire.

(j) Cables and wires; entry through metal frames

Cables shall enter metal frames of motors, splice boxes, and electric compartments only through proper fittings. When insulated wires other than cables pass through metal frames the holes shall be substantially bushed with insulated bushings.

(k) Support of power wires

All power wires (except trailing cables on mobile equipment, specially designed cables conducting high-voltage power to underground rectifying equipment or transformers, or bare or insulated ground and return wires) shall be supported on well-insulated insulators and shall not contact combustible material, roof, or ribs.

(*l*) Insulation of power wires; exceptions

Power wires and cables, except trolley wires, trolley feeder wires, and bare signal wires, shall be insulated adequately and fully protected.

(m) Circuit breakers; overload protection for three-phase motors

Automatic circuit-breaking devices or fuses of the correct type and capacity shall be installed so as to protect all electric equipment and circuits against short circuit and overloads. Three-phase motors on all electric equipment shall be provided with overload protection that will deenergize all three phases in the event that any phase is overloaded.

(n) Disconnecting switches for main power circuits; location and installation

In all main power circuits, disconnecting switches shall be installed underground within

five hundred feet of the bottoms of shafts and boreholes through which main power circuits enter the underground area of the mine and within five hundred feet of all other places where main power circuits enter the underground area of the mine.

(*o*) Switches

All electric equipment shall be provided with switches or other controls that are safely designed, constructed, and installed.

(p) Lightning arresters

Each ungrounded, exposed power conductor that leads underground shall be equipped with suitable lightning arresters of approved type within one hundred feet of the point where the circuit enters the mine. Lightning arresters shall be connected to a low resistance grounding medium on the surface which shall be separated from neutral grounds by a distance of not less than twenty-five feet.

(q) Nonapproved devices

No device for the purpose of lighting any coal mine which has not been approved by the Secretary or his authorized representative shall be permitted in such mine.

(r) Deenergizing of electric face equipment

An authorized representative of the Secretary may require in any mine that electric face equipment be provided with devices that will permit the equipment to be deenergized quickly in the event of an emergency.

(Pub. L. 91–173, title III, § 305, Dec. 30, 1969, 83 Stat. 775.)

REFERENCES IN TEXT

For the operative date of this subchapter, referred to in subsecs. (a)(1), (2), (4) to (6), (10)(B), (C), (11), (12), and (c), see section 509 of Pub. L. 91–173, set out as an Effective Date note under section 801 of this title.

§ 866. Trailing cables

(a) Requirements established for flame resistant cables

Trailing cables used in coal mines shall meet the requirements established by the Secretary for flame-resistant cables.

(b) Circuit breakers; markings and visual observation of position of disconnection devices

Short-circuit protection for trailing cables shall be provided by an automatic circuit breaker or other no less effective device approved by the Secretary of adequate current-interrupting capacity in each ungrounded conductor. Disconnecting devices used to disconnect power from trailing cables shall be plainly marked and identified and such devices shall be equipped or designed in such a manner that it can be determined by visual observation that the power is disconnected.

(c) Distribution center junctions; safety connections

When two or more trailing cables junction to the same distribution center, means shall be provided to assure against connecting a trailing cable to the wrong size circuit breaker.

(d) Temporary splices; usable period; exceptions; quality

One temporary splice may be made in any trailing cable. Such trailing cable may only be used for the next twenty-four hour period. No temporary splice shall be made in a trailing cable within twenty-five feet of the machine, except cable reel equipment. Temporary splices in trailing cables shall be made in a workmanlike manner and shall be mechanically strong and well insulated. Trailing cables or hand cables which have exposed wires or which have splices that heat or spark under load shall not be used. As used in this subsection, the term ''splice'' means the mechanical joining of one or more conductors that have been severed.

(e) Permanent splices; quality

When permanent splices in trailing cables are made, they shall be—

(1) mechanically strong with adequate electrical conductivity and flexibility;

(2) effectively insulated and sealed so as to exclude moisture; and

(3) vulcanized or otherwise treated with suitable materials to provide flame-resistant qualities and good bonding to the outer jacket.

(f) Clamping of cables

Trailing cables shall be clamped to machines in a manner to protect the cables from damage and to prevent strain on the electrical connections. Trailing cables shall be adequately protected to prevent damage by mobile equipment.

(g) Making and breaking of connections to junction boxes

Trailing cable and power cable connections to junction boxes shall not be made or broken under load.

(Pub. L. 91–173, title III, § 306, Dec. 30, 1969, 83 Stat. 779.)

§ 867. Grounding of equipment

(a) Metallic enclosed power conductors; metallic frames and other equipment; methods

All metallic sheaths, armors, and conduits enclosing power conductors shall be electrically continuous throughout and shall be grounded by methods approved by an authorized representative of the Secretary. Metallic frames, casings, and other enclosures of electric equipment that can become ''alive'' through failure of insulation or by contact with energized parts shall be grounded by methods approved by an authorized representative of the Secretary. Methods other than grounding which provide no less effective protection may be permitted by the Secretary or his authorized representative.

(b) Frames of offtrack direct current machines; enclosures of related detached components

The frames of all offtrack direct current machines and the enclosures of related detached components shall be effectively grounded, or otherwise maintained at no less safe voltages, by methods approved by an authorized representative of the Secretary.

(c) Stationary high-voltage equipment powered by underground delta systems

The frames of all stationary high-voltage equipment receiving power from ungrounded