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## HOUSE BILL NO. 2471

House Amendments in [ ] - January 28, 2011

A *BILL to amend and reenact §§ 45.1-161.21, 45.1-161.64, 45.1-161.74, 45.1-161.77, 45.1-161.85, 45.1-161.109, 45.1-161.122, 45.1-161.133, 45.1-161.154, 45.1-161.166, 45.1-161.175, 45.1-161.186, 45.1-161.188, 45.1-161.193, 45.1-161.216, 45.1-161.250, 45.1-161.259, and 45.1-161.288 through 45.1-161.291 of the Code of Virginia, relating to the Department of Mines, Minerals and Energy; Coal Mine Safety Act; penalty.*

Patron Prior to Engrossment—Delegate Poindexter

Referred to Committee on Agriculture, Chesapeake and Natural Resources

**Be it enacted by the General Assembly of Virginia:**

1. That §§ 45.1-161.21, 45.1-161.64, 45.1-161.74, 45.1-161.77, 45.1-161.85, 45.1-161.109, 45.1-161.122, 45.1-161.133, 45.1-161.154, 45.1-161.166, 45.1-161.175, 45.1-161.186, 45.1-161.188, 45.1-161.193, 45.1-161.216, 45.1-161.250, 45.1-161.259, and 45.1-161.288 through 45.1-161.291 of the Code of Virginia are amended and reenacted as follows:

§ 45.1-161.21. Duties of the Chief.

A. The Chief shall supervise execution and enforcement of all laws pertaining to the health and safety of persons employed within or at coal mines within the Commonwealth, and the protection of property used in connection therewith, and to perform all other duties required pursuant to this Act.

B. The Chief shall keep a record of all inspections of coal mines made by him and the mine inspectors. The Chief shall make a comprehensive report to the Director. The Chief shall also keep a permanent record thereof properly indexed, which record shall at all times be open to inspection by any citizen of the Commonwealth.

C. The Chief is authorized to compel individuals to complete training that addresses the subject of a violation issued to the individual as a condition for abatement of the violation.

D. The Chief is authorized to require operators to submit for approval action plans to address hazardous conditions or practices.

E. For the purpose of investigating (i) an accident or (ii) a willful act resulting in a notice of violation or closure order, the Chief shall have the power to compel the attendance of witnesses and to administer oaths or affirmations. *Any person who knowingly provides any false statement, representation or certification, during investigations, upon conviction, is guilty of a Class 1 misdemeanor.*

§ 45.1-161.64. Maps of mines required to be made; contents; extension and preservation; use by Department; release; posting of map.

A. Prior to commencing mining activity, the operator of a coal mine, or his agent, shall make, or cause to be made, unless already made and filed, an accurate map of such mine. ~~Beginning July 1, 2007, all~~ All maps shall be presented on the Virginia Coordinate System of 1927 1983, South Zone, unless otherwise approved by the Chief. At intervals not to exceed 12 months and when a coal mine is abandoned, the operator shall submit to the Chief ~~three~~ copies of an up-to-date map of the entire mine in paper format or one copy of the map in an electronic format *approved by the Chief*. ~~On and after July 1, 2007, only~~ Only maps in an electronic format will be accepted unless otherwise approved by the Chief. If there are no changes in the information required to be submitted under this section at the time an updated map is due, the operator may submit a notice that there are no changes to the map in lieu of submitting an updated map to the Department.

B. Underground coal mine maps shall show:

1. The active workings;
  2. All pillared, worked out, and abandoned areas, except as provided in this section;
  3. Entries and aircourses with the quantity of airflow, direction of airflow indicated by arrows, and ventilation controls;
  4. Contour lines of all elevations;
  5. Dip of the coalbed;
  6. Escapeways;
  7. The locations that are known or should be known of (i) adjacent mine workings within 1,000 feet, (ii) mines above or below, and (iii) water pools above;
  8. Either producing or abandoned oil and gas wells located within 500 feet of such mine and in any underground area of such mine; and
  9. Such other information as the Chief may require.
- Such map shall identify those areas of the mine which have been pillared, worked out, or abandoned,

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59 which are inaccessible, or cannot be entered safely.

60 C. Additional information required to be shown on underground coal mine maps shall include:

61 1. Mine name, company name, mine index number, and name of the person responsible for  
62 information on the map;

63 2. The scale and orientation of the map and symbols used on the map;

64 3. The property or boundary lines of the mine;

65 4. All known drill holes that penetrate the coalbed being mined;

66 5. All shaft, slope, drift, and tunnel openings and auger and strip mined areas of the coalbed being  
67 mined;

68 6. The location of all surface mine ventilation fans; the location may be designated on the mine map  
69 by symbols;

70 7. The location of railroad tracks and public highways leading to the mine, and mine buildings of a  
71 permanent nature with identifying names shown;

72 8. The location and description of a least two permanent base line points coordinated with the  
73 underground and surface mine traverses, and the location and description of at least two permanent  
74 elevation bench marks used in connection with establishing or referencing mine elevation surveys;

75 9. The location and elevation of any body of water dammed or held back in any portion of the mine;  
76 provided, however, such bodies of water may be shown on overlays or tracings attached to the mine  
77 maps used to show contour lines as provided under subdivision 12 of this section;

78 10. The elevations of tops and bottoms of shafts and slopes, and the floor at the entrance to drift and  
79 tunnel openings;

80 11. The elevation of the floor at intervals of not more than 200 feet in (i) at least one entry of each  
81 working section and main and cross entries; (ii) the last line of open crosscuts of each working section,  
82 and main and cross entries before such sections and main and cross entries that are abandoned; and (iii)  
83 rooms advancing toward or adjacent to property or boundary lines or adjacent mines; and

84 12. Contour lines passing through whole number elevations of the coalbed being mined. The spacing  
85 of such lines shall not exceed 10-foot elevation levels, except that a broader spacing of contour lines  
86 may be approved by the Chief for steeply-pitching coalbeds. Contour lines may be placed on overlays or  
87 tracings attached to mine maps.

88 D. Underground coal mine maps submitted to the Chief shall be on a scale of not less than 100 or  
89 more than 500 feet to the inch. Mapping of the underground mine works shall be completed by a closed  
90 loop survey method of traversing or other equally accurate methods of traversing. All closed loop  
91 surveys shall meet a minimum accuracy standard of one part in 5,000. Elevations shall be tied to either  
92 the United States Geological Survey or the United States Coast and Geodetic Survey benchmark system.  
93 A registered engineer or licensed land surveyor shall certify that the map of the mine workings is  
94 accurate.

95 E. Underground coal mine maps shall be kept up-to-date by temporary notations and revised and  
96 supplemented at intervals not to exceed six months based on a survey made and certified by a registered  
97 engineer or licensed land surveyor who has exercised complete direction and control over the work to  
98 which it is affixed. Temporary notations shall include:

99 1. The location of each working face of each working place;

100 2. Pillars mined or other such second mining;

101 3. Permanent ventilation controls constructed or removed, such as seals, overcasts, undercasts,  
102 regulators, and permanent stoppings, and the direction of air currents indicated; and

103 4. Escapeways designated by means of symbols.

104 F. At underground coal mines, an accurate map of the mine showing clearly all avenues of ingress  
105 and egress in case of fire shall be posted in a place accessible to all miners.

106 G. Surface coal mine maps shall show:

107 1. Name and address of the mine;

108 2. The property or boundary lines of the active areas of the mine;

109 3. Contour lines passing through whole number elevations of the coalbed being mined. The spacing  
110 of such lines shall not exceed 25-foot elevation levels, except that a broader spacing of contour lines  
111 may be approved by the Chief for steeply pitching coalbeds. The Chief may approve alternate means of  
112 delineating seam elevations where multiple seams are being mined. Contour lines may be placed on  
113 overlays or tracings attached to mine maps;

114 4. The general elevation of the coalbed or coalbeds being mined, and the general elevation of the  
115 surface;

116 5. Either producing or abandoned oil and gas wells and gas transmission lines located on the mine  
117 property;

118 6. The location and elevation of any body of water dammed or held back in any portion of the mine;  
119 provided, however, such bodies of water may be shown on overlays or tracings attached to the mine  
120 maps;

7. All prospect drill holes that penetrate the coalbed or coalbeds being mined on the mine property;  
 8. All auger and ~~strip~~ *surface* mined areas of the coalbed or coalbeds being mined on the mine property together with the line of maximum depth of holes drilled during auger mining operations;

9. All worked out and abandoned areas;

10. The location of railroad tracks and public highways leading to the mine, and mine buildings of a permanent nature with identifying names shown;

11. Underground mine workings underlying and within 1,000 feet of the active areas of the mine;

12. The location and description of at least two permanent baseline points, and the location and description of at least two permanent elevation bench marks used in connection with establishing or referencing mine elevation surveys;

13. The scale of the map; and

14. Such other information required by the Chief.

H. Surface coal mine maps shall be kept up to date by temporary notations and revised and supplemented at intervals not to exceed six months based on a survey made and certified by a registered engineer or licensed land surveyor who has exercised complete direction and control over the work to which it is affixed. Temporary notations shall include:

1. The location of each working pit or pits;

2. Auger or highwall miner workings; and

3. Other information that may affect the safety of miners including, but not limited to, updates of gas well or gas line locations.

I. Surface surveys shall originate from at least two permanent survey monuments on the mine property located with a minimum accuracy standard of one part in 10,000. The monuments shall be clearly referenced on the mine map. Elevations shall be tied to either the United States Geological Survey or the United States Coast and Geodetic benchmark system.

J. The original map, or a true copy thereof, shall be left by the operator at the active mine, open at all reasonable times for the examinations and use of the mine inspector.

K. Such maps may be used by the Department for the evaluation of the coal resources of the Commonwealth.

L. The map shall be filed and preserved among the records of the Department and copies of such maps shall be made available at a reasonable cost.

M. Any person who has conducted mining operations or prepared mine maps and who has a map or surveying data of any worked out or abandoned underground coal mine shall on request make such map or data available to the Department to copy or reproduce such material.

§ 45.1-161.74. Mine Rescue Fund.

The Mine Rescue Fund is created as a special fund in the office of the State Treasurer. All moneys collected from operators pursuant to ~~the provisions of § 45.1-161.73~~ *agreements entered into by the Director* shall be paid into the Mine Rescue Fund. ~~On July 1 of each year, or as soon thereafter as sufficient moneys are in the Mine Rescue Fund as are needed for this purpose, ten percent of the fund shall be transferred from the fund to the Department for purposes of administering the state-designated mine rescue team program. On an annual basis, funds in excess of the sum which is transferred for administrative purposes shall be divided equally among all state-designated mine rescue teams. Moneys in the Mine Rescue Fund shall be used only for mine rescue services under such agreements. No moneys in the Mine Rescue Fund shall revert to the general fund.~~

§ 45.1-161.77. Reports of explosions and mine fires; procedure.

A. If an explosion or mine fire occurs in a mine, the operator shall notify the Department by the quickest available means. All facilities of the mine shall be made available for rescue and recovery operations and firefighting.

B. No work other than rescue and recovery work and firefighting may be attempted or started until and unless it is authorized by the Department.

C. If an explosion occurs in an underground mine, the fan shall not be reversed except by authority of the officials in charge of rescue and recovery work, and then only after a study of the effect of reversing the fan on any persons who may have survived the explosion and are still underground.

D. The Department shall make available all the facilities at its disposal in effecting rescue and recovery work. The Chief shall act as consultant, or take personal charge, where in his opinion the circumstances of any mine explosion, fire or other accident warrant.

E. The orders of the official in charge of rescue and recovery work shall be respected and obeyed by all persons engaged in rescue and recovery work.

F. The Chief shall maintain an up-to-date rescue and recovery plan for prompt and adequate employment at any coal mine in the Commonwealth. All employees of the Department shall be kept fully informed and trained in their respective duties in executing rescue and recovery plans. The Department's ~~plans~~ *plan* shall be ~~published~~ *reviewed* annually and ~~furnished to all operators of mines.~~

182 ~~Changes~~ Any changes in the plan shall be published promptly ~~when made and furnished and made~~  
183 ~~available~~ to all operators of mines.

184 § 45.1-161.85. Scheduling of mine inspections.

185 A. The Chief and the Director shall schedule the inspections of mines under this article, to the extent  
186 deemed reasonable and prudent, in order to reduce their chronological proximity to inspections  
187 conducted by the Mine Safety and Health Administration. ~~To this end, the Chief and the Director shall~~  
188 ~~endeavor to coordinate the timing of inspections with Mine Safety and Health Administration personnel.~~

189 B. The Chief, Director and mine inspectors, to the extent deemed reasonable and prudent, shall  
190 schedule mine inspections to commence at a variety of hours of the day and days of the week, including  
191 evening and night shifts, weekends, and holidays.

192 § 45.1-161.109. Roof control plans.

193 A. Each underground coal mine shall have a roof control plan approved by the Chief. Each plan  
194 shall include (i) a minimum standard for adequately controlling the roof, face, and ribs; (ii) a description  
195 of mining methods used; (iii) a listing and specification of roof and rib support materials; (iv) instruction  
196 for the installation of temporary and permanent roof supports; (v) a description of any pillar recovery  
197 methods; (vi) applicable drawings that demonstrate width of openings, roof support installation  
198 sequences, and pillar recovery sequences; and (vii) any additional requirements deemed necessary by the  
199 Chief. *The initial submission of any roof control plan shall include maps of mine projections, overlying*  
200 *and underlying mine workings, coal contours, and surface contours.* If changes are to be made in the  
201 mining system that necessitate any change in the roof control plan, the plan shall be revised and  
202 approved by the Chief prior to implementing the new mining system.

203 B. The Chief shall, where he deems necessary, prescribe adequate minimum standards for systematic  
204 support of mine roof, suitable to the roof conditions and mining system of each mine. Such standards  
205 shall be incorporated into an approved roof control plan for the mine. This section shall not apply to  
206 roof control systems installed prior to January 27, 1988, so long as the support system continues to  
207 effectively control the roof, face and ribs.

208 C. Failure to comply with the approved roof control plan for the mine shall constitute a violation of  
209 this section.

210 D. The approved roof control plan shall be posted conspicuously at the mine and a copy shall be  
211 available at each working section of the mine.

212 E. The minimum standards and plan shall provide for temporary support at all active workings,  
213 without regard to natural condition.

214 F. If the minimum standards do not afford adequate protection, such additional supports as shall be  
215 necessary shall be installed. Such additional supports shall be described in the plan.

216 § 45.1-161.122. Mining in proximity to abandoned areas.

217 A. The mine foreman shall ensure that boreholes are drilled in each advancing working place that is  
218 (i) within 50 feet of abandoned areas in the mine as shown by surveys made and certified by a  
219 registered engineer or surveyor, (ii) within 200 feet of abandoned areas in the mine which have not been  
220 certified as surveyed or, (iii) within 200 feet of any mine workings of an adjacent mine located in the  
221 same coal bed unless the adjacent area of the mine has been pre-shift examined. The boreholes shall be  
222 at least 20 feet in depth and always maintained not less than 10 feet in advance of the face, and not  
223 more than eight feet apart unless approved by the Chief. One borehole shall also be drilled for each cut  
224 on sides of the active workings that are being driven toward, and in proximity to, an abandoned mine or  
225 part of a mine which may contain flammable gas or which is filled with water.

226 B. Sufficient holes shall be drilled through to accurately determine whether hazardous quantities of  
227 methane, carbon dioxide and other gases or water are present in the abandoned area. Materials shall be  
228 available to plug such holes to prevent an inundation of hazardous quantities of gases or water if  
229 detected.

230 C. Mining shall not advance into any abandoned area penetrated by boreholes drilled in accordance  
231 with subsection A until a plan has been submitted and approved by the Chief. The plan will include at a  
232 minimum: (i) procedures for testing the atmosphere at the back of boreholes drilled into the abandoned  
233 area; (ii) the method of ventilation, ventilation controls, and the air quantities and velocities in the  
234 affected working section and working place; (iii) procedures for mining-through when hazardous  
235 quantities of methane, carbon dioxide, or other hazardous gases cannot be removed; (iv) dewatering  
236 procedures to be used if a penetrated area contains hazardous water accumulation; and (v) the  
237 procedures and precautions to be followed during mining-through operation. A copy of the plan shall be  
238 made available near the site of the penetration operation and the operator shall review the plan with all  
239 miners involved in the operation. Failure to comply with the approved plan shall constitute a violation  
240 of this section.

241 D. Any operator, his agent, mine foreman or miner engaged in drilling or mining into inaccessible  
242 abandoned areas shall have upon his person a self-contained self-rescuer.

243 E. *Whenever a mine or section of a mine advances under any body of water that is sufficiently large*

or in close proximity as to constitute a hazard to miners, the operator shall submit to the Chief a plan meeting the requirements of 30 C.F.R. § 75.1716. The operator shall obtain approval for the submitted plan from the Chief prior to advancing the mine or any section of the mine under the body of water.

F. Prior to penetrating any portion of an active mine with a borehole, ventilation hole, or other hole drilled from the surface or overlying or underlying mines or drilling from the active mine, the operator shall submit a plan to the Chief addressing: (i) the purpose of the hole, (ii) information about abandoned mines that the hole may penetrate, (iii) procedures for withdrawal or limiting the number of miners from the mine or affected area during penetration, (iv) casing details and procedures to prevent water inflow and air transfer from the hole into the active mine, (v) procedures for grouting or sealing the hole when it is no longer used, and (vi) such other information as the Chief may require. The drilling of such hole shall not begin until the plan is approved by the Chief. The provisions of this section shall not apply to gas wells, coalbed methane wells, or vertical ventilation holes.

§ 45.1-161.133. Haulage roads.

A. The roadbed, rails, joints, switches, frogs and other elements of the track of all haulage roads shall be constructed, installed and maintained in a manner that ensures their safe operation. In determining their safety, consideration shall be given to the speed of equipment, and type of haulage operations conducted on the haulage roads.

B. Haulage tracks shall be kept free of accumulations of coal spillage and debris and water shall not be allowed to accumulate over the top of the rail.

C. Off-track haulage equipment operators shall observe haulage roads for hazardous conditions during the course of travel and shall promptly correct or report to the mine foreman any hazardous condition observed.

D. Off-track haulage roads shall be maintained reasonably free of bottom irregularities, excess spillage, debris, wet or muddy conditions that make controlling off-track equipment difficult, and accumulations of water over such areas of haulage roads and in such depths that water could enter electrical panels and create potentially hazardous conditions.

E. Uninsulated trolley lines shall not be used or installed in underground coal mines without approval of the Chief.

§ 45.1-161.154. Hoisting ropes.

A. Hoisting ropes on all cages or trips shall be adequate in size to handle the load and have a proper factor of safety. Ropes used to hoist or lower coal and other materials shall have a factor of safety of not less than five to one; ropes used to hoist or lower miners shall have a factor of safety of not less than 10 to one.

B. The hoisting rope shall have at least three full turns on the drum when extended to its maximum working length. The rope shall make at least one full turn on the drum shaft or around the spoke of the drum, in case of a free drum, and be fastened securely by means of clamps.

C. The hoisting rope shall be fastened to its load by a spelter-filled socket or by a thimble and adequate number of clamps properly spaced and installed.

D. Any cage, man-car, or trip used for hoisting or lowering men with a single rope shall be provided with two bridle chains or wire ropes connected securely to the rope at least three feet above the socket or thimble and to the crosspiece of the cage or to the man-car or trip. *Multiple hoisting ropes installed according to subsection C may be used in lieu of two bridle chains.*

E. When equipment or supplies are being hoisted or lowered in the slope, safety chains or wire ropes shall be provided and connected securely to the hoist rope. In addition, visible or audible warning devices shall be installed in the slope where they may be seen or heard by persons approaching the slope track entry from any access.

§ 45.1-161.166. Signs, life lines, and equipment.

A. Direction signs shall be posted conspicuously at all points where the travel way to the mine opening, escapeway, or escapement shaft is intercepted by other travel ways. The signs shall indicate the direction of the place of exit, manways, and escapeways.

B. ~~On and after January 1, 1995, a continuous~~ *Continuous* life ~~line~~ *lines* shall be installed and maintained in each ~~primary designated escapeway from the bottom of the shaft or the surface up to the section loading point, or such other point that may be approved by the Chief accordance with the approved emergency response plan pursuant to subsection A of § 45.1-161.202.~~

C. Escapeways shall be equipped with all necessary stairways, ladders, cleated walkways, or other equipment approved by the Chief. All equipment shall be installed in such manner that persons using it in emergencies may do so quickly and without undue hazard.

§ 45.1-161.175. Protective clothing.

A. All miners shall wear protective hats while underground and while in those areas on the surface where there is a danger of injury from falling objects.

B. Every person assigned to or performing duties on the surface of an underground mine, or any

305 person entering ~~an~~ the underground portion of the mine ~~must~~, shall wear reflective materials adequate to  
306 be visible from all sides. The reflective material shall be placed on hard hats and at least one other item  
307 of outer clothing such as belts, suspenders, jackets, coats, coveralls, shirts, pants, or vests; ~~or other item~~  
308 of outer clothing.

309 C. Protective footwear shall be worn by miners while on duty in and around a mine where falling  
310 objects may cause injury.

311 D. All employees inside or outside of mines shall wear approved-type goggles or shields where there  
312 is a hazard from flying particles.

313 E. Welders and helpers shall use proper shields or goggles to protect their eyes.

314 F. Miners engaged in haulage operations and miners employed around moving equipment on the  
315 surface and underground shall wear snug-fitting clothing.

316 G. Gloves shall be worn when material which may injure the hands is handled. Gloves with gauntlet  
317 cuffs shall not be worn around moving equipment. Gloves shall be worn when handling energized  
318 cables.

319 H. Miners exposed for short periods to hazards from inhalation of gas, dust, fumes, and mist shall  
320 wear approved respiratory equipment. When the exposure is for prolonged periods, adequate approved  
321 measures to protect miners or to reduce the hazard shall be taken.

322 § 45.1-161.186. Power circuits.

323 A. All underground power wires and cables shall have adequate current-carrying capacity, shall be  
324 guarded from mechanical injury, and shall be installed in a permanent manner.

325 B. Wires and cables not encased in armor shall be supported by well installed insulators and shall  
326 not touch combustible materials, roof, or ribs; however, this shall not apply to ground wires, grounded  
327 power conductors, and trailing cables.

328 C. Power wires and cables installed in belt-haulage slopes shall be insulated adequately and buried in  
329 a trench not less than 12 inches below combustible material, unless encased in armor or otherwise fully  
330 protected against mechanical injury.

331 D. Splices and repairs in power cables shall be made in accordance with the following:

332 1. Mechanically strong with adequate electrical conductivity;

333 2. Effectively insulated and sealed so as to exclude moisture;

334 3. If the cable has metallic armor, mechanical protection and electrical conductivity equivalent to that  
335 of the original armor; and

336 4. If the cable has metallic shielding around each conductor, then the new shielding shall be  
337 equivalent to that of the original shielding.

338 E. All underground high-voltage transmission cables shall be:

339 1. Installed only in regularly inspected airways;

340 2. Covered, buried, or placed on insulators so as to afford protection against damage by derailed  
341 equipment if installed along the haulage road;

342 3. Guarded where miners regularly work or pass under them unless they are 6 1/2 feet or more  
343 above the floor or rail;

344 4. Securely anchored, properly insulated, and guarded at ends; and

345 5. Covered, insulated or placed to prevent contact with trolley circuits and other low-voltage circuits.

346 F. New high-voltage disconnects [ ~~and all high-voltage disconnects by July 1, 2015,~~ ] installed ~~on or~~  
347 ~~after January 1, 2007,~~ on all underground electrical [ ~~installations equipment~~ ] shall automatically ground  
348 all three power leads when in the open position. [ ~~All high-voltage disconnects that are rebuilt or~~  
349 ~~remanufactured after July 1, 2011, shall meet this standard.~~ ]

350 G. All power wires and cables shall be insulated adequately where they pass into or out of electrical  
351 compartments; ~~and where they pass through doors and stoppings; and where they cross bare power~~  
352 ~~wires.~~

353 H. Where track is used as a power conductor:

354 1. Both rails of main-line tracks shall be welded or bonded at every joint, and cross bonds shall be  
355 installed at intervals of not more than 200 feet. If the rails are paralleled with a feeder circuit of like  
356 polarity, such paralleled feeder shall be bonded to the track rails at intervals of not more than 1,000  
357 feet;

358 2. At least one rail on secondary track-haulage roads shall be welded or bonded at every joint, and  
359 cross bonds shall be installed at intervals of not more than 200 feet; and

360 3. Track switches on entries shall be well bonded.

361 § 45.1-161.188. Grounding.

362 A. All metallic sheaths, armors, and conduits enclosing power conductors shall be electrically  
363 continuous throughout and shall be grounded effectively.

364 B. Metallic frames, casing, and other enclosures of stationary electric equipment that can become  
365 "alive" through failure of insulation or by contact with energized parts shall be grounded effectively, or  
366 equivalent protection shall be provided.

C. Three-phase alternating current circuits used underground shall contain either a direct or derived neutral which shall be grounded through a suitable resistor at the power center, and a grounding circuit, originating at the grounded side of the grounding resistor, shall extend with the power conductors and serve as the grounding conductor for the frames of all the electrical equipment supplied power from that circuit. *Grounding resistors that are manufactured to meet the extended time rating as set forth in IEEE Standard 32-1972, formerly AIEE Standard 32, are deemed to meet the requirements of this section.* High-voltage circuits extending underground shall be supplied with a grounding resistor of a proper Ohmic value located on the surface to limit the voltage drop in the grounding circuit external to the resistor to not more than 100 volts under fault conditions. The grounding resistor shall be rated for maximum fault current continuously and insulated from ground for a voltage equal to the phase-to-phase voltage of the system. All resistance-grounded alternating circuits used underground shall include a fail-safe ground check circuit to monitor continuously the grounding circuit to assure the continuity of the ground conductor.

§ 45.1-161.193. Electric equipment.

A. Electric equipment taken into or used in by the last open crosscut or in other than intake air shall be permissible equipment.

B. Permissible equipment used in areas specified in subsection A shall be maintained in permissible condition.

C. Electric equipment shall not be taken into or operated in any place where a methane level of one percent or more is detected.

D. ~~Underground Voltage limitations for underground~~ installations of electric face equipment shall not exceed 300 volts using direct or alternating current. ~~Alternating current circuit installations of a nominal voltage exceeding 1000 volts providing power to equipment at the working face shall be provided with necessary safety devices and components shall conform to the voltages provided in 30 C.F.R. § 18.47.~~

E. *Electric equipment must be permissible and maintained in a permissible condition when such equipment is located within 150 feet of pillar workings or longwall faces.*

F. *Electric conductors and cables installed in or by the last open crosscut, or within 150 feet of pillar workings or longwall faces, shall be:*

1. *Shielded high-voltage cables supplying power to permissible longwall and other equipment;*
2. *Interconnecting conductors and cables of permissible longwall equipment;*
3. *Conductors and cables of intrinsically safe circuits; or*
4. *Cables and conductors supplying power to low and medium voltage permissible equipment.*

§ 45.1-161.216. Main fans.

A. The active workings of a mine shall be ventilated by means of main fans.

B. ~~Main~~ Unless otherwise approved by the Chief, fans shall be (i) provided with pressure-recording gauges, (ii) installed on the surface in fireproof housings, and (iii) equipped with fireproof air ducts.

C. In addition to the requirements of subsection B, main fans shall either:

1. Be equipped with ample means of pressure relief, and be offset not less than 15 feet from the nearest side of the mine opening; or

2. Be directly in front of, or over, the mine opening; however, the opening shall not be in direct line with possible forces coming out of the mine should an explosion occur, and there shall be another opening having a weak-wall stopping or explosion doors that would be in direct line with the forces coming out of the mine should an explosion occur, such opening to be not less than 15 feet nor more than 100 feet from the fan opening; and

3. In mines ventilated by multiple main mine fans, incombustible doors shall be installed so that if any main mine fan stops and air reversals through the fan are possible, the doors on the affected fan automatically close.

D. Main mine fans shall be provided with an automatic device to give alarm when the fan slows down or stops. ~~This~~ Unless otherwise approved by the Chief, this device shall be placed so that it will be seen or heard by an authorized person.

E. Main fans shall be on separate power circuits, independent of the mine circuit.

F. The area surrounding main fan installations shall be kept free of combustible material for at least 100 feet in all directions where physical conditions permit.

G. Mine fans shall be operated continuously, except when intentionally stopped for necessary testing, adjustment, maintenance, or repairs while no miners are underground, or as otherwise approved by the Chief. If the main fan is intentionally stopped for testing, adjustment, maintenance, or repairs, the mine operator shall comply with the requirements set forth in the approved fan stoppage plan for that mine. If the main fan is stopped after all miners are out of the mine, the fan shall be operated for a period specified in the approved fan stoppage plan for that mine before any miner is allowed underground.

H. Where electric power is available, main mine fans shall not be powered by means of internal combustion engines; however, where electric power is not available or for emergency use, main mine

428 fans may be powered with internal combustion engines; if, *unless otherwise approved by the Chief*, (i)  
429 the fan shall be operated exhausting; ~~unless otherwise permitted by the Chief~~, and (ii) the engine  
430 operating the fan shall be offset at least 10 feet from the fan and housed in a separate fireproof  
431 structure.

432 § 45.1-161.250. Employment and duties of top persons; plan for excavation of shaft or slope.

433 A. During the construction or modification of any shaft or slope mine, the person engaged in the  
434 actual construction or modification of such mine shall employ one or more certified top persons. It shall  
435 be the duty of such top person to examine for proper and safe practices and materials used during the  
436 construction or modification of a shaft or slope mine. Such duties shall at all times be performed in the  
437 immediate vicinity of the shaft under construction.

438 B. Prior to commencing the excavation of any shaft or slope, the operator shall submit to the  
439 Department a copy of the plan ~~which the operator is required to submit pursuant to 30 CFR § 77.1900~~  
440 *that includes the following: (i) the name and location of the mine and slope or shaft; (ii) a description*  
441 *of the work and methods to be used in the construction of the slope or shaft; (iii) a description of the*  
442 *methods to be used to ensure wall and roof stability; (iv) a description of the system of ventilation to be*  
443 *used including procedures for evacuation of the slope or shaft should a fan stoppage occur; (v) details*  
444 *of hoisting equipment to be used; and (vi) such other information as may be required by the Chief. The*  
445 *excavation of a shaft or slope shall not begin until the plan is approved by the Chief.*

446 § 45.1-161.259. Personal protection devices and practices.

447 A. All persons at a surface coal mine shall wear the following protection in the specified conditions:

- 448 1. Hard hats in and around mines where falling objects may cause injury.
- 449 2. Hard-toed footwear in and around mines.
- 450 3. Safety goggles or shields where there is a hazard of flying material.
- 451 4. Protective shield or goggles when welding.
- 452 5. Snug-fitting clothes when working around moving parts or machinery.
- 453 6. Gloves where hands could be injured. Gauntlet cuffed gloves are prohibited around moving  
454 machinery.

455 B. Ear protection shall be supplied by the operator to all miners upon request.

456 C. *Every person assigned to or performing duties at a surface mine work area shall wear reflective*  
457 *materials adequate to be visible from all sides. The reflective material shall be placed on hard hats and*  
458 *at least one other item of outer clothing such as belts, suspenders, jackets, coats, coveralls, shirts, pants,*  
459 *or vests.*

## 460 Article 12.

### 461 Auger, and Highwall and Thin Seam Mining.

462 § 45.1-161.288. Inspection of electric equipment and wiring; checking and testing methane monitors.

463 A. Electric equipment and wiring that extend to underground areas shall be inspected by a certified  
464 person at least once a week and more often if necessary to assure safe operating conditions, and any  
465 hazardous condition found shall be corrected or the equipment or wiring shall be removed from service.  
466 This surface inspection is required for trailing cables and circuit breakers used in conjunction with such  
467 equipment and wiring.

468 B. ~~The Chief may require the operator of a mine to functionally check on a daily basis methane~~  
469 ~~monitors on electrical face equipment to determine that such monitors are de-energizing the electrical~~  
470 ~~face equipment properly. Such check shall be made on each production shift and shall be conducted by~~  
471 ~~the equipment operator in the presence of a foreman, and shall be recorded in the on-shift report of the~~  
472 ~~surface foreman.~~

473 C. ~~The Chief may require the operator of a mine to perform weekly calibration tests on methane~~  
474 ~~monitors on electrical face equipment to determine the accuracy and operation of such monitors.~~

475 § 45.1-161.289. Highwall inspections.

476 A. The face of all highwalls, for a distance of ~~twenty-five~~ 25 feet in both directions from an  
477 ~~augering auger or highwall miner~~ operation, shall be inspected by a mine foreman before any ~~augering~~  
478 ~~such~~ operation is ~~begun~~ begins and at least once during each coal producing shift.

479 B. Mine foreman shall examine the face of all highwalls for a distance of ~~twenty-five~~ 25 feet in both  
480 directions from an ~~augering operation auger or highwall miner operations~~ frequently during periods of  
481 heavy rainfall or intermittent freezing-thawing.

482 C. Hazardous conditions shall be corrected and loose material removed from above the ~~drilling site~~  
483 ~~mining area~~ before any work is begun ~~in the area~~.

484 D. Records shall be kept of the inspection compiled pursuant to subsections A and B. Such records  
485 shall be maintained for one year.

486 § 45.1-161.290. Penetration of underground mines; testing.

487 A. A qualified person shall, ~~using approved devices~~, test for methane and deficiency of oxygen ~~when~~  
488 ~~using an approved device at the entrance to an auger hole or highwall miner entry when either~~  
489 penetrates a worked-out area of an underground mine.



490 B. Internal combustion engines shall not be operated in the vicinity of an auger hole where tests for  
491 methane and oxygen deficiency are being conducted.

492 C. If *one percent or more* of methane is detected or a ~~deficiency of 19.5 percent or less of~~ oxygen is  
493 found to exist no further work shall be performed until the atmosphere has been made safe.

494 § 45.1-161.291. Safety precautions.

495 A. No person shall enter an auger hole *or highwall miner entry without prior approval from the*  
496 *Chief.*

497 B. Auger holes *and highwall miner entries* shall be blocked with highwall spoil or other suitable  
498 material before abandoned.

499 C. Auger *and highwall mining* machines which are exposed to highwall *and explosion* hazards shall  
500 be provided with [ ~~operator coverage capable of preventing injuries to workers~~ *worker protection* ] from  
501 falling material *and mine explosions*.

502 D. At least one person shall be assigned to observe the highwall for possible movement while a ~~crew~~  
503 ~~is connecting or disconnecting auger sections~~ *ground personnel are working in high risk areas in close*  
504 *proximity to the highwall.*

505 E. Persons shall stay clear of any moving auger *or highwall miner* train and no persons shall pass  
506 over or under a moving ~~auger~~ train unless adequate crossing facilities are provided.

507 F. *The ground control plan shall specify spacing of holes, web design, and alignment control*  
508 *devices.*

509 G. *The ground control plan shall include other administrative, engineering, and source controls*  
510 *provided for safe operations.*

ENGROSSED

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